



## Priorities for health and safety in the glass industries

### Glass Information Sheet No 1

#### Introduction

This information sheet is one of a series produced by HSE's Metals and Minerals Sector. It identifies the major causes of accidents and ill health in the glass industries (flat glass, containers, glass converters) and contains information that will help you to:

- make an assessment of the risk involved in your work;
- identify priorities for action;
- compare your performance with the rest of your industry; and
- understand the action that is taking place within these industries to support the 'Revitalising Health and Safety' initiative.

This information sheet can only provide a brief outline of accident and ill health causation and remedial measures. Where necessary, more detailed guidance should be sought from the publications listed in 'Further reading' and the relevant enforcing authority.

The injury rate for all injuries in each of the glass industries is higher than the overall rate for 'manufacturing' and higher than the combined rate for all 'industries' (manufacturing, services etc). A similar picture exists for fatal and major injuries.

#### Revitalising Health and Safety in the glass industry

'Revitalising Health and Safety' is the Government initiative aimed at improving the health and safety performance of industry and giving a fresh impetus 25 years after the implementation of the Health and Safety at Work Act (1974).

With support from the Health and Safety Executive, British Glass and the Glass and Glazing Federation have developed the **GLASS** (Goal: Less Accidents Safe Sites) **Charter** in response to the Revitalising campaign.

To show their support, companies are being asked to join the Charter and contribute to:

- reducing the working days lost through accidents and ill health in the glass industry **by 30% by 2010** (in line with Government targets); and
- the **GLASS Charter** Industry Scheme.

The first stage of the agreement requires companies to:

- appoint a director who is responsible for the health and safety performance of their company, to

ensure that health and safety becomes an agenda item at board level;

- submit basic accident statistics to allow the performance of the industry to be measured; and
- prepare a safety action plan which identifies at least three target areas for improvement. Guidance on preparing a safety action plan will be provided where necessary.

Further information can be obtained from British Glass, Northumberland Road Sheffield, S10 2UA or The Glass and Glazing Federation, 44-48 Borough High Street, London, SE1 1XB.

#### The main causes of injury

The pie chart below uses accident statistics from the years 1996-2000 to set out the main causes of accidents in the glass industry as a whole.

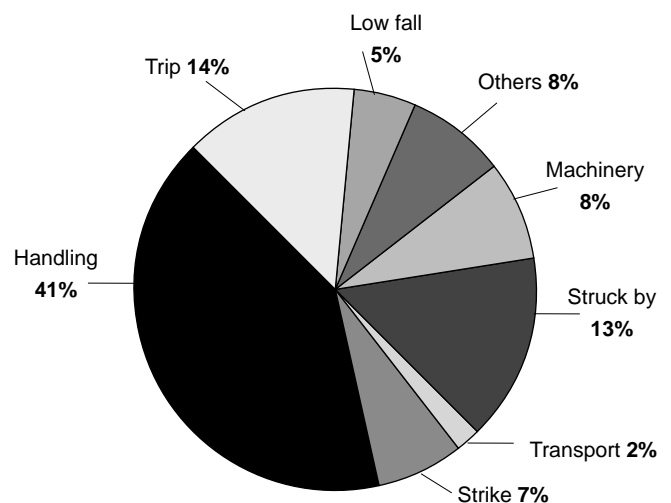


Table 1 breaks down the information contained in the pie chart. Definitions of major and over-3-day accidents can be found in the HSE leaflet *RIDDOR explained* (see 'Further reading').

#### Significant accident factors and priorities for action

Table 2 lists common causes of accidents in the Health and Safety Commission **priority programmes**: falls from heights; workplace transport; musculoskeletal disorders and slips and trips. It outlines preventative measures that can be taken. Major improvements in these areas are necessary in order to meet the Revitalising Health and Safety targets.

Table 3 lists common causes of other accidents within the glass industry.

**Table 1** Causes of major and over-3-day accidents in the glass industry

Causes	Major accidents			'Over 3-day' accidents		
	Flat glass	Containers	Glass converters	Flat glass	Containers	Glass converters
Handling	21%	8%	10%	50%	34%	46%
Slips and trips	16%	30%	20%	12%	17%	14%
Struck by	24%	12%	21%	14%	15%	13%
Machinery	9%	16%	17%	5%	13%	6%
Low fall	10%	11%	9%	5%	5%	3%
Strike	5%	7%	5%	8%	7%	7%
Other	15%	16%	18%	6%	9%	11%

