



Characteristics of people working with chemical products in small firms

Prepared by
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CONTRACT RESEARCH REPORT
278/2000

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First published 2000

ISBN 0 7176 1814 5

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Characteristics of People Working with Chemical Products in Small Firms

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The Health and Safety Executive is keen to increase its understanding of the characteristics of people working with chemical products in small firms, to assist in developing better targeted communications. It commissioned this survey research across five sectors – ladies hairdressers, dry cleaners, electroplaters, woodyards and garages, and a total of 521 face to face interviews were conducted.

The 305 firms represented were typically of four or fewer employees, relatively stable employers, and non unionised. Health and safety arrangements were frequently very basic and 40% of managers did not cite any arrangements. Issues were usually communicated verbally to staff.

Overall about two thirds of users thought the chemical products they worked with posed little or no risk, though *all* products had well-documented detrimental health effects. Knowledge of the potential harmful effects of products was low for short term effects, and poor for long term effects. Knowledge of appropriate protection varied appreciably by sector. Importantly, managers were not notably better informed than employees on the above issues. Suppliers and sales representatives were clearly the preferred source for further information on chemical products. Two thirds of all respondents had heard of Safety Data Sheets, but there was little evidence that they were often consulted.

Understanding of chemical symbols and terms used for risks and hazards was low, and associated with reading age - which itself revealed nearly two thirds of respondents had a reading age of under 12 years 4 months.

Several pointers for health and safety communications on chemical products in small firms emerged. These include: that communications should assume a very low level of reading ability in small firms and recognise that a "verbal" rather than "written" culture predominates; that communications should not assume the manager is highly knowledgeable; that container labels appear to be a major source of information; and that a high proportion of those having experience of an accident involving chemical products claim that it has made them more safety conscious.

This report is one of a number of projects that form part of an HSE programme to improve the impact and effectiveness of health and safety messages. The communication of messages on chemicals risks and controls is a particular focus for this work and HSE will consider the implications of results from this and other studies on how risk information is communicated in a review in Autumn 2000. Further information on the programme can be found on HSE's Website [<http://www.hse.gov.uk>] in a paper for HSC's Advisory Committee on Toxic Substances: ACTS/12/2000 INF.

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EXECUTIVE SUMMARY

Introduction

Significant risks to health can be posed by working with products containing chemicals. As well as concerning the producers of such products this also affects staff in companies who work with products containing chemicals on a day to day basis. Such products are covered by the COSHH (Control of Substances Hazardous to Health) Regulations.

The Health and Safety Executive is keen to increase its understanding of the characteristics of people working in small firms which make extensive use of chemical products, to assist in developing better targeted communications. It commissioned this research to assess a range of important issues concerning the knowledge, usage of and attitudes to chemical products in small firms, and their health and safety arrangements.

The project ran between September 1999 and March 2000, and was directed by HSE's Chemical Policy Division and involved a team from WS Atkins. Five sectors covering a range of chemical products with associated short term and long term hazards to health were selected for the survey – ladies hairdressers, dry cleaners, electroplaters, woodyards and garages. A total of 521 face to face interviews were conducted in 305 companies across Great Britain, with a response rate of 26%. Additionally, 15 in-depth interviews were conducted by the project team.

Survey findings

The sample profile, reinforced by the in-depth interviews, reveals a predominance of very small firms in these sectors (60% with four or fewer employees), which are relatively stable. Having very few employees and typically small working premises it is perhaps not surprising that in such close proximity staff usually appear to work in relative harmony with their managers, typically rating the manager's concern for safety as high.

In this environment of manual/semi-manual working, the amount of written internal communication is low even on health and safety issues, and verbal communication predominates. Most users are not in the habit of consulting safety data sheets, though these are frequently present, if not readily to hand. The sectors themselves are relatively stable and none is particularly hi-tec, and many managers only re-consider safety issues when a new type (not necessarily brand) of product becomes available.

Questions on overall health risk from the chemical products used in the workplace revealed that overall about two thirds (64%) of users thought they posed little or no risk (13% thought no risk and 51% only a small risk). Only 8% of chemical users admitted that there was a high risk even though respondents worked with chemicals, ranging from cadmium solution to perchloroethylene, that *all* have well-documented detrimental health effects.

In terms of *actual* knowledge of the short term effects of the main chemical products used, about a third of judgements were incorrect or their effects not known. For long term effects this rises to one half of users. This is rather low, given that most products are used every day. Interestingly, user ratings of their own product knowledge (90% considered it to be good or quite good) did not correlate with their actual knowledge when tested by the interviewer.

The extent of safe behaviour could only be inferred from user responses - principally whether and how users protected themselves. It revealed very varied levels of protection. Dry cleaners

and hairdressers exhibited low levels of safety, with 25-30% not knowing/using the appropriate protection for the two main chemical products they used. However, there was quite a high understanding of correct protection amongst electroplaters.

Knowledge on chemical symbols, and terms associated with the hazards of chemical products was low for all but the most common, for example only 40% correctly interpreted the "harmful/irritant" symbol, and only about one third knew the meaning of the term "carcinogenic". These questions showed clear association with reading age (despite symbol recognition being pictorial), in that those with a lower reading age tended to score less well. Indeed, the reading age measure itself revealed nearly one third (63%) of respondents to have a reading age of under 12 years 4 months - an important implication for communications to users.

Managers typically scored a few percentage points higher on the symbol/term recognition than employees and people in one person businesses, but this was not marked. This and other findings strongly suggested that it is dangerous to assume that managers in these businesses are notably better informed on hazards of chemical products than employees - despite their responsibility.

Regarding the variety of sources of information on chemical products, about two thirds cited container labels, closely followed by suppliers/sales representatives and common sense, and 42% selected Safety Data Sheets. Suppliers and sales representatives were chosen as the preferred source for further information, and the in-depth interviews revealed a high level of respect for them.

Communication of and learning about health and safety issues was covered in several questions. One third of users had never received training in health and safety (including supervision, on the job training), and there was a low level of awareness of rules and regulations concerning chemical products. Managers were better informed than employees, but even then a third could not cite any.

Two thirds of all respondents had heard of Safety Data Sheets, and over a third said they were readily available to staff, but very few said they were clearly displayed. There was little evidence from the in-depth interviews that they were consulted by staff.

On the issue of company health and safety arrangements, many managers (40%) could not cite any arrangements, and most of those that did concerned practical issues such as the presence of fire extinguishers and first aid kits. One third claimed *some* specific written arrangements, though very few employees were involved in developing these.

Experience was not an important factor in differentiating responses - though few employees were very new to the sectors. However pressure of work was admitted by one third of respondents as a reason for working less safely, closely followed by tiredness. Indeed, well over half gave one or more reasons for sometimes working less safely. Those with experience of an accident involving chemical products causing significant harm to a colleague, friend or family member claimed this was very influential in their later health and safety behaviour; this was found in both the quantitative survey and the in-depth interviews.

The qualitative interviews reinforced the findings of the main survey, giving reassurance of the findings. Additionally they illuminated the position of the manager with respect to health and safety - managers seemed to fall into groups, ranging from those who felt strongly about health and safety to those considered it the responsibility of individual staff.

Grouping users of chemical products

Six factors reflecting important user health and safety attributes were derived from the survey responses and showed a number of significant positive correlations, suggesting many of these attributes, which covered perception, knowledge and behaviour, were associated. Grouping by the factor scores by cluster analysis consistently produced two polar opposite groups - one with low scores on perception of harm, knowledge of hazard symbols and language, extent of claimed safe behaviour, etc, and the other with consistently high scores on these, and a number of intermediate groups.

The groups highlighted showed notable differences by company size, existence of health and safety written arrangements, direct experience of significant harm from chemical products, male/female composition and reading age - with the low scoring group (about a quarter of users) showing a clearly different profile to the others. However, the groups were not strongly differentiated by sector, employee/manager status, experience in current job, or age.

Implications for communications

The work suggested the following pointers for health and safety communications on use of chemical products in very small firms:

- it is wrong to assume that managers of small businesses have a much greater knowledge of the chemical products or of health and safety than the staff. Hence any communications based on the assumption the manager is highly knowledgeable may not work - managers need educating almost as much as the employees. Managers of one person businesses seem especially badly informed
- container labels appear to be a major source of information on chemical products at work, and very high proportions claim to have read them. Reading (and re-reading periodically) may be usefully incorporated in communications to users
- also, the finding that suppliers are very often seen as the most important and most reliable source of information on chemical products may provide a potential channel for communication / education in safe use of chemical products
- any written communications should assume a very low level of reading ability in small firms, including low knowledge of words used to describe hazards. Also Safety Data Sheets may perhaps be made easier to understand - though whilst many users are aware of their existence, little use appears to be made of them in small firms. Also staff whose first language is not English would benefit from simpler language
- however, the high reliance on the spoken word has implications for the amount of formal/written communication we may reasonably expect within small firms - which do not appear to have a "written" culture, but a "verbal" culture. Health and safety communications to very small firms should perhaps bear this in mind
- the finding that a high proportion of those having experience of an accident involving chemical products claiming it has made them more safety conscious, may have implications for messages. Advertisements are often intended as a proxy for experience, and the realistic portrayal of accidents hopefully imparts some of the caution that actual experience appears to give.

1. INTRODUCTION

Significant risk to health can be posed by working with products which contain chemicals. As well as concerning producers of these products this also applies to staff in companies who work with products containing chemicals on a day to day basis as an integral part of their process, but do not produce the products for sale.

Such products are covered by the COSHH (Control of Substances Hazardous to Health) Regulations which have been in force since 1989. These provide a comprehensive and systematic approach to the control of such substances in the workplace. In launching "*COSHH Essentials: easy steps to control chemicals*", a May 1999 publication especially aimed at small firms, Health and Safety Minister Alan Meale said:

"Hundreds and thousands of companies use chemicals and many unwittingly put workers' health at risk. Occupational related ill-health can take years to become apparent. Estimates indicate that between 3,000 and 12,000 cancer deaths mostly related to chemicals and 300,000 people suffering lower respiratory disease and dermatitis every year."

Whilst very small firms (sized under five employees) do not have to produce a written risk assessment under COSHH, they are still covered by the regulations. Their managers should (theoretically) be fully aware of the hazards posed by the products they use and the appropriate means of reducing risk from such hazards, and should ensure their staff are fully aware as well.

In the field of health and safety at work it is fair to say that most attention has traditionally been focused on medium sized and larger organisations, with lesser effort directed towards smaller firms, especially very small firms. There is concern at our relatively low level of understanding of employee knowledge, safety awareness and behaviour with respect to hazardous chemical products in very small firms. It is suspected that there is a low level of health and safety awareness concerning chemical products, with consequent risk exposure among employees.

As part of its work on the effectiveness of communication of simple messages on known chemical and other hazards, the Health and Safety Executive (HSE) is keen to increase its understanding on the characteristics of people working in small firms which make extensive use of chemical products.

Consequently HSE commissioned the current research project which looks in detail at a variety of small businesses and their staff, in order to assess a range of important issues concerning knowledge, usage of and attitudes to chemical products and consider the implications of these for the effective targeting of health and safety messages. The project ran between September 1999 and March 2000. It was directed by HSE's Chemical Policy Division and involved a team from WS Atkins, supported by Fieldcontrol who conducted the survey fieldwork.

This report lists the objectives in Chapter 2, followed by methodology adopted in Chapter 3. The main survey results are given in Chapter 4, supported by a copy of the questionnaire and table listings in the appendices. Chapter 5 comprises write-ups of the case studies conducted following the main survey. Further analysis of survey data to look for groupings of users of chemical products is describe in Chapter 6, followed by conclusions and recommendations in Chapter 7.

2. OBJECTIVES

The study objectives were:

To obtain an understanding of the profile of users of chemical products in small firms, in terms of:

- the characteristics of the company they work for, including its health and safety culture
- individual knowledge about products containing chemicals
- individual attitudes/beliefs towards any risks posed by products used in their process, and how to control them
- information on sources of information on chemicals/chemical products
- employee demographics.

Following this, to determine whether users of chemical products fall into groupings, or typologies, and the implications of these for the communication of safety messages.

3. METHODOLOGY

3.1 OVERVIEW

Five sectors were selected for the survey – ladies hairdressers, dry cleaners, electroplaters, wooyards and garages. A questionnaire was developed and piloted. Following telephone recruitment, 521 completed face to face interviews were conducted in approximately 300 companies across Great Britain. A response rate of 26% was achieved. Additionally, fifteen semi-structured interviews were conducted by the project team to investigate areas of interest arising from the survey in a more detailed, less formalised format.

3.2 KEY RESEARCH ISSUES

The initial stage of the project considered methodological constraints involved in investigating small firms to achieve the above objectives. WS Atkins worked closely with the HSE in formulating the research methodology and we are indebted to the HSE for their aid in defining the sample frame and formulating the questionnaire.

Key issues included the feasibility of including a behavioural element to the questionnaire involving frequency of use of chemical products, and precautions taken, coupled with a measure of user knowledge of the hazards of chemical products. This was seen as desirable but difficult in a comprehensive survey. Similarly inclusion of a measure of reading age and certain psychological attributes of users were seen as desirable.

The domain of interest to HSE consisted of all small enterprises that worked on a daily basis with chemical products known to be hazardous to health.

For the survey, the best industries to select were considered to be: recognised industries of typically very small businesses clearly defined in the nature of their operation, using a small number of hazardous chemicals that had a clear and proven health effect on a frequent basis, and be sufficiently numerous for an efficient survey be common. Using these criteria the following industries were chosen:

- Ladies hairdressers with less than 20 employees
- Dry cleaners with less than 20 employees
- Car repair garages with less than 20 employees
- Electroplating industries with less than 50 employees
- Wood treatment sites, such as wood yards or furniture restoration shops with less than 50 employees

The number of employees in a firm would vary because of the nature of the business surveyed. Electroplaters for instance were more likely to be bigger organisations than hairdressers who were smaller and also more numerous. An effort was also made to capture one person businesses which have not been a very well researched population of chemical users.

3.3 DEVELOPMENT OF THE QUESTIONNAIRE

The questionnaire was the primary method of gathering information in this study and as a result its questionnaire's development was carefully undertaken. The question categories

defined included the following:

- Organisational characteristics and culture, including basic demographics and company health & safety arrangements and management
- Knowledge and attitudes towards chemical products including knowledge of chemical hazards and their controls
- Individual demographics
- Individual attributes including locus of control and reading age
- Job specific variables such as job predisposition to take or reduce risks, autonomy.

3.4 PILOT STUDY

A pilot study was conducted for trialling the recruitment process of attracting companies to take part in the study, testing out the questionnaire to ascertain whether we were answering appropriate questions, and whether these worked satisfactorily, and receiving respondent and interviewer feedback.

The pilot was conducted with 20 staff in 11 firms in the Epsom area and sought to replicate the main study in the research design and approach. Lessons from the pilot study included:

- difficulty in recruiting very small firms – the response rate was 12%
- the proliferation of chemical products used
- the very small size of most firms in the chosen sectors meant that nearly all managers/owners were also hands on users of chemical product– this restricted the length of additional time we could expect managers to spend talking about the firm.

Consequently the research methodology was changed in a number of ways. First, the way in which the respondents knowledge of chemicals and their possible harm was gathered was altered for greater accuracy. Secondly, the managerial aspect of the questionnaire had to be shortened to reduce interview length to around half an hour. Thirdly, the number of companies recruited for the survey had to be increased – as typically only one or two interviews could be carried within an organisation. Lastly an incentive of £5 per company was paid as recognition of their co-operation.

3.5 MAIN STUDY

The main study was conducted with 521 face to face interviews taking place in 314 organisations. Face to face interviews generally produce better data than other methods for several reasons. In this case it had the additional advantages that where possible actual checks of respondent claims could be made, such as observing whether the organisation had a health and safety manual, and safety material displayed.

The approach adopted was that organisations were initially selected from the Yellow Pages, which was found to be the most suitable listing of small firms in these sectors. WS Atkins then telephoned the firms for screening and agreement to interview. This ensured that the firm was committed to the survey and that it fell within recruitment criteria. The details of suitable co-operative firms were passed to Fieldcontrol who made the actual interview bookings shortly before interview. However, achieving sufficient firms in the more difficult sectors of electroplating and woodyards proved difficult and a small proportion of the

recruitment was by a 'free-find' procedure using the same strict recruitment criteria. This applied to less than 20% of the total sample.

The overall response rate for the survey out of all the companies contacted was 26%, yielding 521 completed interviews. The non-response includes cases that refused to take part in the survey in the initial telephone recruitment phase and 2% of cases who refused either in booking an appointment or when the interviewer arrived on site. The response rate of 26% exceeded a 12% pilot survey response rate, partly due to the £5 incentive, and partly due to improved wording of the recruitment phone call and use of more experienced staff for recruitment.

Sampling was based on regional centres within Government standard Regions, and quotas set to ensure an adequate spread across all 10 regions. A breakdown of the response rates by sector is shown in table 3.1 and showed a fairly even pattern by sector – though there were considerably fewer electroplating and woodyard firm than the other sectors, and the recruiters needed to go further afield for these. The average of these figures is higher than the average response rate for the entire study of 26% primarily because in particular areas there was a low response rate of particular sectors and in these cases more phone calls were made meaning that the overall response rate was lowered.

Table 3.1

Response rate by sector

Sector	Response rate
Hairdressers-ladies	28%
Dry cleaners	27%
Electroplaters	32%
Garage services	27%
Timber merchants	26%

3.6 IN DEPTH INTERVIEWS

A series of semi-structured interviews with 15 firms were conducted after the main survey. The interviews were carried out by the senior researchers involved in questionnaire design and data analysis, to complement the quantitative survey findings. These interviews are written up as case studies in this report.

3.7 DATA ANALYSIS

The analysis of the 521 completed questionnaires data was completed using the SPSS package. Basic frequencies and descriptive values were first produced followed by relevant cross-tabulations between variables. Selected variables were combined to produce the factors of interest spanning attitudes, knowledge and stated behaviour with respect to chemical products. These factors were correlated and cross-tabulated with other important variables, and cluster analysis was performed to investigate particular groups of users for further investigation.

4. KEY FINDINGS AND RESULTS

4.1 BASIC FINDINGS AND RESULTS

This chapter represents the key survey findings; readers who wish to see the detailed frequency listings for each question should examine Appendix B which lists all questions asked in the survey in numerical order.

Most tables show the base for each group: due to rounding the percentages may not always add to 100%.

4.1.1 Independence of business and number of employees

Most of the organisations surveyed were independent and had less than 5 employees. Table 4.1 examines the businesses by industrial sector with 90% of organisations surveyed being independent. Table 4.2 examines the mean number of employees across the five different sectors: from which we can see that the larger employers in the survey were the electroplating and the wood yard industries.

Table 4-1

INDEPENDENCE OF BUSINESS BY INDUSTRIAL SECTOR

		TYPE OF BUSINESS					Total
		Hairdressing	Garages	Wood Yard	Electroplating	Dry Cleaners	
Q2 : IS THE BUSINESS	Independent	93%	89%	91%	88%	87%	90%
	Part of a chain	2%	6%	3%	2%	8%	4%
...	Linked to another organisation but relatively independent	3%	2%	4%	7%	3%	4%
	Other	0%	0%	1%	0%	0%	0%
	Not stated	2%	3%	1%	2%	2%	2%
Total		58	63	78	41	62	302
		100%	100%	100%	100%	100%	100%

BASE = ALL MANAGERS WHO RESPONDED TO Q2

Table 4-2

TYPE OF BUSINESS AGAINST AVERAGE NO OF PEOPLE WORKING ON SITE

Q1 : NO. PEOPLE WORKING ON SITE

TYPE OF BUSINESS	Mean	N	Std. Deviation
Dry Cleaners	3.71	62	2.58
Garages	3.78	63	3.10
Hairdressing	4.17	58	2.62
Wood Yard	7.63	78	10.26
Electroplating	11.10	41	12.39
Total	5.83	302	7.68

4.1.2 Staff turnover

Staff turnover in these industries was quite low, with 58% (154 of the 266) of managers

surveyed reporting no staff turnover in the previous year. Nevertheless, in examining the average number of people that did leave the firm it is clear that the electroplating and hairdressing sectors had a higher turnover than other industries as shown in table 4.3.

Table 4-3

PERCENTAGE TURNOVER AGAINST INDUSTRIAL SECTOR (BUSINESS TYPE)

Percentage annual turnover (avg of indiv avgs)

TYPE OF BUSINESS	Mean	N	Std. Deviation
Garages	8.6684	54	21.4273
Dry Cleaners	15.6034	58	26.0170
Wood Yard	12.4013	63	22.5809
Hairdressing	20.0389	51	33.9649
Electroplating	30.7942	40	64.3965
Total	16.5719	266	35.1368

Table 4.4 shows the correlation matrix between staff turnover and key variables. Staff turnover is seen to be negatively associated with level of company health and safety arrangements, as measured by a combination of relevant questions ($r=-0.212$, $p<0.01$), and awareness of health and safety rules and regulations and safety data sheets ($r=-0.102$, $p<0.05$). This suggests that companies with a large turnover of staff were associated with fewer health and safety arrangements as well as a low level of awareness on health and safety regulations. However, staff turnover was not associated with safety behaviour with the chemical products used.

Table 4-4

Correlations

		Q5 : NO. STAFF LEFT BUSINESS IN LAST 12 MONTHS
Q5 : NO. STAFF LEFT BUSINESS IN LAST 12 MONTHS	Pearson Correlation	1.000
	Sig. (2-tailed)	.
	N	521
Company H&S arrangements	Pearson Correlation	-.212**
	Sig. (2-tailed)	.000
	N	521
Awareness of Regulations & SDS	Pearson Correlation	-.102*
	Sig. (2-tailed)	.020
	N	521

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

In assessing turnover against employee rating of the manager's concern for the health and safety of employees (Q57) we find that turnover is negatively associated with the rating of the manager, ($r=-0.288$, $p<0.01$),

The above suggest that organisations having a typically high turnover have an organisational culture where the manager is not rated very highly, are less likely to have written health and safety arrangements within the company and there is a general lack of knowledge on health and safety regulations within the company.

On examining the business type against rating of the managers concern for the health and safety of employees (Table 4.5), nearly half of the employees (48%) rate their managers "Very good" though a small number, notably in dry cleaners, rate their managers lowly.

**Table 4-5
MANAGERS CONCERN FOR HEALTH AND SAFETY BY BUSINESS TYPE**

	Q57 : RATING OF MANAGERS CONCERN FOR H&S OF EMPLOYEES							Total
	Very poor	Quite poor	Neutral	Quite good	Very good	Manager around could not ask	Don't know/not stated	
Hairdressing	2%	4%	4%	31%	55%	4%	2%	100%
Garages	5%	2%	5%	35%	47%	0%	7%	100%
Wood Yard	0%	10%	2%	29%	51%	0%	7%	100%
Electroplating	0%	0%	3%	35%	52%	0%	10%	100%
Dry Cleaners	5%	5%	5%	27%	32%	5%	19%	100%
Total	5	9	8	65	99	4	17	207
	2%	4%	4%	31%	48%	2%	8%	100%

BASE = EMPLOYEES

4.1.3 Experience in the job, industry and with harmful chemicals

Three different measures of experience were taken in the survey being: number of years in the current job, number of years worked within industry and number of years worked with harmful chemicals. These variables were significantly ($p < 0.01$) correlated with each other and were combined (by an overall average, which takes account of all three) to form a "Years Experience" variable as shown in table 4.6.

Table 4-6

Years experience

		Frequency	Percent	Cumulative Percent
Valid	1 or Less	33	6.3	6.3
	5 and under	89	17.1	23.4
	6 to 10	92	17.7	41.1
	Over 10	295	56.6	97.7
	Not stated	12	2.3	100.0
	Total	521	100.0	

Interestingly, more than half of the respondents had over ten years experience as shown in table 4.6. No statistically significant differences existed between the business type and years experience, which are shown in table 4.7.

Table 4-7**YEARS EXPERIENCE BY BUSINESS TYPE**

		TYPE OF BUSINESS					Total
		Hairdressing	Garages	Wood Yard	Electroplating	Dry Cleaners	
Years experience	1 or Less	5%	6%	7%	7%	6%	6%
	5 and under	16%	11%	10%	24%	28%	17%
	6 to 10	24%	15%	21%	12%	14%	18%
	Over 10	50%	67%	60%	57%	49%	57%
	Not stated	4%	1%	2%	0%	4%	2%
Total		115	108	121	74	103	521
		100%	100%	100%	100%	100%	100%

BASE = ALL

4.1.4 Bilingual or language other than English

Health and Safety literature tends to be written in English and as a result we recorded the first language used by all respondents, and for 96% of the sample this was English. The 4% of the sample were primary located in the dry cleaning category as shown in table 4.8.

Table 4-8**RESPONDENTS FIRST LANGUAGE BY BUSINESS TYPE**

	English	Bilingual	Other language	Total
Hairdressing	97%	2%	1%	100%
Garages	99%	1%	0%	100%
Wood Yard	98%	2%	1%	100%
Electroplating	95%	5%	0%	100%
Dry Cleaners	89%	8%	3%	100%
Total	499	17	5	521
	96%	3%	1%	100%

BASE = ALL

4.1.5 Gender and working status differences between business types

Working status, defined as full time, part time or casual (temporary) work, was compared between the different sectors and is shown in table 4.9.

Table 4-9

WORKING STATUS BY BUSINESS TYPE

		RESPONDENT WORKING STATUS		Total
		Full time	Part time	
TYPE OF BUSINESS	Hairdressing	83%	17%	100%
	Dry Cleaners	87%	13%	100%
	Garages	96%	4%	100%
	Wood Yard	98%	2%	100%
	Electroplating	100%	0%	100%
Total		482	39	521
		93%	7%	100%

BASE = ALL

Surprisingly no temporary workers were employed within any of the industries surveyed possibly due to the small size of the organisations involved in the survey. There were many more part time workers within the hairdressing and dry cleaning business types, and this was statistically different ($F=9.1, p<0.01$).

Gender was also examined between the business types with significant differences emerging ($F=122.7, p<0.01$) with the hairdressing industry having many more female employees than the garage industry as shown in table 4.10.

Those businesses employing more female workers also had more part time workers, notably hairdressing, as shown in table 4.11

Table 4-10

SEX BY BUSINESS TYPE

		SEX		Total
		Male	Female	
TYPE OF BUSINESS	Hairdressing	17%	83%	100%
	Dry Cleaners	46%	54%	100%
	Wood Yard	89%	11%	100%
	Electroplating	96%	4%	100%
	Garages	98%	2%	100%
Total		352	169	521
		68%	32%	100%

BASE = ALL

Table 4-11

WORKING STATUS BY SEX

		RESPONDENT WORKING STATUS		Total
		Full time	Part time	
SEX	Male	99%	1%	100%
	Female	80%	20%	100%
Total		482	39	521
		93%	7%	100%

BASE = ALL

4.1.6 Health and safety knowledge and arrangements between business types

Employees were asked which health and safety rules or regulations concerning dangerous chemicals they were aware of (Q52, unprompted) and clear sector differences emerge in Table 4.12. The most commonly known regulations were the Health and Safety at Work Act 1974 and the Control of Substances Hazardous to Health (COSHH).

Table 4-12

HEALTH AND SAFETY LEGISLATION KNOWLEDGE BY BUSINESS TYPE

	Hairdress ing	Garages	Wood Yard	Electropl ating	Dry Cleaners	Total
Health & Safety at Work etc Act 1974	49%	37%	39%	29%	27%	38%
COSHH	27%	44%	27%	45%	19%	32%
"6 Pack" Regulations 1992	0%	0%	0%	0%	0%	0%
RIDDOR	2%	2%	0%	3%	0%	1%
CHIP 2	0%	0%	2%	0%	0%	0%
Other	5%	2%	12%	6%	3%	6%
None	42%	35%	39%	29%	43%	38%
Not stated	2%	2%	5%	10%	14%	6%
Total	55	43	41	31	37	207
	100%	100%	100%	100%	100%	100%

BASE = EMPLOYEES

Dry cleaners had the lowest level of knowledge of both COSHH and the Health and Safety at Work Act with only 36% of dry cleaners being aware of these regulations. Almost half of the hairdresser employees mentioned the Health and Safety at Work Act and 45% of electroplaters mentioned COSHH.

Amongst those employees aware of any company health and safety policy in their firm (152 out of 207, or 74%) most of these said their firm had a written health and safety policy, as shown in table 4.13. In addition, this 9 out of 10 employees claimed to have read it.

Table 4-13

FORM OF HEALTH AND SAFETY ARRANGEMENTS BY BUSINESS TYPE

	Hairdressing	Garages	Wood Yard	Electroplating	Dry Cleaners	Total
Written down	57%	62%	72%	91%	61%	66%
Verbal only	43%	38%	24%	9%	39%	33%
Other	0%	0%	3%	0%	4%	1%
Don't know/not stated	0%	0%	0%	0%	0%	0%
Total	44	34	29	22	23	152
	100%	100%	100%	100%	100%	100%

BASE = EMPLOYEES

4.2 PERCEPTION OF THE HARMFUL EFFECTS OF CHEMICAL PRODUCTS

Questions 8 and 10 in the survey examined perceptions of harmful effects of chemical products. General perception across all chemicals worked with was rated in question 8.

In Question 8 interestingly, about two thirds (64%) of the users of chemicals stated that there was no risk (13%) or a small risk (51%) of harm to health from the chemical products used. Only a very small percentage (8%) of chemical users admitted that there was a high risk to health from the chemicals they used, even though *all* respondents worked with chemicals, ranging from cadmium solution to perchloroethylene, that *all* have well-documented detrimental health effects.

Question 10 also examined the perception of harm but on a specific chemical level - for the main two chemical products used. Appendix B gives specific breakdowns with all five sectors being analysed separately over four of the most used chemicals within that sector. Table 4.38 however represents a summary of two chemicals from each industry.

Perceived harmfulness varies considerably as shown in table 4.14. Cadmium solution was rated extremely harmful by all 10 users in the electroplating industry, with chromium solution rated extremely harmful by 67% of users (though 4% stated that chromium solution or similar types of chemicals were not harmful at all).

Among other chemicals, astonishingly 27% of dry cleaners stated that spotting agents or similar chemicals were not at all harmful. Detergents were also rated low on harm for the dry cleaners with over a third of all detergent users stating that they were not at all harmful.

Table 4-14
HARMFUL EFFECTS OF SELECTED CHEMICALS AS PERCEIVED BY
RESPONDENTS

	No, not at all harmful	Very slightly harmful	Moderately harmful	Extremely harmful	Don't know	Total users
Cadmium	0%	0%	0%	100%	0%	10 users
Chromium	4%	7%	22%	67%	0%	46 users
Wood cleaners	11%	17%	26%	45%	0%	30 users
Peroxide	8%	21%	37%	32%	2%	110 users
Fillers and glass fibre	6%	26%	37%	23%	9%	35 users
Wood finishes	16%	36%	28%	20%	1%	76 users
Spotting agents	27%	36%	22%	12%	2%	81 users
Greases, oils & lubricants	15%	37%	44%	5%	0%	87 users
Detergents	38%	38%	20%	2%	2%	45 users
Hairsprays	97%	3%	0%	0%	0%	101 users

4.3 ACTUAL KNOWLEDGE OF THE HARMFUL EFFECTS OF CHEMICAL PRODUCTS

Actual knowledge of the harmful effects of chemicals was ascertained by interviewers asking about their specific short and long term effects, and comparing the respondents answer with a table devised by HSE and WS Atkins, summarising these effects. (This table is included with the questionnaire in Appendix A).

Interviewers rated respondents answers as "correct", "partially correct", "incorrect" or "did not know". Despite the table, interviewer instructions and briefing, we should not place too much significance on the distinction between "correct" and "partially correct", as this is a question of degree and one cannot expect interviewers to have a professional understanding on chemical products. However, the distinction between these, "did not know", "incorrect" and the "not applicable to this product" categories is useful and more robust - and may signify complete absence of awareness, or wrong information .

Table 4.15 shows a selection of chemicals and the responses given in assessing the short term health effects of these chemicals, and Table 4.16 shows covers long term health effects.

