

INDUSTRY SECTOR PROFILE

CHEMICAL INDUSTRY

2003/04

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EXECUTIVE SUMMARY

This profile provides key statistics on safety and enforcement matters for the chemical industry (as defined by Standard Industrial Classification 1992 Groups 241-246). This includes basic industrial chemicals, specialised chemical products for industrial, agricultural and household use, pharmaceutical products, soap and toilet preparations and paints, varnishes and printing ink.

The profile concentrates on details and trends for fatal, major and over 3-day injuries to employees in the chemical industry, and makes comparisons with those found in the manufacturing sector as a whole.

The data in this report covers a seven-year period from 1997/98 to 2003/04. During this period reportable accidents to employees in Chemical Industry have reduced by 26% (2504 to 1864). Major injuries over the same period have reduced by 29%. A comparison reveals major injuries that occurred in 2003/04 have decreased by 11% from the previous year (2002/03).

Over the seven-year period there has also been a significant reduction in the number of reportable major injuries involving 'falls'. These have decreased from 81 to 26 (190.7%) and a comparison with the previous year (2002/03) reveals a 49% reduction.

In the Chemical Industry in 2003/04 the injury incidence rates (per 100,000 employees) remain lower in comparison with the Manufacturing industry, with major and over 3-day injuries running at 15 and 25% lower respectively.

The report for 2004/05 is due for publication in November 2006.

INTRODUCTION

1. Injury and Dangerous Occurrence (DO) figures for the years 1997/98 to 2003/04 are based on injuries and incidents reported under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR '95). These Regulations came into force on 1 April 1996. Definitions of a major and over 3-day injury reported under RIDDOR '95 are provided at Appendices 1 and 2.
2. As the number of injuries to self-employed people and members of the public in the chemical industry is relatively low, the profile does not provide any great detail of these injuries, other than the summary data given in Table 1.
3. HSE has recognised that there is widespread under-reporting of non-fatal injuries. This was confirmed in the Labour Force Survey (LFS) of 1990, and has been monitored via annual questions in the LFS from 1993/1994. The latest available figures show that in the manufacturing sector overall,

the reporting of non-fatal injuries has risen from 46% in 1990, to approximately 60% (based on the LFS for 2002/03, 2003/04 and 2004/05).

4. Although the 1990 LFS revealed considerable under-reporting under RIDDOR, the data did reflect the distribution by type of injury, confirming that in most cases the latter provides a representative reflection of the sort of injuries which are actually occurring in the workplace.
5. In 2003/04, figures showed there were 1864 injuries to employees reported to all enforcing authorities for the chemical industry (352 major injuries and 1512 over 3-day injuries), representing 5% of all injuries involving employees occurring in the manufacturing sector. The all reported injury rate for the chemical industry was 858.4 per 100,000 employees, lower than the rate of 1113.4 for all manufacturing industries, reflecting the lower over 3-day injury incidence rate in the chemical industry. The all reported injury rate in the chemical industry has marginally increased (858.4 in 2003/04 compared to 861.8 in 2002/03 - see Table 2). Please note that in order to provide a comparison with 'Manufacturing' overall, Table 2 is based on a 2 digit SIC code, which will include the production of man-made fibres in the 'Chemicals' figures. Table 3a is sector-specific, and is based on a selection of 3 digit SIC codes, which do not include the production of man-made fibres.
6. Information on enforcement action is also included in this profile.

EMPLOYMENT IN THE INDUSTRY

7. In 2004/05, the chemical sector consisted of 12% of the employment total for the manufacturing sector as a whole. It had a workforce of 138 566 men, of whom 1% were part time, and 63 543 women, of whom 16% were part time. The part time employee percentages for manufacturing as a whole were 3% for men and 22% for women. These figures are based on averaged estimates derived from the Office for National Statistics Short Term Employment Survey.

FATAL INJURIES (TABLES 1 AND 2 AND FIGURE 1)

8. There were no fatal injuries in the chemical industry in 2003/04. Between 1997/98 and 2003/04, there have been an average of 2.1 fatal injuries per year. Over the seven-year period 1997/98 to 2003/04, the individual annual totals are too small to allow further analysis, but based on a three-year rolling average, the average fatal injuries per year vary from 2 to 3.
9. Between 1997/98 and 2003/04, the fatal injury rate in the chemical industry has fluctuated between 0 and 2.17 per 100 000 employees. During this period, the fatal injury rate in the manufacturing sector as a whole has fluctuated between 0.8 and 1.6 per 100 000 employees. Based on the three-year rolling average, the average injury rate per year is approximately 1 for the chemical sector, compared with 1.1 to 1.3 for the manufacturing sector.

MAJOR INJURIES (TABLES 1 AND 2 AND FIGURE 2)

10. There were 352 major injuries in the chemical industry in 2003/04. This figure is a reduction of 43 from the previous year 2002/03. However, over the seven-year period, 1997/98 to 2003/04, the three-year rolling average for the number of major injuries per year reduced steadily from 442.0 to 380.3.
11. In 2003/04, the major injury rate for the chemical industry was 164.2 per 100 000 employees, compared to the manufacturing sector which was 194.1 per 100 000 employees. Based on a three-year rolling average, the average injury rate per year over the seven-year period for the chemical sector for major injuries has varied between 180.5, and 169.7, compared with 207.2, to 189.4 for the manufacturing sector. From 1997/98 to 2003/04, the chemical sector figure was consistently below the manufacturing figure as a whole.

OVER 3-DAY INJURIES (TABLES 1 AND 2 AND FIGURE 3)

12. The total number of over 3-day injuries in the chemical industry decreased by 11.1% from 1700 in 2001/02 to 1512 in 2003/04, and represents a 24.6% reduction since 1997/98. The three-year rolling average for this period smoothes this trend, with the average number of over 3-day injuries per year dropping from 1880.7 to 1593.3.
13. In 2003/04, the over 3-day injury rate in the chemical sector was 24.4% lower than in the manufacturing sector (694.2 compared to 918.5). Based on the three-year rolling average, the average injury rate per year over the seven-year period for the chemical sector for over 3-day injuries varied from 765.8 to 707.0 compared with 1001.2 to 929.7 for the manufacturing sector. From 1997/98 to 2003/04, the chemical sector figure was consistently below the manufacturing figure as a whole.

INDUSTRIAL ACTIVITIES WITHIN THE CHEMICAL INDUSTRY (TABLES 3 AND 3a)

14. Table 3 shows injuries from 1997/98 by SIC 92 group. Table 3a shows injury rates by SIC group for 2003/04 only.
15. In 2003/04 there were no work-related deaths in the chemical industry. The groups with the highest percentage of non-fatal injuries (major and over 3-day) in 2003/04 were: the manufacture of basic chemicals (27.3%); the manufacture of other chemical products (23%); and the manufacture of pharmaceuticals, medicinal chemicals and botanical products (21.7%). Major injuries and over 3-day injuries decreased in 2003/04 from the previous year.
16. The more detailed breakdowns provided in most of the subsequent tables and figures are based on those injuries reported to HSE's Field Operations

Directorate; Hazardous Installations Directorate, Chemical Industries and Specialist Industries Divisions (formerly Land Division); Nuclear Safety Division (for conventional safety) and local authorities.

KIND OF ACCIDENT (TABLE 4 AND FIGURES 4 AND 5)

17. The analysis of major injuries in the chemical sector shows that the most common cause in 2003/04 was a slip, trip or fall on the same level (34.4%).
18. Over the seven-year period 1997/98 - 2003/04, the number of major injuries caused by falls from height decreased by 67.9% (81 to 26). There was also a notable reduction in handling accidents (down from 50 to 33 (34%)).
19. A comparison with major injuries in the manufacturing sector as a whole shows that slips, trips or falls on the same level accounted for 34% in the chemical industry and 28% in manufacturing overall. Major injuries caused by exposure to a harmful substance were more than four times as common in the chemical industry (18%) than in manufacturing generally (4%). The percentage distribution of the most common kinds of major injury to employees in the chemical industry, in comparison with those in the manufacturing sector as a whole in 2003/04, are shown in Figure 4.
20. Between 1997/98 and 2003/04 the analysis of over 3 day injuries shows that injuries whilst handling, lifting or carrying decreased by 12%. However it still remained the most common cause of over 3 day injuries in 2003/04 (41.5%).
21. Over the seven-year period 1997/98 - 2003/04, the number of over 3-day injuries caused by being struck by moving or falling objects decreased by 43.8%; the number of exposures to a harmful substance also fell over this period (39.2%). Slips, trips or falls on the same level decreased by 8% from the previous year. There was a major reduction in the number of over 3-day injuries caused by falls from a height, with 190.7% more people injured in 1997/98 than in 2003/04.
22. A comparison with over 3-day injuries in the manufacturing sector as a whole shows that handling accidents were by far the most common, and were the cause of nearly a third of all reported. However, injuries caused by exposure to a harmful substance were three times more common in the chemical industry (10%) than in manufacturing generally (3%), whereas those caused by machinery accidents (4% compared with 8%) and being struck by a moving/falling object (8% compared with 14%) were proportionately less common in the chemical industry. The distribution of over 3-day injuries for the chemical industry (shown in Figure 5) is more similar to manufacturing as a whole than the distribution of major injuries.