**Table 2** Major causes of accidents in the glass industry

Cause	Significant factors	Priorities for action
<b>Falls from heights</b>	<p>Falls through fragile ceilings</p> <p>Collapse of work platforms and the use of incorrect means of access</p>	<ul style="list-style-type: none"> <li>● Erect 'fragile roof' signs at roof access points</li> <li>● Assess the fragility of roofs before work commences; if in doubt treat as fragile unless confirmed otherwise. Pay particular attention to roof lights</li> <li>● Work should be carried out by competent persons</li> <li>● Supervise your own staff and monitor contractors</li> <li>● Provide a safe means of access</li> <li>● Provide a platform or covering over the fragile material to support the weight of the person and any load they are carrying</li> <li>● Guard-rails should be erected where people can fall more than 2 m or can fall any distance likely to cause injury</li> <li>● Working platforms should be erected, used, inspected and dismantled by competent persons</li> <li>● Consider the use of mobile elevating working platforms (MEWPs)</li> </ul>
<b>Transport</b>	<p>Loading of glass onto vehicles</p> <p>Unsteady load or overloaded vehicle</p>	<ul style="list-style-type: none"> <li>● Only allow trained drivers to operate vehicles and fork-lift trucks</li> <li>● Train drivers on the vehicles they use, provide refresher training</li> <li>● Eliminate or reduce the need for vehicles to reverse</li> <li>● Segregate vehicle and pedestrian routes</li> <li>● Supervise vehicle use around the workplace and monitor driver and pedestrian behaviour</li> <li>● Wear high-visibility clothing where pedestrians and vehicles mix</li> <li>● Use vehicles specially designed for transporting glass</li> <li>● Handle goods and unload vehicles using safe working practices</li> <li>● Beware of the potential movement of glass remaining in the vehicle. Restrain the glass remaining in vehicles</li> <li>● Provide training and awareness in loading vehicles safely</li> <li>● Vehicles should be marked to show maximum weight</li> </ul>
<b>Musculoskeletal and upper limb disorders</b>	Lifting and stacking of glass	<ul style="list-style-type: none"> <li>● Mechanise handling or eliminate the need for manual handling</li> <li>● Assess all manual handling operations and act upon findings</li> <li>● Risk assessments should be carried out by a competent person</li> <li>● Avoid lifting heavy items, reaching too high or too low, sharp lifting and pulling movements and temperature extremes and draughts</li> <li>● Where lifting is necessary, rotate tasks so lifting is not continuous</li> <li>● Train all employees in correct manual handling procedures</li> <li>● Where sheets of glass are handled, provide suitable and efficient protective equipment and ensure it is used</li> </ul>

**Table 2** Major causes of accidents in the glass industry

<b>Cause</b>	<b>Significant factors</b>	<b>Priorities for action</b>
<b>Musculoskeletal and upper limb disorders</b>	Manoeuvring of glass in barrows etc	<ul style="list-style-type: none"> <li>● Avoid overloading</li> <li>● Ensure glass is stable before moving</li> <li>● Ensure routes are clear of obstacles and well marked and floor is even</li> <li>● Inspect and maintain barrows regularly</li> </ul>
	Upper limb disorders	<ul style="list-style-type: none"> <li>● Provide regular breaks where tasks are repetitive</li> <li>● Vary tasks to provide changes in activity</li> <li>● Provide adjustable workstations where appropriate</li> <li>● Consider ergonomic factors when designing workstations</li> <li>● Train workers in proper posture and good methods of working</li> </ul>
	Cuts	<ul style="list-style-type: none"> <li>● Provide adequate information on safety precautions and training on the handling of glass</li> <li>● Ensure full PPE is provided and worn, this should include aprons, gloves, eye protection and wrist protection and (where identified) toe protection, hard hats and upper body protection</li> <li>● Develop and implement a safe system of work</li> </ul>
<b>Housekeeping (including slips and trips)</b>	Trips	<ul style="list-style-type: none"> <li>● Improve design, layout and housekeeping of the working environment</li> <li>● Provide adequate lighting</li> <li>● Provide designated walkways and keep them free of obstacles</li> <li>● Clean effectively, preferably out of hours</li> <li>● Avoid horseplay</li> </ul>
	Slips	<ul style="list-style-type: none"> <li>● Avoid spillages and leakages on floors</li> <li>● Clear up spillages and dry the floor immediately</li> <li>● Check stairs, particularly for slipping risks, and provide adequate handrails</li> <li>● Dry floors after cleaning</li> </ul>
	Stacking/storing of glass	<ul style="list-style-type: none"> <li>● Secure storage racks</li> <li>● Do not overload racking</li> <li>● Protect racking from damage and inspect regularly</li> <li>● Do not use damaged pallets or racking</li> <li>● Stack glass at the correct angle - between 3° and 5° for static and no more than 6° for transportable racks</li> </ul>