Table 4-15
KNOWLEDGE OF SHORT-TERM HEALTH EFFECTS OF SELECTED CHEMICALS AS PERCEIVED BY RESPONDENTS

	Correct	Partially correct	Incorrect	Did not know	Not applicable to this product	Total users
Spotting agents (stain removers & spotting agent)	28%	39%	17%	6%	11%	81 users
Greases, oils & lubricants	49%	22%	16%	11%	1%	81 users
Hairsprays (hair spray hair gloss, fixing spray)	46%	38%	11%	3%	2%	62 users
Peroxide	62%	29%	2%	7%	0%	42 users
Wood finishes (Varnish, wax, cellulose paint, nitro-cellulose paint, lacquer, french polish)	24%	37%	7%	24%	7%	41 users
Wood cleaners (Nitric acid, Nitromors, Paint stripper, other/not stated)	38%	25%	3%	28%	6%	30 users
Chromium solution only	50%	36%	9%	0%	5%	22 users
Detergents	20%	20%	20%	20%	20%	10 users
Fillers and glass fibre	57%	14%	29%	0%	0%	7 users
Cadmium only	0%	0%	0%	100%	0%	2 users
Average short term health responses	38%	26%	11%	20%	5%	

Table 4-16

KNOWLEDGE OF LONG-TERM HEALTH EFFECTS OF SELECTED CHEMICALS AS PERCEIVED BY RESPONDENTS

	Correct	Partially correct	Incorrect	Did not know	Not applicable to this product	Total users
Greases, oils & lubricants	32%	19%	26%	22%	0%	77 users
Hairsprays (hair spray, hair gloss, fixing spray)	33%	52%	5%	10%	0%	58 users
Detergents	0%	20%	40%	20%	20%	45 users
Peroxide	45%	21%	14%	17%	2%	42 users
Wood finishes (Varnish, wax, cellulose paint, nitro-cellulose paint, lacquer, french polish)	15%	30%	8%	40%	8%	40 users
Wood cleaners (Nitric acid, Nitromors, Paint stripper, other/not stated)	10%	21%	21%	34%	14%	29 users
Chromium solution only	35%	35%	15%	10%	5%	20 users
Spotting agents (stain removers & spotting agent)	18%	18%	41%	24%	0%	17 users
Fillers and glass fibre	43%	14%	43%	0%	0%	7 users
Cadmium only	0%	50%	0%	50%	0%	2 users
Average long term health responses	23%	28%	21%	23%	5%	

The responses vary by industry. Many respondents correctly identified the short term health effects better than the long term health effects of the chemicals they were using. In averaging the responses to both short and long term health effects we can see the overall pattern of responses. Figure 4.1 and figure 4.2 show the responses to the health questions across all business types.

In assessing the short term health effects only 36% did not know the health effects of the chemical (includes those users who were incorrect, did not know or thought health effects were not applicable to the product). This compares with just under half the sample who did not know the long term health effects. This strongly implies that many respondents do not know the health effects, especially the long term health effects, of chemicals they use at work.

Figure 4-1

CORRECT RESPONSES ON THE SHORT-TERM HEALTH EFFECTS OF CHEMICALS USED AT WORK

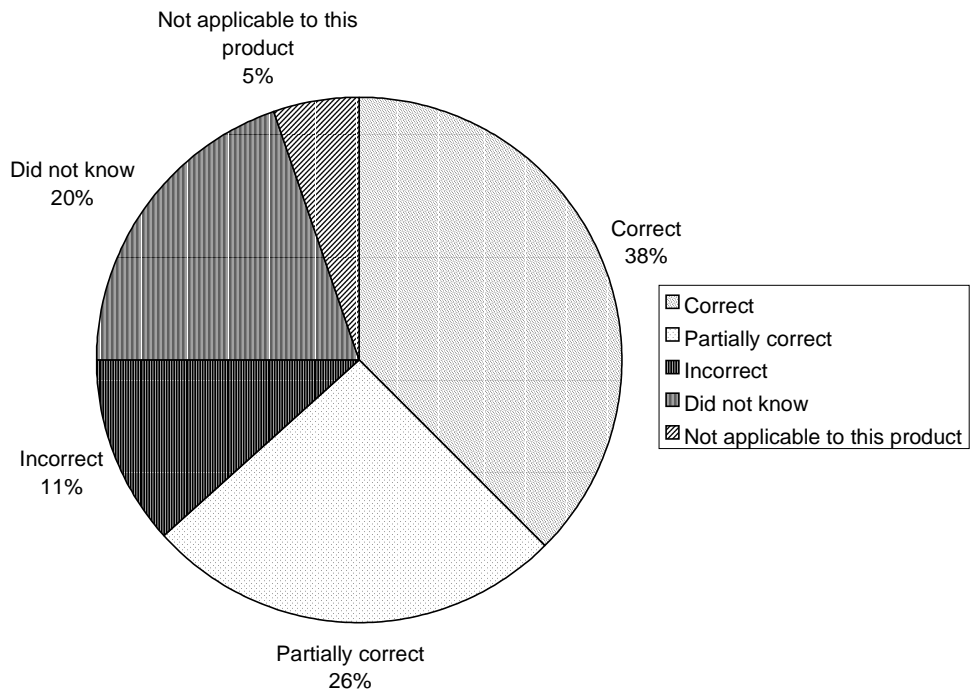
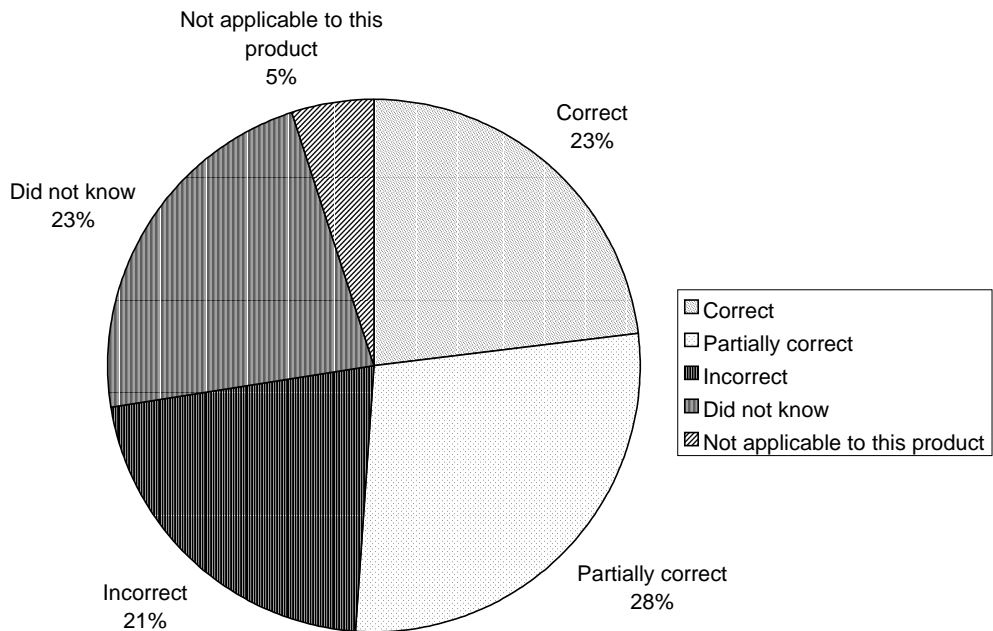


Figure 4-2

CORRECT RESPONSES ON THE LONG-TERM HEALTH EFFECTS OF CHEMICALS USED AT WORK



4.4 EXTENT OF CLAIMED SAFE BEHAVIOUR WITH CHEMICAL PRODUCTS USED

In assessing the extent of users claimed safe behaviour with chemicals several reported measures were used, including question 11 on frequency of use, questions 14 and 15 on use of protection, and question 63 asking if users ever experiment with chemicals to determine their nature.

Table 4.17 shows the frequency of use of selected chemicals from each sector. Most chemicals were used very regularly with 77% of chemicals being used daily.

Table 4-17

FREQUENCY OF USE OF SELECTED CHEMICALS

	Every day	Every week	Every Month	Less often	Don't know	Total users
Cadmium solution only	100%	0%	0%	0%	0%	7 users
Chromium solution only	73%	23%	0%	5%	0%	22 users
Wood cleaners (Nitric acid, Nitromors, Paint stripper, other/not stated)	53%	30%	10%	7%	0%	30 users
Peroxide	86%	7%	2%	5%	0%	42 users
Fillers and glass fibre	43%	43%	0%	14%	0%	7 users
Wood finishes (Varnish, wax, cellulose paint, nitro-cellulose paint, lacquer, french polish)	46%	37%	12%	5%	0%	41 users
Spotting agents (stain removers & spotting agent)	100%	0%	0%	0%	0%	18 users
Greases, oils & lubricants	95%	4%	0%	1%	0%	80 users
Detergents	80%	10%	0%	10%	0%	10 users
Hairsprays (hair spray hair gloss, fixing spray)	97%	3%	0%	0%	0%	62 users
Average frequency of use	77%	16%	2%	5%	0%	

Table 4.18 shows the responses to question 14, "how do you protect yourself from harm from the product?". The results need to be treated with some caution, as although respondents may correctly identify how to protect themselves, this does not mean they actually adopt this behaviour.

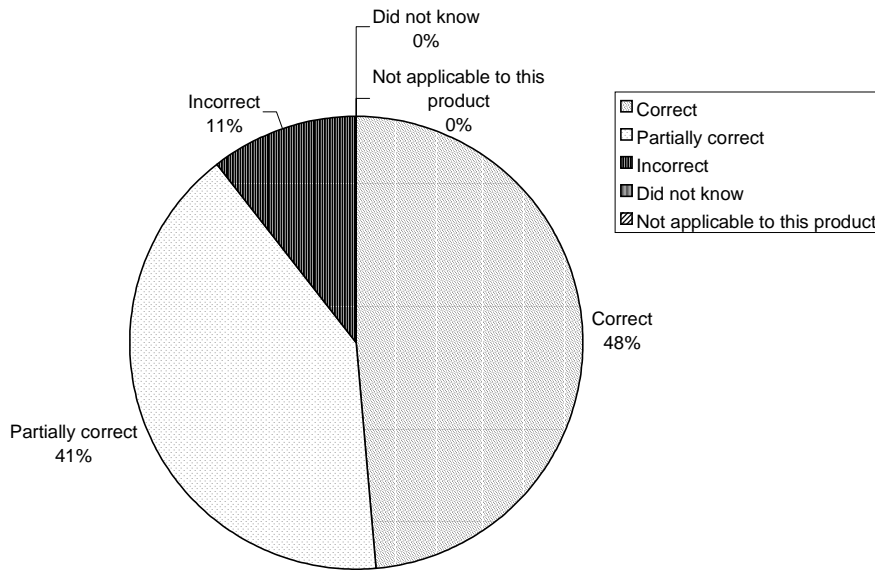
Table 4-18

PROTECTION FROM HARM FROM SELECTED CHEMICALS

	Correct	Partially correct	Incorrect	Did not know	Not applicable to this product	Total users
Greases, oils & lubricants	61%	31%	8%	0%	0%	80 users
Hairsprays (hair spray, hair gloss, fixing spray)	31%	44%	25%	0%	0%	61 users
Peroxide	54%	44%	2%	0%	0%	41 users
Wood finishes (Varnish, wax, cellulose paint, nitro-cellulose paint, lacquer, french polish)	43%	45%	13%	0%	0%	40 users
Wood cleaners (Nitric acid, Nitromors, Paint stripper, other/not stated)	81%	15%	4%	0%	0%	29 users
Chromium solution only	73%	27%	0%	0%	0%	22 users
Spotting agents (stain removers & spotting agent)	31%	44%	25%	0%	0%	16 users
Detergents	30%	40%	30%	0%	0%	10 users
Fillers and glass fibre	83%	17%	0%	0%	0%	6 users
Cadmium solution only	0%	100%	0%	0%	0%	2 users
Average long term health responses	49%	41%	11%	0%	0%	

Many respondents were incorrect on this protection question, for instance, 25% of dry cleaners did not know how to protect themselves from spotting agents. With some of the more dangerous chemicals, such as chromium solution, cadmium solution and peroxide the percentage of correct and partially correct responses were reasonably high. The overall breakdown is shown graphically in figure 4.3

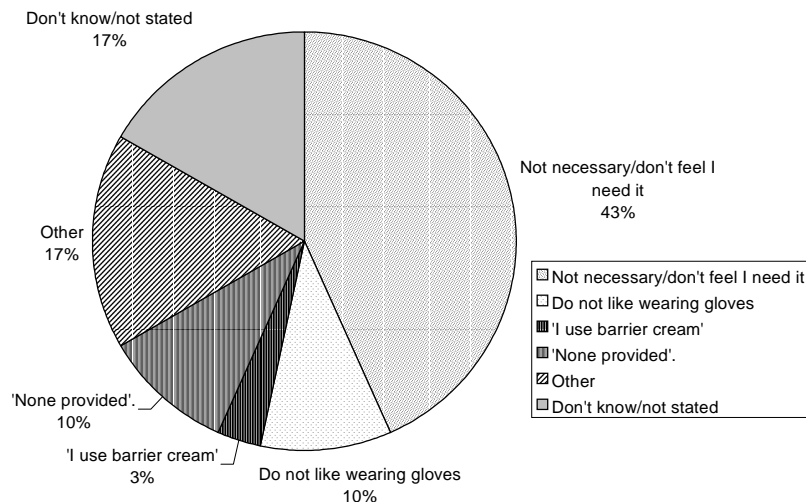
Figure 4-3
CORRECT RESPONSES ON THE PROTECTION FROM HARM



If respondents stated that no protection was necessary they were asked why, in question 15. However only 30 respondents answered question 15 over the following chemicals: peroxide, wood finishes (varnish, wax, cellulose paint, nitro-cellulose paint, lacquer, french polish), spotting agents (stain removers & spotting agent), greases, oils & lubricants, detergents, hairsprays (hair spray hair gloss, fixing spray). Figure 4.4 shows the breakdown of responses from the open ended question.

Quite clearly we can see that most people who answered question 15 stated that they used no protection because they felt they did not need any protection (43%).

Figure 4-4
WHY USE NO PROTECTION FROM HARM



This suggests there is scope for education of users who feel they do not need protection against chemicals such as peroxide or spotting agents, both in terms of the prevention of accidents or long term health effects.

Question 63 relates to users of chemicals experimenting e.g. smelling or touching the chemical to test whether it is hazardous. 85% of the respondents stated they would not experiment with the chemicals at work although 14% of respondents had, as shown in Table 4.19.

Table 4-19

Q63 : EVER EXPERIMENT WITH CHEMICALS TO TEST IF HAZARDOUS

		Frequency	Percent	Cumulative Percent
Valid	Yes	74	14.2	14.2
	No	441	84.6	98.8
	Don't know/not stated	6	1.2	100.0
	Total	521	100.0	

Question 49 established that 16% of chemical users had "direct experience of significant harm" from a chemical product either to themselves, a colleague, friend or family member, and 75% of these users claimed to be much more careful with the products they used as a result.

4.5 KNOWLEDGE OF HAZARD SYMBOLS AND RELEVANT LANGUAGE

Knowledge of hazard symbols and relevant language is shown among the 472 users of chemicals both employees and employers. Although all respondents did answer these questions, chemical users have been selected as more relevant to the study, though differences between the scores of users and non-users was marginal.

4.5.1 Knowledge of chemical symbols

Table 4.20 shows the percentage of correct responses to question 71, by business sector. Many of the respondents correctly identified particular chemical symbols, such as flammable and toxic, but many did not know the chemical symbols for oxidising, which was more prevalent in the hairdressing and dry cleaning businesses. Electroplaters consistently have the highest scores.

Table 4-20

Q71 MEANING OF CHEMICAL SYMBOLS PERCENTAGE OF CORRECT RESPONSES BY BUSINESS TYPES

	TYPE OF BUSINESS					Total
	Hairdressing	Garages	Wood Yard	Electroplating	Dry Cleaners	
FLAMMABLE	94%	98%	98%	98%	96%	97%
TOXIC	68%	82%	84%	89%	69%	78%
EXPLOSIVE	70%	81%	77%	86%	74%	77%
CORROSIVE	42%	79%	82%	86%	61%	68%
DANGEROUS TO THE ENVIRONMENT	36%	60%	64%	79%	67%	59%
HARMFUL/IRRITANT	28%	36%	40%	61%	32%	38%
OXIDISING	6%	9%	12%	38%	7%	13%
Total	111	99	102	66	94	472
	100%	100%	100%	100%	100%	100%

BASE: ALL CHEMICAL USERS

Table 4.21 shows the breakdown of correct responses by manager and employee. Managers correctly identify symbols to a greater degree than employees. The difference, whilst significant at the 5% level, is not striking.

Table 4-21

Q71 MEANING OF CHEMICAL SYMBOLS PERCENTAGE OF CORRECT RESPONSES BY MANAGER/OTHER EMPLOYEE

			Total
	Manager	Other employee	
FLAMMABLE	99%	94%	97%
TOXIC	77%	78%	78%
EXPLOSIVE	78%	76%	77%
DANGEROUS TO THE ENVIRONMENT	64%	52%	59%
CORROSIVE	72%	63%	68%
HARMFUL/IRRITANT	36%	40%	38%
OXIDISING	14%	11%	13%
Total	275	197	472
	100%	100%	100%

BASE: ALL CHEMICAL USERS

4.5.2 Knowledge of chemical symbols and reading age

Knowledge of chemicals symbols and the language used to describe chemical hazards was considered an important area, and we were particularly interested in whether reading age was associated with this. Reading age was assessed by the Schonell reading test which uses 100 words to assess the reading age of the respondent. The results, shown in table 4.22 below, indicated that 29% of respondents had reading age below 11 years, 33% of respondents had a reading age between 11 years and 12 years and 5 months. The remaining respondents had a reading age of over 12 years and 5 months. Chemical users were also found with a similar reading age level as shown in figure 4.5.

Table 4-22

READING AGE SUMMARY

	Frequency	Percent	Cumulative Percent
Valid 6-10 Years	152	29.2	29.2
11-12 Years 5 months	174	33.4	62.6
12 and half years and above	192	36.9	99.4
DNA or Missing Values	3	.6	100.0
Total	521	100.0	

Figure 4-5
READING AGE FREQUENCY (CHEMICAL USERS)

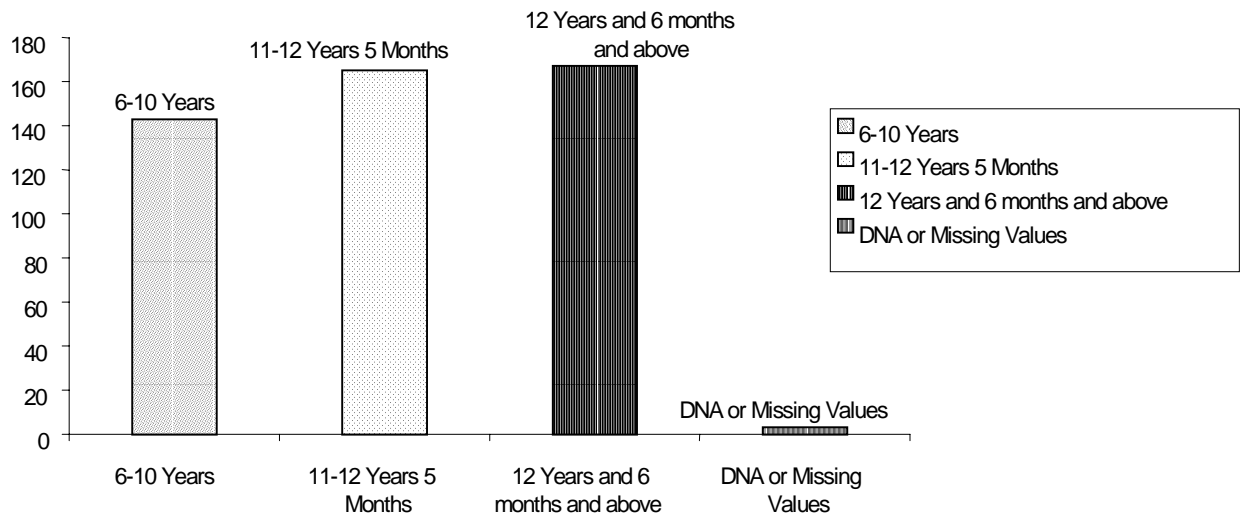


Figure 4.5, shows the distribution of reading age summarised into three distinct groups, being reading ages of 6-10 years, 11 years to 12 years and 5 months and 12.5 years and above. The chemical users were spread fairly evenly between these three reading age groups. Three chemical users did not respond or refused to respond to this question and these users are included in the “DNA or Missing Values” category in figure 4.5 and in the tables below.

Reading age was also found to be significantly different between managers and their employees as shown in table 4.23. Table 4.23 shows clearly that managers have a higher reading age in general than non-managerial employees with 42% of managers compared with 25% of non-managerial employees having a reading age of 12 and half and above. Although nearly one in four managers had a reading age of less than or equal to ten years.

Table 4-23

A COMPARISON OF READING AGE BETWEEN MANAGERS AND EMPLOYEES

READING AGE GROUP	MANAGERS/OTHER EMPLOYEE		Total
	Manager	Other employee	
6-10 Years	23%	40%	30%
11-12 Years 5 months	35%	34%	34%
12 and half years and above	42%	25%	35%
DNA or Missing Values	0%	1%	1%
Total	279	200	479
	100%	100%	100%

BASE = ALL CHEMICAL USERS

Reading age was associated with correct identification of symbols, with significant differences emerging between the reading age groups and particular symbols such as oxidising and dangerous to the environment as shown in table 4.24.

Table 4-24**Q71 MEANING OF CHEMICAL SYMBOLS PERCENTAGE OF CORRECT RESPONSES BY READING AGE**

	READAGES				Total
	6-10 Years	11-12 Years 4 Months	12 Years and 5 months and above	DNA or Missing Values	
EXPLOSIVE	72%	77%	82%	67%	77%
FLAMMABLE	95%	96%	98%	100%	97%
TOXIC	73%	76%	83%	100%	78%
HARMFUL/IRRITANT	38%	33%	42%	33%	38%
CORROSIVE	60%	68%	75%	100%	68%
OXIDISING	10%	9%	19%	0%	13%
DANGEROUS TO THE ENVIRONMENT	51%	58%	67%	67%	59%
Total	141	163	165	3	472
	100%	100%	100%	100%	100%

BASE: ALL CHEMICAL USERS

4.5.3 Knowledge of chemical terms

The meaning of chemical hazard related words was also examined, again with varying responses between different sectors as shown in table 4.25. Some, for example vomiting was correctly identified by almost all respondents. Other words, which commonly appear on safety data sheets, were less well known. Carcinogenic, for instance was only correctly identified by 34% of the sample. More difficult words such as teratogenic were identified by far fewer respondents - indeed only 2% of the entire sample could define teratogenic.

Table 4-25**Q77 MEANING OF CHEMICAL & HEALTH RELATED WORDS PERCENTAGE OF CORRECT RESPONSES BY BUSINESS TYPE**

	TYPE OF BUSINESS					Total
	Hairdressing	Garages	Wood Yard	Electroplating	Dry Cleaners	
Q77b : DEFINITION OF "VOMITING"	100%	100%	100%	100%	99%	100%
Q77e : DEFINITION OF "IRRITATION"	94%	99%	97%	100%	96%	97%
Q77a : DEFINITION OF "NAUSEA"	91%	73%	83%	87%	83%	83%
Q77c : DEFINITION OF "CORROSIVE"	64%	86%	89%	93%	77%	81%
Q77f : DEFINITION OF "ASPHYXIATION"	72%	80%	84%	84%	69%	77%
Q77g : DEFINITION OF "RESPIRATORY SENSITISER"	47%	44%	47%	54%	39%	46%
Q77d : DEFINITION OF "CARCINOGENIC"	15%	30%	50%	57%	27%	34%
Q77h : DEFINITION OF "MUTAGENIC"	9%	19%	19%	31%	5%	16%
Q77i : DEFINITION OF "TERATOGENIC"	1%	2%	2%	4%	0%	2%
Total	113	100	104	67	94	478
	100%	100%	100%	100%	100%	100%

BASE: ALL CHEMICAL USERS

Differences between the business sectors were also noted to be significant through using an analysis of variance test, which examined whether the two groups were statistically different

in nature. Indeed, significant differences were found between the groups on the definitions for carcinogenic (F=10.117, p<0.001) corrosive (F=7.830, p<0.001) mutagenic (F=4.802, p<0.01) and nausea (F=4.517, p<0.01).

4.5.4 Knowledge of chemical terms and reading age

Reading age was also found to influence the correct definition of particular words, for instance carcinogenic (F=37.671 p<0.001) and asphyxiation (F=18.777 p<0.001). Indeed, with the exception of vomiting, correct definition of chemical terms was found to be significantly different (p<0.05) between the reading groups shown below in table 4.26.

Table 4-26

Q77 MEANING OF CHEMICAL & HEALTH RELATED WORDS PERCENTAGE OF CORRECT RESPONSES BY READING AGE

	READAGES				Total
	6-10 Years	11-12 Years 4 Months	12 Years and 5 months and above	DNA or Missing Values	
Q77b : DEFINITION OF "VOMITING"	100%	99%	100%	100%	100%
Q77e : DEFINITION OF "IRRITATION"	94%	97%	99%	100%	97%
Q77a : DEFINITION OF "NAUSEA"	73%	86%	90%	33%	83%
Q77c : DEFINITION OF "CORROSIVE"	70%	82%	89%	67%	81%
Q77f : DEFINITION OF "ASPHYXIATION"	61%	76%	93%	67%	77%
Q77g : DEFINITION OF "RESPIRATORY SENSITISER"	40%	37%	60%	33%	46%
Q77d : DEFINITION OF "CARCINOGENIC"	9%	28%	62%	0%	34%
Q77h : DEFINITION OF "MUTAGENIC"	4%	12%	30%	0%	16%
Q77i : DEFINITION OF "TERATOGENIC"	1%	2%	1%	0%	2%
Total	143	165	167	3	478
	100%	100%	100%	100%	100%

BASE: ALL CHEMICAL USERS

4.6 AWARENESS OF HEALTH AND SAFETY REGULATIONS AND SAFETY DATA SHEETS

Awareness of health and safety regulations has been briefly mentioned above, with the finding that high staff turnover was associated with low awareness of the health and safety regulations.

4.6.1 Knowledge of rules and regulations

Almost two thirds of all managers identified both the Health and Safety at Work Act and COSHH, when asked the unprompted question: "Do you know the names of any rules or regulations relating to working with dangerous chemicals?". However this figure drops when examining employees with just over a third recognising the Health and Safety at Work Act and only just over a tenth of one person businesses recognising it.

Table 4-27
LEGISLATIVE ACT CORRECTLY OR PARTIALLY IDENTIFIED

Legislation or act mentioned	Managers	Employees	One person businesses
Health & Safety at Work etc Act 1974	68%	38%	13%
COSHH	67%	32%	21%
"6 Pack" Regulations 1992	3%	0%	2%
RIDDOR	17%	1%	2%
CHIP 2	6%	0%	0%
Other	12%	6%	25%
Total respondents (N)	156	207	48

4.6.2 Safety data sheets

66% of respondents had heard of a safety data sheet and of these respondents only about one in ten could not define one. Respondents who did not know what a safety data sheet was were then read a description by the interviewer and then asked whether they had seen one. 70% of all respondents had seen a safety data sheet, however the rest of the sample had not. Reading age had a considerable association here, as shown in table 4.28. 78% of respondents with a reading age equal or greater than 12 years and 5 months had seen a data sheet compared with 59% of respondents who had a reading age lower than 11 years.

Table 4-28

Q74 BY READING AGE

		READAGES				Total
		6-10 Years	11-12 Years 4 Months	12 Years and 5 months and above	DNA or Missing Values	
Q74 : EVER SEEN A SAFETY DATA SHEET	Yes	59%	68%	78%	33%	69%
	No	39%	26%	19%	67%	28%
	Don't know/not stated	2%	5%	3%	0%	4%
Total		144	165	167	3	479
		100%	100%	100%	100%	100%

BASE: ALL

4.7 SOURCES OF INFORMATION ON CHEMICALS

4.7.1 Variety of sources used in forming current knowledge

Question 66 examined the variety of sources from which chemical users stated their knowledge had come from. Table 4.29 shows labels to be a very important source of information, followed by supplier sales representatives, common sense and experience. Company health and safety policy and official guidance and literature were only cited by approximately 20% of users.

Table 4-29

Q66 WHERE DID YOUR KNOWLEDGE COME FROM

Labels on chemical container	64%
Suppliers/sales reps	56%
Common sense	48%
Experience	47%
Training courses	39%
Supplier Safety Data Sheets	40%
Supervisor/manager	38%
Work colleagues	29%
Company H&S policy/documentation	23%
Official guidance/literature	19%
From other companies	14%
Journals	13%
Friends/family/acquaintances	5%
Experiment	4%
Other	4%
TV	3%
None of these	0%
Don't know/not stated	0%
Total	479
	100%

BASE: ALL CHEMICAL USERS

"Common sense" was mentioned as a source of information by 48% of people. In a separate question (Q64) respondents were asked about the role of common sense in working with hazardous chemicals, and 75% said it had a "very large role". They were then asked "What do

you understand by common sense in this respect?", and respondents gave a variety of explanations ranging from "be careful" to "do not drink it!" Full responses to this question are shown in table 4.30.

Table 4-30

Q65 WHAT DO YOU UNDERSTAND BY COMMON SENSE

Be careful/handle with care	33%
Read label/instructions before use	18%
Wear protection	18%
Use your head/initiative	14%
Follow instructions/label	13%
Understand chemicals worked with	12%
Have to know what you're doing	11%
Take precautions	9%
Ask if unsure	7%
Know consequences of misuse	5%
Don't let in contact with skin	5%
Don't breathe in fumes/ keep well ventilated	4%
What you know & how you do it	3%
Do not drink it	3%
Keep in safe place/locked up	3%
Know procedures if anything goes wrong	3%
Clean spillages immediately	3%
Do not sniff/smell it	2%
Test before use	2%
Put away after use	2%
Educate other staff	1%
Read data sheets	1%
Acids are dangerous	0%
Other	9%
Don't know/not stated	4%
Total	521
	100%

BASE: ALL RESPONDENTS

4.7.2 Most influential, most reliable and most misleading sources of information

The most influential source of information was the supplier sales representative, cited by 38% of respondents, followed by managers (note that 207 of the respondents were themselves managers, and would not choose this option).

Reliability of sources was also examined with respondents stating that information from supplier representatives was the most reliable source of information. Official literature scored lowly as a source of reliable information with only 6% of respondents citing it.

Table 4.31 detailed the source of information considered to be the "most misleading". Experimentation was most often chosen, though response was possibly affected by the research design as respondents were told after question 63 that "it is probably not advisable to experiment with chemicals" - after Q63 had asked if they ever did experiment.

Table 4-31

Q70 MOST MISLEADING SOURCE OF INFORMATION

Q70 :	Experiment	25%
SOURCE	Friends/family/acquaintances	19%
MOST	TV	10%
LIKELY TO	Work colleagues	7%
BE	Suppliers/sales reps	5%
MISLEADING	Common sense	3%
	Labels on chemical container	3%
	From other companies	3%
	Journals	1%
	Training courses	1%
	Supplier Safety Data Sheets	1%
	Supervisor/manager	1%
	Experience	1%
	Official guidance/literature	0%
	Company H&S policy/documentation	0%
	Other	0%
	None of these	9%
	Don't know/not stated	11%
Total		479
		100%

BASE: ALL CHEMICAL USERS

In table 4.29, labels were noted as being important sources of information. Question 16 asked whether a respondent had read the label of the specific chemical product that they were working with on a frequent basis. Table 4.32 showed the responses to question 16 analysed by specific chemical users. On average 84% of chemical users had read the label of the specific product they were using. Labels therefore appear to be a major source of information chemical used to ascertain the characteristics of chemical products at work.

Table 4-32
EVER READ THE LABEL

	Yes	No	Did not know	Not applicable	Total users
Greases, oils & lubricants	78%	20%	1%	0%	79 users
Hairsprays (hair spray, hair gloss, fixing spray)	89%	11%	0%	0%	64 users
Peroxide	98%	2%	0%	0%	42 users
Wood finishes (Varnish, wax, cellulose paint, nitro-cellulose paint, lacquer, french polish)	83%	15%	2%	0%	41 users
Wood cleaners (Nitric acid, Nitromors, Paint stripper, other/not stated)	87%	13%	0%	0%	30 users
Chromium solution only	86%	9%	5%	0%	22 users
Spotting agents (stain removers & spotting agent)	94%	6%	0%	0%	18 users
Detergents	75%	17%	0%	8%	12 users
Fillers and glass fibre	100%	0%	0%	0%	6 users
Cadmium solution only	50%	0%	0%	50%	2 users
Average	84%	9%	1%	6%	

4.8 ACCURACY OF PERCEPTION OF HAZARD FROM GENERAL ATTRIBUTES OF CHEMICALS

Question 59 to 62 measured the accuracy of perception of hazard from general attributes of chemicals. Most of these questions were found to be correlated with each other as shown in table 4.33.

In briefly summarising the data gathered from these questions, we can state that out of the chemical users, 90% disagreed that if a product does not have a smell the chemical is safe. 87% thought colour was not a good indication of how dangerous a chemical is and 61% disagreed with the assertion that the more you use a chemical the less likely you were to be concerned about its dangers. ("Reversed" in q61 meant the question's scale was reversed in analysis for consistency with the other questions.)

Table 4-33
CORRELATIONS BETWEEN QUESTIONS 59 TO 62

		Correlations			
		Q59 : IF A PRODUCT DOES NOT HAVE A SMELL IT IS PROBABLY SAFE	Q60 : COLOUR IS A GOOD INDICATION OF HOW DANGEROUS A PRODUCT IS	Q61 (REVERSED) IF A PRODUCT GIVES YOU A BURN OR TINGLING SENSATION, YOU SHOULD BE CONCERNED	Q62 : THE MORE YOU USE A CHEMICAL THE LESS LIKELY YOU ARE TO BE CONCERNED ABOUT THE DANGERS
Q59	Pearson Correlation	1.000	.354**	.061	.115*
	Sig. (2-tailed)	.	.000	.183	.012
	N	479	479	479	479
Q60	Pearson Correlation	.354**	1.000	.041	.143**
	Sig. (2-tailed)	.000	.	.374	.002
	N	479	479	479	479
Q61 (REVERSED)	Pearson Correlation	.061	.041	1.000	.103*
	Sig. (2-tailed)	.183	.374	.	.024
	N	479	479	479	479
Q62	Pearson Correlation	.115*	.143**	.103*	1.000
	Sig. (2-tailed)	.012	.002	.024	.
	N	479	479	479	479

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

4.9 COMPANY HEALTH AND SAFETY ARRANGEMENTS

Managers and one person businesses were asked a number of questions relating to organisational health and safety policies. Question 85 initially asked the open question "Could you tell me about your about health and safety arrangements?" The replies were recorded verbatim and summarised in groups, as shown in table 4.34 below. Responses varied ranging from "Full (health and safety) instructions given" to "Don't panic".