NATURE AND SITE OF INJURY (TABLES 5 AND 6 AND FIGURES 6 AND 7)

23. The analysis of major injuries in the chemical sector shows that the most common were fractures to the wrist (45), upper limb (40), foot (34), ankle (26), trunk (16), hand (15) and lower limb (13). There were 8 amputations of fingers, 9 dislocated upper limbs and a total of 20 lacerations. There were a total of 58 burns (37 of which were burns to the eye). Major injuries occurring in the chemical industry in 2003/04 are broken down by nature and site of injury in Table 5.
24. A comparison with major injuries in the manufacturing sector as a whole shows that the proportion of burns in the chemical industry (16%) was four times more than that for manufacturing generally (4%), whilst amputated fingers represented 6% of major injuries in the manufacturing sector compared to 2% in the chemical industry. Lacerations were also less common in the chemical industry (6%) compared to manufacturing overall (10%). A percentage breakdown of major injuries by specific common nature and site combinations, together with comparisons for manufacturing as a whole is shown in Figure 6.
25. The analysis of over 3-day injuries in the chemical sector shows that the most common were sprains and strains to the back (390), ankle (74), upper limb (70). Injuries to lower limbs also ranked highly. There were 256 contusions, 117 lacerations, and 72 fractures (of which 53 involved fractures of the fingers). Over 3-day injuries occurring in the chemical industry in 2003/04 are broken down by nature and site of injury in Table 6.
26. A comparison with over 3-day injuries in the manufacturing sector as a whole shows that the proportion involving burns was higher in the chemical industry (7%) compared with manufacturing generally (3%), whilst lacerations were less common (8% compared with 14%). Sprains and strains were the most common type of over 3 day injury in the chemical industry, accounting for 48% of the reports received, proportionately higher than in manufacturing generally (41%). A percentage breakdown of major injuries by specific common nature and site combinations, together with comparisons for manufacturing as a whole is shown in Figure 7.

PROCESS ENVIRONMENTS (TABLE 7)

27. Table 7 sets out the actual activity causing injury at the time of the accident. Care must be taken in the interpretation of these figures as those activities and processes with the greatest number of attributed injuries may also have the highest levels of employment.
28. Of all reported injuries in 2003/04, product manufacture accounted for 35% and walking/running 12.8%. Of the specific chemical processes, filling and discharging was the most common cause of injury, accounting for 89 (4.8%) of all reported injuries. Other chemicals caused 4.3% of all reported injuries, transfer of chemicals 3.2% and mixing of chemicals 2.2%.

AGE AND SEX OF INJURED PEOPLE (TABLES 8A AND 8B)

29. There were no fatal injuries in the chemical industry in 2003/04.
30. There were 352 major injuries in the chemical industry in 2003/04. 290 were to male employees and 62 to female employees.
31. There were 1864 injuries in the chemical industry in 2003/04, of which, 1511 occurred to male employees and 353 to female employees.
32. In addition to the breakdown by sex of injured person, Tables 8(a) and (b) also provide figures by severity of injury for various age bands in the chemical industry. The most common age group of male employees who suffered an injury was 35 - 39, with 45 - 49 the most common amongst female employees.

INVESTIGATED INJURIES (TABLE 9)

33. Within the chemical industry in 2003/04, all major injuries in the categories of contact with electricity and exposure to an explosion were investigated. 37.9% of major injuries and 30.6% of over 3 day injuries caused by exposure to, or contact with a harmful substance were investigated.

DANGEROUS OCCURRENCES (TABLE 10A AND 10B)

34. Dangerous occurrences are certain kinds of incident, defined within RIDDOR, with a high potential to cause injury, and which are reportable whether or not that potential is realised. RIDDOR '95 updated the list of reportable dangerous occurrences. It includes general provisions as well as additional occurrences.
35. In 2003/04, the most common type of dangerous occurrence within the chemical industry involved "the accidental release or escape of any substance in a quantity sufficient to cause the death, major injury or any other damage to the health of any person" (RIDDOR 95 – Ref Code 21). This type of dangerous occurrence accounted for 24.3% of all reported dangerous occurrences within the chemical industry.
36. The "failure, collapse or overturning of lifting machinery, excavator, pile driving frame or mobile powered access platform" (RIDDOR 95 – Ref Code 01) was the second most common type of dangerous occurrence and accounted for a 18.6% of all dangerous occurrences in the chemical industry. The "sudden, uncontrolled release of flammable substances" (RIDDOR 95 – Ref Code 20) accounted for a further 15.5% of all dangerous occurrences in the chemical industry and was the third most common type.

ENFORCEMENT (TABLES 11 AND 12)

37. In the chemical industry the number of enforcement notices (requirements) issued by HSE was 239 in 2003/04, compared to 255 in 2002/03. Notices in 2003/04 consisted of 172 improvement, 1 deferred prohibition, 62 immediate prohibition, 3 COMAH prohibition and 1 ELCI (Employer's Liability Compulsory Insurance). There was a 6.3% decrease in the number of notices issued in the chemical industry in 2003/04, this figure will be partially driven by the inspection initiatives chosen for the year, and may not follow a trend. In the manufacturing sector the number of enforcement notices issued decreased by 26.8% from 5350 in 2002/03 to 3918 in 2003/04.
38. In 2003/04, the number of informations laid (prosecutions under individual breaches of legislation) for offences occurring in the chemical industry decreased to 23 compared with the 2002/03 figure of 42. Over the same period in the manufacturing sector, there was a decrease in the numbers of informations laid from 619 in 2002/03 to 578 in 2003/04.
39. In 2003/04, all 23 informations laid for offences occurring in the chemical industry resulted in a conviction. The average fine imposed for these convictions was £7326, a small decrease compared to the previous year (£7381).

TABLE 1: INJURIES WITHIN THE CHEMICAL INDUSTRY ^(b) REPORTED TO ALL ENFORCING AUTHORITIES, 1997/98 – 2003/04

Year ^(a)	EMPLOYEES				SELF-EMPLOYED				MEMBERS OF PUBLIC		TRAINEE		
	Fatal	Major	Over 3-Day	Total	Fatal	Major	Over 3-Day	Total	Fatal	Major ^(b)	Major	Over 3-Day	Total
1997/98	2	496	2006	2504	-	5	5	10	-	-	-	-	-
1998/99	4	414	1749	2167	-	5	1	6	-	1	-	-	-
1999/00	2	416	1887	2305	-	4	4	8	-	2	-	-	-
2000/01	-	389	1819	2208	-	4	4	8	-	4	-	-	-
2001/02	5	395	1697	2097	-	6	2	8	-	3	-	3	3
2002/03	2	395	1567	1964	-	10	2	12	-	1	-	1	1
2003/04	-	351	1510	1861	-	6	-	6	-	1	1	2	3

(a) Years commencing 1 April.

(b) The injury figures do not include those occurring in the manufacture of man-made fibres.

(c) As defined by SIC92 1997/98 – 2003/04.

TABLE 2: EMPLOYEE INJURY RATES ^(a) WITHIN THE CHEMICAL ^(b) AND MANUFACTURING INDUSTRIES ^(d), AS REPORTED TO ALL ENFORCING AUTHORITIES, 1997/98 – 2003/04

Year ^(c)	FATAL		MAJOR		OVER 3-DAY		TOTAL	
	Chemicals	Manufacturing	Chemicals	Manufacturing	Chemicals	Manufacturing	Chemicals	Manufacturing
1997/98	0.8	1.3	205.8	216.1	822.0	1026.1	1028.6	1243.5
1998/99	1.6	1.6	163.5	201.5	695.1	969.8	860.2	1172.8
1999/00	0.8	1.0	172.3	204.0	780.4	1007.7	953.6	1212.7
2000/01	0.0	1.21	166.39	190.91	777.35	984.27	943.74	1176.39
2001/02	2.17	1.18	171.73	187.37	739.13	935.72	913.03	1124.27
2002/03	0.9	1.4	173.2	186.7	687.7	934.8	861.8	1122.9
2003/04	-	0.8	164.2	194.1	694.2	918.5	858.4	1113.4

(a) Incidence rates per 100,000 employees.