**Table 3** Major causes of accidents involving plant and machinery and dangerous substances in the glass industries

<b>Cause</b>	<b>Significant factors</b>	<b>Priorities for action</b>
<b>Plant and machinery</b>	Individual section machines	<ul style="list-style-type: none"> <li>● Use auto-swabbing systems or permanent coatings to remove/reduce the need for manual swabbing</li> <li>● Develop and implement a safe system of work</li> <li>● Provide suitable training in safe procedures for operators</li> </ul>
	Unsafe/incorrect operation of machinery, eg guarding removed or inadequate	<ul style="list-style-type: none"> <li>● Guard machinery properly to avoid danger during normal use</li> <li>● Interlock frequently opened guards</li> <li>● Set machinery with guarding in place or with machine switched off, isolated and stationary</li> <li>● Train operators and supervisors in safe methods of working</li> <li>● Inspect guards regularly to ensure they operate properly</li> </ul>
	Removing blockages and cleaning and maintenance of machinery	<ul style="list-style-type: none"> <li>● Clean machinery or blockages with guarding in place or with machine isolated and stationary</li> <li>● Develop and implement a safe system of work</li> <li>● Perform risk assessments before work starts</li> <li>● Use a permit-to-work system for locking off machinery</li> <li>● Inspect machinery regularly to identify any defects</li> <li>● Report and record all defects to an appropriate person</li> </ul>
<b>Dangerous substances</b>	Use of methylated spirits to cut laminated glass	<ul style="list-style-type: none"> <li>● Highly flammable liquids should not be used, use alternatives such as heat guns</li> <li>● Assess the risks and implement the necessary control measures</li> <li>● Provide and use suitable and sufficient personal protective equipment</li> </ul>

### Ill health - priorities for action

Ill health statistics are based on low levels of reporting. From the information available, the following are priorities for action.

- Avoid hazardous, very physical and repetitive manual handling operations, assess the risk of injury from manual handling that cannot be avoided and reduce the risk of injury.
- Assessments under the Control of Substances Hazardous to Health Regulations should consider the level of exposure within the workplace.
- Ensure that control measures, eg local exhaust ventilation, are properly designed, used and maintained, and that good standards of housekeeping are maintained etc.
- Atmospheric sampling can be performed to compare exposure levels with legal limits.
- Where necessary, carry out a lead assessment.
- In the case of lead, implement medical surveillance where an appointed doctor requires it or employees are likely to be significantly exposed (ie where any employee is or is liable to be exposed to half the lead in air standard or where there is a substantial risk of ingesting lead).
- Where employees are handling substances known to cause dermatitis, in addition to all other precautions, appoint a responsible person to carry out monthly skin inspections. The person should be trained to recognise symptoms of dermatitis.
- Where personal protective equipment is used, ensure it is sufficient for its purpose, properly worn, inspected and replaced at appropriate intervals.
- Ensure employees are adequately trained and instructed in the likely health risks and how to minimise them by taking the necessary precautions.
- Implement health surveillance (by a competent person) where there are previously known cases of work-related ill health, reliance is placed on PPE as an exposure control method and there is evidence of ill health in similar jobs in the industry, if:
  - the work concerned is known to damage the health in some particular way; and
  - there are valid ways to detect the disease or conditions; and
  - there is a reasonable likelihood that the damage to health may occur under the particular conditions.
- Introduce the correct type of health surveillance. A doctor does not necessarily have to be directly involved in carrying out procedures. Their role may be supervisory or advisory. Seek the advice of an occupational health professional if in doubt.
- Encourage employees to take part positively in health surveillance programmes.

- Ensure all reasonably practicable measures are taken to reduce noise levels.
- Where hearing protection is required, ensure it is properly selected, maintained and used.

### Further reading

*General access scaffolds and ladders* Construction Information Sheet CIS49 HSE Books 1997

*Getting to grips with manual handling: A short guide for employers* INDG143(rev1) HSE Books 2000 (single copy free or priced packs of 15 ISBN 0 7176 1754 8)

*Introducing the Noise at Work Regulations* INDG75(rev) HSE Books 1999 (single copy free or priced packs of 15 ISBN 0 7176 0961 8)

*Managing vehicle safety at the workplace: A short guide for employers* Leaflet INDG199 HSE Books 1999 (single copy free or priced packs of 10 ISBN 0 7176 0982 0)

*Preventing slips, trips and falls at work* Leaflet INDG225 HSE Books 1996 (single copy free or priced packs of 15 ISBN 0 7176 1183 3)

*RIDDOR explained: Reporting of Injuries, Diseases and Dangerous Occurrences Regulations* HSE31(rev1) HSE Books 1999 (single copy free or priced packs of 10 ISBN 0 7176 2441 2)

*Working on roofs* INDG284 HSE Books 1999 (single copy free)

### Further information

HSE priced and free publications are available by mail order from HSE Books, PO Box 1999, Sudbury, Suffolk CO10 2WA Tel: 01787 881165 Fax: 01787 313995 Website: [www.hsebooks.co.uk](http://www.hsebooks.co.uk) (HSE priced publications are also available from bookshops and free leaflets can be downloaded from HSE's website: [www.hse.gov.uk](http://www.hse.gov.uk).)

For information about health and safety ring HSE's Infoline Tel: 08701 545500 Fax: 02920 859260 e-mail: [hseinformationservices@natbrit.com](mailto:hseinformationservices@natbrit.com) or write to HSE Information Services, Caerphilly Business Park, Caerphilly CF83 3GG.

This leaflet contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do.

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