Table 4-34

Q85 : HEALTH AND SAFETY ARRANGEMENTS

Full training/instructions	21%
Use protective clothing	18%
First aid kit	15%
Fire extinguishers	12%
Everybody has copy of policy/instructions	10%
Use gloves	10%
Use masks	7%
Fire exits/escapes	6%
Regular servicing/maintenance	4%
Regular meetings/updates	3%
Keep calm/don't panic	1%
Accident book	9%
Insurance cover	5%
Good ventilation	8%
Use common sense/take care	9%
H&S checks/advice	6%
Supervision/monitoring of staff	2%
H&S notices displayed	6%
Dangerous chemicals are stored separately/safely	6%
Keep work areas clean	4%
Keep work areas tidy	2%
Company has a Health & Safety Policy	5%
Warning signs/notices (unspecified) displayed	4%
Comply with COSHH regulations	2%
Other	29%
None	3%
Don't know/not stated	12%
Total	314
	100%

BASE: ALL MANAGERS AND ONE PERSON BUSINESSES

Question 86 asked whether there were any *company-specific* health and safety arrangements were written down. Only a third of all managers stated they did have a written health and safety policy, and in the majority of cases the interviewer managed to verify this. In 84% of firms with written health and safety arrangements, these were on clear display and again this was confirmed by the interviewer in the majority of cases. In the 101 managers (about half of managers) that did have written down health and safety arrangements, 89% had a method for recording accidents (again verified in the majority of cases).

(It would seem reasonable to interpret take these percentages as *maximum* figures, or upper

limits, as some managers may have interpreted *any* written health and safety arrangements to include standard material, e.g. safety posters, and there exists the possibility that a few elaborated (though interviewer verification was high). Whichever way, it is unlikely that any would have not answered "yes" when they had taken the trouble to write their arrangements down.)

A total of 72% of managers that had written health and safety arrangements claimed to have reviewed or updated these arrangements within the last year with a further 23% of managers updating the arrangements within five years.

Question 90 asked which sources of information managers and one person businesses would use to make sure they were keeping to general health and safety standards. Supplier safety data sheets were seen as one of the main sources of information (Table 4-35). This answer was satisfactorily cross-checked with all respondents reporting to have heard and to have seen a safety data sheet. Suppliers and official literature were also used by managers to ensure they were keeping general health and safety standards.

Table 4-35

Q90 SOURCES OF INFORMATION TO KEEP GENERAL HEALTH AND SAFETY STANDARDS BT Q72

Suppliers	49%
Supplier Safety Data Sheets	45%
H&S journals	23%
Formal guidance (eg COSHH)	20%
ACOPS	6%
Common sense	6%
Customers	3%
Other	23%
Total	264
	100%

BASE: ALL MANAGERS AND ONE PERSON BUSINESSES

Table 4.36 is a summary of how managers make their staff aware of occupational risks (question 92, an open ended question). Training and verbal communication were given as the main means in which health and safety information is transmitted through small organisations.

Table 4-36

Q92 HOW DO YOU MAKE STAFF AWARE OF OCCUPATIONAL RISKS?

Verbally	40%
Training	25%
Read manuals	10%
Read labels	9%
Have notices/signs/posters	8%
Have experienced staff	7%
Show them data sheets	7%
Supervision/monitoring of staff	6%
Use protective clothing	4%
Rely on their common sense	2%
Other	10%
Don't know/not stated	17%
Total	266 100%

Asked if information on chemical based products was made available for staff, 93% of managers said there was, as in table 4.37.

Table 4-37

Q94 : WHAT TYPE OF INFORMATION IS AVAILABLE FOR STAFF

Access to Safety Data Sheets	56%
Verbal work instructions	44%
On the job training	36%
Posters/notices produced externally	27%
Handbooks/instructions - external	21%
Induction training	20%
Supervision	18%
COSHH Risk Assessment	18%
Written work instructions	18%
Product containers/labelling	16%
Posters/notices produced internally	15%
Handbooks/instructions - internal	9%
Risk Assessment	8%
Other	6%
Don't know/not stated	0%
Total	213 100%

Most managers said their firms monitored ill-health in employees - this primarily consisted of keeping an accident book. Only 27% stated that they did not monitor ill health. The managers were next asked how they knew they were conforming to health and safety legislation, in question 96, an open-ended question. Visits by HSE was most often given in reply to this

question, by just over a quarter of managers (see Table 4.38). Nevertheless, just less than a quarter of managers did not know whether, or did not state how they were conforming to health and safety standards.

Table 4-38

Q96 HOW DO YOU KNOW IF YOU ARE CONFORMING WITH HEALTH AND SAFETY REGULATIONS

HSE visits	27%
Experience/common sense	14%
No way of knowing/assume we are	11%
Keep up with new information/regulations	8%
Comply with regulations/safety procedures	5%
Regularly inspected by college	3%
My own training/college courses etc.	3%
Advised by an independent company	3%
Other	17%
Don't know/not stated	24%
Total	266
	100%

BASE: ALL MANAGERS

4.10 ADDITIONAL ANALYSIS VARIABLES

Although we have examined several key variables in the study, the following represent other important findings not detailed above.

4.10.1 Autonomy and job characteristics related to safety

The autonomy measure - having the ability to stop production, pace their work and control their work - was developed by combining questions 78a 78b and 78c, all of which were highly correlated with each other. Overall 83% of respondents were rated as slightly or strongly autonomous in their work, suggesting a fairly high degree of autonomy amongst people working in these sectors.

Autonomy was found to be significantly associated with a high level of company health and safety arrangements ($r=.292$, $p<0.01$), an awareness of regulations and safety data sheets ($r=0.195$, $p<0.01$) and an internal Locus of Control ($r=.115$, $p<0.01$) (Locus of control measures the extent to which an individual believes they control their destiny through their own actions, as opposed to control by external forces which they have no influence over). This suggested that high levels of autonomy were associated with a greater provision of company health and safety arrangements and a higher awareness of health and safety regulations. Autonomous individuals were also associated with a higher internal Locus of Control, suggesting that they see themselves controlling their destiny from their own internal means rather than their destiny being controlled by an external force. The implication for health and safety messages is that these individuals believe that they control their own destiny and work and as a result should take note of health and safety messages that show how to prevent accidents through careful control.

Issues that would make people act less safely at work are shown in table 4.39 below. 42% of respondents stated that no issues would make them act less safely at work. Nonetheless, pressure of work and tiredness were seen as possible factors that would make people act in a less safe manner at work.

Job security was also analysed but only found to be negatively correlated ($r= -0.193$, $p<0.01$) with accuracy of chemical hazard perception suggesting that high job security is associated with low levels of chemical hazard perception. However, the correlation, although being significant is not particularly high.

The feeling of being safe at work was assessed through questions 78d and 78f. This feeling of being safe at work was then found to be negatively correlated to a significant degree ($r=-.314$, $p<0.01$) with user perception of effects from the products used This suggests that high levels of feeling safe at work are associated with lower perceptions of the chemical effects. Feeling safe at work was also negatively correlated ($r=-0.102$, $p<0.05$) with the health knowledge of chemicals used although to a lesser degree.

Table 4-39

Q80 FACTORS IDENTIFIED AS CAUSING INDIVIDUALS TO ACT LESS SAFELY AT WORK

Pressure to get work completed/deadline	33%
Tiredness	28%
Dislike/restrictiveness of protective equipment	12%
Boredom	9%
Extreme temperatures	9%
Insufficient light	8%
Awkward procedures	7%
Lack of info on hazards of a chemical	7%
High levels of noise	6%
Silly rules	3%
Colleagues behaviour	3%
Managers behaviour	3%
Incompatibility of personal protective equipment	2%
Lack of control in my work	2%
Shift patterns	1%
Other	1%
None of these	42%
Don't know/not stated	1%
Total	521

BASE: ALL RESPONDENTS

4.10.2 Locus of Control

Locus of control measures how an individual perceives their actions and destiny to be controlled by either themselves (internals) or by external forces such as fate (externals). The measure of Locus of Control is a continuum between external and internal rather than a dichotomous variable. Nonetheless, for the purposes of our research we have summarised Locus of Control into three approximately even groups consisting of those respondents with low locus of control score whom are more external than internal in nature, those with mid range scores and those individuals who have high scores on the locus of control measure suggesting they are more internal than external. The respondents in the survey showed a normally distributed locus of control which was divided into three categories shown in table 4.40.

Table 4-40

LOCUS OF CONTROL SUMMARY

	Frequency	Percent	Cumulative Percent
Valid High External (below 25)	89	33.5	33.5
Both Internal and External	83	31.2	64.7
High Internal (Above 30)	94	35.3	100.0
Total	266	100.0	

Locus of control was found to be significantly different between managers, employees and one person businesses and has been summarised in table 4.41 below. Managers, had the highest number of internals who are individuals who feel their destiny is influenced by themselves internally rather than by an external influence.

Table 4-41

LOCUS OF CONTROL BY MANAGER/EMPLOYEE/ONE PERSON BUSINESS

		MANAGER/EMPLOYEE/ONE PERSON BUSINESS		
		Manager	Other employee	OPB
LOCUS OF CONTROL	High External (below 25)	33%	41%	48%
	Both Internal and External	31%	33%	40%
	High Internal (Above 30)	35%	26%	13%
Total		266	207	48
		100%	100%	100%

Locus of control was also found to be significantly different between the business sectors analysed, with hairdressers having a higher percentage of internal individuals compared with garages as shown in table 4.42 below.

Table 4-42

LOCUS OF CONTROL BY BUSINESS TYPE

		TYPE OF BUSINESS					Total
		Hairdressing	Garages	Wood Yard	Electroplating	Dry Cleaners	
LOCUS OF CONTROL	High External (below 25)	24%	44%	40%	36%	46%	38%
	Both Internal and External	37%	36%	33%	28%	26%	33%
	High Internal (Above 30)	38%	20%	27%	35%	28%	30%
Total		115	108	121	74	103	521
		100%	100%	100%	100%	100%	100%

The Locus of Control score was positively related to a number of factors. The more internal the respondents were in nature the higher the scores found on a number of factors including: knowledge of harm of products used ($r=0.138$, $p<0.01$), knowledge on symbols and language ($r=0.124$, $p<0.01$), accuracy of chemical hazard perception ($r=0.151$, $p<0.01$) and company health and safety arrangements ($r=0.128$, $p<0.01$). This suggested that Locus of Control may influence knowledge and perception of health related hazards with internals being associated with high levels of knowledge and accuracy of perception. Job security was seen to be associated with higher levels of external locus of control suggesting that internals were perhaps more insecure in the work environment. However all of these correlations, despite being significant, were all fairly low so some caution must be applied to these results.

4.10.3 Experience of accidents and incidents involving chemicals

Question 49 established that 16% of chemical users had "direct experience of significant harm" from a chemical product either to themselves, a colleague, friend or family member, and 75% of these users claimed to be much more careful with the products they used as a result.

Correlations between the level of influence, the significance of harm and several of the main analysis factors were observed with perception of effects of products used ($r=0.168$, $p<0.01$), knowledge of harm of products used ($r=.117$, $r<0.01$), knowledge of symbols and language ($r=0.104$, $p<0.05$) and variety of sources of information ($r=0.123$, $p<0.01$). These correlations suggest that experiencing an accident and the influence that has on a chemical user was associated with subsequent perception, better knowledge and a greater variety of information sources being used. This suggests that advertising real accidents that have happened to chemical users should be used to highlight what can go wrong in the working environment influencing safety related behaviour to some degree.

4.11 RESULTS ON SPECIFIC CHEMICAL PRODUCTS

Questions 9 to 16 cover the actual chemical products used:

- Q9 Identifies the chemicals by group: sector-specific groupings were used
- Q10 Asks how harmful the user thinks the chemicals are
- Q10a Identifies which *two* are used most often, Q11-Q16 are asked of these products
- Q11 Asks frequency of use
- Q12 Asks harmful effects in the short term - and the interviewer codes accordingly
- Q13 Asks harmful effects in the long term - and the interviewer codes accordingly
- Q14 How user is protected from harm from the product - whether correct, partial or incorrect protection is used, or none at all.
- Q15 reasons for "no protection" at Q14 - these are not examined here, but are considered for specific products in the main text.
- Q16 Asks if the label for the product has ever been read.

The following analysis was conducted on commonly used chemicals used in the five main sectors. The chemicals highlighted include: perchloroethylene (dry cleaners), chromium solution and chromic acid (electroplaters), wood preservatives (wood yards), perm solution (hairdressers) paints (garages) activators and hardeners (garages). A summary of at least two chemicals taken from each industry is also presented from section 4.3 onwards.

4.11.1 Perchloroethylene (Dry Cleaners)

Dry cleaners were asked about perchloroethylene (Perc) and whether they thought this chemical was harmful. Perchloroethylene is a solvent, the main chemical used in the dry cleaners process. Its short term health effects can include headaches, dizziness, irritation and its long term effects can be sensitising effects as well as damage to the liver, kidneys and central nervous system. Over 60% of the sample considered it was moderately or extremely harmful as shown in table 4.43, though 12% of respondents thought it was not.

Table 4-43

IS PERC HARMFUL

No, not at all harmful	12%
Very slightly harmful	22%
Moderately harmful	31%
Extremely harmful	35%
Total	81
	100%

BASE = ALL PERC USERS

Most perchloroethylene users (88%) reported they used it every day, with only 4% using it

less than once a month. In assessing its short term health effects, 65% of dry cleaners stated the short term health effects correctly, or partially correctly; for long term health effects this reduced to 35% of users.

In protecting themselves against harm from perchloroethylene 67% of respondents gave a correct or partially correct response as shown in table 4.44.

Table 4-44

PROTECT FROM HARM

Correct	27%
Partially correct	40%
Incorrect/no protection	28%
DNA	5%
Total	82
	100%

BASE = ALL MAIN PERC USERS

4.11.2 Chromium solution and Chromic Acid (Electroplaters)

Chromium is one of the many metals used in the electroplating industry. It's health effects in solution and acid include respiratory and skin irritation in the short term and dermatitis, ulceration, possible carcinogenic and toxicant effects. 91% of electroplaters stated that chromium solution and chromic acid was moderately to extremely harmful, but 9% of electroplaters felt it was only very slightly harmful or not harmful at all, as shown in table 4.45.

Table 4-45

IS CHROMIUM SOLUTION AND CHROMIC ACID HARMFUL?

	No, not at all harmful	2%
	Very slightly harmful	7%
	Moderately harmful	21%
	Extremely harmful	70%
Total		43
		100%

BASE = ALL CHROMIUM SOLUTION AND CHROMIC ACID USERS

Out of the 43 chromium solution and chromic acid users, 72% used it frequently and answered further questions on it. Of the frequent users 77% worked with it on a daily basis.

Tables 4.46 and 4.47 represent the information gathered from respondents on the short term and long term health effects of chromium solution and chromic acid users, with close to 90% of users correctly or partially correctly stating its short term health effects.

Table 4-46

SHORT TERM HEALTH EFFECTS OF CHROMIUM SOLUTION AND CHROMIC ACID

	Correct	58%
	Partially correct	29%
	Incorrect	10%
	Not applicable to product	3%
Total		31
		100%

BASE = ALL MAIN CHROMIUM SOLUTION AND CHROMIC ACID USERS

The long term effects of chromium solution and chromic acid had less of a successful identification rate but still over 60% of electroplaters were found to be correct or partially correct.

Table 4-47

LONG TERM HEALTH EFFECTS OF CHROMIUM SOLUTION AND CHROMIC ACID

	Correct	32%
	Partially correct	32%
	Incorrect	16%
	Did not know	6%
	Not applicable to product	3%
	Not stated	10%
Total		31
		100%

BASE = ALL MAIN CHROMIUM SOLUTION AND CHROMIC ACID USERS

Table 4.48 showed how respondents protect themselves from harm from chromium solution and chromic acid. All frequent users could identify how they would protect themselves from harm to a certain degree.

Table 4-48

PROTECT YOURSELF FROM HARM

	Correct	81%
	Partially correct	19%
Total		31
		100%

BASE = ALL MAIN CHROMIUM SOLUTION AND CHROMIC ACID USERS

4.11.3 Wood Preservatives (Wood associated industries)

Wood preservatives include chemicals such as pesticides and mildewcides used for preserving wood against the time. Short term health effects include dermatitis, skin and respiratory irritation. Long term health effects include carcinogenic effects as well as possible liver and kidney effects. Respondents in the wood yard category rated whether wood preservatives were in any way harmful, and as shown in table 4.49 almost two thirds thought they were.

Table 4-49

ARE WOOD PRESERVATIVES HARMFUL?

	No, not at all harmful	11%
	Very slightly harmful	24%
	Moderately harmful	31%
	Extremely harmful	35%
Total		55
		100%

BASE = ALL WOOD PRESERVATIVES USERS

46% of the users of wood preservatives stated this was one of the main chemicals they used and half used them daily. 31% did not know the short term health effects of wood preservatives and 42% did not know their long term health effects, as shown in tables 4.50 and 4.51 respectively.

Table 4-50

SHORT TERM HEALTH EFFECTS

Correct	35%
Partially correct	23%
Incorrect	4%
Did not know	31%
Not applicable to product	8%
Total	26
	100%

BASE = ALL MAIN WOOD PRESERVATIVES USERS

Table 4-51

LONG TERM HEALTH EFFECTS

Correct	15%
Partially correct	27%
Incorrect	8%
Did not know	42%
Not applicable to product	8%
Total	26
	100%

BASE = ALL MAIN WOOD PRESERVATIVES USERS

In protecting themselves from harm, 80% of respondents gave correct or partially correct answers. Only 2 respondents gave incorrect responses with one person stating that they felt they did not need protection and another person stating they did not like to wear gloves. Many respondents (77%) said they had read the container label .

4.11.4 Perm Solution (Hairdressers)

Perm solutions are usually creams applied to hair for the purpose of curling or straightening hair chemically. The short term health effects of perm solution are dermatitis, dizziness or light headedness, with the long term health effects being skin eye and breathing irritation. Only 9% of the perm solutions users felt as though it was not harmful, and most were aware that it could be harmful to some degree, as shown in table 4.52.

Table 4-52

ARE PERM SOLUTIONS HARMFUL?

No, not at all harmful	9%
Very slightly harmful	26%
Moderately harmful	42%
Extremely harmful	21%
Not stated	2%
Total	103
	100%

BASE = ALL PERM SOLUTION USERS

43 respondents (40%) listed perm solution as one of the two most common chemicals they used within their job. The frequency of use of the perm solution was high with 93% of these

stating they used perm solution at least every week.

Tables 4.53 and 4.54 show the short term and long term health effects identified by the hairdressers. Both were correctly identified by at least approximately 8 out of 10 hairdressers. Protection against harm was also identified well with only 7% of the respondents stating they did not know or that they needed no protection, as shown in table 4.55.

Table 4-53

SHORT TERM HEALTH EFFECTS

Correct	53%
Partially correct	28%
Incorrect	9%
Did not know	7%
Not applicable to product	2%
Total	43
	100%

BASE = ALL MAIN PERM SOLUTION USERS

Table 4-54

LONG TERM HEALTH EFFECTS

Correct	40%
Partially correct	37%
Incorrect	5%
Did not know	14%
Not stated	5%
Total	43
	100%

BASE = ALL MAIN PERM SOLUTION USERS

Table 4-55

PROTECT YOURSELF FROM HARM

Correct	47%
Partially correct	47%
Incorrect/no protection	5%
DNA	2%
Total	43
	100%

BASE = ALL MAIN PERM SOLUTION USERS

Nearly all respondents (95%) had read the label on the perm solution, as shown in table 4.56, - only two had not.

Table 4-56

HAVE YOU EVER READ THE LABEL ON THE PERM SOLUTION CONTAINER

Yes	95%
No	5%
Total	43
	100%

BASE = ALL MAIN PERM SOLUTION USERS

4.11.5 Paints (Vehicle repair garages)

Paints are used in car repair and include a mixture of chemicals including acetone, dimethyl ketone, kerosene and petroleum distillate. Skin irritation, dermatitis, and nausea are short term health effects and permanent brain and nervous system damage are suspected long term health effects of car paint. 91% of respondents considered car paints were harmful to some degree, as shown in table 4.57. These were similar to responses found in other sectors with other chemicals with the exception of perchloroethylene.

Table 4-57

IS CAR PAINT HARMFUL

No, not at all harmful	3%
Very slightly harmful	22%
Moderately harmful	33%
Extremely harmful	36%
Don't know	6%
Total	36
	100%

BASE = ALL CAR PAINT USERS

Two thirds of the 36 respondents said that car paint was one of the two chemicals they used the most and amongst these a further two thirds (63%) used paint on a weekly or more frequent basis.

Approximately 69% of respondents correctly identified short term health effects and 46% did so for long the term health effects of car paint, and these similar results to other chemicals.

Table 4-58

SHORT TERM HEALTH EFFECTS

Correct	55%
Partially correct	14%
Incorrect	18%
Did not know	14%
Total	22
	100%

BASE = ALL MAIN CAR PAINT USERS

Table 4-59

LONG TERM HEALTH EFFECTS

Correct	32%
Partially correct	14%
Incorrect	32%
Did not know	18%
Not stated	5%
Total	22
	100%

BASE = ALL MAIN CAR PAINT USERS

Protection from car paint was correctly identified by most of the respondents as shown in table 4.31. 14% of the respondents gave incorrect answers to this question and did not identify specific reasons for their method of protection.

Table 4-60

PROTECT FROM HARM

Correct	50%
Partially correct	32%
Incorrect/no protection	14%
DNA	5%
Total	22
	100%

BASE = ALL MAIN CAR PAINT USERS

77% of the respondents had read the label on the car paint and interestingly some of those who hadn't read the label were incorrect or partially correct in their use of protection against harm as shown in table 4.61.

Table 4-61

PROTECTION AGAINST HARM BY READING THE LABEL

		PROTECT AGAINST HARM				Total
		Correct	Partially correct	Incorrect/no protection	DNA	
READ THE LABEL?	Yes	91%	71%	33%	100%	77%
	No	0%	29%	67%	0%	18%
	Don't know	9%	0%	0%	0%	5%
Total		11	7	3	1	22
		100%	100%	100%	100%	100%

BASE = ALL MAIN CAR PAINT USERS

4.11.6 Activators and hardeners (Vehicle repair garages)

Activators and hardeners are solvents used in car body repair work and include a number of chemicals such as isocyanates. The short term health effects were nose and throat irritation, respiratory sensitisation, dermatitis and eye irritation. The long term health effects were decreasing lung functioning, brain and nervous system damage and sensitising effects. 6% of activator and hardener users felt that the chemical was not dangerous as shown in table 4.62.

Table 4-62

ARE ACTIVATORS AND HARDENERS HARMFUL

No, not at all harmful	6%
Very slightly harmful	32%
Moderately harmful	26%
Extremely harmful	29%
Don't know	6%
Total	31
	100%

BASE = ALL ACTIVATORS AND HARDENERS USERS

Only 40% approximately of users frequently used activators and hardeners, out of this group most of the respondents used the chemical everyday as shown in table 4.63.

Table 4-63

FREQUENCY OF USE

Every day	69%
Every week	15%
Every month	15%
Total	13
	100%

BASE = ALL MAIN ACTIVATORS AND HARDENERS USERS

Table 4.64 and table 4.65 show the responses on the short term and long term health effects of activators and hardeners.

Table 4-64

SHORT TERM HEALTH EFFECTS

Correct	54%
Partially correct	15%
Incorrect	8%
Did not know	23%
Total	13
	100%

BASE = ALL MAIN CAR PAINT USERS

Table 4-65

LONG TERM HEALTH EFFECTS

Correct	38%
Partially correct	46%
Did not know	8%
Not stated	8%
Total	13
	100%

BASE = ALL MAIN ACTIVATORS
AND HARDENERS USERS

Many respondents knew how to protect themselves from the possible harm of using hardeners and activators with 93% of respondents answering this question correctly or partially correctly as shown in table 4.66. All had read the label of the product they were using.

Table 4-66

PROTECT FROM HARM

Correct	85%
Partially correct	8%
Incorrect/no protection	8%
Total	13
	100%

BASE = ALL MAIN ACTIVATORS AND
HARDENERS USERS

5. CASE STUDY INTERVIEWS

5.1 INTRODUCTION

Fifteen case studies were undertaken following the main survey. These were in-depth interviews with managers and employees (where applicable) of companies, intended to add qualitative understanding to the survey findings. The format was semi-structured – a list of question areas was agreed with HSE, to ensure some consistency of approach between interviewers, but interviewers pursued certain areas where respondents had particular views or experiences as appropriate. The interviews were conducted by the WS Atkins consultants involved in questionnaire development and data analysis. The names of respondents have been changed to preserve their anonymity.

5.2 CASE 1: DRY CLEANERS

This dry cleaning firm had been trading for only 6 months, with two full time members of staff, the owner Frank and his employee Danny, assisted by the owner's wife during busy periods. Whilst Frank was ultimately in charge, they shared the day to day management, and during quieter periods when only one person was needed in the shop. This rotation enabled them to stay open for long periods. Nevertheless, when busy, usually on Friday nights and Saturdays, Frank and Danny worked together.

Both Frank and Danny undertook the full cycle of tasks, namely :

- Taking clothes from customers
- Taking payment from customers
- Dealing with customer queries
- Loading/unloading of the dry cleaning machine
- Maintaining dry cleaning machine
- Spot cleaning areas of grease etc or marks that did not come out as part of the dry cleaning process
- Pressing and ironing garments

Chemicals were used for the dry cleaning machine and for the spot cleaning of garments. When Frank started the company he had opted to use a hydrocarbon based dry cleaner (Vinoy Plus from Alex Reid) mainly as he felt this was not harmful at all, unlike Perchloroethylene. Danny, when questioned separately, disagreed with Frank stating that each of these chemicals were moderately harmful. Both had similar levels of knowledge on the chemicals around in the industry such as perchloroethylene, although Frank seemed to know more about the hydrocarbon based chemical dry cleaner, of which he had received information from suppliers.

Danny had had an accident earlier in his career with an old dry cleaning machine which affected his health by causing respiratory difficulties. The machine would forcibly "spit" excess perchloroethylene along a pipe and on to the floor, mainly due to the machine being old and not being repaired in a competent manner. The perchloroethylene would remain on the floor and be dangerous on two accounts. First, people could slip up on it, and secondly, it would give off a vapour which would sit near to the ground and "form a mist". The chemical mist would sometimes make people feel faint, but it also effected him in the longer term. This event early on in Danny's career has made him much more careful when working with chemicals. He said that in his current workplace there is a much higher regard for employee safety.

Danny said one of the major hazards in dry cleaners, although not in his present environment, were hot pipes running across the room. Other hazards he mentioned included pouring used or recycled second-hand Perchloroethylene back into the dry cleaning machine in previous companies that he worked for.

Situations that would make both of them behave in a less safe way were extreme temperatures and boredom. Extreme temperatures could often be found, according to Frank, when there is no forced ventilation and people can only open a window, though in his establishment forced ventilation was present.

Tiredness was quoted by both respondents as a factor causing them to act less safely, although incidents tended to be burns from the press/iron rather than chemical in nature. Frank also stated that pressure at work and restrictiveness of personal protective equipment often made him work less safely than he would have liked to in the past. Again one of the advantages Frank noted about owning his own business was that he was not pushed by a boss, but was pushed by the customers and felt pressure to keep himself in business – however he considered himself to be very autonomous.

Frank's reported ability to control and pace work himself indicated a high level of autonomy, only constrained by the need to efficiently re-load the dry cleaning machine quickly as soon as it finished a cycle. Danny reported a lower level of autonomy due in part to general pressures of work and due to the dry cleaning machine cycle. Frank's higher reported high levels of autonomy may arise from his managerial role as it was clear from talking about the matter with both of the respondents that Frank clearly had the upper hand, and what he said, happened. In this regard, Frank often dealt with customers while Danny did the more "drudgery-type" work such as pressing and spot cleaning the garments.

Safety Data Sheets and a health and safety manual were present in the establishment. The manual was kept under the counter and had been read by both employees. Nonetheless, the Safety Data Sheets were filed away in a draw and rarely looked at.

5.3 CASE 2: ELECTROPLATING COMPANY

This Midlands company was a medium sized business with around 50 employees from which we interviewed the operations director, several members of staff and had a small factory tour. The director had been in the trade for a number of years and had very strong views on health and safety.

Tasks completed by the organisation that were chemical-based in nature included:

- Chromium plating of objects, usually plastics or other base metals
- Nickel plating
- Cadmium plating
- Cleaning of metals using various acid solutions

Most of the employees in the company worked in all or some of these processes. Health and safety was considered a priority and was training and "drilled into all employees".

Training commenced with induction training where new employees learned about health and safety procedures. All employees attended these courses even if they were experienced within the trade. The reason for this was stated by the director as follows: "there are a lot of

cowboys out there with bad practices, we do not start with a clean slate, although we do our best to get rid of any bad habits, especially ones that would cause health and safety issues”.

Further training was also given on the job. Again health and safety was watched over very carefully and anyone found not conforming to health and safety standards would be disciplined, which could go all the way to the person being sacked if they repeatedly flouted health and safety standards. The director said “nothing would compromise health and safety” - even if there was a lot of time pressure to complete the work. A safety manual was present on the premises and employees were told they had to read this and relevant safety data sheets before they could work. This was enforced as company regulations.

One of the main problems with having this very strict regime on health and safety is that other firms sometimes undercut their price by flouting health and safety law. One company that the respondent knew about was a very small operation of about five employees who were saving money by pouring cadmium waste down the drain. This was witnessed by one of the employees on a company visit. Complaints were made about this to the local council office but when the health and safety officers arrived all evidence of this operation were hidden. The director suggested that the only way to detect these firms is to examine cadmium levels in local water sources including the nearby river. One of the accounts staff also noted that pollution not only gave the industry a bad name but it affected “all of our health by polluting the very water that we drink”.

In terms of accidents the director had “seen a few in his time”. He blamed most of these accidents on human stupidity and not taking the proper precautions. However he felt that it was the organisation’s responsibility and his personal responsibility to ensure accidents did not happen. “Most accidents occur as a linear line of events, one employee may take a few shortcuts, get his work completed quicker, and in some firms is congratulated for his speed of work, this carries on until other employees also start taking short cuts, more and more short cuts are taken and then suddenly an accident occurs.” He considered that accidents are therefore not only predictable but they are the result of a number of less serious incidents which can be “nipped in the bud” by disciplinary procedures and by not congratulating speed of working if it has been done at the expense of health and safety.

Safety data sheets were received with each order of chemicals. However, official literature was often considered quite confusing, as the director said:

“Take cadmium for instance: there is no scientific proof that it is carcinogenic or that it causes any long term harm. However often the government literature does not point this out.”

The directors did not have a favourable view of the HSE and considered them not to be in “the real world”. In improving literature, materials had to relate to “real time events”. Also inspectors should bring in other measures to ensure health and safety, such as monitoring pollution in the water system and possibly secret camera filming.

5.4 CASE 3: GARAGE SERVICES

This garage service company was a one man business which had its contact basis in the home of the proprietor, Mike. He rarely worked at his home, except for dealing with the accounts, and worked on cars offsite, around the area. The company had been trading for over 13 years and had Mike as the sole employee, although his wife helped with the accounts and bill payments.

Chemical products that were used in the business mainly consisted of:

- Engine Oil
- Lubricants
- Brake cleaners

Mike rated his knowledge of these chemicals highly, and this rating corresponded with answers he gave to questions about the harmful effects the chemicals may have on health. One of the worst exposures to chemicals Mike admitted was the replacing of engine oil. This seemed hazardous even though he did this practically every day. In this task Mike would remove the old engine oil and pour it in a container for safe disposal. This container was then emptied at a “proper location” usually at other larger garages where the oil could be safely disposed. The oil was then replaced by new oil. The health problems associated with this procedure were said to be dermatological in nature but he also thought the old engine oil may be carcinogenic. In this regard, Mike said that he was “careful” when performing this task and wore gloves.

The other procedure involving chemicals Mike stated was using brake cleaner, cleaning brakes and replacing brake fluid. Brake cleaner could lead to skin problems if the cleaner was not used with some care. Mike tended to use gloves in this operation but also stated that experience was important in dealing with these chemicals safely.

Mike’s business is run from home where he lives with his wife and his four year old child. Chemical products are stored at his home but they are kept in the garage under “lock and key so people can’t get to them”. Although the interviewer did not see where the chemicals were kept, he assured us that the chemicals were safely stored and indeed they had to be not only because of legislation but because of “little fingers” i.e., his naturally curious child.