(b) Rates for chemical industry include manufacture of man-made fibres.

(c) Years commencing 1 April.

(d) As defined by SIC92 for 1997/98 – 2003/04.

TABLE 3: INJURIES TO EMPLOYEES WITHIN THE CHEMICAL INDUSTRY AS REPORTED TO ALL ENFORCING AUTHORITIES, 1997/98 – 2003/04

Standard Industrial Classification (1992) - Group	FATAL							MAJOR							OVER 3 DAY							TOTAL						
	97/98	98/99	99/00	00/01	01/02	02/03	03/04	97/98	98/99	99/00	00/01	01/02	02/03	03/04	97/98	98/99	99/00	00/01	01/02	02/03	03/04	97/98	98/99	99/00	00/01	01/02	02/03	03/04
241 Manufacture of basic chemicals	-	3	2	-	1	-	-	160	142	140	109	130	130	105	635	529	571	447	385	326	404	795	674	713	556	516	456	509
242 Manufacture of pesticides and other agro-chemical products	-	-	-	-	1	-	-	6	3	9	5	10	12	2	11	10	8	19	18	21	18	17	13	17	24	29	33	20
243 Manufacture of paints, varnishes and similar coatings, printing ink and mastics	1	1	-	-	2	-	-	64	57	46	53	33	39	27	247	257	276	231	249	209	180	312	315	322	284	284	248	207
244 Manufacture of pharmaceuticals, medicinal chemicals and botanical products	-	-	-	-	1	-	-	75	58	80	83	67	75	70	426	352	395	411	366	338	335	501	410	475	494	434	413	405
245 Manufacture of soaps and detergents, cleaning and polishing preparations, perfumes and toilet preparations.	-	-	-	-	-	-	-	105	80	67	63	65	50	52	319	292	286	353	317	270	243	424	372	353	416	382	320	295
246 Manufacture of other chemical products	1	-	-	-	-	2	-	86	80	74	76	90	89	96	368	310	351	358	365	404	332	455	390	425	434	455	495	428
TOTAL	2	4	2	-	5	2	-	496	420	416	389	395	395	352	2006	1750	1887	1819	1700	1568	1512	2504	2174	2305	2208	2100	1965	1864

TABLE 3a: EMPLOYEE INJURY RATES (PER 100 000 EMPLOYEES) IN THE CHEMICAL INDUSTRY ^(a), 2003/04

Standard Industrial Classification (1992) – Group	Fatal and Major Injury Rate	All Reported Injury Rate
241 Manufacture of basic chemicals	49.8	241.2
242 Manufacture of pesticides and other agro-chemical products	0.9	9.5
243 Manufacture of paints, varnishes and similar coatings, printing ink and mastics	12.8	98.1
244 Manufacture of pharmaceuticals, medicinal chemicals and botanical products	33.2	191.9
245 Manufacture of soaps and detergents, cleaning and polishing preparations, perfumes and toilet preparations.	24.6	139.8
246 Manufacture of other chemical products	45.5	202.8
Total	166.8	883.4

(a) As reported to all enforcing authorities.

TABLE 4: INJURIES TO EMPLOYEES IN THE CHEMICAL INDUSTRY AS REPORTED TO ALL ENFORCING AUTHORITIES, 1997/98 – 2003/04

KIND OF ACCIDENT	FATAL							MAJOR							OVER 3 DAY							TOTAL						
	97/98	98/99	99/00	00/01	01/02	02/03	03/04	97/98	98/99	99/00	00/01	01/02	02/03	03/04	97/98	98/99	99/00	00/01	01/02	02/03	03/04	97/98	98/99	99/00	00/01	01/02	02/03	3/4
Contact with moving machinery	-	-	-	-	-	1	-	40	30	38	27	20	27	27	104	105	88	82	76	69	66	144	135	126	109	96	97	93
Struck by moving inc flying/falling object	-	-	-	-	-	-	-	59	54	48	41	43	25	44	210	190	211	188	150	146	118	269	244	259	229	193	171	162
Struck by moving vehicle	-	-	-	-	1	-	-	9	9	16	11	15	22	7	40	43	53	48	48	41	31	49	52	69	59	64	63	38
Strike against something fixed or stationary	-	-	-	-	-	-	-	29	36	28	23	21	15	12	109	129	111	93	85	78	87	138	165	139	116	106	93	99
Injured whilst handling, lifting or carrying	-	-	-	-	-	-	-	50	42	26	38	31	49	33	714	607	684	672	692	601	628	764	649	710	710	723	650	662
Slip, trip or fall on same level	-	-	-	-	-	-	-	140	97	113	129	123	126	121	371	341	357	318	346	374	344	511	438	470	447	469	500	465
Fall from a height:																												
Up to and inc 2m	-	-	-	-	-	-	-	53	36	43	31	20	37	19	94	81	109	118	48	33	27	147	117	152	149	68	70	46
Over 2m	-	2	1	-	-	-	-	21	17	22	16	12	7	3	11	5	13	10	15	8	3	32	24	36	26	27	15	6
Height not stated	-	-	-	-	-	-	-	7	10	10	7	8	7	4	20	12	15	23	16	21	13	27	22	25	30	24	28	17
Total falls	-	2	1	-	-	-	-	81	63	75	54	40	51	26	125	98	137	151	79	62	43	206	163	213	205	119	113	69
Trapped by something collapsing/overturning	-	-	-	-	-	-	-	1	3	2	-	1	1	-	5	2	6	3	-	2	-	6	5	8	3	1	3	-
Drowning or asphyxiation	-	-	-	-	-	-	-	-	1	5	2	1	1	-	1	1	-	2	-	2	1	1	2	5	4	1	3	1
Exposure to or contact with harmful substances	-	-	1	-	-	-	-	77	68	54	46	72	58	65	237	168	163	164	151	143	144	314	236	218	210	223	201	208
Exposure to fire	1	-	-	-	1	-	-	1	-	1	3	3	1	7	10	3	5	2	5	2	3	12	3	6	5	9	3	10
Exposure to an explosion	1	1	-	-	-	1	-	3	1	1	2	5	4	1	8	3	4	1	5	-	6	12	5	5	3	10	5	7
Contact with electricity or electrical discharge	-	1	-	-	-	-	-	1	2	3	-	1	3	2	7	6	5	6	8	5	4	8	9	8	6	9	8	6
Injured by an animal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	2	2	-	1	-	6	-	2	2	-	1	-
Injuries caused by assault or violence	-	-	-	-	-	-	-	-	1	-	-	-	2	-	1	-	1	4	1	6	-	1	1	1	4	1	8	-
Other kind of accident	-	-	-	-	3	-	-	5	5	6	11	16	9	7	51	45	55	73	41	32	32	56	50	61	84	60	41	39
Injuries not classified by kind	-	-	-	-	-	-	-	-	2	-	2	3	1	-	7	8	5	10	13	4	5	7	10	5	12	16	5	5
TOTAL	2	4	2	-	5	2	-	496	414	416	389	395	395	352	2006	1749	1887	1819	1700	1568	1512	2504	2167	2305	2208	2100	1965	1864

TABLE 5: MAJOR INJURIES TO EMPLOYEES IN THE CHEMICAL INDUSTRY AS REPORTED TO ALL ENFORCING AUTHORITIES, BY NATURE AND SITE, 2003/04

SITE OF INJURY	NATURE OF INJURY																TOTAL
	Amputation	Loss of sight	Fracture	Dislocation	Concuss Internal	Laceration	Contusion	Burn	Asphyxiation	Strain	Superficial	Multiple	Electricity	Natural Cause	Other Known	Other NK	
Eye	-	1	-	-	-	2	-	37	-	-	3	-	-	-	2	1	46
Ear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Face-other parts	-	-	4	-	-	-	1	3	-	-	1	1	-	-	1	-	10
Head	-	-	1	-	1	3	-	-	-	-	-	-	-	-	-	-	6
Several head	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total: Head	-	1	5	-	1	5	1	40	-	-	4	1	-	-	3	1	62
Neck	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Back	-	-	4	1	-	-	-	-	-	2	-	-	-	-	1	-	8
Trunk	-	-	16	-	-	-	-	1	-	-	-	-	-	-	1	-	18
Several torso	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total: Torso	-	-	22	1	-	-	-	1	-	2	-	-	-	-	2	-	28
Finger	8	-	3	-	-	8	2	-	-	-	-	1	-	-	-	-	22
Hand	1	-	15	-	-	3	-	2	-	-	1	-	-	-	-	-	22
Wrist	-	-	45	-	-	1	-	-	-	1	1	-	-	-	-	-	48
Upper limb	-	-	40	9	-	-	-	1	-	1	-	1	-	-	-	-	52
Several upper limb	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	2
Total: Upper Limb	9	-	103	9	-	13	2	4	-	2	2	2	-	-	-	-	146
Toe	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Foot	-	-	34	-	-	-	-	1	-	-	1	-	-	-	-	-	36
Ankle	-	-	26	-	-	-	-	-	-	-	-	-	-	-	-	-	26
Lower limb	1	-	13	3	-	2	-	2	-	-	-	1	-	-	-	-	22
Several lower limb	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	2
Total: Lower Limb	1	-	73	4	-	2	-	4	-	-	1	1	-	-	-	-	86
Several locations	-	-	4	-	2	-	-	8	-	-	-	2	-	-	1	-	17
General locations	-	-	-	-	2	-	1	-	3	-	-	-	1	-	4	1	12
Unspecified locations	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1
TOTAL	10	1	207	17	5	20	4	58	3	4	6	6	1	-	10	2	352

TABLE 6: OVER 3-DAY INJURIES TO EMPLOYEES IN THE CHEMICAL INDUSTRY AS REPORTED TO ALL ENFORCING AUTHORITIES, BY NATURE AND SITE, 2003/04

SITE OF INJURY	NATURE OF INJURY																
	Amputation	Loss of sight	Fracture	Dislocation	Concuss Internal	Laceration	Contusion	Burn	Asphyxiation	Strain	Superficial	Multiple	Electricity	Natural Cause	Other Known	Other NK	TOTAL
Eye	-	-	-	-	-	5	1	2	-	-	25	-	-	-	5	-	38
Ear	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1
Face-other parts	-	-	-	-	-	1	2	9	-	-	5	2	-	-	2	-	21
Head	-	-	-	-	1	12	7	1	-	-	2	1	-	-	2	2	28
Several head	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Total: Head	-	-	-	-	1	18	11	13	-	-	32	3	-	-	9	2	89
Neck	-	-	-	-	1	-	-	-	-	22	-	-	-	-	-	-	23
Back	-	-	-	-	2	-	27	-	-	390	3	4	-	-	6	5	437
Trunk	-	-	-	-	1	-	14	4	-	29	1	-	-	-	4	-	53
Several torso	-	-	-	-	-	-	4	-	-	6	-	-	-	-	-	-	10
Total: Torso	-	-	-	-	4	-	45	4	-	447	4	4	-	-	10	5	523
Finger	-	-	53	4	1	53	16	5	-	4	31	5	-	-	2	-	174
Hand	-	-	-	-	-	24	17	18	1	5	11	-	-	-	1	1	78
Wrist	-	-	-	1	-	2	7	4	-	16	-	-	-	-	-	-	30
Upper limb	-	-	-	1	1	6	28	13	-	70	1	-	-	-	1	1	122
Several upper limb	-	-	-	-	-	2	3	4	-	1	-	2	-	-	-	-	12
Total: Upper limb	-	-	53	6	2	87	71	44	1	96	43	7	-	-	4	2	416
Toe	-	-	18	2	-	-	2	-	-	-	1	-	-	-	-	-	23
Foot	-	-	-	-	-	1	34	11	-	9	4	2	-	-	1	-	62
Ankle	-	-	1	-	-	1	11	4	-	74	-	1	-	-	1	1	94
Lower limb	-	-	-	1	-	8	45	11	-	63	6	2	-	-	7	-	143
Several lower limb	-	-	-	-	1	-	2	4	-	3	3	2	-	-	-	-	15
Total: Lower Limb	-	-	19	3	1	10	94	30	-	149	14	7	-	-	9	1	337
Several locations	-	-	-	-	-	2	35	17	1	25	5	24	-	-	6	3	118
General locations	-	-	-	-	-	-	-	1	7	1	1	-	3	1	8	1	23
Unspecified locations	-	-	-	-	-	-	-	-	7	1	1	1	-	-	1	1	6
TOTAL	-	-	72	9	8	117	256	109	10	719	100	46	3	1	47	15	1512

TABLE 7: INJURIES TO EMPLOYEES IN THE CHEMICAL INDUSTRY, BY PROCESS ENVIRONMENT, AS REPORTED TO HSE 2003/04

PROCESS ENVIRONMENT	FATAL	MAJOR	OVER 3 DAY	TOTAL
Admin		1	9	10
Chemical Drying Processes		-	4	4
Chemical Filling/Discharging		23	66	89
Chemical Mixing		12	30	42
Chemical Other		12	69	81
Chemical Separation		1	5	6
Chemical Shaping		2	9	11
Chemical Transfer		8	51	59
General Amenities		2	17	19
General Cleaning		2	24	26
General Handling		30	105	135
General Laboratory Services		1	4	5
General Labouring		5	6	11
General Maintenance		37	104	141
General Packing		1	36	37
General Sorting		1	104	105
General Storing		21	28	49
General Waste Disposal		2	6	8
Loading/Unloading		8	66	74
Product Manufacture		99	553	652
Travel/Delivery		8	18	26
Walking/Running		65	173	238
Other		11	27	38
TOTAL		352	1512	1864

TABLE 8a: INJURIES TO MALE EMPLOYEES IN THE CHEMICAL INDUSTRY AS REPORTED TO ALL ENFORCING AUTHORITIES, 2003/04

AGE OF INJURED PERSON	FATAL	MAJOR	OVER 3 DAY	TOTAL
01-15	-	-	-	-
16-19	-	7	22	29
20-24	-	21	78	99
25-29	-	33	138	171
30-34	-	32	165	197
35-39	-	40	196	236
40-44	-	40	150	190
45-49	-	24	134	158
50-54	-	41	132	173
55-59	-	21	96	117
60-64	-	15	33	48
65 plus	-	2	2	4
Not known	-	14	75	89
TOTAL	-	290	1221	1511

TABLE 8b: INJURIES TO FEMALE EMPLOYEES IN THE CHEMICAL INDUSTRY AS REPORTED TO ALL ENFORCING AUTHORITIES, 2003/04

AGE OF INJURED PERSON	FATAL	MAJOR	OVER 3 DAY	TOTAL
01-15	-	-	-	-
16-19	-	3	3	6
20-24	-	4	22	26
25-29	-	3	25	28
30-34	-	8	21	29
35-39	-	7	29	36
40-44	-	9	40	49
45-49	-	4	58	62
50-54	-	10	34	44
55-59	-	5	32	37
60-64	-	5	9	14
65 plus	-	1	1	2
Not known	-	3	17	20
TOTAL	-	62	291	353

TABLE 9: PERCENTAGE OF MAJOR AND OVER 3 DAY INJURIES TO EMPLOYEES INVESTIGATED BY HSE'S HID* IN THE CHEMICAL INDUSTRY, BY KIND OF ACCIDENT, 2003/04

KIND OF ACCIDENT	CHEMICAL INDUSTRY						MANUFACTURING					
	Major Injuries	Number of major injuries investigated	Percentage of major injuries investigated	Over 3-day Injuries	Number of over 3-day injuries investigated	Percentage of over 3-day injuries investigated	Major Injuries	Number of major injuries investigated	Percentage of major injuries investigated	Over 3-day Injuries	Number of over-3-day injuries investigated	Percentage of over 3-day injuries investigated
Contact with moving machinery	27	9	33.3	66	13	19.7	942	454	48.2	2491	316	12.7
Struck by moving including flying/falling object	44	8	18.2	118	9	7.6	1003	199	19.8	4086	114	2.8
Struck by moving vehicle	7	1	14.3	31	7	22.6	175	117	66.9	398	63	15.8
Strike against something fixed or stationary	12	1	8.3	87	3	3.4	284	37	13.0	1545	37	2.4
Injured whilst handling, lifting or carrying	33	5	15.2	628	44	7.0	951	99	10.4	12372	212	1.7
Slip, trip or fall on same level	121	14	11.6	344	12	3.5	1791	96	5.4	6192	66	1.1
Falls from a height of which:												
- up to and including 2 metres	19	5	26.3	27	3	11.1	393	63	16.0	650	18	2.8
- over 2 metres	3	2	66.7	3	2	66.7	125	81	64.8	83	27	32.5
- height not stated	4	-	-	13	2	15.4	112	37	33.0	224	7	3.1
Total Falls	26	7	26.9	43	7	16.3	630	181	28.7	957	52	5.4
Trapped by something collapsing/overturning	-	-	-	-	-	-	26	10	38.5	41	3	7.3
Drowning or asphyxiation	-	-	-	1	-	-	7	5	71.4	2	-	-
Exposure to, or contact with, a harmful substance	65	25	37.9	144	44	30.6	264	80	30.3	1022	135	13.2
Exposure to fire	7	6	85.7	3	-	-	25	16	64.0	51	12	23.5
Exposure to an explosion	1	1	100	6	2	33.3	7	7	100.0	26	6	23.1
Contact with electricity or electrical discharge	2	2	100	4	2	50.0	26	20	76.9	65	23	35.4
Any injury by an animal	-	-	-	-	-	-	8	2	25.0	21	1	4.8
Acts of violence	-	-	-	-	-	-	14	2	14.3	25	-	-
Other kind of accident	7	1	14.3	32	2	6.3	155	22	14.2	591	24	4.1
Injuries not classified by kind	-	-	-	5	-	-	21	7	33.3	71	4	5.6
TOTAL	352	80	22.7	1512	9.6	9.6	6329	1356	21.4	29956	1003	3.3