In terms of information about chemicals, Mike stated that he received no safety data sheets and only used the labels/details on the chemical containers. These labels, Mike stated, were generally understandable although a child would not understand the label.

In choosing a supplier, Mike said that customer service was the quality he valued the most as opposed to selecting on the basis of price. For example that he liked prompt service from the chemical suppliers and he valued the 1- hour delivery service that a few of the suppliers offered.

In acting less safely at work, he admitted that pressure to get jobs completed was a contributing factor. Mike stated that compared to 15 years ago there is now much more “pressure to perform”. This is a good thing as it has “driven out the cowboys and those who do an unprofessional job”. However job pressure can also be a bad thing as they lead to short cuts having to be made to get the work done, sometimes with safety implications.

5.5 CASE 4: DRY CLEANERS

This dry cleaning firm had 4 shops in total of which 2 shops were “collection-only” points not having cleaning facilities on site. The organisation employed 11 people of which 4 were part time. The manager interviewed was not the owner of the business but managed the business in the owner’s absence.

The manager, Jan, performed a number of tasks in the firm of which spot cleaning and dry cleaning used chemicals. Other employees also used chemicals within the firm but they had

to be either experienced or well trained in the use of chemicals to be allowed to do so.

Jan's knowledge of the short term and long term health effects of using chemicals was excellent. This knowledge came from several areas including

- Health and safety training
- Safety data sheets
- Environmental bulletins
- Labels

Jan had received health and safety training in other firms but promoted the knowledge gained from this training to junior members of staff providing on the job training as necessary. In hiring new staff, Jan tended to hire experienced people as they can "get on with the job without too much training". Nevertheless, some of the staff were inexperienced and as a result were given jobs not involving chemicals, such as collecting clothes from the counter. Inexperienced staff would complete these tasks initially and then learn other tasks such as how to operate the dry cleaning equipment.

Jan approved of the level of detail in Safety Data Sheets and on product labels, stating that these were "self explanatory" and that no improvements were necessary as she found them quite clear.

In taking precautions at work Jan also had a high level of knowledge of correct handling of perchloroethylene and the spotting agents. The precautions used included

- using an up-to-date machine that was a closed engineering environment
- using gloves to protect against the spot cleaners or to stop perchloroethylene spills on the hands
- using respiratory aids when swapping over the perchloroethylene
- using forced ventilation to clear the air of any gases emitted by the perchloroethylene

However she thought that "not many people" actually take these precautions. The primary reason for this was job pressure and the amount of time it would take to put on the personal protective equipment. In discussing job pressure further, Jan stated that time was dictated by the volume of work and amount of time given by the customer to complete the work. In times of high demand "people will take shortcuts, knowledge is then useful to know how far you can go."

Jan did not know any of the legislation concerning chemical usage in the environment. She felt as though this was not a problem as she knew about the risks involved in her work and would only need to know about the legislation if she wanted to sue the company!

Jan had personally witnessed a boiler, used for producing steam, catching fire and a "few" chemical spills. She also knew of a case of a lone worker who was cleaning out a dry cleaning machine and slipped on the perchloroethylene and was made unconscious because of the perchloroethylene fumes. The person laid unconscious in the perchloroethylene all night until someone discovered him the next day when he was rushed to hospital. Surprisingly, although he had spent up to 6 hours practically bathing in perchloroethylene he survived although with irreparable skin damage as the perchloroethylene had taken most of the oils out of his skin.

5.6 CASE 5: ABC MOTORS

ABC motors is a one-person business, which for 25 years has serviced and done mechanical repairs on vehicles. It is situated in a small workshop and yard in a side road near to a railway station in a small town in southern England. The owner, Steven, aged 50, uses a variety of products containing chemicals including paints, activators, hardeners and fillers, but deals with greases and oils more than any other. He is fairly well aware of the potential short-term effects of these greases and oils, but has admitted he knew nothing of any longer term dangers. He always uses latex gloves when working with these to avoid skin irritation and to reduce grime. Steven considered the most dangerous product to be a solvent spray used for cleaning carburettors, which he treats with some respect and always uses outside only, even in bad weather. However he does not use a mask for this, and considers that the “ventilation” supplied by outdoor use and the fact that he only uses it for short periods, is adequate protection.

His cleaning/de-greasing products came from a major supplier, with representative visits monthly. Steven had never discussed safety issues with the representative, and noted that the representative is motivated to sell, rather than explain health hazards. Other supplies such as vehicle parts, oils and batteries are obtained wholesale from motor factors.

He reads labels on the chemical products, and would ask his representative if he needed further information, and failing that, would contact his company direct. However he has never needed to do so. He has not heard of Safety Data Sheets nor could he mention any Health and Safety rules or regulations.

He considers himself fully responsible for his own safety, can work at his own pace and likes being his own boss. He thinks his safety standards are good and claims not to “cut corners” – noting that an advantage of being a one-person business is that there is no-one pressurising him to do so. He has known mechanics who have suffered from dermatitis, and noted that nowadays all mechanics he knows wear disposable latex rubber gloves.

He sees “common sense” as very important in the approach to safety, and considers it to involve thinking about his actions and taking responsibility for them at all times. With respect to chemicals this includes keeping them in their correct containers, and taking sensible precautions. He says he feels this more keenly as he works for himself: there is “no-one else is to blame if I have an accident”.

He considers the precautionary information on labels to be quite good, though notes that there is no information on actual harmful effects of the product (though he thinks that no manufacturer would voluntarily put this on the container or the product would not sell).

To improve the level of health and safety in garages generally, he considers HSE should inspect one-person businesses, not just larger ones.

5.7 CASE 6: WOODEN FURNITURE MAKER

Mike, the manager and partner of this small furniture maker in Birmingham, has 7 staff with 2 of these working part-time. The firm’s main activities are:

- customised manufacture of wooden furniture
- polishing and protecting wooden products
- staining and colouring wood based products

- designing larger pieces of furniture
- carving furniture
- turning wood by lathe

Of these, polishing, protecting and staining wood involved the use of chemical products.

The polishing and protection of wood was achieved by applying wax. This is used in a paste form which avoids splashes commonly associated with water based wax. The wax is also tolylene free which means that it contains very few manufactured chemicals. Waxing the furniture protects the wood and provides it with a coating to protect it from scratches and everyday knocks.

Staining involves more chemicals but again the firm uses water based stains rather than solvent based ones, to try and provide a “safer” working environment protecting the workforce from harsher chemicals.

The main precaution used against chemical based hazards is therefore to reduce the risk by using chemicals that were not as dangerous as others on the market. Other precautions include natural ventilation, eye protection and gloves. However these precautions are not insisted upon by the firm. On the wearing of personal protective equipment the manager said:

“Not all the time, it is sometimes difficult, lads are aware of the danger and it is up to them to protect themselves, it is their responsibility”

Mike therefore saw the responsibility of the company was to provide protective equipment but it was then the responsibility or the choice of the workers to wear it. He quoted COSHH regulations as an example of legislation and stated that these were as good as guidelines for protection against harm at work.

He had also come across safety data sheets but had no comments on them or on product labelling. On further questioning, Mike said that he assumed his workforce had read the labels and the safety data sheets. However there were no checks in the organisation to ensure that employees did so.

Mike considered that knowledge about chemical products came to the organisation when employees went on specialised training courses, and it was also passed down from experienced individuals to non-experienced individuals. However all of this training was concerned with the technical aspects of the job though included some health and safety as an important part of the process.

5.8 CASE 7: DRY CLEANERS

This involved a very small dry cleaners located in a side street of a home counties village. The firm consisted of two partners and one part time worker. The part time worker had difficulty in understanding English and as a result only the two partners were interviewed in the shop. At the time of interview most of the work was being carried out by the part time worker.

The shop used a number of chemicals common in the dry cleaning trade such as spot cleaners and perchloroethylene. One partner, Ahmed, stated that perchloroethylene removes most of the stains in a garment and that spot cleaners, which he considered to be more dangerous, were used as little as possible. Ahmed and his partner Joe were very concerned with health and safety and said that nothing would make them work less safely as they were concerned

about their own health and both wanted to live to a “ripe old age”. Neither had ever witnessed any dangerous incidents involving chemicals.

They now preferred garments to be cleaned through a new machine that they had purchased. The machine was totally enclosed and they said health and safety only became an issue when performing spot cleaning, which they tried to minimise, and when cleaning out the machine - for which they obtained a professional service from the machine manufacturers.

In terms of information on products, they said suppliers were their main source. Suppliers gave information regarding chemicals either in information sheets (presumably safety data sheets) or through verbal explanation via representatives who visited the shop. Both partners preferred verbal explanations as direct questions could be asked that were relevant to their working environment. When asked about labels they replied “we don’t read every label”.

A visit from a health inspector was cited as a very useful form of information. In a recent visit the health inspector examined the site and told Ahmed a lot of useful information that he did not previously know – for example tips such as putting lids back on chemical vats, being careful of particular solvents and how to deal with particular chemicals. All of this information was taken seriously by Ahmed and he instructed his partner on the lessons learned from the inspectors visit. Such communication between the two was primarily aural in nature.

On the subject of written information promoting safety, Ahmed stated that if information about using chemicals safely was free from the HSE, then he would seek to obtain some. However, he did state that the information needed to be simple to understand.

5.9 CASE 8: LADIES HAIRDRESSER

This ladies hairdressers had been trading for about 6 years and had grown from one to two shops. There were 17 employees with the majority being located in the original shop. The firm conducted a number of tasks involving chemicals which included colouring, bleaching and perming hair. All of these products are considered by the manager to be potentially dangerous, examples of which include:

- bleach burns
- bleach damage to the eyes, which can be common as if you are wearing gloves and you have an itchy eye - bleach can enter the eye and cause problems
- perming lotion can also be harmful and the customer can get burns if the lotion gets on their scalp
- stains can also be a problem as the staining product can get into the skin and be impossible to wash off

One hazard that the manager did watch out for was possible diseases that could be transmitted through blood. Some of the customers were not particularly clean and would have “scabby” or bleeding scalps. The manager knew of one particular client who had the AIDS virus but would not say how she knew this information. Any hairdresser cutting the hair of this AIDS sufferer had to wear gloves and was strictly not allowed to use razor blades or anything that could cause bleeding. Barbecide was used on the razor blades but this disinfected the razors only and may not kill all “bugs”. Other hazards mentioned included catching colds, head lice and spitting! Interestingly, chemical hazards were seen as less of a threat compared with other hazards in the workplace.

Personal protective equipment was available to employees but it was considered up to individual employees to protect themselves from any chemical hazards - the manager did not regularly monitor to see if employees were wearing them.

Training in the firm was given through several sources these included:

- training provided by the supplier of chemicals: this consisted of 1 or 2 day workshops learning about the products and about health and safety
- training through college courses
- on-the-job training.

The company used one major supplier of chemical products. This supplier provided:

- training as mentioned above
- a 24-hour helpline that could be used if there was a problem with one of the clients or employees reacting badly to the chemical products
- safety data sheets
- sales representatives who can be asked questions on health and safety.

The manager said employees would never act less safely at work at any times. Though she noted that “some people do not like wearing” gloves and personal protective equipment. She had never witnessed any accidents involving chemicals largely ascribing this to taking “some care” in their work. New information, for example from the supplier, was distributed through the company via the manager who assessed its importance and then distributed it to staff if appropriate.

5.10 CASE 9: DRY CLEANERS

This dry cleaning firm was located in a busy part of Birmingham and received work through shop visits with customers dropping off their laundry. The firm also had a contract with a local hotel which supplied them with a constant stream of work. There were two full time members of staff - the owner and his employee, who tended to work together. Both employees were seen although only the owner was interviewed at length.

Only the owner used chemicals within the business for spot cleaning and filling the dry cleaning machine with perchloroethylene. The owner did not let his employee either touch any of the spot cleaners or the perchloroethylene. This was because he felt that he was the only one suitably qualified to work with the chemicals.

The owner was asked where his knowledge of dry cleaning chemicals came from, to which he replied “they (the knowledge of chemicals) have been imparted verbally” - through working in other dry cleaners. In addition, the owner also used Safety Data Sheets sent by ICI-approved suppliers as a means of gathering information on chemicals and their health effects.

Although the owner quoted “respiratory illness” as a short term health effect of exposure to perchloroethylene, he did not know any long term health effects from using the chemical. He was also asked to mention health and safety laws and regulations at work and guessed at “COHSE” incorrectly meaning COSHH (Control Of Substances Hazardous to Health). This lack of knowledge was explained away by saying:

“The machine is enclosed, so there is minimal handling of the perchloroethylene, all the action is in the enclosed machine so there is no danger”

In this regard, although the owner did not have a complete knowledge of the chemicals he used in the dry cleaning process, he felt quite safe from the chemicals as they were contained in an enclosed environment. The spot cleaners were also kept in small plastic containers each of which had an applicator nozzle. The spot cleaner could thus be added to the stain and then steamed off via a steaming hose.

When asked about company health and safety policy, the owner said he did not have a health and safety manual and stated that health and safety was his own concern. No other employee was involved with using the dry cleaning chemicals so as a result a health and safety manual was only necessary for instructions to workers from managers in larger firms.

In choosing suppliers, health and safety was the owner's primary concern. The suppliers had to be authorised by ICI to sell perchloroethylene. The owner would not be willing to compromise on this and did know that second-hand perchloroethylene was being sold but "would never touch the stuff". The suppliers were dealt with directly through telephone sales agents but would also send representatives round from time to time. The representatives that were sent could be asked for information not only based on the Safety Data Sheets but also based on their practical experience with other companies. This sharing of knowledge between customer and supplier was essential for the owner to know about safe and correct practices in dealing with chemicals at work. Safety Data Sheets could also be used but it would help if they were easier to understand especially in terms of explaining possible health effects of the chemicals.

The owner knew of accidents in other industries, some of them involved chemicals, and including a fatality, which he said did make him act in a safe manner at work. In discussing workplace hazards, electricity was named as the biggest hazard as if all the machines were used at once it would blow the 100 Amp fuse with some force. Employees were thus told that they could not use all the machines at any one time.

5.11 CASE 10: LADIES HAIRDRESSER

This ladies hairdressing salon had only been trading for about 18 months although the manager and most of the staff had worked in other organisations. There were eight employees in total one of which was part time. The manager and owner of the firm was interviewed along with two members of staff.

The firm conducted a number of tasks involving chemicals which included

- shampooing
- colouring
- perming
- relaxing, the opposite of perms using straightening chemicals
- using mousse in the hair
- using setting lotions
- using hairspray

Personal protective equipment was provided by the manager which included: aprons, gloves, barrier creams and even face masks for the client and sometimes the employee if they were sensitive to the product. The manager felt that it was her responsibility to ensure health and safety within the organisation. Indeed one of the employees stated:

"I wasn't wearing gloves the other day and she (the manager) gave me a right telling off".

The manager's knowledge of the health effects of the chemicals used was then checked with a number of short term and long term effects being listed. An interesting comment regarded "addiction" to chemical hair sprays:

"you get used to it (the chemical hairspray, you) like the smell and get quite addicted to the smell. The smell attracts a lot of hairdressers to the business as they can't get enough of the stuff".

This strange statement made by the manager was also reaffirmed by one of the employees. Despite this aerosol addiction, which was a by product of the trade, health and safety with chemicals seemed to be a high priority amongst the staff.

Training mainly consisted of college training and on-the-job training. Qualifications were seen as vital by the manager and essential for the trade. "However many firms operate with no qualifications at all and unfortunately the general public do not demand to see qualifications before they get their hair cut or treated. This means that sometimes we are undercut in price as the competition may not have any qualified staff."

External inspections were seen as important, and inspectors reinforced the manager's views on health and safety. Inspectors came from the local Borough Council in the form of health inspectors and college inspectors.

In terms of accidents, the manager felt that her last partner was "an accident waiting to happen":

"She would not wear shoes, wasn't particularly clean, and would leave chemicals everywhere, one incident involved leaving a cut throat razor in a trolley and an accident happened as a result."

This did affect the manager as she left because of her former partner.

"I am sensitive to this now, and would go mad if I saw a breach in health and safety (leaving chemicals out, etc) I am very hot on health and safety".

The manager had purchased health and safety material from "government sources". She liked the information but simplified it when creating the company's health and safety policy. This was written down and actually given to each staff member. One copy was shown to the interviewer by one of the employees who produced it from her handbag.

The manager felt that overall there should be more health inspection visits and more regulations governing the hairdressing industry. She said: "It is not fair when people trade without a licence and without any qualifications and can get away with it."

5.12 CASE 11: FENCING AND WOOD PRODUCTS MAKER

This south-west based business dealt with the preparation and manufacture of wood products directly from forest timber. The business had one full time employee, Joanne, who owned it. A result of the seasonal nature of the business other staff were hired on a temporary basis with fixed term contracts spanning the spring and summer months.

Many of the tasks undertaken by the firm involved the use of chemicals including:

- dipping products in creosote
- treating wood with Cuprinol and other wood preservatives
- painting fence panels with creosote

Joanne stated that they used to use a cyanide-based wood preserver. However she stopped using this because it was “deadly” and needed specialised equipment which used pressure to force the preservative into the wood. Joanne was then prompted about creosote and asked whether this was a safe chemical to use. She stated that creosote was safer as it was not cyanide based but was still a deadly chemical having carcinogenic effects in the long term.

The biggest danger with the chemicals used was the boiling of coal tar. This was done in a large vat in the open air whereby the coal tar was produced and then applied to the product (shed roofs etc). The main problem with this material was that it could be spilt or could combust. However adequate personal protection was used in performing this task.

“I wear a large rubber suit which is all enclosed with a respirator and suitable protection.”

Joanne would also wear this rubber suit in the application of creosote mainly because of its health hazards.

In dealing with chemicals Joanne refused to let any of her employees (seasonal workers) have anything to do with the application or preparation of the chemicals. This was because they did not have the same level of experience as her in working with chemicals.

“I know about the chemicals but I don’t know if my employees are sensible”

She would therefore not let any other employee use the chemicals on-site. Consequently health and safety policy with regard to chemicals was for herself only. Other issues such as chain saw safety, etc, were part of the employees agreement and she would tend to find employees that had suitable training in forestry knowledge.

Accidents witnessed by Joanne were non-chemical in nature and tended to be due to human error. One particular case involved a circular saw where two employees were chatting around the saw, not concentrating on what they were doing and as a result an accident occurred. Observing accidents such as these made an impact on Joanne and would make her act in a safe way. Joanne’s litmus test was “would I ask my kids to do that?”

Joanne had not come across safety data sheets for the chemicals that she used. She suggested that this was because they were from the local Farmers Union and she would only buy 45 gallon vats at a time. Labelling was found on these chemicals and Joanne commented that the labelling was good, but on further questioning could not recall any of the details.

Joanne would like to see more health and safety training within the wood industry. This she felt was the primary way to reduce human complacency and reduce accidents at work.

5.13 CASE 12: ELECTRO NICKEL PLATING COMPANY

This company was a family owned business in the south west, and the General Manager was interviewed. He was not a member of the family that owned the business but was appointed due to his wealth of experience in the industry which he had been involved in the plating industry for over 30 years.

The working environment contains chemical fumes at sometime during the working day, and all 30 employees of the company worked in this environment. Nonetheless, only 4 employees have direct dealings/handling with the chemicals used, and create the mixture of chemicals required for preparation of metal items to be plated. Chemicals are also used during the actual plating process. The same staff have the responsibility of adding chemicals to a vat which already holds an existing mixture of chemicals - the 'effluent treatment'. The chemicals used are: chromic acid/sulphuric acid, hydrochloric acid and nickel.

Only the senior management team are allow to order and sign for receipt of any chemicals received, and the company only uses audited suppliers. Instructions on the use of chemicals, and the necessary handling requirement is received with each order. No official literature is received via any other means.

A safety manual was present on the premises. It is a company requirement that all employees take part in their induction programme which incorporates the written safety policy together with the relevant training, and goes hand in hand with all handling or working in the environment of chemicals. The company also employs a Safety Officer, who works on other duties although safety checks form part of his working day.

Safety equipment is available and used through the company, this includes the use of overalls/ safety gloves/boot/ ear-muffs/helmets and goggles. It is a rule of this company that the PPE is always worn.

Safety standards appear to be high: any accidents must be reported and logged in the company accident book. Accidents these days are rare. Occasionally burns to the skin or splashes to the eye may occur but these are dealt with immediately.

Dangerous incidents experienced by the interviewee during a lifetime in the plating industry include a person walking over wooden plank over a vat of chemicals, and then falling in legs first. Extensive burns were received by the person who was then hosed down with water to try and remove the chemical acid as quickly as possible. However the accident resulted in a fatality due to shock. As a result of this accident, a set of extra safety procedures were put in place in case the accident was repeated.

This case study clearly showed the effect an accident can have on a working environment - it shocked the management into positive action aimed at reducing or dealing with hazards in the workplace through a health and safety policy.

5.14 CASE 13: HAIRDRESSER

This hairdressing salon in a high street in a small town in southern England has been in operation since 1962. Its 1960's decor has deliberately been maintained, which lends it a definite feel of that era, and it attracts a mainly older clientele. David, the owner/manager had 10 years' hairdressing experience before opening the salon, and approaching 50 years experience over his professional lifetime. He employs two part time staff who work 3 and 4 days per week. David proudly asserts that they have 100 years worth of hairdressing experience between them.

As with all ladies hairdressers they use a wide variety of chemical based products including peroxides, perm solution, colourings and hairsprays. David showed a good knowledge of the short and long term effects of these products, which he claims to have picked up by experience, and by keeping in touch with developments, for example as a member of the National Hairdressers Federation and the National Hairdressers and Wholesalers Association. He said his staff were knowledgeable on product hazards as well, on account of their experience. (Neither was working at the time of interview, preventing a direct check of this.) He produced a booklet on hazards produced by the Hairdressing Manufacturers and Wholesalers Association.

He was particularly aware of the risks and consequences of dermatitis and had known of several young hairdressers who had abandoned their careers due to severe dermatitis. David and his staff wear gloves and apply barrier cream as a matter of course. He noted that some salons did not supply these to employees, who consequently had to supply their own, and he considered this to be bad practice on behalf of the employer. However, he considered himself to be a careful employer - for example he always insisted on skin testing the clients before using hair colourings, and was careful to ensure good ventilation in the salon at all times.

There was one type of product he avoided, despite having been on a course to learn its proper usage, and this was hair relaxation/straightening product for use on 'afro' hair. He considered a hairdresser needed regular experience to use this and develop the competence to know when to remove it from a clients hair - it can easily cause skin irritation hair and damage. He thought accidents were more likely where it was only used occasionally by a salon, as opposed to it being a regular requirement, and thought his salon would be in the former category.

He obtains perm solutions and colourings from manufacturers representatives, who visit monthly. He considers them to be very knowledgeable on the potential dangers of products, as most are ex-hairdressers themselves. If he required further information he would go direct to the manufacturers - a "simple phone call away". For sprays he sources his supplies from wholesalers. He considers the safety information supplied with the products to be good.

He noted two common sources of accidents concerning hairdressing products - firstly where staff had kept products in the wrong containers and they were mistakenly used. Secondly, he had heard of instances involving unregistered mobile hairdressers who did not declare their occupation to the authorities. As wholesalers usually require a business card or VAT details to allow purchase of trade products, and such persons typically had neither, they were forced to buy retail products. They often treated them "as if they were trade products", for example trying to achieve more effect, and sometimes with adverse consequences, e.g. burns to the scalp.

He had compiled a risk assessment manual because he was asked to do so by the local council's environmental health services. He did not object to this requirement but found it

rather onerous having to use so many sources of information (including information from local council and the Home Office), in order to be aware of the requirements and ensure he was complying with them.

David seemed well aware of the appropriate legislation and regulations applicable to him as an employer, including COSHH, and quoted the Shop and Light Railways Act covering staff facilities, safety, ventilation, seating etc (This was replaced by the Workplace (Health, Safety and Welfare) Regulations 1992). He displayed health and safety posters on storage and usage of chemical products in the cellar where supplies were kept.

He only thought communication with staff on health and safety issues was appropriate when new products were introduced, or some new findings on a product emerged, in which case he discussed the issues with staff and instructed them as appropriate. Being a small firm, he considered verbal communication with staff to be adequate for this. He noted that health and safety issues in hairdressing had not changed much in the last 10 years - the potentially harmful products are the same now as then.

He had a high opinion of his current staff, but described two categories of staff he had considered difficult and potentially dangerous in the past. Firstly trainees close to the end of their training but without much experience frequently tended to "know it all", were difficult to manage and consequently were potentially dangerous, and needed careful overseeing. Secondly, he rather lamented the fact that the "general level of education and intelligence" of those entering the profession had dropped in recent years, and those entering generally had a "lower level of common sense" than previously. He considered young men were often "slap-happy and dangerous", liable to badly time perms, apply colour to damaged hair etc.

He believed in explaining and demonstrating hazards to new staff as you cannot ensure they will read written health and safety material. For example he would demonstrate the flammability of hairspray by igniting it with a cigarette lighter, explaining to the trainee that it "could be someone's eyes in the way of that (jet of flame)".

However, he generally did not consider hairdressing to be a dangerous occupation provided common sense was applied in conjunction with some basic knowledge (e.g. to see what the product is he says "sniff the stopper not the bottle"). He claimed to be very safe personally in all aspects of his life, especially in DIY tasks involving ladders.

In terms of improving information on safety in hairdressing, he thought the basic information supplied with products was adequate, though considered that managers or senior staff in firms should instruct staff directly and verbally, as a manager cannot ensure that someone reads and digests written material. He also thinks that a more co-ordinated approach by the various relevant bodies (trade associations, local councils, government departments etc), would make it much easier for employers - he said "two thirds of my knowledge of safety regulations is second hand" - i.e. picked up during general conversation with other hairdressers.

5.15 CASE 14: HAIRDRESSERS

This unisex hairdressing salon is located in a high street in a suburban shopping centre, and has been running for 12 years. It employs 7 staff: 3 full time and 4 part time. The owner manager is from Cyprus and has 25 years experience in hairdressing. Despite being a unisex salon the clientele is over 80% women, with a wide age range, and the salon provides the usual range of hairdressing services.

The manager appears to have a very relaxed attitude to health and safety, in the sense that whilst he recognises its importance he does not consider hairdressing is a dangerous occupation, and strongly believes that if staff are competent - as he believes that all his staff and the majority of salon staff are - then the chances of any accidents or harmful effects from products is very low.

Consequently whilst he appreciates that peroxides, perm solutions, colourings etc can be harmful, he considers that sensible use, including the wearing of protective gloves if dealing with the more concentrated or potentially staining solutions, is sufficient. He has an awareness of the possible harmful short term effects of exposure to these products, but seemed unaware of any longer term effects.

He believes the warning labels and messages on the containers are an adequate and effective means of communicating hazards to users, and he has faith in the "safety checks" conducted by companies during product development. Whilst his English is adequate for day to day conversation, it would certainly not be described as fluent, and he appears to rely on the hazard symbols on the container for information.

Supplies are bought from three representatives who make regular visits, each representing a major manufacturer. He says they occasionally speak about health and safety issues when a new product was available, but these are nearly always from the same family as existing products, so the hazards are the same. He claims no need of further health and safety information but would contact the representative or his company if necessary.

He keeps a careful eye on his staff, notably those less experienced, and ensures he speaks to new staff, especially younger ones, about safe use of products and salon health and safety generally. His hairdressers are all college trained, and he has a high opinion of the value of their training. However he employs two schoolgirls to assist on Saturdays, and says he is careful to oversee them and restricts their handling of products. Similarly, he is careful about who prepares the colour mixes, for reasons of safety and professionalism - he prefers to do this himself where possible.

Communication with staff over health and safety is purely verbal - he has no written documentation for staff, and tells new staff to read the safety information on product containers.

A few years ago the salon received a visit from a "health and safety person" but he was unsure which organisation they represented. As a result he has a poster on aspects of safety on a basement wall, but this does not cover products containing chemicals. He was unaware of COSHH or any other rules and regulations concerning handling of chemicals. He said he had heard of Safety Data Sheets but had no knowledge of what they were.

He has had no accidents concerning chemicals at the salon, though he has seen clients whose hair has been badly treated by mobile hairdressers who have not been trained - he considers these to be the only dangerous people practising hairdressing - he has great faith in the abilities of staff in professional salons.

5.16 CASE 15: HAIRDRESSERS

This Midlands company is a family-owned limited company which has been in business for

over fifteen years. We interviewed the senior manager who is a family member. The other two senior staff are also family members, and have additional experience in other hairdressing businesses.

The company employs four additional staff, only three of whom are involved in the use of chemicals. The main chemicals are:

- hair colorants - used in the process of hair dying
- perming solutions - used for permanently curling or straightening hair depending on the clients request and the method used.
- cleaning agents - used in cleaning of the equipment use in any of the hair processes, and salon for general hygiene purposes.
- other products are used to wash hair and enhance its appearance

There are three processes for ordering chemicals: by telephone, at which point a purchasing code is requested; by visiting a wholesale warehouse; or by placing an order with a visiting representative of a hair specialist company. A close relationship has built up over time with the representative, who is also available to give expert advice on products and their correct use. The Salon Operations Manager, a qualified hair technician, is the only person who has the authority to place chemical orders

There is a "Safety Fact Sheet" produced by the firm, which all new members of staff are obliged to read and digest, before commencing any type of work. This sheet is reviewed and updated periodically by the operations manager. Staff are expected to re-read it whenever it is changed. Additionally, safety instructions are printed on both the boxes or the bottles of the chemicals. This salon uses the same chemicals repeatedly.

The management consider themselves to be proactive with respect to safety, and feel this is necessary if the business is to be successful. All chemicals are locked away, with screwed tops safely in place, to avoid spillage or mis-usage. Staff are encouraged to take regular breaks to reduce tiredness and therefore lessen the possibility of error.

Protective equipment is used in the salon as the norm. Gloves are used by the person applying the chemicals to the hair, and waterproof capes are used over the top of an absorbent towel to protect clients' clothes and skin from any bleaching agents. Barrier creams and sprays are use to protect the skin, and in some cases where especially sensitive, the scalp.

There have not been any incidents within this business, and the manager feels that where accidents occur in hairdressing, it is the fault of the user and not the product.

The Senior Manager felt safety was adequately covered within this profession, and that for a long time pressure has been put upon suppliers to improve their products to become more environmentally friendly, to stop testing on animals and for products to be less toxic, and that this had contributed to their safety.

6. GROUPING FACTORS

6.1 INTRODUCTION

This chapter consolidates earlier results by considering the different aspects to working with chemical products, and the relationship between these aspects. Specifically, it assesses the extent to which good knowledge about the products is related, if at all, with claimed safe behaviour, awareness of symbols and language used to alert users of hazards, and so on.

Our questions group into the following areas or factors concerning user knowledge, attitudes and behaviour with respect to chemical products:

- perception of harmful effects of chemical products used
- actual knowledge of harmful effects of chemical products used
- extent of claimed safe behaviour with chemical products used
- knowledge of language used in communications and hazard symbols
- sources of information on chemicals
- accuracy of perception of hazards from general attributes of chemicals

The above would appear to cover the more tangible aspects of users interface with chemical products. Other variables including psychological, lifestyle, basic demographic and company attributes are also associated with this interface as has been explored earlier. However, it was considered appropriate to look for user patterns on the basis of the list of above ‘factors’, and then see how these vary by the secondary attributes, rather than to include sex, age, sector, size of firm, psychological profile etc as ‘drivers’ in the grouping.

6.2 APPROACH

The questionnaire was assessed to map questions onto the above factors, i.e. to create composite variables from combinations of related questions. For example, the factor “Perception of harmful effects of chemical products used” is derived by combination of the scores of these two questions:

- Q8: Overall, how much do you feel that your health is at risk from chemicals in the products you work with?
- Q10: For each of the chemicals (named above) do you think this product can be harmful in any way?

Similarly, the factor “Actual knowledge of harmful effects of chemical products used” is arrived at by combination of question 12: “What harmful health effects may the product have in the short term?” and the next question which asks the same for the long term.

The full mapping of questions to factors is given below:

Table 6.1

Mapping of questions to factors

	Factors	Questions	Comment
1	Perception of harmful effects of chemical products used	Q8 Overall, how much do you feel that your health is at risk from chemicals in the products you work with? Q10 For each of the chemicals named above do you think this product can be harmful in any way?	Basic addition of scores. perception may be very different from the truth
2	Actual knowledge of harmful effects of chemical products used	Q12 What harmful health effects may the product have in the short term? Q13 What harmful health effects may the product have in the long term?	Addition of scores.
3	Extent of claimed safe behaviour with chemical products used	Q11 About how often do you use this product? Q14 How do you protect yourself from harm from the product?	Combination of frequency of use and / lack of awareness of appropriate protection. The risk scale is then reversed.
4	Knowledge on hazard symbols and relevant language (see note at top on danger of this being too "bare").	Q71 Could you tell me what these symbols mean? Q77 Please could you tell me the meaning of each of the words (nausea, carcinogenic etc)	Basic count of number correct.
5	Variety of sources of information on chemicals	Q66 Where did your knowledge come from about the chemical related products you work with?	Count of number of sources of information.
6	Accuracy of perception of hazard from general attributes of chemicals	Degree of agreement/disagreement with: Q59 If a product does not have a smell it is probably safe. Q60 Colour is a good indication of how dangerous a product is Q61 If a product gives you a burn or tingling sensation, you should be concerned. Q62 The more you use a chemical the less likely you are to be concerned about the chemicals dangers.	Addition of scores (Q61 reversed)

In this way scores were generated for each factor, and these were scaled so each was in a range of 0-8 for ease of comparison. The factors are “coherent” in the sense that low scores corresponded to low levels of knowledge, safety, perception of danger, and vice versa, again for ease of interpretation. The factors all show a reasonable spread of scores between 0 and 8.