TABLE 10: DANGEROUS OCCURRENCES¹ REPORTED TO HSE IN THE CHEMICAL INDUSTRY, 1997/98- 2003/04

Part 1	(Notifiable in relation to any place of work)	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04
1	Failure, collapse or overturning of lifting machinery, excavator, pile driving frame or mobile powered access platform.	47	58	37	39	44	38	42
2	The failure of any closed vessel including boiler or of any associated pipework, in which the internal pressure was above or below atmospheric pressure.	33	15	9	14	15	21	21
3	The failure of any freight container in any of its load-bearing parts while it is being raised, lowered or suspended.	3	2	3	-	-	1	1
4	Plant or equipment either comes into contact with overhead electric line in which the voltage exceeds 200 volts or causes an electrical discharge.	4	3	7	3	3	0	2
5	Electrical short circuit, which results in the stoppage of the plant for more than 24 hours.	13	6	8	8	13	9	8
6	Unintentional ignition or explosion of explosives.	10	3	3	4	4	1	7
7	The release or escape of a biological agent likely to cause human infection or illness.	11	3	3	1	4	3	-
8	The malfunction of radiation generators.	-	-	-	-	-	-	1
9	Failure of breathing apparatus in service.	6	9	4	3	4	3	3
10	Failure of any lifting or life support equipment during a diving operation, which puts a diver at risk.	1	-	-	-	-	-	-
11	Complete or partial collapse of scaffold over 5m high.	4	2	1	1	1	1	-
12	Any unintended collision of a train with any other train or vehicle (other than one recorded in part 4 of this table), which caused, or might have caused the death of or major injury to any person.	-	-	-	-	-	-	-
13	Incidents in relation to a well (other than a well sunk for the purpose of the abstraction of water).	-	-	-	-	-	-	-
14	Incidents in respect of a pipeline or pipeline works.	15	7	8	11	12	5	7
15	Failure of fairground equipment in use or under test.	-	-	-	-	-	-	-
16	Overturning or serious damage to a tank while conveying by road prescribed dangerous substances, or the uncontrolled release or fire involving the substance being conveyed.	4	1	2	2	6	1	1
17	Uncontrolled release or escape of a dangerous substance, or a fire involving the dangerous substance, when being conveyed by road in a vehicle.	4	8	4	11	17	9	8
18	Collapse or partial collapse of any building or structure under construction involving over 5 tonnes of materials or any floor or wall of a building used as a place of work.	3	2	5	2	3	5	7
19	An explosion or fire occurring in any plant or premises, which results in the stoppage of that plant for more than 24 hours.	37	30	25	34	39	39	27
20	The sudden, uncontrolled release of flammable substances.	63	55	45	32	35	27	35
21	The accidental release or escape of any substance in a quantity sufficient to cause the death, major injury or any other damage to the health of any person.	92	81	76	63	80	59	55
41	The collapse of any storage bunker.	-	-	-	1	1	-	-
43	An incident in which any person suffers an injury (not otherwise reportable under these regulations) which results from an explosion or from the discharge of any explosives for which he receives first-aid or medical treatment at the quarry.	-	-	-	-	1	2	1
44	Any incident in which any substance is ascertained to have been projected beyond a quarry boundary as a result of blasting operations in circumstances in which any person was or might have been endangered.	-	-	-	-	1	-	-
	Total	350	285	240	229	283	224	226

¹ Full definitions of dangerous occurrences can be found in *A Guide to the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995*.

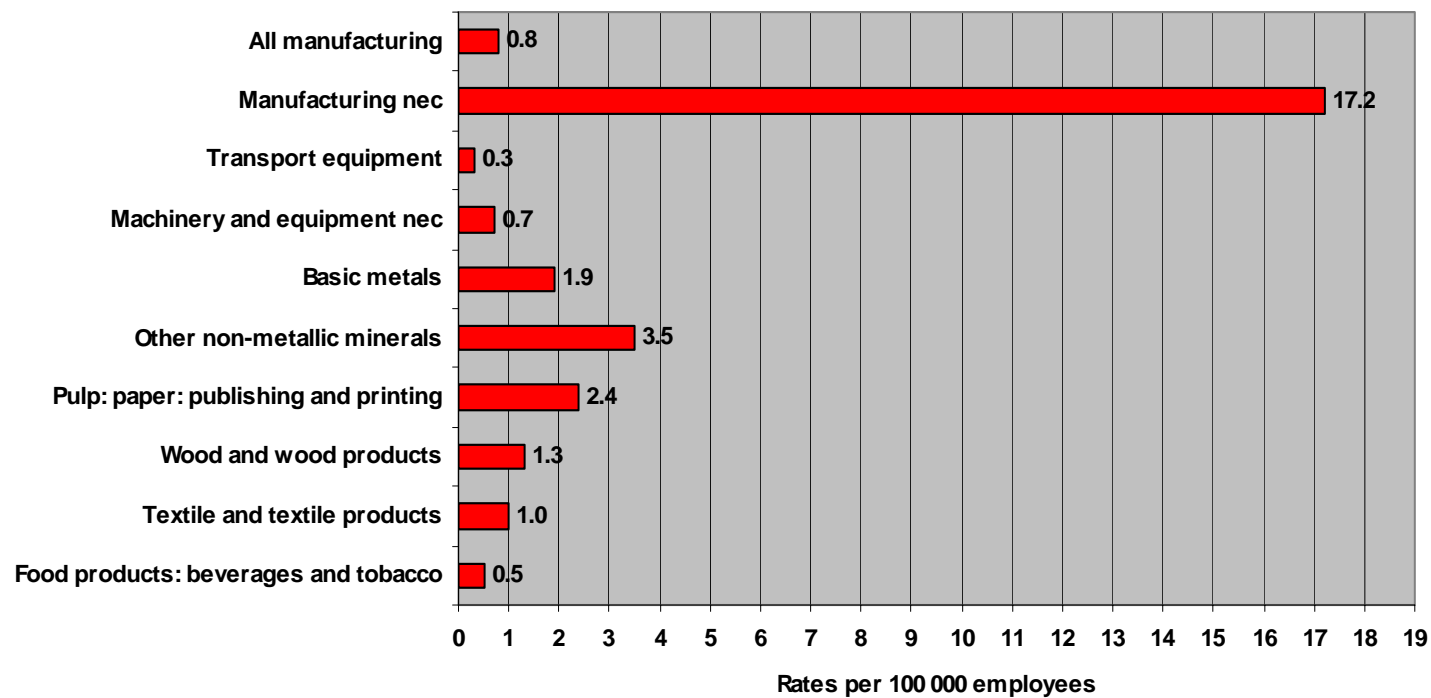
TABLE 11: REQUIREMENTS OF ENFORCEMENT NOTICES ISSUED IN THE CHEMICAL SECTOR BY HSE, 1997/98 – 2003/04

Year	Improvement	Deferred Prohibition	Immediate Prohibition	COMAH Prohibition Notice	ELCI	Total
1997/98	216	2	81	-	-	299
1998/99	361	14	75	-	-	450
1999/00	324	7	107	-	-	438
2000/01	227	13	39	-	-	279
2001/02	241	25	50	5	-	321
2002/03	191	9	53	2	-	255
2003/04	172	1	62	3	1	239

TABLE 12: PROCEEDINGS INSTITUTED BY HSE WITHIN THE CHEMICAL SECTOR, 1997/98 – 2003/04

Year	Informations Laid	Convictions	Total Fines (£)	Average Fine per Conviction (£)
1997/98	53	46	506 150	11 003
1998/99	35	35	170 000	4 857
1999/00	58	49	947 300	19 333
2000/01	53	43	290 100	14 946
2001/02	40	22	107 850	4 902
2002/03	42	36	265700	7381
2003/04	23	23	168500	7326

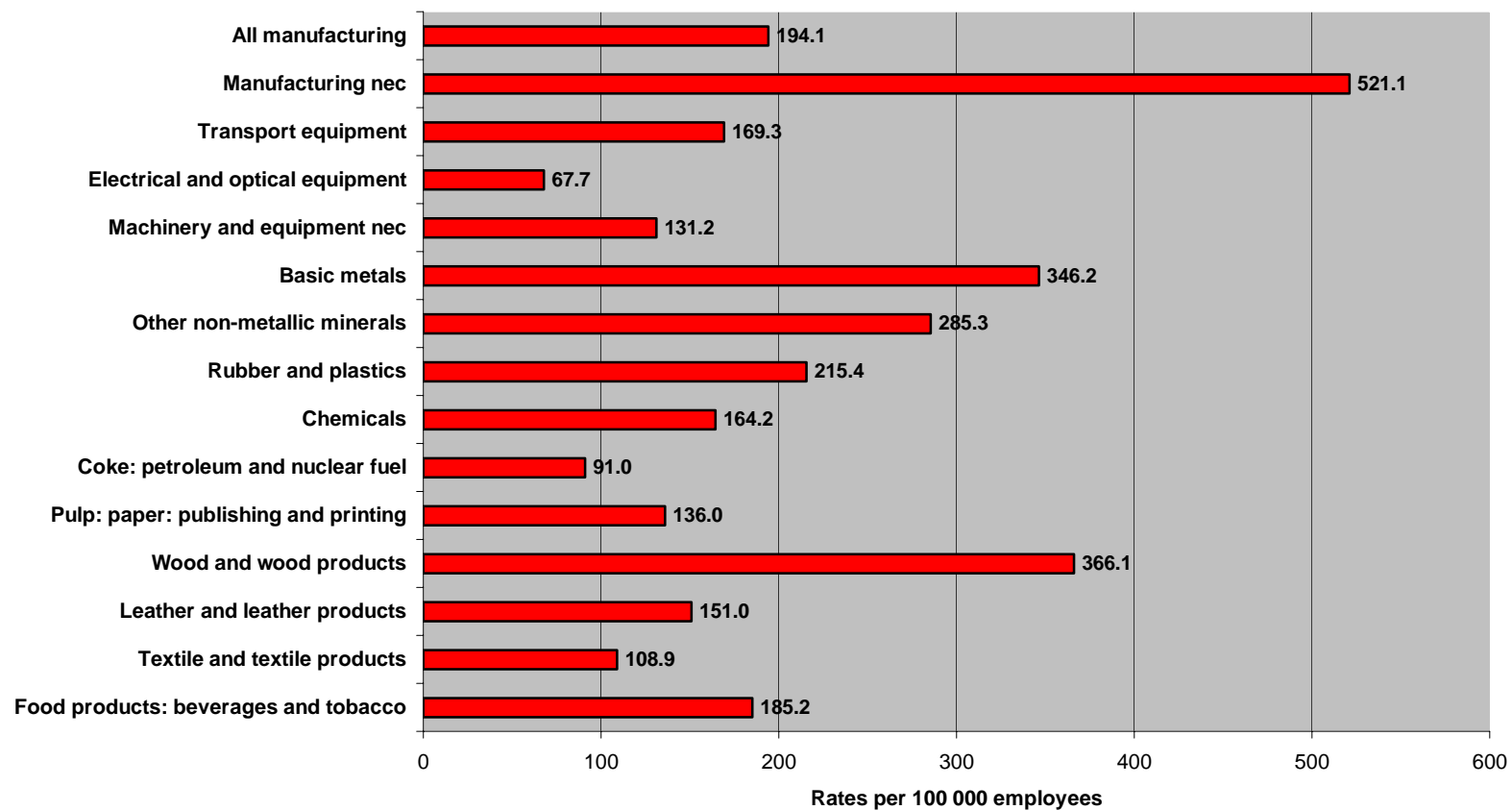
FIGURE 1: FATAL INJURY INCIDENCE RATES – MANUFACTURING INDUSTRIES 2003/04



nec – not elsewhere classified

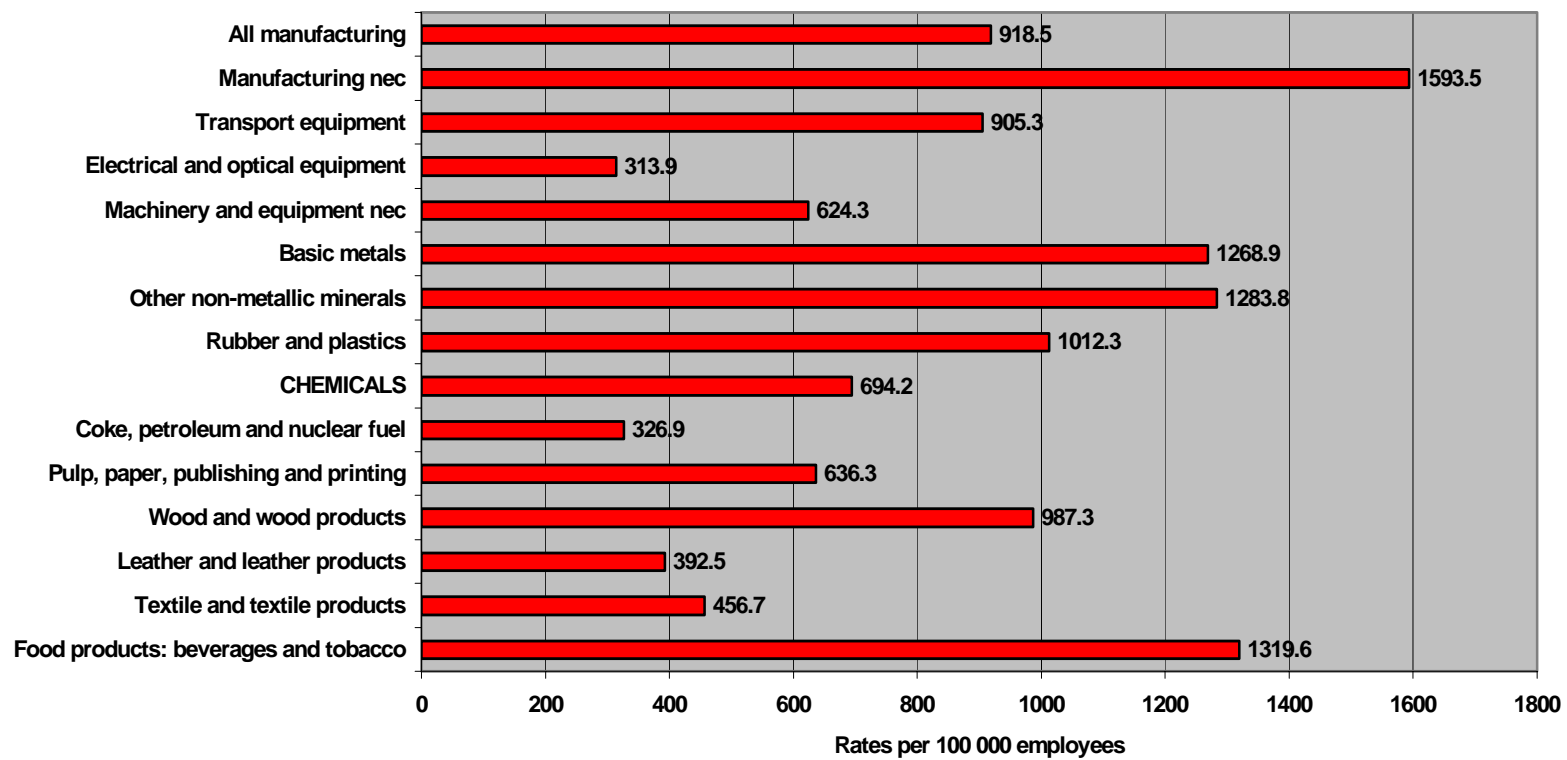
Five subsections of manufacturing (including the chemical industry) have rates of 0 and are not included here