More interestingly, the factors yield some notable differences when cross tabulated - an example for each factor is shown below. For example more users in electroplating firms rate their chemical products as harmful than in dry cleaners (34% of scores in the 6-8 range – high potential harm - against 13%). Note that the base for all these tables is the 479 users of chemical products, and that percentaging is vertical, showing the distribution of factor scores

for each sector. Glancing across the sectors reveals the differences.

Table 6.2

Factor 1: Perception of harmful effects of chemical products used

	TYPE OF BUSINESS					Total
	Hairdressing	Garages	Wood Yard	Electroplating	Dry Cleaners	
Factor score: 0 - 3	7%	6%	13%	6%	19%	10%
- 6	73%	74%	64%	60%	68%	68%
- 8	20%	20%	23%	34%	13%	21%
Total	113	100	104	67	95	479
	100%	100%	100%	100%	100%	100%

BASE = USERS

Actual knowledge of the short and long term harmful effects - high scores correspond to high levels of knowledge - is better amongst hairdressers and electroplaters than among dry cleaners (36% and 24% in range 6-8 against 9% respectively).

Table 6.3

Factor 2: Actual knowledge of harmful effects of chemical products used

	TYPE OF BUSINESS					Total
	Hairdressing	Garages	Wood Yard	Electroplating	Dry Cleaners	
Factor score: 0 - 3	20%	32%	45%	30%	59%	37%
- 6	43%	48%	41%	46%	32%	42%
- 8	36%	20%	13%	24%	9%	21%
Total	113	100	104	67	95	479
	100%	100%	100%	100%	100%	100%

BASE = USERS

Exposure to risk was measured by proxy as a combination of lack of appropriate protective measures, and frequent exposure to the product. The scale was then reversed to give a relative safety measure, factors 3. Many hairdressers and dry cleaners score lowly on this relative safety measure (55% and 61% in low range) whilst far more woodyard users (24%) score highly, much higher than other groups.

Table 6.4

Factor 3: Extent of claimed safe behaviour

	Hairdressing	Garages	Wood Yard	Electroplating	Dry Cleaners	Total
F3: Safety with products used Score: 0-3	55%	32%	37%	33%	61%	44%
- 6	40%	67%	39%	58%	38%	48%
- 8	5%	1%	24%	9%	1%	8%
Total	113	100	104	67	95	479
	100%	100%	100%	100%	100%	100%

BASE = USERS

The above factors were measures specific to the sector in question – hence hairdressers were asked about the short and long term effects of a different set of products to garage employees, and so on, so the results are confounded with the sector’s characteristics. However the remaining factors were derived from identical questions: for example factor 4 below reveals a much higher knowledge of standard hazard symbols and language among electroplating than for other sectors.

Table 6.5

Factor 4: Knowledge on hazard symbols and relevant language

	TYPE OF BUSINESS					Total
	Hairdress ing	Garages	Wood Yard	Electropla ting	Dry Cleaners	
Factor 0 - 3	24%	8%	8%	4%	19%	13%
score: - 6	73%	83%	75%	54%	75%	73%
- 8	3%	9%	17%	42%	6%	13%
Total	113	100	104	67	95	479
	100%	100%	100%	100%	100%	100%

BASE = USERS

The above results can also be obtained by considering mean scores on each factor. In this case all the above results are significant at the 0.01% level. (Indeed the sample is of sufficient size for any difference of interest to be significant at least at the 5% level.)

A similar but less pronounced pattern emerges with Factors 5 and 6 revealing dry cleaners to have less sources of information and accuracy of perception of chemical hazards than other sectors, notably electroplaters.

Table 6.6

Factor 5: Variety of sources of information on chemicals

	Q51 : RECEIVED SUPERVISION INSTRUCTION OR TRAINING ON H&S				Total
	Yes - not in last year	Yes - within last year	No	Don't know/not stated	
Factor 0 - 3	36%	37%	54%	33%	40%
score: - 6	38%	44%	38%	42%	41%
- 8	26%	19%	8%	25%	20%
Total	81	68	39	12	200
	100%	100%	100%	100%	100%

BASE = USERS

Other crosstabulations show a coherent / intuitively reasonable pattern. For example the knowledge of hazard symbols and language analysed by reading age shows low scores

Table 6.7

Factor 4: Knowledge on hazard symbols and relevant language by reading age

	READING AGE				Total
	6-10 Years	11-12 Years 4 Months	12 Years and 5 months and above	DNA or Missing Values	
Factor score: 0 - 3	22%	15%	4%	0%	13%
- 6	73%	74%	72%	100%	73%
- 8	5%	11%	23%	0%	13%
Total	144	165	167	3	479
	100%	100%	100%	100%	100%

BASE = USERS

amongst those with low reading age: those with a low reading age were over-represented in the low score group (22%) but under -represented in the high score group (5%).

Factor 5, a measure of number of sources of information on chemicals expressed by employees, is shown against Health and Safety instruction/training – and reveals a much higher score amongst those who have had training of some kind. We would expect at least slightly higher scores, as the training itself is a source of information, but the figures are quite marked. (Managers were not asked about training, hence the base is lower).

Table 6.8

Factor 5: Variety of sources of information on chemicals

	Q51 : RECEIVED SUPERVISION INSTRUCTION OR TRAINING ON H&S				Total
	Yes - not in last year	Yes - within last year	No	Don't know/not stated	
Factor score: 0 - 3	36%	37%	54%	33%	40%
- 6	38%	44%	38%	42%	41%
- 8	26%	19%	8%	25%	20%
Total	81	68	39	12	200
	100%	100%	100%	100%	100%

BASE = USERS

Factor 6 - Accuracy of perception of hazard from general attributes of chemicals, includes the degree of agreement/disagreement with assertions about colour and smell as indicators of a hazardous product, and we would expect this to be an indication of the degree of common sense shown in perceiving chemicals. When this is tabulated against whether the user has ever experimented with a hazardous chemical to determine its nature, the results are consistent - with about two thirds of those with lower scores having experimented (68%), but only one third of the higher scores having done so. However, nearly all said common sense

played a large role in dealing with chemical products, slightly more (78%) among those scoring high on factor 6, against 72%.

Table 6.9

Factor 6: Accuracy of perception of hazards from general attributes of chemicals

		Q63 : EVER EXPERIMENT WITH CHEMICALS TO TEST IF HAZARDOUS			Total
		Yes	No	Don't know/not stated	
Factor	0 - 6	68%	49%	50%	52%
score:	- 8	32%	51%	50%	48%
Total		72	405	2	479
		100%	100%	100%	100%

BASE = USERS

6.3 FACTOR CORRELATIONS

Intuitively we may expect the above factors to show some positive correlations, for example that a higher than average level of knowledge of the hazards of the specific products they work with (factor 2) would be associated with a higher than average knowledge of the hazard symbols and language (factor 4), The table below reveals this to be the case, with many significant correlations showing:

- users' overall perception of how potentially harmful are the chemicals they work with (factor 1), are moderately associated with actual knowledge of the effects of these, and symbols and language (factors 2 and 4), and with the variety of sources of information (factor 5) but only slightly with their extent of claimed safe behaviour (factor 3 – assessed by use of appropriate protection, and frequency of use, as a proxy for degree of exposure to risk) and general perception of hazards (factor 6 - referred to as akin to “common sense” above).
- however, *actual* knowledge of the effects of chemicals worked with correlates moderately highly with the safety measure (factor 3) and knowledge of symbols (factor 4), and to a lesser extent with variety of sources of information (factor 5), and general perception of hazards (factor 6)
- extent of claimed safe behaviour (factor 3) correlates moderately only with actual knowledge of the effects of chemicals used (factor 2), as mentioned, but lowly elsewhere – notably not with the perceived potential harmfulness of chemicals used (factor 1)
- factors 4, 5 and 6 correlate moderately together .

Table 6.10

Correlations

		F1: Perception of effects of products used	F2: Knowledge of harm of products used	F3: Extent of claimed safety with products used	F4: Knowledge on symbols & language	F5: Variety of sources of information	F6: Accuracy of chemical hazard perception
F1: Perception of effects of products used	Pearson Correlation Sig. (2-tailed) N	1.000 .000 479	.263** .000 479	.091* .047 479	.197** .000 479	.190** .000 479	.082 .073 479
F2: Knowledge of harm of products used	Pearson Correlation Sig. (2-tailed) N	.263** .000 479	1.000 .000 479	.243** .000 479	.284** .000 479	.122** .008 479	.160** .000 479
F3: Extent of claimed safety with products	Pearson Correlation Sig. (2-tailed) N	.091* .047 479	.243** .000 479	1.000 .000 479	.186** .000 479	.014 .761 479	.140** .002 479
F4: Knowledge on symbols & language	Pearson Correlation Sig. (2-tailed) N	.197** .000 479	.284** .000 479	.186** .000 479	1.000 .000 479	.112* .014 479	.203** .000 479
F5: Variety of sources of information	Pearson Correlation Sig. (2-tailed) N	.190** .000 479	.122** .008 479	.014 .761 479	.112* .014 479	1.000 .000 479	.171** .000 479
F6: Accuracy of chemical hazard perception	Pearson Correlation Sig. (2-tailed) N	.082 .073 479	.160** .000 479	.140** .002 479	.203** .000 479	.171** .000 479	1.000 .000 479

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

The sample size of 479 users is sufficient for many of the correlations to be significant as shown. All correlations are positive, meaning higher scores on one factor tend to associate with higher scores on another - and the factors are scored such that safe/prudent/knowledgeable tendencies are scored highly. All of the correlations seem intuitively reasonable, though none is exceptionally large. (The above is consistent with the presence of a general factor - a factor analysis confirmed this, with over 30% of the variance being attributed to the largest factor.)

6.4 GROUPING USERS

6.4.1 Approach

The next step was to see what groupings, if any, the users formed, and whether these showed:

- sizeable and coherent differences between groups in terms of factor scores
- differentiation when analysed against other measures
- demographic differences
- any possible implications for communications

The technique of cluster analysis was used for this. This takes the 6 factor scores for all 479 users and assigns each user into a group with other users who show a similar scoring pattern across the factors. Any number of clusters *can* be produced, but the method is most helpful if distinct groupings are discovered, which show interesting differences – on the factor scores and other variables.

For the cluster analysis the following procedure was used:

1. The factor scores were adjusted so that each factor had a mean of zero – this purely

'moves all scores along a scale'. This makes interpretation easier as users with below average scores on a factor receive negative standardised scores, and vice versa.

2. Factors were then scaled to have a common variance (or spread of scores around the mean) of one. This puts comparisons between factor scores on a common footing
3. A variety of cluster analyses were run on the above standardised scores (technically called "z scores") for the 479 users of chemical products.
4. The characteristics of each clustering run was examined to assess the profile of each cluster, in terms of the distributions of the (standardised) factor scores and the way clusters differed on other questionnaire measures and their demographics.

6.4.2 Results

Many clustering runs were made, and all revealed a consistent pattern with two extreme groups of user - all having positive or all having negative mean scores, and one or more groups exhibiting a mixture of means scores - for example some high on knowledge and low on other factors, and vice versa.

However the large number of groupings (e.g. with 5 or more clusters) had the disadvantages of being small in size and difficult to interpret in a meaningful way. Also they showed no markedly increase in discriminatory power compared to solutions producing a lesser number of groups. However, the presence of a group with low scores on all factors was consistent across the clustering runs.

In consultation with HSE it was decided to examine and present the analysis which identified the following three groups, which have been given convenience labels for ease of reference :

- a 'risky' group with low average scores - reflecting a combination of low knowledge on chemicals used and their hazards, symbols and language, and low scores on claimed safe behaviour
- a 'safe' group (or cluster) showing high average scores on all factors - the opposite of the above group - reflecting claimed safety in approach/low exposure, knowledge of the characteristics of the chemicals used, and also symbols etc.
- an 'assorted' group exhibiting a mixture of factor means - a group with moderate to low actual knowledge / extent of claimed safe behaviour, but high variety of sources of information and awareness of general chemical hazards.

Note, the words 'cluster' and 'groups' are synonymous here, however for consistency we will refer to the 'clusters' of factor scores, which effectively define 'groups' of users.

No one group dominates in terms of sizes as follows:

- Group 1: 'Risky' 123 users 26% of users
- Group 2: 'Safe' 187 users 39% of users
- Group 3: 'Mixed' 123 users 35% of users

The mean factor scores (z scores) for each cluster are shown below. As discussed, negative scores correspond to low scores on the original scale, and represent accurate knowledge/safety/perception of harm as appropriate to the factor. Clusters 1 and 2 define two markedly different groups, as discussed.

Table 6.11

Mean factor scores for each cluster

	Cluster		
	1	2	3
Zscore: F1: Perception of effects of products	-.76026	.39222	.11933
Zscore: F2: Knowledge of harm of products	-.72636	.91693	-.48594
Zscore: F3: Extent of claimed safe behaviour	-.79500	.45324	.07710
Zscore: F4: Knowledge on symbols & language	-.65607	.56878	-.15187
Zscore: F5: Variety of sources of information	-.48526	.01429	.33737
Zscore: F6: Accuracy of chemical hazard perception	-.79350	.10525	.46106

The distance between cluster centres' is shown below. This is effectively a measure of how different the clusters are. This is difficult to interpret in absolute terms, but shows the greatest difference is between the Risky and Safe clusters, which seems intuitively reasonable - as these are effectively polar opposites.

Table 6.12

Distances between Cluster Centers

Cluster	1 Risky	2 Safe	3 Mixed
1 Risky		2.854	2.024
2 Safe	2.854		1.713
3 Mixed	2.024	1.713	

This is a solution with three clusters. Other solutions – producing different numbers of overall clusters, reveals a similar pattern, though the profile of the 'safe' and 'mixed' clusters tends to vary, whilst a 'risky' cluster comprising users with all negative scores is always found. This is also found when cluster analysis is run using less than six factors, that is leaving some factors out.

6.4.3 Cluster profiles

The above cluster derivation is a means to an end, and is academic unless the profile of each user group identified shows:

- differentiation when analysed against other measures from the questionnaire
- demographic differences
- any clear implications for communications

Consequently a series of crosstabulations was run against the three cluster groups. The main tables are given below, with a comment on each. All are percentaged vertically, so the breakdown by sector shows dry cleaners heavily represented in the Risky group – 35% of the Risky group are dry cleaners against 14% of users overall, as shown in the Total column. Conversely, electroplaters make up only 4% of the Risky group but 19% of the safe group.

Apart from electroplating, there is good spread of sectors across each group, meaning results will have some generality. (Had the sectors been concentrated in certain groups, e.g. if all hairdressers were found in one group, all dry cleaners in another, this had would severely limited the ability to generalise any results across sectors using chemical products.)

Table 6.13

User group by sector

	User group			Total
	1 Risky	2 Safe	3 Mixed	
Hairdressing	26%	27%	18%	24%
Garages	16%	23%	22%	21%
Wood Yard	19%	21%	25%	22%
Electroplating	4%	19%	16%	14%
Dry Cleaners	35%	11%	19%	20%
Total	123	187	169	479
	100%	100%	100%	100%

BASE = USERS

Examination of user status reveals a greater proportion of managers in the Safe group, and a surprising number of one person businesses in the Risky group - 15% against 6% in the Safe group. This is consistent with the previous findings that in such very small firms, we cannot assume the manager is likely to be much more 'competent' in terms of safety than the staff, as assessed by the factor measures of knowledge about the products worked with and hazard symbols and language and exhibit more safety in behaviour.

Table 6.14

User status: Manager, Other employee or One Person Business

	User group			Total
	1 Risky	2 Safe	3 Mixed	
Manager	43%	54%	46%	48%
Other employee	42%	40%	43%	42%
OPB	15%	6%	11%	10%
Total	123	187	169	479
	100%	100%	100%	100%

BASE = USERS

Size of company varies by group - with larger companies in the safe group, consistent with a more sophisticated health and safety culture in larger firms. Note that the electroplating firms tended to be larger, and dry cleaners smaller, so we may expect this type of difference.

Table 6.15

Q1 : NO. PEOPLE WORKING ON SITE

User group	Mean
1 Risky	4.47
2 Safe	6.05
3 Mixed	4.75
Total	5.20

Table 6.16

NO. OF YEARS IN CURRENT JOB

User group	Mean
1 Risky	11.50
2 Safe	10.11
3 Mixed	9.14
Total	10.12

Indeed there does seem to be more of a safety culture in these firms. Whilst around three quarters of users in each group claim their firm has *some kind* of health and safety arrangements (Risky group 71%, Safe group 77%) the nature of the arrangements varies - in the Risky group only 50% of these users say their firm has written health and safety arrangements, whilst nearly three quarters do in the Safe group. Note that we are not referring to a bespoke health and safety policy here, just some form of written arrangements – which may refer to just a poster.

Table 6.17

ARE THE ARRANGEMENTS

	User group			Total
	1 Risky	2 Safe	3 Mixed	
Written down	50%	73%	67%	66%
Verbal only	50%	25%	33%	34%
Other	0%	2%	2%	1%
Don't know/not stated	0%	0%	0%	0%
Total	34	56	58	148
	100%	100%	100%	100%

BASE = EMPLOYEES WHO ARE USERS, AND AWARE OF ARRANGEMENTS

In terms of user attitudes / stated behaviour with respect to chemicals, several crosstabulations give interesting results - none of these were involved in the derivation of the factors - to do so would incur circularity. For example, fewer Risky group members had heard of Safety Data Sheets as shown below:

Also, notably more Safe group members had “direct experience of significant harm” to themselves, a colleague, friend or family member, from using a product containing a harmful

chemical. The results on this question – that a very high proportion of those having such experience claim it makes them more safety conscious, may have direct implications for messages, in the sense that an advertisements are often devised as a proxy for experience.

Table 6.18

Direct experience of significant harm

	User group			Total
	1 Risky	2 Safe	3 Mixed	
Yes	8%	21%	15%	16%
No	89%	79%	84%	83%
Don't know/not stated	2%	0%	1%	1%
Total	123	187	169	479
	100%	100%	100%	100%

BASE = USERS

6.4.4 Group demographics

Female users feature relatively highly in the Risky group (40%) - this is consistent with the relatively high proportion of dry cleaners found in that group.

Table 6.19

Sex distribution

	User group			Total
	1 Risky	2 Safe	3 Mixed	
Male	60%	69%	69%	67%
Female	40%	31%	31%	33%
Total	123	187	169	479
	100%	100%	100%	100%

BASE = USERS

Regarding age - there were very few interesting differences between the groups, and the same is true for the number of years spent in the current job. This was perhaps surprising, though age and experience can “work both ways” in the sense that whilst some older users collect knowledge through experience, they will have less recent training than younger users. Experience may make some safer, but others will not change long established working patterns which may not involve PPE.

Table 6.20

Age

AGE

User group	Mean	N
1 Risky	39.23	120
2 Safe	37.18	184
3 Mixed	38.43	167
Total	38.15	471

Analysis by users 'first language' shows more users claiming to be bilingual in the Risky group. However, percentages are small in this sample. Also the survey may under-represent staff whose first language is not English as they may be less likely to agree to interview initially if their spoken English is not fluent.

Table 6.21

First lanaguage

	User group			Total
	1 Risky	2 Safe	3 Mixed	
English	93%	98%	96%	96%
Bilingual	6%	2%	2%	3%
Other language	2%	1%	1%	1%
Total	123	187	169	479
	100%	100%	100%	100%

BASE = USERS

Analysis by reading age showed interesting results. The overall finding of a high incidence of low reading age among staff in the sectors studied, show more strongly among the Risky and Mixed groups, where around a third in each have reading ages of 10 years or under. Note that the Mixed group *claimed* they used many sources of information on chemical products, but this was not matched by actual knowledge of these chemicals, or of hazard symbols and language.

Table 6.22**Reading age**

	User group			Total
	1 Risky	2 Safe	3 Mixed	
6-10 Years	36%	24%	33%	30%
11-12 Years 4 Months	38%	34%	33%	34%
12 Years and 5 months and above	25%	42%	34%	35%
DNA or Missing Values	1%	1%	1%	1%
Total	123	187	169	479
	100%	100%	100%	100%

BASE = USERS

6.4.5 Lifestyle and psychological differences

The psychological measures of locus of control, degree of autonomy, job security etc did not show major differences between groups.

Whilst 43% of the Risky group smoked against 30% of the Safe group, the general lifestyle questions showed little difference either, except the following, which revealed many more of the Safe/Mixed group disagreeing, implying less overall concern for accidents.

Table 6.23**"The risks of traffic accidents, accidents at work etc do not worry me"**

	User group			Total
	1 Risky	2 Safe	3 Mixed	
Strongly agree	11%	9%	7%	9%
Agree	46%	33%	41%	39%
Uncertain	10%	6%	5%	7%
Disagree	25%	43%	40%	38%
Strongly disagree	7%	9%	6%	7%
Don't know/not stated	0%	0%	1%	0%
Total	123	187	169	479
	100%	100%	100%	100%

BASE = USERS

7. CONCLUSIONS

This chapter briefly considers the conclusions that can be drawn from the survey in terms of ability to generalise. It then reviews the basic survey findings and the grouping of users, and the implications of these.

7.1 SAMPLE AND CONCLUSIONS

Clearly we would like to be able to generalise from users and firms interviewed in the survey, to the wider population of small firms dealing with hazardous chemicals in general. There are two principal considerations here:

- how typical of the variety of sectors were those chosen for the survey?

A range was chosen spanning small retail outlets dealing directly with the public, to slightly larger organisations using some very hazardous substances, not dealing directly with them. Some interesting differences in aspects of health of safety were seen between sectors, and explanations were suggested in terms of firm size, and sometimes the nature of chemicals used. These and the chemical-specific results would appear to limit widespread generalising of the results. However the broad study findings are likely to apply across the range of small firms dealing with chemical products, but to varying degrees. For more specific results sector-specific investigation would be needed.

- how typical were the firms that responded?

The response rate of 26% was considered good for very small firms, generally a difficult group to recruit.. The reasons given for refusal tended to be the pressure of work making it difficult to release a person for interview - which is understandable when most had four employees or fewer. However it is not possible to say whether those that refused were less conscientious about health and safety than those that agreed to interview - it seems reasonable to assume that the very worst firms were more likely to refuse, once they realised that the interview involved safety with chemical products.

Consequently the results may slightly overstate the level of health and safety culture in small firms - the true picture is likely to be somewhat more bleak. However, most of the analysis is in terms of *differences* between groups (e.g. sectors, managers/employees etc) rather than absolute values, and these differences will still hold even if the sample shows a slightly more favourable health and safety position than is really the case.

7.2 MAIN/BASIC FINDINGS

7.2.1 Overview

The main findings from the profile of the sample itself, notably the predominance of very small firms (60% with 4 or fewer employees) reinforced by the executive interviews paints a picture of relatively stable, non unionised firms. Having very few people and typically small working premises it is perhaps not surprising that in such close proximity staff usually appear to work in relative harmony with their managers, typically rating the manager's concern for safety as high.

In this environment of manual/semi-manual working, the amount of written internal communication is low even on health and safety issues, and verbal communication predominates. Most users are not in the habit of consulting safety data sheets, though these

are frequently present, if not readily to hand. Furthermore, with many staff, especially managers, having extensive experience in the sector, it is perhaps not surprising that many view their situation as relatively unchanging with respect to chemical products - they typically only re-consider the safety aspects of their approach to using such products when a new type (not necessarily brand) of product becomes available.

7.2.2 Main questionnaire areas

The question on overall health risk from the chemical products used in the workplace revealed that about two thirds (64%) of users thought they posed little or no risk (13% thought no risk and 51% only a small risk). Only a very small percentage (8%) of chemical users admitted that there was a high risk, even though all respondents worked with chemicals, ranging from cadmium to perchloroethylene, that *all* have well-documented detrimental health effects.

When asked about the harmful effects of the chemical products they used - each product was asked about separately - around 30% were considered as slightly harmful and 13% not harmful, with large variations between products (chemical products used in hairdressing/dry cleaning were perceived as less harmful than the chemicals used by electroplaters). This appears a fairly low level of perceived harm for chemicals that all have established harmful effects.

In terms of *actual* knowledge of the short term effects of the main two chemical products used, about a quarter of judgements were incorrect or the effects not known (even partially). For long term effects this rises to one half of users. Given the regularity these are worked with - the products are mostly used every day - this is rather low. Interestingly, user ratings of their own product knowledge (90% considered it to be good or quite good) did not correlate with their actual knowledge when tested by the interviewer.

Extent of claimed safe behaviour could only be inferred from user responses - principally whether and how users protected themselves. It revealed very varied levels of protection. Dry cleaners and hairdressers exhibited low levels of safety, with 25-30% not knowing/using the appropriate protection for the two main chemical products they used. However, there was quite a high understanding of correct protection amongst electroplaters.

Knowledge on chemical symbols, and terms associated with the hazards of chemical products was low for all but the most common - only 40% correctly interpreted the harmful/irritant symbol, and only about one third knew the term carcinogenic.

Managers typically scored a few percentage points higher on the symbol/term recognition than employees and people in one person businesses, but this was not marked. This and other findings strongly suggested that it is dangerous to assume that managers in these businesses are notably better informed on hazards of chemical products than employees - despite their responsibility to be informed.

The above symbol/term recognition showed clear association with reading age (despite symbol recognition being pictorial), in that those with lower reading age tended to score less well. Indeed, the reading age measure itself revealed nearly one third (63%) of respondents had a reading age of under 12 years 4 months, with implication for communications to users.

Regarding the variety of sources of information on chemical products, about two thirds cited container labels, closely followed by suppliers/sales representatives and common sense, and 42% selected Safety Data Sheets from the showcard for this prompted question. Suppliers and sales representatives were clearly chosen as the preferred source for further information,

and the in-depth interviews revealed a high level of respect for them.

Communication of and learning about health and safety issues was covered in several questions. One third of users had never received training in health and safety (including supervision, on the job training), and there was a low level of awareness of rules and regulations concerning chemical products - managers were better informed than employees, but even then a third could not cite any.

One quarter of managers claimed to make staff aware of occupational risks by training, and nearly 40 % cited verbal means (though these categories overlap). Two thirds of all respondents had heard of Safety Data Sheets, and over a third said they were readily available to staff, but very few said they were clearly displayed. There was little evidence from the in-depth interviews that they were consulted by staff.

On the issue of company health and safety arrangements, many managers (40%) could not cite any arrangements, and most of those that did concerned practical issues such as the presence of fire extinguishers and first aid kits. One third claimed *some* specific written arrangements, though very few employees were involved in developing these.

The psychological measures of Locus of Control (the extent to which an individual believes they control their destiny through their own actions as opposed to control by external forces) and measures of autonomy showed some associations with certain measures, though these were usually weak, and not as powerful as expected.

Likewise experience was not an important factor in differentiating responses - though few employees were very new to the sectors. Indeed this could work "both ways" as more experienced staff were likely to be older and have received less training, but have learned more about chemicals over the years, and possibly had bad habits.

However pressure to work was admitted by one third of respondents as a reason for working less safely, closely followed by tiredness. Indeed, well over half gave one or more reasons for sometimes working less safely.

7.2.3 Case studies

The qualitative interviews in the study were conducted principally with managers of selected organisations, supplemented in some instances by interviews with employees. The case studies reinforced the findings of the survey, giving reassurance of the main findings.

A major contribution of the case studies was that they illuminated the position of the manager with respect to health and safety. Interestingly, managers seemed to fall into groups of different responsibility levels for the health and safety of employees, and these are discussed below.

The highest managerial responsibility level was found to be managers who felt so strongly about health and safety they would not let their employees use the chemical products. Cases nine and eleven from the dry cleaning and wood industries were examples of organisations that would have this managerial attitude. Both of the managers from these companies would refuse to let employees work with chemicals, such as spot cleaners or wood preserver, because they could not know for certain whether an employee was taking the proper precautions with the chemical. However the managers, with training received from several sources, knew if they used the chemicals they would work with them in the correct manner.

Medium level of managerial responsibility - managers let the staff use chemicals if they had

sufficient knowledge and training. Many firms fell within this category, for instance cases one, two, four, ten and twelve. The managers for these organisations would allow employees to use chemicals but only if they were satisfied that the staff were experienced and qualified enough to use the chemicals. These managers also tended to conduct regular checks on staff to ensure adequate precaution was being maintained.

Low level of managerial responsibility - these managers considered it is up to individual staff to take responsibility for their own health and safety. Fortunately few firms interviewed were in this category although they certainly exist as shown by case six and eight. The managers responsibility involved providing protective equipment, such as gloves, but it was very much up to individual employees to choose to protect themselves from chemicals worked with.

Accidents at work

In the questionnaire experience of accidents involving significant harm was seen as an influential factor on later health and safety behaviour. This was also found in the qualitative interviews where witnessing accidents had strongly influenced managers (e.g. case twelve). Indeed witnessing an accident tended to lead the managers to take more responsibility for their workforce - all 'high responsibility' managers had witnessed industrial accidents, whilst none of the low responsibility managers, cases six and eight, had witnessed any.

Communication regarding chemicals at work

This was noted to be primarily through the suppliers of the chemicals. Most case study interviewees stated that their information on the hazards of chemicals either came through supplier representatives. Health inspector visits were mentioned in a few cases (for instance case seven and case ten) but both of these cases thought that these inspections were minimal and would like to see an increase in the number of health inspector visits. When asked about Safety Data Sheets, they were quite often mentioned as present, but typically filed away and not consulted.

7.2.4 Cluster findings

The derived factors showed a number of significant positive correlations suggested many of the attributes, which covered perception, knowledge and behaviour, were associated. Accordingly the cluster runs consistently produced two groups - one with low scores on perception of harm, knowledge of hazard symbols and language, extent of claimed safe behaviour, etc, and the other with consistently high scores on these. A number of intermediate groups were produced, the number depending the overall number of groups specified in the cluster analysis. Whilst the existence of such groups is not surprising - we can always isolate a group low on the appropriate measures - the size and consistency of the extreme groups, notably the low scoring so-called "Risky" group is perhaps surprising.

The three groups highlighted showed notable differences by: company size, existence of health and safety written arrangements, direct experience of significant harm from chemical products, male/female composition and reading age - with the Risky group showing a clearly different profile to the other groups.

However, major differences were not noticed by sector (except dry cleaners being over-represented in the Risky group, and electroplaters in the Safe group), manager (54% in safe group against 43% in the Risky group - a notable difference, but not major), experience in current job, or age.

Essentially the grouping highlighted a sizeable group scoring lowly on many health and safety related measures, but not showing a distinctive demographic pattern, a corresponding highly scoring group, and an intermediate one with perception of awareness / knowledge of health and safety not matched by actual knowledge and inferred behaviour.

7.3 IMPLICATIONS FOR COMMUNICATIONS

The survey analysis suggests some pointers for health and safety communications on use of chemical products in very small firms, and these are outlined below:

- it is wrong to assume that managers of small businesses have a much greater knowledge of the chemical products or of health and safety than the staff. Hence any communications based on the assumption the manager is highly knowledgeable may not work - managers need educating almost as much as the employees. Managers of one person businesses seem especially badly informed
- container labels appear to be a major source of information on the characteristics of chemical products at work, and very high proportions claim to have read them. Reading (and re-reading periodically to remind oneself) may be usefully incorporated in communications to users
- also, the finding that suppliers are very often seen as the most important and most reliable source of information on chemical products may provide a potential channel for communication / education of users in safe use of chemical products
- any written communications should assume a very low level of reading ability in small firms, including low knowledge of words used to describe hazards. Also safety data sheets may perhaps be made easier to understand - though whilst many users are aware of their existence, little use appears to be made of them in small firms. Also, whilst the percentage of staff whose first language is not English was small in this sample, (they may have been under-represented by selecting themselves out of interview, or not being suggested for interview) they would benefit from simpler language
- however, the high reliance on the spoken word, and low level of written communication found has implication for the amount of formal communication we may reasonably expect within small firms - which do not appear to have a "written" culture, but a "verbal" culture. Health and safety communications to very small firms should perhaps bear this in mind
- the clear finding that a high proportion of those having experience of an accident involving chemical products claim that it has made them more safety conscious; the frequent mention of this in the case studies, and the relatively high incidence of users with such experience in the Safe group, may have direct implication for messages. Advertisements are often intended as a proxy for experience, and the realistic portrayal of accidents hopefully imparts some of the caution that actual experience appears to give.

APPENDIX A

QUESTIONNAIRE

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
C10	C11	C12	C13	C14	C15

fieldcontrol
 "THE OLD LAUNDRY"
 36 BERRYMEDE ROAD
 CHISWICK
 LONDON W4 5JD
 TEL: 0181-994-9192

Edited By..

SAMPLE POINT No..

FC:105777/99(Q84)

Health & Safety Study

NAME: MR/Mrs/MS/MISS _____

COMPANY: _____

ADDRESS: _____

POSTCODE:
 (AT LEAST 4 DIGITS NEEDED FOR ANALYSIS)

TELEPHONE NO ↓
 (INCLUDE DIALLING CODE)

RECORD No. OF YEARS WORKED IN CURRENT JOB
 C28/C29

OF ALL THE JOBS RESPONDENT HAS EVER HAD,
 RECORD TOTAL No. OF YEARS WORKED WITHIN THIS
 INDUSTRY (APPROX) C30/C31

INCLUDING ALL JOBS, RECORD No. OF YEARS RESP.
 HAS WORKED WITH HARMFUL CHEMICALS. (APPROX)
 C32/C33

POSITION IN COMPANY C23

OWNER OF/PARTNER IN THE BUSINESS 1

MANAGER (BUT NOT OWNER) 2

ADMINISTRATIVE 3

SKILLED TECHNICAL (QUALIFIED IN A TRADE) 4

SEMI-SKILLED/UNSKILLED TECHNICAL (LITTLE FORMAL TRAINING) 5

OTHER (WRITE IN) _____ 6

AGE ON LAST BIRTHDAY: (WRITE IN YEARS) C24/25

RESPONDENT'S FIRST LANGUAGE: C26

ENGLISH 1

BILINGUAL - ENGLISH & OTHER 2

OTHER LANGUAGE 3

RESPONDENT WORKING STATUS: C27

FULL TIME (24 HOURS OR MORE PER WEEK) 1

PART TIME (UNDER 24 HOURS PER WEEK) 2

NON-PERMANENT EMPLOYEE EG.. (FIXED TERM/CONTRACT/AGENCY/TEMP. & CASUAL) 3

TYPE OF BUSINESS: C34

HAIRDRESSING 1

GARAGES 2

WOOD YARD 3

ELECTROPLATING 4

DRY CLEANERS 5

SEX: C35

MALE 1

FEMALE 2

RESPONDENT'S PLACE OF WORK IS.. C36

ON THIS SITE ALL OF THE TIME 1

MOSTLY ON THIS SITE & BASED HERE 2

MOSTLY AT OTHER LOCATIONS BUT BASED HERE 3

NO WORK BASE - MOBILE WORKER 4

APPOINTMENT DETAILS & COMMENTS

INTERVIEWERS DECLARATION

I DECLARE THIS QUESTIONNAIRE WAS COMPLETED AND CHECKED BY ME, WITHIN THE CODE OF CONDUCT OF THE MARKET RESEARCH SOCIETY AND THE JOB INSTRUCTIONS. THE INFORMANT WAS UNKNOWN TO ME AT THE TIME OF THIS INTERVIEW.

INTERVIEWER SIGNATURE: _____ DATE: _____

INTERVIEWER NAME (PLEASE PRINT) _____

INTERVIEW START TIME: _____ AM/PM INTERVIEW FINISH TIME: _____ AM/PM

STAGE 1

S1: ORGANISATIONAL INFORMATION SECTION

ASK MANAGER/ONE PERSON BUSINESS ONLY - OTHERS GO TO SECTION 2

FOR Q1, Q3, Q4 & Q5 WRITE IN NUMBER - EG 6 = 0 6 (CODE 99 FOR DON'T KNOW)

1) How many people work on this site (*full or part-time*)? **WRITE IN:**
 C37/C38

2) Is the business: **READ OUT CODE ONE ONLY** **C39**

1. Independent	1
2. Part of a chain	2
3. Linked to another organisation but relatively independent	3
4. Other _____	4

3) How many years has your organisation been in the)... business? (**WRITE IN YEARS**)
 C40/C41
(ONE PERSON BUSINESS SKIP TO Q6.)

ASK MANAGER ONLY:

4) How many (approximately) of your staff belong to a union?
 C42/C43

5) How many of your staff have left the business within the last 12 months?
 C44/C45

ASK MANAGER/ONE PERSON BUSINESS:

6) Do you personally work with products that may contain harmful chemicals?
C46

1. Yes	1	GO TO Q7. SECTION 2/PG. 2
2. No	2	GO TO Q59. SECTION 4/PG. 8

STAGE 2

S2: INDIVIDUAL KNOWLEDGE ABOUT CHEMICALS SECTION

ASK ALL RESPONDENTS EXCEPT THOSE WHO DO NOT PERSONALLY WORK WITH PRODUCT

INTERVIEWER: *I would like to ask about some of the products supplied to you that you use frequently in your work that may be chemicals or may contain chemicals. Some of these may be harmful to health.*

SHOW CARD 01

7) How would you generally rate your knowledge of these products for the work you do?

	C47
1. Very good	1
2. Quite good	2
3. Neither good nor poor	3
4. Quite poor	4
5. Very poor	5

SHOW CARD 02

8) Overall, how much do you feel that your health is at risk from chemicals in the products you work with?

	C48
1. High risk	1
2. Medium risk	2
3. Small risk	3
4. No risk	4

INTERVIEWER NOTE: *You Are Now Going To Ask Detailed Questions On Chemical Use And Hazard Awareness: It May Help To See The Container, But Respondents Should Not Read Hazards / Precautions Off The Labels.*

INSTRUCTIONS ON CORRECT RESPONSE –NEUTRAL PROMPTING AS NECESSARY EG. “ANYMORE?”

- ALL OR MOST ASPECTS MENTIONED UNDER CORRECT ANSWER MARK AS **CORRECT**.
- MORE THAN ONE ASPECT CORRECTLY IDENTIFIED MARK AS **PARTIALLY CORRECT**.
- **INCORRECT.. ANSWER WAS MOSTLY WRONG**
- **DON'T KNOW.. RESPONDENT STATED “DON'T KNOW” OR MADE A PURE GUESS.**

GO TO THREE PAGE (LANDSCAPE) SECTION. ENSURE YOU SHOW THE RESPONDENT THE CORRECT SHOW CARD RELEVANT TO THEIR INDUSTRY AND THAT YOU WRITE IN THE CORRECT COLUMN:

<u>ANSWER USING CORRECT COLUMN ON SHOWCARD</u>	COLUMN ONE	COLUMN TWO	COLUMN THREE	COLUMN FOUR	COLUMN 5 OTHER
SHOW CARD 03 9) What products do you work with in your present job that contain what you might call "chemicals" and to which category do they belong. WRITE NAME OF PRODUCT UNDER CORRECT CATEGORY IN CORRECT COLUMN (if more than one per category, write in main one)	C49	C50	C51	C52	C53
10) For each of the chemicals named above do you think this product can be harmful in any way? 1. No, not at all harmful 2. Very slightly harmful 3. Moderately harmful 4. Extremely harmful 5. Don't know	C54 1 2 3 4 5	C55 1 2 3 4 5	C56 1 2 3 4 5	C57 1 2 3 4 5	C58 1 2 3 4 5
10a) Which two of the chemicals named above do you use the most? TICK 2 RELEVANT BOXES. ANSWER QUESTIONS BELOW ON THESE TWO CHEMICALS ONLY	C59	C60	C61	C62	C63
11) About how often do you use this product (state name) CODE NUMBER 1. Every day 2. Every week 3. Every month 4. Less often 5. Don't know	C64 1 2 3 4 5	C65 1 2 3 4 5	C66 1 2 3 4 5	C67 1 2 3 4 5	C68 1 2 3 4 5
12) What harmful health effects may the product have in the <i>short term</i> ? 1. Correct 2. Partially Correct 3. Incorrect 4. Did not Know 5. Not Applicable to this product	CHECK RELEVANT TABLE FOR CORRECT ANSWERS C69 1 2 3 4 5	CHECK RELEVANT TABLE FOR CORRECT ANSWERS C70 1 2 3 4 5	CHECK RELEVANT TABLE FOR CORRECT ANSWERS C71 1 2 3 4 5	CHECK RELEVANT TABLE FOR CORRECT ANSWERS C72 1 2 3 4 5	WRITE IN C73

<u>ANSWER USING CORRECT COLUMN ON SHOWCARD</u>	COLUMN ONE	COLUMN TWO	COLUMN THREE	COLUMN FOUR	COLUMN 5 OTHER
13) What harmful health effects may the product have in the <i>long term</i> ? 1. Correct 2. Partially Correct 3. Incorrect 4. Did not Know 5. Not Applicable to this product	CHECK RELEVANT TABLE FOR CORRECT ANSWERS C74 1 2 3 4 5	CHECK RELEVANT TABLE FOR CORRECT ANSWERS C75 1 2 3 4 5	CHECK RELEVANT TABLE FOR CORRECT ANSWERS C76 1 2 3 4 5	CHECK RELEVANT TABLE FOR CORRECT ANSWERS C77 1 2 3 4 5	WRITE IN C78
14) How do you protect yourself from harm from the product? 1. Correct 2. Partially Correct 3. Incorrect / No protection 4. Did not Know 5. Not Applicable to this product	CHECK RELEVANT TABLE FOR CORRECT ANSWERS C10 1 2 3 4 5	CHECK RELEVANT TABLE FOR CORRECT ANSWERS C11 1 2 3 4 5	CHECK RELEVANT TABLE FOR CORRECT ANSWERS C12 1 2 3 4 5	CHECK RELEVANT TABLE FOR CORRECT ANSWERS C13 1 2 3 4 5	WRITE IN C14
15) If "no protection" (At Q14) why not? (probe)	WRITE IN C15	WRITE IN C16	WRITE IN C17	WRITE IN C18	WRITE IN C19
16) Have you ever read the label on this product? 1. Yes 2. No 3. Don't know 4. Not applicable	C20 1 2 3 4	C21 1 2 3 4	C22 1 2 3 4	C23 1 2 3 4	WRITE IN C24

(Note: the question numbers jump from Q16 to Q49 here due to renumbering of the above table into columns rather than separate questions.)

49) Have you ever had direct experience (to yourself, a colleague, a friend or family member) of *significant* harm done to someone by using a product containing a harmful chemical? By significant I mean either a serious accident/injury or a serious long term effect on health

- | | | |
|---------------|------------|--|
| | C25 | |
| 1. Yes | 1 | (Go to Q50) |
| 2. No | 2 | (If Worker/One Person Business Go to Q51. If Manager Go to Q59) |
| 3. Don't know | 3 | (If Worker/One Person Business Go to Q51. If Manager Go To Q59) |

50) How has this influenced the way you deal with products that can be harmful?

READ OUT CODE ONE ONLY

- | | | |
|---------------------------|------------|--|
| | C26 | |
| 1. No influence | 1 | |
| 2. Slightly more careful | 2 | |
| 3. Much more careful | 3 | |
| 4. Other (Write In) _____ | 4 | |
| 5. Don't Know | 5 | |

S3: INDIVIDUALS HEALTH AND SAFETY ARRANGEMENTS SECTION

ASK WORKER/ONE PERSON BUSINESS:

(MANAGERS SKIP TO S4: INDIVIDUAL ATTITUDES AND BELIEFS TOWARDS HAZARDOUS CHEMICALS)

51) Have you ever received any supervision, instruction or training on health and safety?
READ OUT CODE ONE ONLY

- | | C27 |
|---|------------|
| 1. YES not within the last twelve months? | 1 |
| 2. YES within the last twelve months? | 2 |
| 3. NO | 3 |
| 4. Don't Know | 4 |

52) Do you know the names of any rules or regulations relating to working with dangerous chemicals?
APPROXIMATE ANSWERS OK – (e.g., Health and Safety at Work for 1, COSH for 2)
CODE ALL MENTIONED - PROMPT "ANY MORE?"

- | | C28 |
|--|------------|
| 1. Health and Safety at Work etc Act 1974 | 1 |
| 2. COSHH - Control of Substances Hazardous to Health Regulations 1999 | 2 |
| 3. The "6 Pack" Regulations 1992 (Management Regulations) | 3 |
| 4. RIDDOR - Reporting of Injuries, Diseases, Dangerous Occurrence Regulations 1985 | 4 |
| 5. CHIP 2 - Chemicals (Hazard Information and Packaging for Supply) Regulations 1994 | 5 |
| 6. Other, please specify _____ (write in) | 6 |
| 7. None mentioned | 7 |

(ONE PERSON BUSINESS SKIP TO Q59)

53) Are you aware of any health and safety arrangements in your company? That is, arrangements for ensuring the health and safety of staff, for dealing with dangerous materials or chemicals, for accidents or incidents and so on. **IF "NO" PROMPT TO MAKE SURE:**

- | | C29 | |
|---------------|------------|----------------------|
| 1. YES | 1 | (Ask Q54) |
| 2. NO | 2 | (Skip To Q57) |
| 3. Don't Know | 3 | (Skip To Q57) |
| 4. Refused | 4 | (Skip To Q57) |

54) Are these arrangements.... **READ OUT & CODE ALL MENTIONED:**

- | | C30 | |
|---------------------------|------------|--------------------|
| 1. Written down | 1 | Ask Q55 |
| 2. Verbal only | 2 | Skip To Q57 |
| 3. Other (Write In) _____ | 3 | Skip To Q57 |
| 4. Don't Know | 4 | Skip To Q57 |

SHOW CARD 04

55) If "Written" at Q54... Where would you find these health and safety arrangements? **CODE ALL MENTIONED...**

- | | C31 |
|-----------------------------------|------------|
| 1. Displayed (e.g. on wall) | 1 |
| 2. Issued to all staff | 2 |
| 3. Copies only kept by management | 3 |
| 4. Other _____ | 4 |
| 5. Don't know | 5 |

56) Have you ever read these health and safety arrangements?

LISTEN CODE ONE ONLY

- | | C32 |
|---------------|------------|
| 1. YES | 1 |
| 2. NO | 2 |
| 3. Don't Know | 3 |

SHOW CARD 05 - READ ONLY IF OUT OF THE MANAGERS HEARING

57) How would you rate your manager's *day-to-day* concern for the health and safety of employees?

- | | C33 |
|---------------------------------|------------|
| 1. Very Poor | 1 |
| 2. Quite Poor | 2 |
| 3. Neutral | 3 |
| 4. Quite Good | 4 |
| 5. Very Good | 5 |
| 6. Manager around could not ask | 6 |
| 7. Did not know | 7 |

58) Have you had any involvement in the business's health and safety arrangements?

LISTEN CODE ALL MENTIONED

- | | C34 |
|------------------------------|------------|
| 1. Helped in its development | 1 |
| 2. Monitoring role | 2 |
| 3. Reporting role | 3 |
| 4. Staff representative | 4 |
| 5. First aid representative | 5 |
| 6. Fire marshal | 6 |
| 7. Other _____ | 7 |
| 8. No involvement | 8 |
| 9. Don't Know | 9 |

ASK ALL RESPONDENTS

S4: INDIVIDUAL ATTITUDES AND BELIEFS TOWARDS HAZARDOUS CHEMICALS

SHOW CARD 06

Q59-Q62 HOW MUCH DO YOU AGREE OR DISAGREE WITH THESE STATEMENTS:

		STRONGLY AGREE	SLIGHTLY AGREE	UNCERTAIN	SLIGHTLY DISAGREE	STRONGLY DISAGREE	
Q59	If a product does not have a smell it is probably safe.	C35	1	2	3	4	5
Q60	Colour is a good indication of how dangerous a product is	C36	1	2	3	4	5
Q61	If a product gives you a burn or tingling sensation, you should be concerned.	C37	1	2	3	4	5
Q62	The more you use a chemical the less likely you are to be concerned about the chemicals dangers?.	C38	1	2	3	4	5

63) Do you ever experiment with a chemical to test if it is hazardous, or to check what it is - for example by smelling it, putting a bit on you hand? **READ OUT CODE ONE ONLY**

- | | |
|---------------|------------|
| | C39 |
| 1. Yes | 1 |
| 2. No | 2 |
| 3. Don't know | 3 |

"IT IS PROBABLY NOT ADVISABLE TO EXPERIMENT WITH CHEMICALS"

64) How big a role do you think "common sense" has to play in working with hazardous chemicals?

- | | |
|----------------------|------------|
| | C40 |
| 1. No role | 1 |
| 2. A small role | 2 |
| 3. A large role | 3 |
| 4. A very large role | 4 |
| 5. Don't know | 5 |

65) What do you understand by "common sense" in this respect? **LISTEN CODE RESPONSE**

C41/C42

C43/C44

ASK ALL RESPONDENTS

S5: SOURCES OF INFORMATION ON CHEMICALS/CHEMICAL PRODUCTS, THEIR RISK AND HOW TO CONTROL/REDUCE THEM

I WOULD NOW LIKE TO DISCUSS THE SOURCES OF INFORMATION THAT YOU KNOW OF REGARDING CHEMICAL BASED PRODUCTS.

SHOW CARD 07 (Q66-Q70)

66) Where did your knowledge come from about the chemical related products you work with?

COMPLETE TABLE BELOW - CODE ALL MENTIONS

67) Who would you ask or where would you go if you needed *more* information about chemical related products? **COMPLETE TABLE BELOW - CODE ALL MENTIONS**

68) Which of these sources of information influences you the most? **ONE ANSWER ONLY:**

69) Which of these sources of information is most reliable? **ONE ANSWER ONLY:**

70) Which of these sources of information is most likely to be misleading? **ONE ANSWER ONLY:**

	Q66.	Q67.	Q68.	Q69.	Q70.
	C45	C47	C49	C51	C53
1. Supervisor / manager	1	1	1	1	1
2. Work colleagues	2	2	2	2	2
3. From other companies (e.g. who use similar chemicals)	3	3	3	3	3
4. Suppliers / Sales Representatives	4	4	4	4	4
5. Friends/family/acquaintances	5	5	5	5	5
6. Company health and safety policy/documentation	6	6	6	6	6
7. Supplier Safety Data Sheets	7	7	7	7	7
8. Labels on the chemical container	8	8	8	8	8
9. Official Guidance /Literature e.g. HSE	9	9	9	9	9
10. Journals	0	0	0	0	0
11. Training courses	X	X	X	X	X
12. TV	V	V	V	V	V
	C46	C48	C50	C52	C54
13. Common sense	1	1	1	1	1
14. Experiment (smelling, tasting, etc)	2	2	2	2	2
15. Experience	3	3	3	3	3
16. Other (details)	4	4	4	4	4
17. NONE of these	5	5	5	5	5
18. Don't know	6	6	6	6	6

SHOW CARD 08

71) Could you tell me what these symbols mean?

	Correct	Wrong	Don't know	
1. Explosive	1	2	3	C55
2. Flammable	1	2	3	C56
3. Toxic	1	2	3	C57
4. Harmful / Irritant	1	2	3	C58
5. Corrosive	1	2	3	C59
6. Oxidising	1	2	3	C60
7. Dangerous to the environment	1	2	3	C61

INTERVIEWER - READ OUT CORRECT ANSWERS AFTER CODING RESPONSE

72) Have you ever heard of Safety Data Sheets?

- | | C62 | |
|---------------|-----|--------------------------------|
| 1. Yes | 1 | (Ask Q73) |
| 2. No | 2 | (Read Instruction Before Q74.) |
| 3. Don't know | 3 | |

73) Could you tell me what a Safety Data Sheet is?

- | | C63 |
|---|-----|
| 1. Approximately correct explanation given to interviewer | 1 |
| 2. Vague / only partly correct | 2 |
| 3. Wrong explanation | 3 |
| 4. Don't Know | 4 |

INTERVIEWER READ OUT... "A SUPPLIER SAFETY DATA SHEET IS A DOCUMENT THAT SHOULD COME WITH HAZARDOUS CHEMICALS THAT ARE SUPPLIED FOR USE AT WORK. IT LISTS TOXICOLOGICAL AND PHYSICO-CHEMICAL PROPERTIES AND GIVES ADVICE ON SAFE HANDLING, DISPOSAL AND FIRST AID MEASURES".

74) Have you ever seen a Safety Data Sheet? **CODE ONE ONLY**

- | | C64 | |
|---------------|-----|-------------|
| 1. YES | 1 | (Go to Q75) |
| 2. NO | 2 | (Go to Q76) |
| 3. Don't know | 3 | (Go to Q76) |

SHOW CARD 09

75) Where are the Safety Data Sheets kept, for the chemicals you use?

- | | C65 |
|---|-----|
| 1. Displayed clearly | 1 |
| 2. Readily accessible to all staff | 2 |
| 3. Kept in the building but not clearly accessible. | 3 |
| 4. Other | 4 |
| 5. Not available / Don't have them here | 5 |
| 6. Don't know | 6 |

S6: Understanding of Information

INTERVIEWER STATES.... "MUCH OF THE INFORMATION ON CHEMICALS IS WRITTEN DOWN IN AN OFTEN HARD TO UNDERSTAND WAY. AS A RESULT OF THIS WE ARE INTERESTED IN PEOPLES KNOWLEDGE ON CERTAIN WORDS."

SHOW CARD 10

76) Which of the lowest group of ten words on this card can you read out aloud. Please speak aloud as many of the following words as possible

CODE ALL WORDS SPOKEN CORRECTLY IN BLOCK OF TEN.

GO ON TO NEXT BLOCK, CONTINUE TO END.

IF ALL TEN SPOKEN CORRECTLY ALL PREVIOUS WORDS ARE TO BE CODED CORRECT.

IF NOT ALL TEN WORDS ARE SPOKEN CORRECTLY GO TO THE PREVIOUS BLOCK OF TEN UNTIL ALL WORDS ARE SPOKEN CORRECTLY.

BE STRICT: "FLOWER" PRONOUNCED FOR "FLOWERS" IS NOT CORRECT.

Group of 10	WORD		WORD		WORD		WORD		WORD	
Gp. 1	TREE	1	LITTLE	2	MILK	3	EGG	4	BOOK	5
C66	SCHOOL	6	SIT	7	FROG	8	PLAYING	9	BUN	0
Gp. 2	FLOWER	1	ROAD	2	CLOCK	3	TRAIN	4	LIGHT	5
C67	PICTURE	6	THINK	7	SUMMER	8	PEOPLE	9	SOMETHING	0
Gp. 3	DREAM	1	DOWNSTAIRS	2	BISCUIT	3	SHEPHERD	4	THIRSTY	5
C68	CROWD	6	SANDWICH	7	BEGINNING	8	POSTAGE	9	ISLAND	0
Gp. 4	SAUCER	1	ANGEL	2	CEILING	3	APPEARED	4	GNOME	5
C69	CANARY	6	ATTRACTIVE	7	IMAGINE	8	NEPHEW	9	GRADUALLY	0
Gp. 5	SMOULDER	1	APPLAUD	2	DISPOSAL	3	NOURISHED	4	DISEASED	5
C70	UNIVERSITY	6	ORCHESTRA	7	KNOWLEDGE	8	AUDIENCE	9	SITUATED	0
Gp. 6	PHYSICS	1	CAMPAIGN	2	CHOIR	3	INTERCEDE	4	FASCINATE	5
C71	FORFEIT	6	SIEGE	7	RECENT	8	PLAUSIBLE	9	PROPHECY	0
Gp. 7	COLONEL	1	SOLOIST	2	SYSTEMATIC	3	SLOVENLY	4	CLASSIFICATION	5
C72	GENUINE	6	INSTITUTION	7	PIVOT	8	CONSCIENCE	9	HEROIC	0
Gp. 8	PNEUMONIA	1	PRELIMINARY	2	ANTIQUA	3	SUSCEPTIBLE	4	ENIGMA	5
C73	OBLIVION	6	SCINTILLATE	7	SATIRICAL	8	SABRE	9	BEGUILE	0
Gp. 9	TERRESTRIAL	1	BELLIGERENT	2	ADAMANT	3	SEPULCHRE	4	STATISTICS	5
C74	MISCELLANEOUS	6	PROCRASTINATE	7	TYRANNICAL	8	EVANGELICAL	9	GROTESQUE	0
Gp. 10	INERADICABLE	1	JUDICATURE	2	PREFERENTIAL	3	HOMONYM	4	FICTITIOUS	5
C75	RESCIND	6	METAMORPHOSIS	7	SOMNAMBULIST	8	BIBLIOGRAPHY	9	IDIOSYNCRASY	0

SHOW CARD 11

77) Please could you tell me the meaning of each of the words on show card 20. **AFTER CODING READ OUT DEFINITION IF RESPONDENT DOES NOT KNOW. (SCORE TABLE BELOW)**

Word..	Correct	Incorrect	D/K	Refused	
"nausea" (feeling sick, inclination to vomit)	1	2	3	4	C10
"vomiting" (be sick)	1	2	3	4	C11
"corrosive" (wear away/destroy through chemical action)	1	2	3	4	C12
"carcinogenic" (substance that causes cancer)	1	2	3	4	C13
"irritation" (unpleasant discomfort)	1	2	3	4	C14
"asphyxiation" (restriction of oxygen, suffocation)	1	2	3	4	C15
"respiratory sensitiser" (asthma, lung disease and breathing problems)	1	2	3	4	C16
"mutagenic" (Substances that cause changes in the DNA of the genes)	1	2	3	4	C17
"teratogenic" (Substances causing adverse effects on developing foetus)	1	2	3	4	C18

ASK ALL RESPONDENTS

S7: INDIVIDUALS ORGANISATIONAL / LIFESTYLE CHARACTERISTICS SECTION

WE ARE INTERESTED IN LIFESTYLE FACTORS OF INDIVIDUALS WHO WORK IN YOUR SELECTED INDUSTRY. WE ARE INTERESTED BOTH IN YOUR ATTITUDES AT WORK AND IN GENERAL LIFE. THE FOLLOWING QUESTIONS REGARD HOW YOU THINK FATE HAS A HAND IN YOUR DESTINY. THEY ARE IMPORTANT TO ASK AS MANY PEOPLE ARE FATALISTIC ABOUT POSSIBLE ACCIDENTS WITH CHEMICAL BASED PRODUCTS

SHOW CARD 06

78) Do you agree or disagree with the following statements?

		STRONGLY AGREE	SLIGHTLY AGREE	UNCERTAIN	SLIGHTLY DISAGREE	STRONGLY DISAGREE	NOT APPLICABLE	
1	I have the authority and ability to stop production	C19	1	2	3	4	5	6
2	I can control the way I work	C20	1	2	3	4	5	6
3	I can easily pace my work	C21	1	2	3	4	5	6
4	I feel that I am safe at work	C22	1	2	3	4	5	6
5	I worry about the security of my job	C23	1	2	3	4	5	6
6	At work I feel free of any risks from dangerous chemicals	C24	1	2	3	4	5	6

LOCUS OF CONTROL SECTION

The following questions relate to how you generally perceive the world and are related to your own attitude rather than the attitudes of other people.

SHOW CARD 12

79) Do you agree or disagree with the following statements?

		STRONGLY AGREE	AGREE	UNCERTAIN	DISAGREE	STRONGLY DISAGREE	
1	Sometimes I feel that I don't have enough control over the direction my life has taken.	C25	1	2	3	4	5
2	Many times I feel as though I have little influence over what happens to me.	C26	1	2	3	4	5
3	Most people don't realise the extent to which their lives are controlled by accidental happenings.	C27	1	2	3	4	5
4	Getting a good job depends on being in the right place at the right time.	C28	1	2	3	4	5
5	It is not always wise to plan too far ahead because many things turn out to be a matter of good and bad fortune anyhow.	C29	1	2	3	4	5
6	It is difficult for people to have much control over the things politicians do in office.	C30	1	2	3	4	5
7	This world is run by a few people in power and there is not much the little guy can do about it	C31	1	2	3	4	5
8	As far as world affairs are concerned, most of us are the victims of forces we can neither understand nor control.	C32	1	2	3	4	5
9	Most of the time I can't understand why politicians behave the way they do.	C33	1	2	3	4	5
10	Who gets to be boss often depends on who was lucky to be in the right place first.	C34	1	2	3	4	5

SHOW CARD 13

80) Do any of the following ever cause you to act less safely than you would like to at work? **CIRCLE RELEVANT ANSWERS - MAY BE MULTICODED**

- | | | |
|---|------------|--|
| | C35 | |
| 1. Pressure to get work completed / deadline | 1 | |
| 2. Dislike / restrictiveness of wearing personal protective equipment, such as gloves/masks | 2 | |
| 3. Incompatibility of personal protective equipment | 3 | |
| 4. Lack of information on the hazards of a chemical | 4 | |
| 5. Tiredness | 5 | |
| 6. Boredom | 6 | |
| 7. Extreme temperatures | 7 | |
| 8. Insufficient light | 8 | |
| 9. High levels of noise | 9 | |
| 10. Awkward procedures | 0 | |
| 11. Silly rules | X | |
| 12. Shift patterns | V | |
| | C36 | |
| 13. Lack of control in my work | 1 | |
| 14. Colleagues behaviour | 2 | |
| 15. Managers behaviour | 3 | |
| 16. Other _____ | 4 | |
| 17. None of these ever make me less safe | 6 | |

I'D LIKE TO ASK SOME MORE GENERAL QUESTIONS ABOUT YOUR LIFESTYLE:

81) Do you have any children (under 18) or dependent relatives?

- | | |
|---------------|------------|
| | C37 |
| 1. Yes | 1 |
| 2. No | 2 |
| 3. Don't Know | 3 |

82) Which of the following best describes your current position? **READ OUT CODE ONE**

- | | |
|------------------------------------|------------|
| | C38 |
| 1. Single | 1 |
| 2. Married / living with a partner | 2 |
| 3. Widowed / Divorced | 3 |
| 4. Refused | 4 |

83) Do you do any of the following: **READ OUT CODE ALL MENTIONED**

- | | |
|--------------------------------|------------|
| 1. smoke (any form of smoking) | |
| | C39 |
| 1. Yes | 1 |
| 2. No | 2 |

- | | |
|---|------------|
| 2. drink alcoholic drinks more than once a week | |
| | C40 |
| 1. Yes | 1 |
| 2. No | 2 |

- | | |
|--|------------|
| 3. take regular exercise more than once a week | |
| | C41 |
| 1. Yes | 1 |
| 2. No | 2 |

SHOW CARD 12

84) Do you agree or disagree with the following statements?

		STRONGLY AGREE	AGREE	UNCERTAIN	DISAGREE	STRONGLY DISAGREE	
1	I am more careful about the healthiness of the food I eat than most people I know	C42	1	2	3	4	5
2	I am more worried than most people about possible long term health effects of everyday life from such as from air pollution, the food we eat, stress etc	C43	1	2	3	4	5
3	The risks of traffic accidents, accidents at work etc do not worry me	C44	1	2	3	4	5

When all (max 4) chemicals using employees have been interviewed, return to manager's questionnaire for Stage 3.

STAGE 3

ASK MANAGER / ONE PERSON BUSINESS ONLY (NOT WORKING)

S8: ORGANISATIONAL HEALTH AND SAFETY SECTION.

[Interviewer note, we are interested in systems for controlling and managing health and safety hazards and risks. They may include an overall health and safety policy statement].

85) Can I please speak to you about some final aspects of health and safety? Could you tell me about your health and safety arrangements ?

C45/C46

C47/C48

86) Are any health and safety arrangements **written down** that are **specific to your company**?

- | | |
|---------------|------------|
| | C49 |
| 1. Yes | 1 |
| 2. No | 2 |
| 3. Don't know | 3 |

IF YES, SAY : "Could I please see a copy of these arrangements. I don't want to read them just confirm that it's the sort of thing we are interested in"

Ask the following, verify if possible if you are shown the arrangements - e.g. by getting the respondent to point at the relevant section.

87) For your health and safety arrangements:

		RESPONDENT'S ANSWER				VERIFIED BY INTERVIEWER				
		ALREADY ANSWERED				YES	NO	D/K	N/A	
		YES	NO	D/K	N/A	YES	NO	D/K	N/A	
1. Company specific written arrangements										
2. Are they clearly displayed/can be seen by employees?	C51	1	2	3	4	1	2	3	4	C52 C54
3. Is there a recording system for accidents?	C53	1	2	3	4	1	2	3	4	

88) When were these health and safety arrangements last reviewed or updated?

READ OUT CODE ONE

- | | |
|------------------------|------------|
| | C55 |
| 1. Under 12 months ago | 1 |
| 2. 1 to 5 years | 2 |
| 3. Over 5 years | 3 |
| 4. Don't know | 4 |
| 5. Not applicable | 5 |

I am interested in chemicals based products that have been supplied to you by another organisation and are often used in your business.

89) Do you know of any of the regulations relating to working with these sort of chemical based products?

APPROXIMATE ANSWERS OK – (e.g., Health and Safety at Work for 1, COSH for 2)

LISTEN CODE ALL MENTIONED - PROMPT “ANY MORE?”

C56

- | | |
|--|---|
| 1. Health and Safety at Work etc Act 1974 | 1 |
| 2. COSHH-Control of Substances Hazardous to Health Regulations 1999 | 2 |
| 3. The "6 Pack" Regulations 1992 (Management Regulations) | 3 |
| 4. RIDDOR - Reporting of Injuries, Diseases, Dangerous Occurrence Regulations 1985 | 4 |
| 5. CHIP 2 - Chemicals (Hazard Information and Packaging for Supply) Regulations 1994 | 5 |
| 6. Other, please specify _____(write in) | 6 |
| 7. None mentioned | 7 |

90) What sources of information would you use to help make sure you keep to general Health and Safety standards?