FIGURE 2: MAJOR INJURY INCIDENCE RATES – MANUFACTURING INDUSTRIES 2003/04



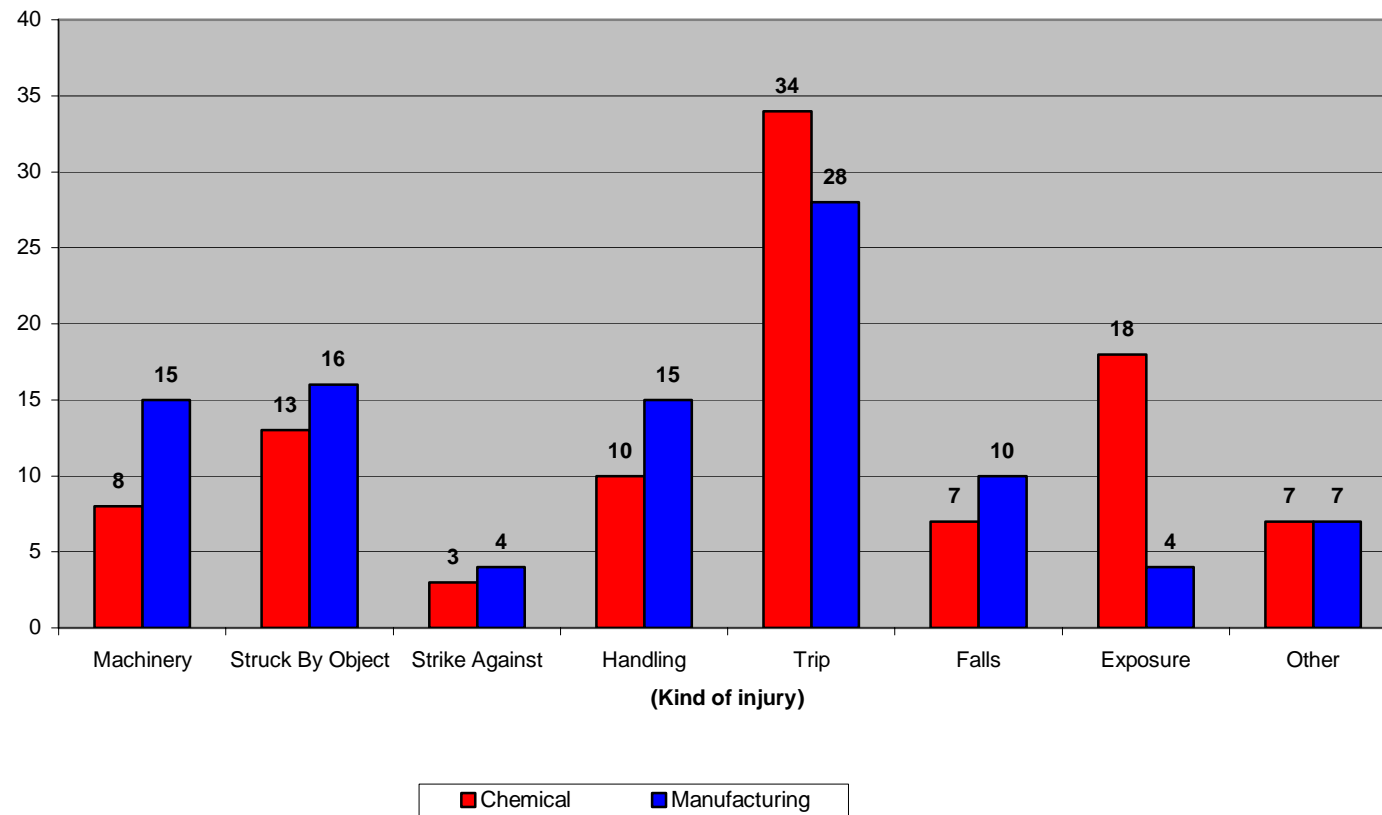
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FIGURE 3: OVER 3-DAY INJURY INCIDENT RATES – MANUFACTURING INDUSTRIES 2003/04



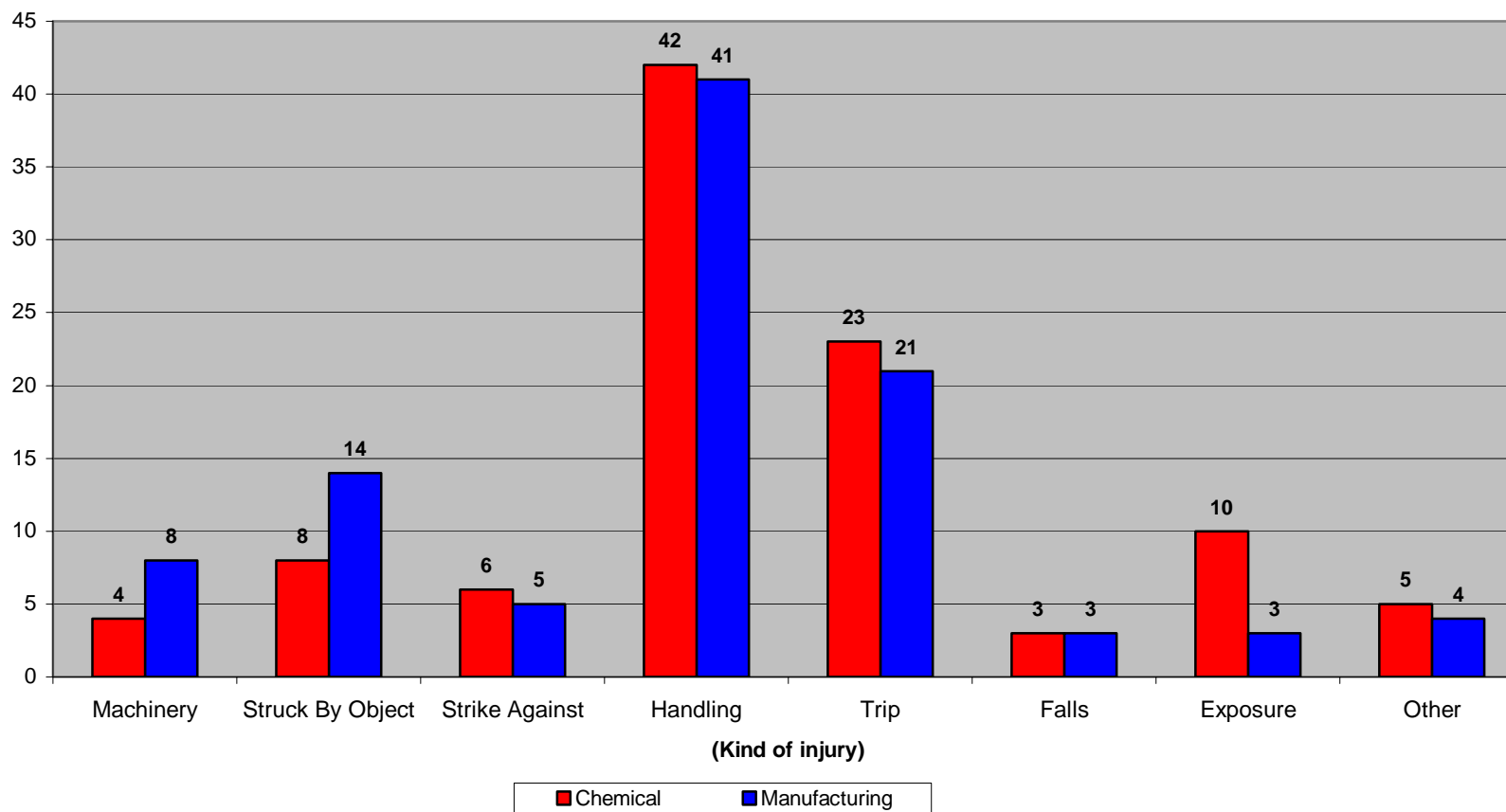
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**FIGURE 4: MAJOR INJURIES TO EMPLOYEES – CHEMICAL INDUSTRY/MANUFACTURING 2003/04
(PERCENTAGE OF TOTAL INJURIES)**