LISTEN CODE ALL MENTION

C57

- | | |
|---|---|
| 1. Customers (the person/company the work is being carried out for) | 1 |
| 2. Suppliers of the chemical | 2 |
| 3. Health and Safety journals | 3 |
| 4. Formal guidance (e.g. guidance on COSHH) | 4 |
| 5. Approved Codes of Practice (ACOPS) | 5 |
| 6. Supplier Safety Data Sheets | 6 |
| 7. Other, please specify _____(write in) | 7 |
| 8. None | 8 |

ONE PERSON BUSINESS TO DEMOGRAPHICS

MANAGERS / HEALTH AND SAFETY REPRESENTATIVES ONLY

S10: ORGANISATIONAL STAFF AND RISKS SECTION

91) In your opinion how many of your staff work regularly with products that may have harmful effects?
(Write In Number) **C58/C59/C60**

92) How do you make staff aware of any occupational risks?

_____ **C61/C62**

_____ **C63/C64**

93) Is there information available to staff regarding chemical based products?

- | | C65 | |
|---------------|------------|-------------|
| 1. YES | 1 | (Go to Q94) |
| 2. NO | 2 | (Go to Q95) |
| 3. Don't Know | 3 | (Go to Q95) |

IF YES..

94) What type of information is this? **LISTEN CODE ALL MENTIONED**

- | | C66 |
|---|------------|
| 1. Posters / notices - produced internally | 1 |
| 2. Posters / notices - produced by other organisations | 2 |
| 3. Access to Safety Data Sheets | 3 |
| 4. Handbooks / printed instructions - produced internally | 4 |
| 5. Handbooks / printed instructions - produced by other organisations | 5 |
| 6. Risk Assessment | 6 |
| 7. COSHH Risk Assessment | 7 |
| 8. Induction training | 8 |
| 9. On the job training | 9 |
| 10. Verbal Work instructions | 0 |
| 11. Written work instructions | X |
| 12. Supervision | V |
| | C67 |
| 13. Other _____ | 1 |

95) Do you monitor ill health in your employees? **READ OUT CODE ALL MENTIONED**

- | | C68 |
|------------------------------|------------|
| 1. YES - Specific Log Book | 1 |
| 2. YES - Sickness records | 2 |
| 3. YES - Employee records | 3 |
| 4. YES - Accident book | 4 |
| 5. YES - Health Surveillance | 5 |
| 6. NO | 6 |
| 7. Other _____ | 7 |
| 8. Don't Know | 8 |

96) How do you know if you are conforming with health and safety regulations?

_____ **C69/C70**

_____ **C71/C72**

THANK RESPONDENT & CLOSE INTERVIEW

Hairdresser Chemicals/Chemical Based Products

PEROXIDE E.G., POWDER BLEACHES	PERM SOLUTION E.G., TRESSA: PLIANCE ACID PERM, VERSATAGE ALKALINE PERM, RIVA, ACID WAVE.	COLOURINGS E.G, TINTS, COLOURS, HAIR GLOSS	HAIRSPRAYS AND MISCELLANEOUS PRODUCTS	OTHER PRODUCT OR CHEMICAL
9) What products do you work with in your present job that contain what you might call "chemicals" and to which of the above categories do they belong?				
10) For each of the chemicals you've just mentioned do you think this product can be harmful in any way?				
1. No, not at all harmful 2. Very slightly harmful 3. Moderately harmful 4. Extremely harmful				
10a) Which <u>two</u> of the chemicals you've just mentioned do you use the most?				
11) About how often do you use these products?				
1. Every day 2. Every week 3. Every month 4. Less often				
12) What harmful health effects may the product have in the short term?				
13) What harmful health effects may the product have in the long term?				
14) How do you protect yourself from harm from the product?				
15) If no protection is used please give reasons why not.				
16) Have you ever read the label on this product?				

Vehicle/Body Repairs Chemicals/Chemical Based Products

PAINTS E.G., SPRAY PAINT, AEROSOL SPRAY PAINT, ACRYLIC LACQUER	GREASES/OILS/ LUBRICANTS E.G., BLUE GREASE, LITHIUM GREASE, LUBRICANT OIL.	ACTIVATORS / HARDENERS E.G., IMRON ACTIVATORS, CLEARS & ADDITIVES, ISOCYANATE ACTIVATORS, HARDENERS & ADDITIVES	FILLERS & RESINS E.G., STYRENE, POLYESTER RESIN AND GLASS FIBRE	OTHER PRODUCT OR CHEMICAL
--	--	--	--	--

9) What products do you work with in your present job that contain what you might call "chemicals" and to which of the above categories do they belong?

10) For each of the chemicals you've just mentioned do you think this product can be harmful in any way?

1. No, not at all harmful
2. Very slightly harmful
3. Moderately harmful
4. Extremely harmful

10a) Which two of the chemicals you've just mentioned do you use the most?

11) About how often do you use these products?

1. Every day
2. Every week
3. Every month
4. Less often

12) What harmful health effects may the product have in the short term?

13) What harmful health effects may the product have in the long term?

14) How do you protect yourself from harm from the product?

15) If no protection is used please give reasons why not.

16) Have you ever read the label on this product?

Wood Chemicals/Chemical Based Products

WOOD FINISHES E.G., VARNISH (NITROCELLULOSE, POLYURETHANE) , PAINTS, CREOSOTE	WOOD PRESERVATIVES E.G., PESTICIDES, MILDEWCIDES, INSECTICIDES	WOOD CLEANERS E.G., NITRIC ACID (NITROMORS) ISO PROPYL ALCOHOL (ACETONE), SULPHURIC ACID	ADHESIVES E.G., SOLVENT BASED AND EPIOXY RESINS	OTHER PRODUCT OR CHEMICAL
--	---	--	--	---------------------------------

9) What products do you work with in your present job that contain what you might call "chemicals" and to which of the above categories do they belong?

10) For each of the chemicals you've just mentioned do you think this product can be harmful in any way?

1. No, not at all harmful
2. Very slightly harmful
3. Moderately harmful
4. Extremely harmful

10a) Which two of the chemicals you've just mentioned do you use the most?

11) About how often do you use these products?

1. Every day
2. Every week
3. Every month
4. Less often

12) What harmful health effects may the product have in the short term?

13) What harmful health effects may the product have in the long term?

14) How do you protect yourself from harm from the product?

15) If no protection is used please give reasons why not.

16) Have you ever read the label on this product?

Electroplating Chemicals/Chemical Based Products

SOLVENTS E.G. COLD CLEANING/DEGREASING SOLVENTS SUCH AS TRICHLOROETHENE (TCE).	CADMIUM SOLUTION	STRONG ACIDS/ALKALIS E.G. SULPHURIC ACID, SODIUM HYDROXIDE	CHROMIUM SOLUTION	OTHER PRODUCT OR CHEMICAL
--	-----------------------------	--	------------------------------	--

9) What products do you work with in your present job that contain what you might call "chemicals" and to which of the above categories do they belong?

10) For each of the chemicals you've just mentioned do you think this product can be harmful in any way?

1. No, not at all harmful
2. Very slightly harmful
3. Moderately harmful
4. Extremely harmful

10a) Which two of the chemicals you've just mentioned do you use the most?

11) About how often do you use these products?

1. Every day
2. Every week
3. Every month
4. Less often

12) What harmful health effects may the product have in the short term?

13) What harmful health effects may the product have in the long term?

14) How do you protect yourself from harm from the product?

15) If no protection is used please give reasons why not.

16) Have you ever read the label on this product?

Dry Cleaner Chemicals/Chemical Based Products

PERCHLOROETHYLENE E.G., ETHYLENE TETRACHLORIDE; PERC; PERCHLOROETHYLENE; DOWPER; PERCLEN; NEMA: TETRACHLOROETHENE; TETRACAP; TETROPIL; ANKILOSTIN; DIDAKENE; 1,1,2,2- TETRACHLOROETHYLENE; CARBON DICHLORIDE; PERCHLOR; TETROCHLOROETHANE	SPOTTING AGENTS E.G., STAIN REMOVERS, PROTEIN SPOTTER, TANNIN SPOTTER, SPRAY SPOTTER, "MULTI" DRY-SIDE SPOTTER, PAINT, OIL & GREASE REMOVER, SILK SPOTTER	HYDROCARBON DRY CLEANER E.G., VINOY PLUS, HC 40, HC 2000, HC 2000 PLUS	DETERGENTS E.G., BUILT DETERGENT, "FORCE" BUILT DETERGENT WITH COLOUR SAFE BLEACH, SOUR WITH BRIGHTENER, GENERAL PURPOSE DETERGENT, PURE SODIUM PERCARBONATE	OTHER PRODUCT OR CHEMICAL
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9) What products do you work with in your present job that contain what you might call "chemicals" and to which of the above categories do they belong?

10) For each of the chemicals you've just mentioned do you think this product can be harmful in any way?

1. No, not at all harmful
2. Very slightly harmful
3. Moderately harmful
4. Extremely harmful

10a) Which two of the chemicals you've just mentioned do you use the most?

11) About how often do you use these products?

1. Every day
2. Every week
3. Every month
4. Less often

12) What harmful health effects may the product have in the short term?

13) What harmful health effects may the product have in the long term?

14) How do you protect yourself from harm from the product?

15) If no protection is used please give reasons why not.

16) Have you ever read the label on this product?

Hairdressers

	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
HAIRDRESSING	Peroxide e.g., powder bleaches	Perm Solution e.g., Tressa: Pliance Acid Perm, Versatage Alkaline Perm, Riva, Acid Wave.	Colourings e.g., Tints, colours, hair gloss	Hairsprays / Miscellaneous products
Question 12 (Short term health)	Correct answer: Harmful if inhaled or swallowed. Causes severe eye & skin irritation or burns.	Correct answer: Dermatitis, dizziness, light-headedness, or drunk-like behaviour	Correct answer: Skin sensitiser or irritation, eye irritation	Correct answer: Eye damage. Inhalation may cause internal irritation, nausea, vomiting
Question 13 (Long term health)	Correct answer: Repeated exposure may lead to dermatitis	Correct answer: Irritation (skin, eye, breathing)	Correct answer: Dermatitis, eye injury	Correct answer: Eye and lung damage
Question 14 (protection)	Correct answer: Gloves, gowns, overalls. Chemical Splash Goggles. Use/mix in well ventilated area.	Correct answer: Chemical Splash Goggles, Chemical resistant gloves, extractor fan.	Correct answer: Chemical Splash Goggles, Chemical resistant gloves, extractor fan.	Correct answer: Gloves, gowns, overalls and mask, extractor fan.

Garages

	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
GARAGES	Paints e.g., spray paint, aerosol spray paint, acrylic lacquer	Greases/Oils/lubricants e.g., Blue Grease, Lithium Grease, Lubricant oil.	Activators / Hardeners e.g., Imron Activators, Clears & Additives, isocyanate activators, hardeners & additives	Fillers and resins, e.g., styrene, polyester resin and glass fibre.
Question 12 (Short term health)	Correct answer: Irritation, skin dermatitis. Inhalation - headache, dizziness, nausea.	Correct answer: Rashes, irritation & dermatitis, temporary irritation to eyes	Correct answer: Nose & throat irritation. respiratory sensitisation, skin irritation, dermatitis, eye irritation, sensitising effects	Correct answer: Respiratory system irritation, Narcosis, skin burns, eye irritation.
Question 13 (Long term health)	Correct answer: Permanent brain & nervous system damage	Correct answer: Carcinogenic effects if contaminated	Correct answer: May result in permanent decrease in lung functioning. Permanent brain & nervous system damage. Sensitising effects	Correct answer: Central nervous system depression. Allergic sensitizer, aspiration hazard, nausea.
Question 14 (protection)	Correct answer: Respirator, mechanical filter. extractor fan protective gloves, eye protection, impervious clothing & boots	Correct answer: Goggles, aprons, overalls, adequate ventilation, gloves	Correct answer Mask, adequate ventilation neoprene gloves, eye protection: splash guards/side shields, coveralls	Correct answer: Gloves, eye protection, mask, extractor fan or ventilation

Wood / Timber yards and shops

	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
WOOD TIMBER YARDS & SHOPS	Wood Finishes e.g., varnish (Nitrocellulose, polyurethane) , paints, creosote	Wood Preservatives e.g., Pesticides, Mildewcides, Insecticides	Wood Cleaners e.g., Nitric acid (Nitromors) ISO PROPYL ALCOHOL (Acetone), Sulphuric acid	Adhesives e.g., solvent based and epoxy resins.
Question 12 (Short term health)	Correct answer: Irritation of respiratory tract, headache, dizziness, staggering /confusion/unconsciousness/coma/ skin irritation, eye irritation, nausea	Correct answer: Toxic, irritant (skin, respiratory), dermatitis	Correct answer: Nausea if ingested, Intoxication, eye and respiratory system irritation. chemical burns, dermatitis	Correct answer: Headaches, dermatitis, skin irritation
Question 13 (Long term health)	Correct answer: Kidney, liver, & blood damage. Occupational asthma.	Correct answer: Toxic, cancer causing, possible liver and kidney damage	Correct answer: Eye damage, Central Nervous System Depression	Correct answer: Skin and respiratory sensitization. Central Nervous System effects
Question 14 (protection)	Correct answer: Mask, general ventilation, solvent resistant gloves, splash-proof glasses.	Correct answer: Chemical resistant gloves, chemical goggles, Face shields, Chemical resistant clothing, ventilation.	Correct answer: Chemical resistant gloves, eye protection, ventilation.	Correct answer: Forced ventilation (extractor fan, or external use only), safety glasses, gloves, clothing.

Electroplaters

	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
ELECTRO-PLATERS	SOLVENTS, e.g. Cold Cleaning/degreasing solvents such as Trichloroethene (TCE).	CADMIUM SOLUTION	STRONG ACIDS/ALKALIS (e.g. sulphuric acid, sodium hydroxide)	CHROMIUM SOLUTION
Question 12 (Short term health)	Correct answer: Headaches, dizziness, nausea, eye, skin and respiratory irritation, possible unconsciousness	Correct answer: Headaches, nausea, depressed appetite, insomnia.	Correct answer: Burns to skin, respiratory irritation/damage. Eye damage if splashed	Correct answer: Respiratory and skin irritation.
Question 13 (Long term health)	Correct answer: Damage to the liver, kidneys and central nervous system, possible cancer causing solvents.	Correct answer: Known effects: Causes cancer, genito-urinary tract carcinogen, Harms developing foetus, harms reproduction	Correct answer: Permanent skin, eye or lung damage.	Correct answer: Ulceration, dermatitis, carcinogen, toxicant,
Question 14 (protection)	Correct answer: Gloves, gowns, overalls and respiratory and eye protection. General forced ventilation (extractor fan) Regular maintenance of machinery. Safe systems of work.	Correct answer: Engineering controls, rubber gloves, safety glasses & respirators.	Correct answer: Gloves, gowns, overalls and respiratory and eye protection. Adequate ventilation Regular maintenance of machinery. Safe systems of work.	Correct answer: Gloves, gowns, overalls, maintenance of machinery.

Dry Cleaners

	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
DRY CLEANERS	Perchloroethylene e.g., Ethylene tetrachloride; PERC; Perchloroethylene ; Dowper; Perclene; Nema: tetrachloroethene; Tetracap; Tetropil; Ankilostin; Didakene; 1,1,2,2-Tetrachloroethylene; carbon dichloride; perchlor; tetrochloroethane	Spotting Agents e.g., stain removers, Protein Spotter, Tannin Spotter, Spray Spotter, "Multi" Dry-Side Spotter, Paint, Oil & Grease Remover, Silk Spotter	Hydrocarbon dry cleaner e.g., Vinoy Plus, HC 40, HC 2000, HC 2000 Plus	Detergents e.g., Built Detergent, "Force" Built Detergent with Colour Safe Bleach, Sour with brightener, General Purpose Detergent, Pure Sodium Percarbonate
Question 12 (Short term health)	Correct answer: Headaches, dizziness, nausea, eye and skin irritation.	Correct answer: Headaches, dizziness, nausea, eye and skin irritation.	Correct answer: Irritation, blurred vision.	Correct answer: Irritation.
Question 13 (Long term health)	Correct answer: Damage to the liver, kidneys and central nervous system. Sensitising effects.	Correct answer: Damage to the liver and central nervous system. Sensitising effects.	Correct answer: Dermatitis. Sensitising effects.	Correct answer: Dermatitis
Question 14 (protection)	Correct answer: Gloves, gowns, overalls and mask, extractor fan. Regular maintenance of machinery.	Correct answer: Gloves, gowns, overalls and mask. Adequate ventilation. Regular maintenance of machinery.	Correct answer: Adequate ventilation, resistant gloves, chemical splash goggles. Regular maintenance of machinery.	Correct answer: Industrial rubber-type gloves, industrial safety glasses, industrial-type work clothing & safety footwear.

APPENDIX B
BASIC QUESTION FREQUENCIES

Appendix B : Frequencies distributions for each question

The following tables have been produced to highlight the frequencies of information gathered in the questionnaire. The ordering of these tables follows the same order of the questionnaire.

Not all of the questions were asked of all respondents. In this regard the sample is sometimes split between: all respondents (N=521), Managers and one person businesses only (N=314), Managers (N=266), Employees (N=207),

Demographic variables : All respondents (N=521)

POSITION WITHIN THE ORGANISATION

		Frequency	Percent	Cumulative Percent
Valid	Owner of/partner in the business	229	44.0	44.0
	Manager (but not owner)	84	16.1	60.1
	Administrative	9	1.7	61.8
	Skilled technical	112	21.5	83.3
	Semi-skilled/unskilled technical	72	13.8	97.1
	Trainee	6	1.2	98.3
	Other	9	1.7	100.0
	Total	521	100.0	

AGE GROUP

		Frequency	Percent	Cumulative Percent
Valid	Under 30	147	28.2	28.2
	31 to 50	249	47.8	76.0
	Over 50	116	22.3	98.3
	Not stated	9	1.7	100.0
	Total	521	100.0	

RESPONDENTS FIRST LANGUAGE

		Frequency	Percent	Cumulative Percent
Valid	English	499	95.8	95.8
	Bilingual	17	3.3	99.0
	Other language	5	1.0	100.0
	Total	521	100.0	

RESPONDENTS WORKING STATUS

		Frequency	Percent	Cumulative Percent
Valid	Full time	482	92.5	92.5
	Part time	39	7.5	100.0
	Total	521	100.0	

TYPE OF BUSINESS

		Frequency	Percent	Cumulative Percent
Valid	Wood Yard	121	23.2	23.2
	Hairdressing	115	22.1	45.3
	Garages	108	20.7	66.0
	Dry Cleaners	103	19.8	85.8
	Electroplating	74	14.2	100.0
	Total	521	100.0	

YEARS IN CURRENT JOB

		Frequency	Percent	Cumulative Percent
Valid	5 and under	222	42.6	42.6
	6 to 10	99	19.0	61.6
	Over 10	195	37.4	99.0
	Not stated	5	1.0	100.0
	Total	521	100.0	

YEARS IN INDUSTRY

		Frequency	Percent	Cumulative Percent
Valid	5 and under	137	26.3	26.3
	6 to 10	72	13.8	40.1
	Over 10	303	58.2	98.3
	Not stated	9	1.7	100.0
	Total	521	100.0	

YEARS WORKING WITH HAZARDOUS CHEMICALS

		Frequency	Percent	Cumulative Percent
Valid	5 and under	134	25.7	25.7
	6 to 10	76	14.6	40.3
	Over 10	302	58.0	98.3
	Not stated	9	1.7	100.0
	Total	521	100.0	

SEX

		Frequency	Percent	Cumulative Percent
Valid	Male	352	67.6	67.6
	Female	169	32.4	100.0
	Total	521	100.0	

RESPONDENT'S PLACE OF WORK

		Frequency	Percent	Cumulative Percent
Valid	On this site all the time	454	87.1	87.1
	Mostly on this site & based here	53	10.2	97.3
	Mostly at other locations but based here	8	1.5	98.8
	No work base - mobile worker	6	1.2	100.0
	Total	521	100.0	

**Questions 1 to 6 : Managers and one person businesses only
(N=314)**

Q1 : NO. PEOPLE WORKING ON SITE

		Frequency	Percent	Cumulative Percent
Valid	One employee only	48	15.3	15.3
	2 to 4 employees	141	44.9	60.2
	5 to 9 employees	68	21.7	81.8
	10 to 19 employees	31	9.9	91.7
	20 and above employees	14	4.5	96.2
	Not stated	12	3.8	100.0
	Total	314	100.0	

Q2 : TYPE OF BUSINESS

		Frequency	Percent	Cumulative Percent
Valid	Independent	273	86.9	86.9
	Part of a chain	13	4.1	91.1
	Linked to another organisation but relatively independent	11	3.5	94.6
	Other	1	.3	94.9
	Not stated	16	5.1	100.0
	Total	314	100.0	

Q3 : YEARS THE FIRM HAS BEEN IN BUSINESS

		Frequency	Percent	Cumulative Percent
Valid	Up to 5	65	20.7	20.7
	6 to 10	59	18.8	39.5
	11 to 20	87	27.7	67.2
	Over 20	103	32.8	100.0
	Total	314	100.0	

Q4 : NO. STAFF BELONG TO UNION

		Frequency	Percent	Cumulative Percent
Valid	0	257	81.8	81.8
	1	3	1.0	82.8
	2	1	.3	83.1
	4	2	.6	83.8
	10	1	.3	84.1
	15	1	.3	84.4
	Not stated	49	15.6	100.0
	Total	314	100.0	

Q5 : NO. STAFF LEFT BUSINESS IN LAST 12 MONTHS

		Frequency	Percent	Cumulative Percent
Valid	0	156	51.7	51.7
	1	52	17.2	68.9
	2	32	10.6	79.5
	3	8	2.6	82.1
	4	9	3.0	85.1
	5	5	1.7	86.8
	6	3	1.0	87.7
	8	1	.3	88.1
	10	1	.3	88.4
	12	2	.7	89.1
	Not stated	33	10.9	100.0
	Total	302	100.0	

Q6 : PERSONALLY WORK WITH HARMFUL CHEMICALS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	273	86.9	86.9	86.9
	No	32	10.2	10.2	97.1
	Not stated	9	2.9	2.9	100.0
	Total	314	100.0	100.0	

Questions 7 to 50 : Users of chemicals (N=479)

Q7 : HOW WOULD YOU GENERALLY RATE YOUR KNOWLEDGE OF THESE PRODUCTS FOR THE WORK YOU DO?

		Frequency	Percent	Cumulative Percent
Valid	Very good	183	38.2	38.2
	Quite good	246	51.4	89.6
	Neither good nor poor	34	7.1	96.7
	Quite poor	15	3.1	99.8
	Very poor	1	.2	100.0
	Total	479	100.0	

Q8 : PERCEIVED OVERALL HEALTH RISK FROM CHEMICALS WORKED WITH

		Frequency	Percent	Cumulative Percent
Valid	High risk	36	7.5	7.5
	Medium risk	135	28.2	35.7
	Small risk	244	50.9	86.6
	No risk	64	13.4	100.0
	Total	479	100.0	

Questions 9-16 : Knowledge and stated behaviour with chemical products used

These questions cover the actual products used (see the questionnaire and showcards).

- Q9 Identifies the chemicals by group: sector-specific groupings were used
- Q10 Asks how harmful the user thinks the chemicals are
- Q10a Identifies which *two* are used most often, Q11-Q16 are asked of these products Q11 Asks frequency of use
- Q12 Asks harmful effects in the short term - and the interviewer codes accordingly
- Q13 Asks harmful effects in the long term - and the interviewer codes accordingly

Note: for Q12 and Q13, the interviewer has a table listing short/long term effects, and assess user knowledge on the basis of "correct/partially correct/incorrect/did not know". The interviewers are not professionally qualified in the area, so readers should not read too much into differences between "correct/partially correct" listings. However, the difference between "correct/partially correct" and "incorrect/did not know" is more robust and of interest.

- Q14 How user is protected from harm from the product - whether correct, partial or incorrect protection is used, or none at all.
- Q15 reasons for "no protection" at Q14 - these are not examined here, but are considered for specific products in the main text.
- Q16 Asks if the label for the product has ever been read.

A detailed investigation for some of these chemicals is given in the main text. The percentages may vary slightly with those below, as the analysis in the main text was very focussed and removed a small number of users who cited more generic products under the main categories.

HAIRDRESSERS

Q10 Hairdressers: Perceived harm of chemical products used

	No, not at all harmful	Very slightly harmful	Moderately harmful	Extremely harmful	Don't know	Total
Peroxide	8%	21%	37%	32%	2%	100%
Perm solutions	9%	27%	43%	22%	0%	100%
Colourings	16%	42%	31%	11%	0%	100%
Hairsprays	24%	53%	20%	2%	1%	100%

BASE: Peroxide 110 Perm solutions 105 Colourings 107 Hairsprays 101

Q11 Hairdressers: Frequency of use of chemical products used

	Every day	Every week	Every month	Less often	Don't know	Total
Peroxide	84%	9%	2%	5%	0%	100%
Perm solutions	61%	33%	4%	2%	0%	100%
Colourings	65%	28%	3%	2%	2%	100%
Hairsprays	97%	3%	0%	0%	0%	100%

BASE: Peroxide 44 Perm solutions 46 Colourings 60 Hairsprays 63

Q12 Hairdressers: Knowledge of short term harmful effects

	Correct	Partially correct	Incorrect	Did not know	Not applicable to product	Total
Peroxide	61%	30%	2%	7%	0%	100%
Perm solutions	54%	28%	9%	7%	2%	100%
Colourings	52%	33%	7%	7%	2%	100%
Hairsprays	45%	38%	11%	3%	3%	100%

BASE: Peroxide 44 Perm solutions 46 Colourings 60 Hairsprays 63

Q13 Hairdressers: Knowledge of long term harmful effects

	Correct	Partially correct	Incorrect	Did not know	Not applicable to product	Total
Peroxide	45%	23%	14%	16%	2%	100%
Perm solutions	41%	39%	4%	15%	0%	100%
Colourings	43%	34%	13%	10%	0%	100%
Hairsprays	32%	51%	5%	10%	2%	100%

BASE: Peroxide 44 Perm solutions 46 Colourings 60 Hairsprays 63

Q14 Hairdressers: how do you protect yourself from harm from the product?

	Correct	Partially correct	Incorrect/no protection	Total
Peroxide	53%	44%	2%	100%
Perm solutions	47%	49%	4%	100%
Colourings	44%	52%	3%	100%
Hairsprays	31%	44%	25%	100%

BASE: Peroxide 44 Perm solutions 46 Colourings 60 Hairsprays 63

Q16 Hairdressers: have you ever read the label on this product?

	Yes	No	Total
Peroxide	98%	2%	100%
Perm solutions	96%	4%	100%
Colourings	97%	3%	100%
Hairsprays	89%	11%	100%

BASE: Peroxide 44 Perm solutions 46 Colourings 60 Hairsprays 63

GARAGES

Q10 Garages: Perceived harm of chemical products used

	No, not at all harmful	Very slightly harmful	Moderately harmful	Extremely harmful	Don't know	Total
Paints	3%	21%	37%	34%	5%	100%
Greases/oils/lubricants	15%	37%	44%	5%	0%	100%
Activators and hardeners	8%	31%	31%	25%	6%	100%
Fillers and resins	6%	26%	37%	23%	9%	100%

BASE: Paints 38 Greases/oils/lubricants 87 Activators and hardeners 36 Fillers and resins 35

Q11 Garages: Frequency of use of chemical products used

	Every day	Every week	Every month	Less often	Total
Paints	48%	17%	26%	9%	100%
Greases/oils/lubricants	95%	4%	0%	1%	100%
Activators and hardeners	64%	21%	14%	0%	100%
Fillers and resins	44%	33%	11%	11%	100%

BASE: Paints 23 Greases/oils/lubricants 81 Activators and hardeners 14 Fillers and resins 9

Q12 Garages: Knowledge of short term harmful effects

	Correct	Partially correct	Incorrect	Did not know	Not applicable to product	Total
Paints	52%	17%	17%	13%	0%	100%
Greases/oils/lubricants	49%	22%	16%	12%	1%	100%
Activators and hardeners	57%	14%	7%	21%	0%	100%
Fillers and resins	56%	11%	33%	0%	0%	100%

BASE: Paints 23 Greases/oils/lubricants 81 Activators and hardeners 14 Fillers and resins 9

Q13 Garages: Knowledge of long term harmful effects

	Correct	Partially correct	Incorrect	Did not know	Total
Paints	32%	14%	36%	18%	100%
Greases/oils/lubricants	33%	19%	26%	22%	100%
Activators and hardeners	46%	46%	0%	8%	100%
Fillers and resins	33%	22%	44%	0%	100%

BASE: Paints 23 Greases/oils/lubricants 81 Activators and hardeners 14 Fillers and resins 9

Q14 Garages: how do you protect yourself from harm from the product?

	Correct	Partially correct	Incorrect/no protection	Total
Paints	50%	36%	14%	100%
Greases/oils/lubricants	60%	31%	9%	100%
Activators and hardeners	86%	7%	7%	100%
Fillers and resins	75%	25%	0%	100%

BASE: Paints 23 Greases/oils/lubricants 81 Activators and hardeners 14 Fillers and resins 9

Q16 Garages: have you ever read the label on this product?

	Yes	No	Don't know	Total
Paints	78%	17%	4%	100%
Greases/oils/lubricants	78%	21%	1%	100%
Activators and hardeners	100%	0%	0%	100%
Fillers and resins	100%	0%	0%	100%

BASE: Paints 23 Greases/oils/lubricants 81 Activators and hardeners 14 Fillers and resins 9

WOODYARDS

Q10 Woodyards: Perceived harm of chemical products used

	No, not at all harmful	Very slightly harmful	Moderately harmful	Extremely harmful	Don't know	Total
Wood finishes	16%	36%	28%	20%	1%	100%
Wood preservatives	11%	27%	29%	32%	2%	100%
Wood cleaners	11%	17%	26%	45%	0%	100%
Adhesives	17%	35%	28%	15%	5%	100%

BASE: Wood finishes 76 Wood preservatives 63 Wood cleaners 53 Adhesives 60

Q11 Woodyards: Frequency of use of chemical products used

	Every day	Every week	Every month	Less often	Total
Wood finishes	42%	34%	14%	10%	100%
Wood preservatives	50%	38%	0%	13%	100%
Wood cleaners	53%	30%	10%	7%	100%
Adhesives	56%	32%	7%	5%	100%

BASE: Wood finishes 59 Wood preservatives 30 Wood cleaners 32 Adhesives 41

Q12 Woodyards: Knowledge of short term harmful effects

	Correct	Partially correct	Incorrect	Did not know	Not applicable to product	Total
Wood finishes	22%	39%	14%	19%	7%	100%
Wood preservatives	38%	25%	3%	28%	6%	100%
Wood cleaners	38%	31%	17%	7%	7%	100%
Adhesives	37%	27%	7%	22%	7%	100%

BASE: Wood finishes 59 Wood preservatives 30 Wood cleaners 32 Adhesives 41

Q13 Woodyards: Knowledge of long term harmful effects

	Correct	Partially correct	Incorrect	Did not know	Not applicable to product	Total
Wood finishes	10%	29%	10%	41%	9%	100%
Wood preservatives	16%	25%	13%	41%	6%	100%
Wood cleaners	10%	21%	21%	34%	14%	100%
Adhesives	24%	24%	5%	39%	7%	100%

BASE: Wood finishes 59 Wood preservatives 30 Wood cleaners 32 Adhesives 41

Q14 Woodyards: how do you protect yourself from harm from the product?

	Correct	Partially correct	Incorrect/no protection	Total
Wood finishes	43%	45%	12%	100%
Wood preservatives	60%	33%	7%	100%
Wood cleaners	81%	15%	4%	100%
Adhesives	38%	27%	35%	100%

BASE: Wood finishes 59 Wood preservatives 30 Wood cleaners 32 Adhesives 41

Q16 Woodyards: have you ever read the label on this product?

	Yes	No	Not applicable	Total
Wood finishes	86%	12%	2%	100%
Wood preservatives	81%	13%	6%	100%
Wood cleaners	87%	13%	0%	100%
Adhesives	88%	10%	2%	100%

BASE: Wood finishes 59 Wood preservatives 30 Wood cleaners 32 Adhesives 41

ELECTROPLATERS

Q10 Electroplaters: Perceived harm of chemical products used

	No, not at all harmful	Very slightly harmful	Moderately harmful	Extremely harmful	Don't know	Total
Solvents	0%	23%	40%	34%	3%	100%
Cadmium solution	0%	0%	0%	100%	0%	100%
Strong acids/alkalis	2%	11%	30%	58%	0%	100%
Chromium solution	4%	7%	22%	67%	0%	100%

BASE: Solvents 35 Cadmium solution 10 Strong acids/alkalis 57 Chromium solution 46

Q11 Electroplaters: Frequency of use of chemical products used

	Every day	Every week	Every month	Less often	Total
Solvents	90%	10%	0%	0%	100%
Cadmium solution	75%	0%	0%	25%	100%
Strong acids/alkalis	76%	20%	2%	2%	100%
Chromium solution	78%	19%	0%	3%	100%

BASE: Solvents 21 Cadmium solution 4 Strong acids/alkalis 51 Chromium solution 32

Q12 Electroplaters: Knowledge of short term harmful effects

	Correct	Partially correct	Incorrect	Did not know	Not applicable to product	Total
Solvents	48%	48%	5%	0%	0%	100%
Cadmium solution	0%	25%	25%	50%	0%	100%
Strong acids/alkalis	49%	35%	6%	6%	4%	100%
Chromium solution	56%	31%	9%	0%	3%	100%

BASE: Solvents 21 Cadmium solution 4 Strong acids/alkalis 51 Chromium solution 32

Q13 Electroplaters: Knowledge of long term harmful effects

	Correct	Partially correct	Incorrect	Did not know	Not applicable to product	Total
Solvents	10%	33%	38%	19%	0%	100%
Cadmium solution	0%	50%	25%	25%	0%	100%
Strong acids/alkalis	31%	35%	16%	14%	4%	100%
Chromium solution	34%	38%	17%	7%	3%	100%

BASE: Solvents 21 Cadmium solution 4 Strong acids/alkalis 51 Chromium solution 32

Q14 Electroplaters: how do you protect yourself from harm from the product?