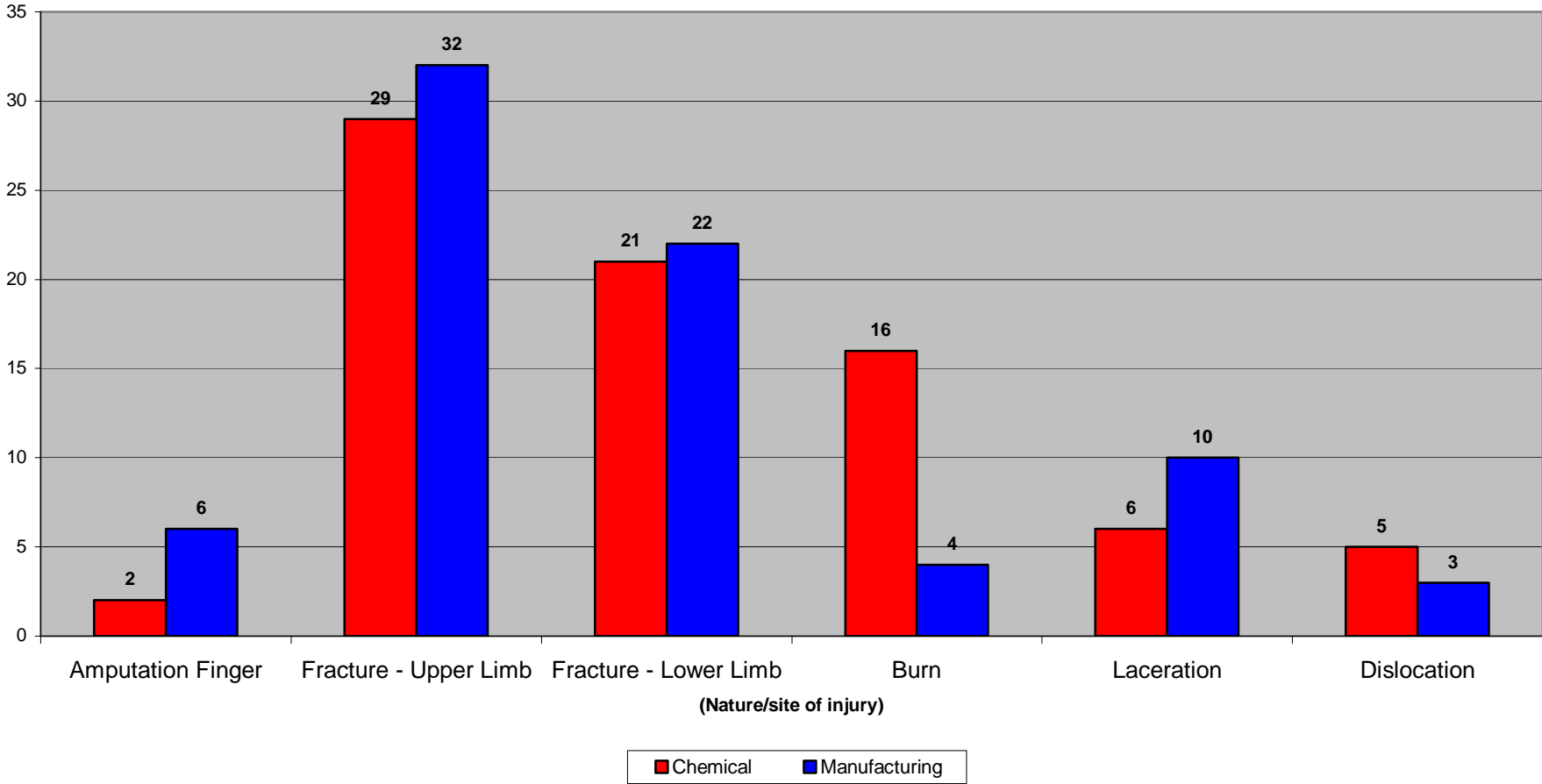
*Other' category includes: struck by moving vehicle; collapse/overturn; drowning/asphyxiation; exposures (fire/explosion); contact with electricity; animal injuries; violence; other kinds; kind not known.

**FIGURE 5: OVER 3-DAY INJURIES TO EMPLOYEES – CHEMICAL INDUSTRY/MANUFACTURING 2003/04
(PERCENTAGE OF TOTAL INJURIES)**

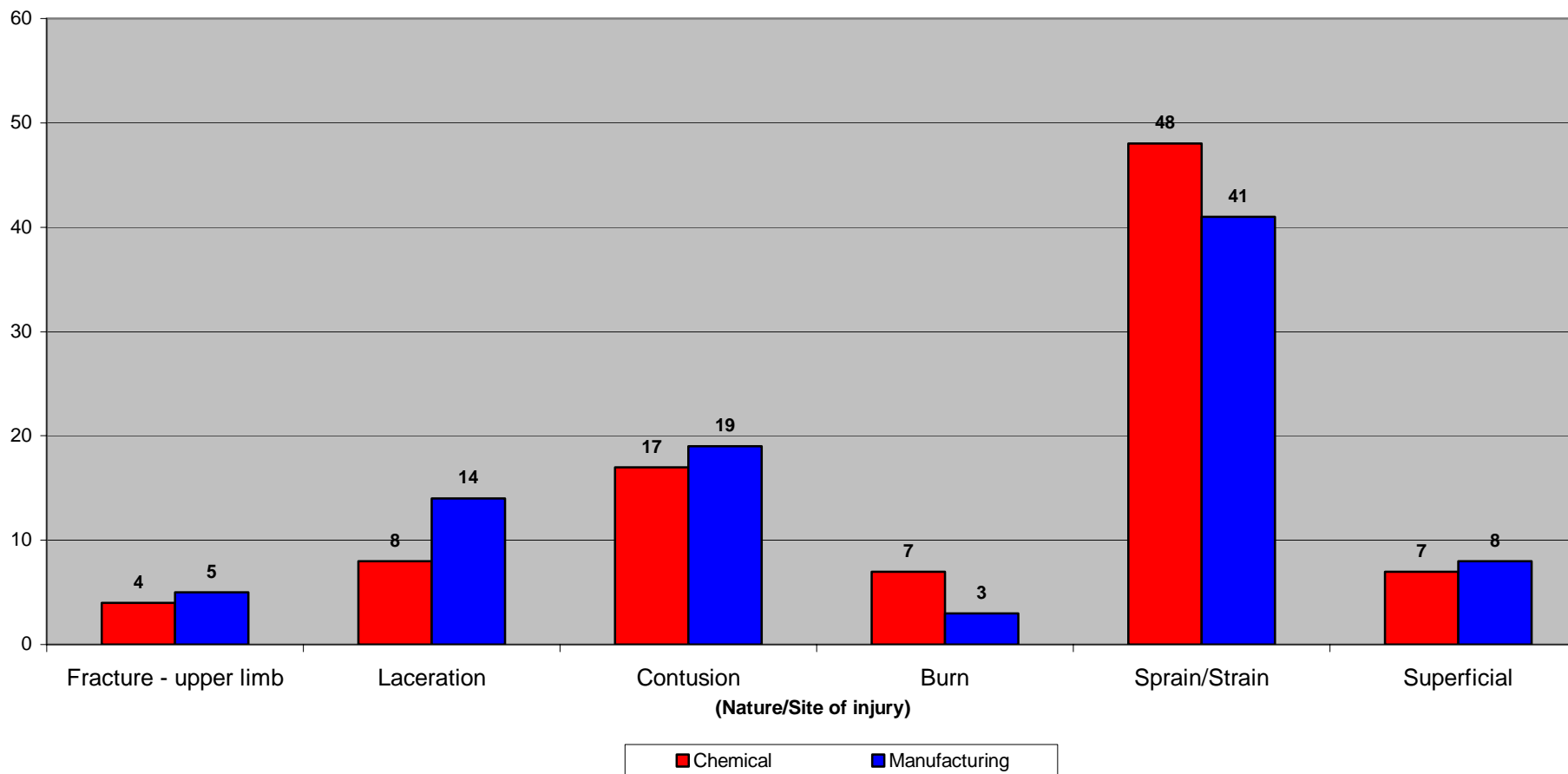


Other' category includes: struck by moving vehicle; collapse/overturn; drowning/asphyxiation; exposures (fire/explosion); contact with electricity; animal injuries; violence; other kinds; kind not known

**FIGURE 6: MAJOR INJURIES TO EMPLOYEES - CHEMICAL INDUSTRY/MANUFACTURING 2003/04
(PERCENTAGE OF TOTAL INJURIES)**



**FIGURE 7: OVER 3-DAY INJURIES TO EMPLOYEES - CHEMICAL INDUSTRY/MANUFACTURING 2003/04
(PERCENTAGE OF TOTAL INJURIES)**



APPENDIX 1

MAJOR AND OVER 3-DAY INJURY DEFINITIONS UNDER RIDDOR – REPORTING OF INJURIES, DISEASES AND DANGEROUS OCCURRENCES REGULATIONS 1995

MAJOR INJURIES

- a) Any fracture, other than to the fingers, thumbs or toes.
- b) Any amputation.
- c) Dislocation of the shoulder, hip, knee or spine.
- d) Loss of sight (whether temporary or permanent).
- e) A chemical or hot metal burn to the eye or any penetrating injury to the eye.
- f) Any injury resulting from an electric shock or electrical burn (including any electrical burn caused by arcing or arcing products) leading to unconsciousness or requiring resuscitation or admittance to hospital for more than 24 hours.
- g) Any other injury:
 - i) leading to hypothermia, heat-induced illness or to unconsciousness;
 - ii) requiring resuscitation; or
 - iii) requiring admittance to hospital for more than 24 hours.
- h) Loss of consciousness caused by asphyxia or by exposure to a harmful substance or biological agent.
- i) Either of the following conditions which result from the absorption of any substance by inhalation, ingestion or through the skin:
 - i) acute illness requiring medical treatment; or
 - ii) loss of consciousness.
- j) Acute illness which requires medical treatment whether there is a reason to believe that this resulted from exposure to a biological agent or its toxins or infected material.

OVER 3-DAY INJURIES

An over 3-day injury is an injury causing incapacity for *normal* work for **more** than 3 days.