	Correct	Partially correct	Total
Solvents	52%	48%	100%
Cadmium solution	25%	75%	100%
Strong acids/alkalis	59%	41%	100%
Chromium solution	81%	19%	100%

BASE: Solvents 21 Cadmium solution 4 Strong acids/alkalis 51 Chromium solution 32

Q16 Electroplaters: have you ever read the label on this product?

	Yes	No	Don't know	Not applicable	Total
Solvents	81%	10%	10%	0%	100%
Cadmium solution	75%	0%	0%	25%	100%
Strong acids/alkalis	92%	6%	2%	0%	100%
Chromium solution	88%	9%	0%	3%	100%

BASE: Solvents 21 Cadmium solution 4 Strong acids/alkalis 51 Chromium solution 32

DRY CLEANERS

Q10 dry cleaners: Perceived harm of chemical products used

	all harmful	Very harmful	Moderately	Extremely harmful		Total
Perchloroethylene	13%	20%	30%	34%	2%	100%
Spotting Agents	27%	36%		12%	2%	
	42%	8%		25%	8%	
Detergents	38%	38%		2%	2%	

Q11 Dry cleaners: Frequency of use of chemical products used

	Every day	Every week	Every month	Less often	Don't know	Total
Perchloroethylene	87%	5%	2%	5%	1%	100%
Spotting Agents	86%	9%	1%	1%	3%	100%
Hydrocarbon dry cleaner	75%	0%	0%	0%	25%	100%
Detergents	67%	17%	8%	8%	0%	100%

BASE: Perchloroethylene 82 Spotting Agents 76 Hydrocarbon dry cleaner 4 Detergents 12

Q12 Dry cleaners: Knowledge of short term harmful effects

	Correct	Partially correct	Incorrect	Did not know	Not applicable to product	Total
Perchloroethylene	33%	31%	19%	17%	0%	100%
Spotting Agents	22%	33%	20%	22%	3%	100%
Hydrocarbon dry cleaner	50%	0%	0%	25%	25%	100%
Detergents	25%	33%	17%	17%	8%	100%

BASE: Perchloroethylene 82 Spotting Agents 76 Hydrocarbon dry cleaner 4 Detergents 12

Q13 Dry cleaners: Knowledge of long term harmful effects

	Correct	Partially correct	Incorrect	Did not know	Not applicable to product	Total
Perchloroethylene	17%	16%	22%	43%	1%	100%
Spotting Agents	13%	18%	16%	50%	3%	100%
Hydrocarbon dry cleaner	25%	0%	0%	50%	25%	100%
Detergents	0%	42%	33%	17%	8%	100%

BASE: Perchloroethylene 82 Spotting Agents 76 Hydrocarbon dry cleaner 4 Detergents 12

Q14 Dry cleaners: how do you protect yourself from harm from the product?

	Correct	Partially correct	Incorrect/no protection	Total
Perchloroethylene	29%	41%	29%	100%
Spotting Agents	31%	39%	30%	100%
Hydrocarbon dry cleaner	67%	0%	33%	100%
Detergents	23%	54%	23%	100%

BASE: Perchloroethylene 82 Spotting Agents 76 Hydrocarbon dry cleaner 4 Detergents 12

Q16 Dry cleaners: have you ever read the label on this product?

	Yes	No	Not applicable	Total
Perchloroethylene	87%	10%	4%	100%
Cadmium solution	89%	5%	5%	100%
Strong acids/alkalis	50%	25%	25%	100%
Detergents	69%	23%	8%	100%

BASE: Perchloroethylene 82 Spotting Agents 76 Hydrocarbon dry cleaner 4 Detergents 12

Questions 9 to 16 were located in five columns which originally went up to question 48. Question 49 therefore is the direct question following question 16.

Q49 : DIRECT EXPERIENCE OF SIGNIFICANT HARM

	Frequency	Percent	Cumulative Percent
Valid Yes	76	15.9	15.9
No	399	83.3	99.2
Don't know/not stated	4	.8	100.0
Total	479	100.0	

Q50 : HOW INFLUENCED (ASKED OF ALL RESPONDENTS WHO ANSWERED YES IN Q49)

	Frequency	Percent	Cumulative Percent
Valid No influence	11	14.5	14.5
Slightly more careful	7	9.2	23.7
Much more careful	57	75.0	98.7
Other	1	1.3	100.0
Total	76	100.0	

**Questions 51 to 52 : Employees and one person businesses
(N=255)**

**Q51 : RECEIVED SUPERVISION INSTRUCTION OR TRAINING ON
H&S**

	Frequency	Percent	Cumulative Percent
Valid Yes - not in last year	95	37.3	37.3
Yes - within last year	75	29.4	66.7
No	59	23.1	89.8
Don't know/not stated	26	10.2	100.0
Total	255	100.0	

Q52 : RULES AND REGULATIONS NAMES KNOWN

COSHH	30%
Health & Safety at Work etc Act 1974	33%
Other	6%
RIDDOR	2%
"6 Pack" Regulations 1992	0%
CHIP 2	0%
None	39%
Not stated	9%
Total	255
	100%

Questions 53 to 58 : Employees only (N=207)

Q53 : AWARE OF H&S ARRANGEMENTS IN COMPANY

	Frequency	Percent	Cumulative Percent
Valid Yes	152	73.4	73.4
No	34	16.4	89.9
Don't Know	9	4.3	94.2
Refused	3	1.4	95.7
Missing Values	9	4.3	100.0
Total	207	100.0	

Q54 : COMPANY ARRANGEMENTS

Written down	66%
Verbal only	33%
Other	1%
Don't know/not stated	0%
Total	152
	100%

Q55 : LOCATION OF WRITTEN COMPANY H&S ARRANGEMENTS

Displayed (e.g. on wall)	77%
Issued to all staff	19%
Copies only kept by management	13%
Cupboard on shop floor	3%
Other	13%
Don't know/not stated	1%
Total	101
	100%

Q56 : EVER READ H&S ARRANGEMENTS

	Frequency	Percent	Cumulative Percent
Valid Yes	94	93.1	93.1
No	6	5.9	99.0
Don't know/not stated	1	1.0	100.0
Total	101	100.0	

**Q57 : RATING OF MANAGERS CONCERN FOR H&S OF
EMPLOYEES**

	Frequency	Percent	Cumulative Percent
Valid			
Very poor	5	2.4	2.4
Quite poor	9	4.3	6.8
Neutral	8	3.9	10.6
Quite good	65	31.4	42.0
Very good	99	47.8	89.9
Manager around could not ask	4	1.9	91.8
Don't know/not stated	8	3.9	95.7
Missing response	9	4.3	100.0
Total	207	100.0	

Q58 : INVOLVEMENT IN H&S ARRANGEMENTS

No involvement	76%
Helped in its development	8%
Monitoring role	5%
First aid rep	3%
Gave advice/opinion	2%
Staff rep	1%
Fire marshal	0%
Reporting role	0%
Other	4%
Don't know/not stated	6%
Total	207 100%

Questions 59 to 84 : All respondents (N=521)

Q59 : IF A PRODUCT DOES NOT HAVE A SMELL IT IS PROBABLY SAFE

		Frequency	Percent	Cumulative Percent
Valid	Strongly agree	7	1.3	1.3
	Slightly agree	27	5.2	6.5
	Uncertain	15	2.9	9.4
	Slightly disagree	85	16.3	25.7
	Strongly disagree	386	74.1	99.8
	Don't know/not stated	1	.2	100.0
	Total	521	100.0	

Q60 : COLOUR IS A GOOD INDICATION OF HOW DANGEROUS A PRODUCT IS

		Frequency	Percent	Cumulative Percent
Valid	Strongly agree	19	3.6	3.6
	Slightly agree	30	5.8	9.4
	Uncertain	18	3.5	12.9
	Slightly disagree	74	14.2	27.1
	Strongly disagree	380	72.9	100.0
	Total	521	100.0	

Q61 : IF A PRODUCT GIVES YOU A BURN OR TINGLING SENSATION, YOU SHOULD BE CONCERNED

		Frequency	Percent	Cumulative Percent
Valid	Strongly agree	451	86.6	86.6
	Slightly agree	58	11.1	97.7
	Uncertain	1	.2	97.9
	Slightly disagree	2	.4	98.3
	Strongly disagree	8	1.5	99.8
	Don't know/not stated	1	.2	100.0
	Total	521	100.0	

Q62 : THE MORE YOU USE A CHEMICAL THE LESS LIKELY YOU ARE TO BE CONCERNED ABOUT THE DANGERS

		Frequency	Percent	Cumulative Percent
Valid	Strongly agree	44	8.4	8.4
	Slightly agree	141	27.1	35.5
	Uncertain	21	4.0	39.5
	Slightly disagree	89	17.1	56.6
	Strongly disagree	226	43.4	100.0
	Total	521	100.0	

**Q63 : EVER EXPERIMENT WITH CHEMICALS TO TEST IF
HAZARDOUS**

	Frequency	Percent	Cumulative Percent
Valid Yes	74	14.2	14.2
No	441	84.6	98.8
Don't know/not stated	6	1.2	100.0
Total	521	100.0	

Q64 : ROLE PLAYED BY COMMON SENSE

	Frequency	Percent	Cumulative Percent
Valid No role	3	.6	.6
A small role	14	2.7	3.3
A large role	101	19.4	22.6
A very large role	393	75.4	98.1
Don't know/not stated	10	1.9	100.0
Total	521	100.0	

Q65 : WHAT DO YOU UNDERSTAND BY COMMON SENSE

Be careful/handle with care	33%
Read label/instructions before use	18%
Wear protection	18%
Use your head/initiative	14%
Follow instructions/label	13%
Understand chemicals worked with	12%
Have to know what you're doing	11%
Take precautions	9%
Ask if unsure	7%
Don't let in contact with skin	5%
Know consequences of misuse	5%
Don't breathe in fumes/ keep well ventilated	4%
Do not drink it	3%
What you know & how you do it	3%
Clean spillages immediately	3%
Keep in safe place/locked up	3%
Know procedures if anything goes wrong	3%
Test before use	2%
Put away after use	2%
Do not sniff/smell it	2%
Read data sheets	1%
Educate other staff	1%
Acids are dangerous	0%
Other	9%
Don't know/not stated	4%
Total	521
	100%

**Q66 WHERE DID YOUR KNOWLEDGE ON
CHEMICALS COME FROM?**

Labels on chemical container	64%
Suppliers/sales reps	56%
Common sense	47%
Experience	45%
Supplier Safety Data Sheets	42%
Training courses	38%
Supervisor/manager	37%
Work colleagues	28%
Company H&S policy/documentation	23%
Official guidance/literature	19%
From other companies	13%
Journals	12%
Friends/family/acquaintances	5%
Experiment	4%
Other	4%
TV	3%
None of these	0%
Don't know/not stated	0%
Total	521
	100%

BASE: ALL

Q67 : WHO WOULD YOU ASK FOR MORE INFORMATION

Suppliers/sales reps	65%
Supervisor/manager	22%
Supplier Safety Data Sheets	19%
Labels on chemical container	17%
Official guidance/literature	10%
Company H&S policy/documentation	7%
Work colleagues	7%
From other companies	5%
Training courses	5%
Common sense	3%
Friends/family/acquaintances	2%
Experience	2%
Journals	1%
TV	0%
Experiment	0%
Other	6%
Don't know/not stated	1%
None of these	0%
Total	521
	100%

Q68 : MOST INFLUENTIAL SOURCE

		Frequency	Percent	Cumulative Percent
Valid	Suppliers/sales reps	201	38.6	38.6
	Supervisor/manager	81	15.5	54.1
	Labels on chemical container	59	11.3	65.5
	Supplier Safety Data Sheets	56	10.7	76.2
	Official guidance/literature	20	3.8	80.0
	Work colleagues	17	3.3	83.3
	Company H&S policy/documentation	17	3.3	86.6
	Experience	16	3.1	89.6
	Training courses	11	2.1	91.7
	From other companies	10	1.9	95.8
	Common sense	6	1.2	98.7
	Friends/family/acquaintances	4	.8	99.4
	Journals	2	.4	99.8
	None of these	1	.2	100.0
	Other	11	2.1	93.9
	Don't know/not stated	9	1.7	97.5
	Total	521	100.0	

Q69 : MOST RELIABLE SOURCE

		Frequency	Percent	Cumulative Percent
Valid	Suppliers/sales reps	184	35.3	35.3
	Supplier Safety Data Sheets	81	15.5	50.9
	Labels on chemical container	66	12.7	63.5
	Supervisor/manager	57	10.9	74.5
	Official guidance/literature	29	5.6	80.0
	Company H&S policy/documentation	18	3.5	83.5
	Experience	14	2.7	86.2
	Training courses	13	2.5	91.4
	Work colleagues	10	1.9	95.4
	Common sense	8	1.5	96.9
	From other companies	7	1.3	98.3
	Friends/family/acquaintances	5	1.0	99.2
	Journals	3	.6	99.8
	TV	1	.2	100.0
	Other	11	2.1	93.5
	Don't know/not stated	14	2.7	88.9
	Total	521	100.0	

Q70 : SOURCE MOST LIKELY TO BE MISLEADING

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Experiment	136	26.1	26.1	26.1
	Friends/family/acquaintances	98	18.8	18.8	44.9
	TV	48	9.2	9.2	75.0
	Work colleagues	35	6.7	6.7	81.8
	Suppliers/sales reps	22	4.2	4.2	86.0
	Labels on chemical container	16	3.1	3.1	89.1
	Common sense	14	2.7	2.7	91.7
	From other companies	12	2.3	2.3	94.0
	Journals	7	1.3	1.3	95.4
	Supervisor/manager	6	1.2	1.2	96.5
	Experience	6	1.2	1.2	97.7
	Supplier Safety Data Sheets	3	.6	.6	98.3
	Training courses	3	.6	.6	98.8
	Company H&S policy/documentation	2	.4	.4	99.2
	Official guidance/literature	2	.4	.4	99.6
	Other	2	.4	.4	100.0
	Don't know/not stated	59	11.3	11.3	56.2
	None of these	50	9.6	9.6	65.8
	Total	521	100.0	100.0	

Questions 71a to 71g (Specific chemical symbols) : All respondents(N=521)

Q71A : EXPLOSIVE

		Frequency	Percent	Cumulative Percent
Valid	Correct	399	76.6	76.6
	Wrong	26	5.0	81.6
	Don't know/not stated	96	18.4	100.0
	Total	521	100.0	

Q71B : FLAMMABLE

		Frequency	Percent	Cumulative Percent
Valid	Correct	496	95.2	95.2
	Wrong	13	2.5	97.7
	Don't know/not stated	12	2.3	100.0
	Total	521	100.0	

Q71C : TOXIC

		Frequency	Percent	Cumulative Percent
Valid	Correct	402	77.2	77.2
	Wrong	72	13.8	91.0
	Don't know/not stated	47	9.0	100.0
	Total	521	100.0	

Q71D : HARMFUL/IRRITANT

		Frequency	Percent	Cumulative Percent
Valid	Correct	199	38.2	38.2
	Wrong	110	21.1	59.3
	Don't know/not stated	212	40.7	100.0
	Total	521	100.0	

Q71E : CORROSIVE

		Frequency	Percent	Cumulative Percent
Valid	Correct	350	67.2	67.2
	Wrong	101	19.4	86.6
	Don't know/not stated	70	13.4	100.0
	Total	521	100.0	

Q71F : OXIDISING

		Frequency	Percent	Cumulative Percent
Valid	Correct	67	12.9	12.9
	Wrong	156	29.9	42.8
	Don't know/not stated	298	57.2	100.0
	Total	521	100.0	

Q71G : DANGEROUS TO THE ENVIRONMENT

		Frequency	Percent	Cumulative Percent
Valid	Correct	305	58.5	58.5
	Wrong	65	12.5	71.0
	Don't know/not stated	151	29.0	100.0
	Total	521	100.0	

Q72 : EVER HEARD OF SAFETY DATA SHEETS

		Frequency	Percent	Cumulative Percent
Valid	Yes	342	65.6	65.6
	No	162	31.1	96.7
	Don't know/not stated	17	3.3	100.0
	Total	521	100.0	

A definition of a safety data sheet was read out after question 72 if the respondent did not know what a safety data sheet was.

Q73 : DEFINITION OF SAFETY DATA SHEETS

		Frequency	Percent	Cumulative Percent
Valid	Approximately correct	234	68.4	68.4
	Vague/partly correct	76	22.2	90.6
	Wrong explanation	8	2.3	93.0
	Don't know/not stated	24	7.0	100.0
	Total	342	100.0	

Q74 : EVER SEEN A SAFETY DATA SHEET

		Frequency	Percent	Cumulative Percent
Valid	Yes	364	69.9	69.9
	No	139	26.7	96.5
	Don't know/not stated	18	3.5	100.0
	Total	521	100.0	

Q75 : WHERE SAFETY DATA SHEETS KEPT

		Frequency	Percent	Cumulative Percent
Valid	Readily accessible to all staff	195	53.6	53.6
	Displayed clearly	51	14.0	67.6
	Kept in building but not clearly accessible	51	14.0	81.6
	Not available/don't have here	39	10.7	92.3
	Don't know/not stated	17	4.7	97.0
	Other	11	3.0	100.0
	Total	364	100.0	

Q76 : READING AGE SUMMARY

	Frequency	Percent	Cumulative Percent
Valid 6-10 Years	152	29.2	29.2
11-12 Years 5 months	174	33.4	62.6
12 and half years and above	192	36.9	99.4
DNA or Missing Values	3	.6	100.0
Total	521	100.0	

Questions 77a to 77i (Specific chemical terms) : All respondents (N=521)

Q77a : DEFINITION OF "NAUSEA"

	Frequency	Percent	Cumulative Percent
Valid Correct	437	83.9	83.9
Invalid Incorrect	61	11.7	95.6
Invalid Don't know/not stated	23	4.4	100.0
Total	521	100.0	

Q77b : DEFINITION OF "VOMITING"

	Frequency	Percent	Cumulative Percent
Valid Correct	519	99.6	99.6
Invalid Don't know/not stated	2	.4	100.0
Total	521	100.0	

Q77c : DEFINITION OF "CORROSIVE"

	Frequency	Percent	Cumulative Percent
Valid Correct	424	81.4	81.4
Invalid Incorrect	60	11.5	92.9
Invalid Don't know/not stated	37	7.1	100.0
Total	521	100.0	

Q77d : DEFINITION OF "CARCINOGENIC"

	Frequency	Percent	Cumulative Percent
Valid Correct	185	35.5	35.5
Invalid Incorrect	65	12.5	48.0
Invalid Don't know/not stated	271	52.0	100.0
Total	521	100.0	

Q77e : DEFINITION OF "IRRITATION"

	Frequency	Percent	Cumulative Percent
Valid Correct	505	96.9	96.9
Invalid Incorrect	10	1.9	98.8
Invalid Don't know/not stated	6	1.2	100.0
Total	521	100.0	

Q77f : DEFINITION OF "ASPHYXIATION"

	Frequency	Percent	Cumulative Percent
Valid Correct	406	77.9	77.9
Invalid Incorrect	35	6.7	84.6
Invalid Don't know/not stated	80	15.4	100.0
Total	521	100.0	

Q77g : DEFINITION OF "RESPIRATORY SENSITISER"

		Frequency	Percent	Cumulative Percent
Valid	Correct	239	45.9	45.9
	Incorrect	73	14.0	59.9
	Refused	1	.2	60.1
	Don't know/not stated	208	39.9	100.0
	Total	521	100.0	

Q77h : DEFINITION OF "MUTAGENIC"

		Frequency	Percent	Cumulative Percent
Valid	Correct	80	15.4	15.4
	Incorrect	47	9.0	24.4
	Refused	1	.2	24.6
	Don't know/not stated	393	75.4	100.0
	Total	521	100.0	

Q77i : DEFINITION OF "TERATOGENIC"

		Frequency	Percent	Cumulative Percent
Valid	Correct	9	1.7	1.7
	Incorrect	46	8.8	10.6
	Refused	1	.2	10.7
	Don't know/not stated	465	89.3	100.0
	Total	521	100.0	

Q78a : "I HAVE THE AUTHORITY AND ABILITY TO STOP PRODUCTION"

		Frequency	Percent	Cumulative Percent
Valid	Strongly agree	361	69.3	69.3
	Slightly agree	53	10.2	79.5
	Uncertain	8	1.5	81.0
	Slightly disagree	23	4.4	85.4
	Strongly disagree	58	11.1	96.5
	Not applicable	18	3.5	100.0
	Total	521	100.0	

Q78b : "I CAN CONTROL THE WAY I WORK"

		Frequency	Percent	Cumulative Percent
Valid	Strongly agree	374	71.8	71.8
	Slightly agree	109	20.9	92.7
	Uncertain	3	.6	93.3
	Slightly disagree	19	3.6	96.9
	Strongly disagree	14	2.7	99.6
	Not applicable	2	.4	100.0
	Total	521	100.0	

Q78c : "I CAN EASILY PACE MY WORK"

		Frequency	Percent	Cumulative Percent
Valid	Strongly agree	328	63.0	63.0
	Slightly agree	129	24.8	87.7
	Uncertain	19	3.6	91.4
	Slightly disagree	35	6.7	98.1
	Strongly disagree	9	1.7	99.8
	Not applicable	1	.2	100.0
	Total	521	100.0	

Q78d : "I FEEL THAT I AM SAFE AT WORK"

		Frequency	Percent	Cumulative Percent
Valid	Strongly agree	359	68.9	68.9
	Slightly agree	127	24.4	93.3
	Uncertain	13	2.5	95.8
	Slightly disagree	16	3.1	98.8
	Strongly disagree	6	1.2	100.0
	Total	521	100.0	

Q78e : "I WORRY ABOUT THE SECURITY OF MY JOB"

		Frequency	Percent	Cumulative Percent
Valid	Strongly agree	76	14.6	14.6
	Slightly agree	139	26.7	41.3
	Uncertain	19	3.6	44.9
	Slightly disagree	110	21.1	66.0
	Strongly disagree	168	32.2	98.3
	Not applicable	9	1.7	100.0
	Total	521	100.0	

Q78f : "AT WORK I FEEL FREE OF ANY RISKS FROM DANGEROUS CHEMICALS"

		Frequency	Percent	Cumulative Percent
Valid	Strongly agree	142	27.3	27.3
	Slightly agree	155	29.8	57.0
	Uncertain	37	7.1	64.1
	Slightly disagree	139	26.7	90.8
	Strongly disagree	47	9.0	99.8
	Not applicable	1	.2	100.0
	Total	521	100.0	

Questions 79 - 84 : All respondents (N=521)

Locus of control consists of how an individual perceives their actions and destiny to be controlled by themselves (internals) or by external forces such as fate (externals).

Q79 : LOCUS OF CONTROL SUMMARY

		Frequency	Percent	Cumulative Percent
Valid	High External (below 25)	197	37.8	37.8
	Both Internal and External	276	53.0	90.8
	High Internal (Above 35)	48	9.2	100.0
	Total	521	100.0	

Q80 : CAUSES FOR ACTING LESS SAFELY AT WORK

Pressure to get work completed/deadline	33%
Tiredness	28%
Dislike/restrictiveness of protective equipment	12%
Boredom	9%
Extreme temperatures	9%
Insufficient light	8%
Awkward procedures	7%
Lack of info on hazards of a chemical	7%
High levels of noise	6%
Silly rules	3%
Colleagues behaviour	3%
Managers behaviour	3%
Incompatibility of personal protective equipment	2%
Lack of control in my work	2%
Shift patterns	1%
Other	1%
None of these	42%
Don't know/not stated	1%
Total	520
	100%

BASE: ALL

Q81 : CHILDREN UNDER 18/DEPENDENTS

		Frequency	Percent	Cumulative Percent
Valid	Yes	238	45.7	45.7
	No	283	54.3	100.0
	Total	521	100.0	

Q82 : MARITAL STATUS

	Frequency	Percent	Cumulative Percent
Valid Single	117	22.5	22.5
Married/cohabiting	367	70.4	92.9
Widowed/divorced	35	6.7	99.6
Refused	1	.2	99.8
Not stated	1	.2	100.0
Total	521	100.0	

Q83a : SMOKER

	Frequency	Percent	Cumulative Percent
Valid Yes	192	36.9	36.9
No	328	63.0	99.8
Not stated	1	.2	100.0
Total	521	100.0	

Q83b : DRINK ALCOHOL MORE THAN ONCE A WEEK

	Frequency	Percent	Cumulative Percent
Valid Yes	318	61.0	61.0
No	203	39.0	100.0
Total	521	100.0	

Q83c : EXERCISE MORE THAN ONCE A WEEK

	Frequency	Percent	Cumulative Percent
Valid Yes	295	56.6	56.6
No	226	43.4	100.0
Total	521	100.0	

Q84_1 : "I AM MORE CAREFUL ABOUT THE HEALTHINESS OF THE FOOD I EAT THAN MOST PEOPLE I KNOW"

	Frequency	Percent	Cumulative Percent
Valid Strongly agree	68	13.1	13.1
Agree	167	32.1	45.1
Uncertain	44	8.4	53.6
Disagree	214	41.1	94.6
Strongly disagree	28	5.4	100.0
Total	521	100.0	

**Q84_2 : "I AM MORE WORRIED THAN MOST PEOPLE ABOUT
POSSIBLE LONG TERM HEALTH EFFECTS OF EVERYDAY
LIFE"**

	Frequency	Percent	Cumulative Percent
Valid Strongly agree	39	7.5	7.5
Agree	142	27.3	34.7
Uncertain	50	9.6	44.3
Disagree	249	47.8	92.1
Strongly disagree	41	7.9	100.0
Total	521	100.0	

**Q84_3 : "THE RISK OF TRAFFIC ACCIDENTS, ACCIDENTS AT
WORK ETC DO NOT WORRY ME"**

	Frequency	Percent	Cumulative Percent
Valid Strongly agree	46	8.8	8.8
Agree	197	37.8	46.6
Uncertain	36	6.9	53.6
Disagree	200	38.4	91.9
Strongly disagree	40	7.7	99.6
Don't know/not stated	2	.4	100.0
Total	521	100.0	

Questions 85 to 90 : Managers and one person businesses (N=314)

The following questions were asked of managers and one person businesses only discussing the manner in which managers monitored health and safety within the workplace.

Q85 : HEALTH AND SAFETY ARRANGEMENTS

Full training/instructions	21%
Use protective clothing	18%
First aid kit	15%
Fire extinguishers	12%
Everybody has copy of policy/instructions	10%
Use gloves	10%
Use masks	7%
Fire exits/escapes	6%
Regular servicing/maintenance	4%
Regular meetings/updates	3%
Keep calm/don't panic	1%
Other	9%
None	5%
Don't know/not stated	40%
Total	314
	100%

Questions 86 and 87 concerned health and safety systems specific to the company. These questions were verified, when possible, by the interviewer who would examine the health and safety policy, see if the health and safety policy was displayed and check accident records whenever possible.

Q86 : WRITTEN DOWN ARRANGEMENTS SPECIFIC TO COMPANY

	Frequency	Percent	Cumulative Percent
Valid Yes	101	32.2	32.2
No	172	54.8	86.9
Don't know/not stated	41	13.1	100.0
Total	314	100.0	

Q86 1 : VERIFIED BY INTERVIEWER

	Frequency	Percent	Cumulative Percent
Valid Yes	39	38.6	38.6
No	13	12.9	51.5
Don't know	2	2.0	53.5
N/A	5	5.0	58.4
Not stated	42	41.6	100.0
Total	101	100.0	

The written arrangements verified by the interviewer consist of the 101 managers who stated they had written arrangements in question 86.

Q87 2 : CLEARLY DISPLAYED

		Frequency	Percent	Cumulative Percent
Valid	Yes	85	84.2	84.2
	No	14	13.9	98.0
	Not stated	2	2.0	100.0
	Total	101	100.0	

Q87 2 : VERIFIED BY INTERVIEWER

		Frequency	Percent	Cumulative Percent
Valid	Yes	70	69.3	69.3
	No	19	18.8	88.1
	Don't know	4	4.0	92.1
	N/A	3	3.0	95.0
	Not stated	5	5.0	100.0
	Total	101	100.0	

Q87 3 : RECORDING SYSTEM FOR ACCIDENTS

		Frequency	Percent	Cumulative Percent
Valid	Yes	90	89.1	89.1
	No	8	7.9	97.0
	Don't know	1	1.0	98.0
	Not stated	2	2.0	100.0
	Total	101	100.0	

Q87 3 : VERIFIED BY INTERVIEWER

		Frequency	Percent	Cumulative Percent
Valid	Yes	67	66.3	66.3
	No	19	18.8	85.1
	Don't know	5	5.0	90.1
	N/A	4	4.0	94.1
	Not stated	6	5.9	100.0
	Total	101	100.0	

Q88 : ARRANGEMENTS LAST REVIEWED OR UPDATED

		Frequency	Percent	Cumulative Percent
Valid	Under 12 months ago	73	72.3	72.3
	1-5 years	23	22.8	95.0
	Over 5 years	1	1.0	96.0
	Don't know	3	3.0	99.0
	Not stated	1	1.0	100.0
	Total	101	100.0	

Managers were asked about their awareness of health and safety legislation in question 89 which was in a similar format to question 52 asked of employees.

Q89 Health and Safety Arrangements

Health & Safety at Work etc Act 1974	38%
COSHH	38%
RIDDOR	9%
CHIP 2	3%
Data sheets	3%
"6 Pack" Regulations 1992	2%
Containers/labelling	1%
Other	7%
None	34%
Don't know/not stated	10%
Total	314
	100%

Q90 WHAT SOURCES OF INFORMATION WOULD YOU USE TO HELP MAKE SURE YOU KEEP TO GENERAL HEALTH AND SAFETY STANDARDS?

Suppliers	41%
Supplier Safety Data Sheets	38%
H&S journals	20%
Formal guidance (eg COSHH)	17%
ACOPS	5%
Customers	3%
Common sense	5%
Other	20%
None	5%
Don't know/not stated	11%
Total	314
	100%

Questions 91 to 96 : Managers only (N=266) one person businesses not asked these questions

Q91 : NO. PEOPLE WORKING REGULARLY WITH PRODUCTS THAT MAY HAVE HARMFUL EFFECTS

		Frequency	Percent	Cumulative Percent
Valid	None	17	6.4	6.4
	One employee only	36	13.5	19.9
	2 to 4 employees	120	45.1	65.0
	5 to 9 employees	55	20.7	85.7
	10 to 19 employees	7	2.6	88.3
	20 and above employees	4	1.5	89.8
	Not stated	27	10.2	100.0
	Total	266	100.0	

Q92 HOW DO YOU MAKE STAFF AWARE OF OCCUPATIONAL RISKS?

Verbally	40%
Training	25%
Read manuals	10%
Read labels	9%
Have experienced staff	7%
Have notices/signs/posters	8%
Show them data sheets	7%
Supervision/monitoring of staff	6%
Use protective clothing	4%
Rely on their common sense	2%
Other	10%
Don't know/not stated	17%
Total	266
	100%

Q93 : INFO AVAILABLE TO STAFF

		Frequency	Percent	Cumulative Percent
Valid	Yes	213	80.1	80.1
	No	23	8.6	88.7
	Don't know/not stated	30	11.3	100.0
	Total	266	100.0	

Q94 : WHAT TYPE OF INFORMATION IS THIS?

Access to Safety Data Sheets	45%
Verbal work instructions	35%
On the job training	29%
Posters/notices produced externally	22%
Handbooks/instructions - external	17%
Induction training	16%
Supervision	15%
COSHH Risk Assessment	15%
Written work instructions	14%
Product containers/labelling	13%
Posters/notices produced internally	12%
Handbooks/instructions - internal	7%
Risk Assessment	7%
Other	5%
Don't know/not stated	20%
Total	266
	100%

Q95 : DO YOU MONITOR ILL-HEALTH IN YOUR EMPLOYEES?

Yes - accident book	46%
Yes - sickness records	22%
Yes - employee records	12%
Yes - health surveillance	7%
Yes - specific log book	5%
No	27%
Other	3%
Don't know/not stated	14%
Total	266
	100%

Q96 HOW DO YOU KNOW IF YOU CONFORM WITH HS REGULATIONS?

HSE visits	27%
Experience/common sense	14%
No way of knowing/assume we are	11%
Keep up with new information/regulations	8%
Comply with regulations/safety procedures	5%
My own training/college courses etc.	3%
Regularly inspected by college	3%
Advised by an independent company	3%
Other	17%
Don't know/not stated	24%
Total	266
	100%

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