

Skip and container safety in waste management and recycling



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Summary

Skip- or container-related accidents are a common cause of serious and fatal accidents in the waste management and recycling industry.

This guidance is about eliminating or reducing the risk of serious injury associated with the use of mismatched or damaged skips or containers. In addition to design and manufacturing issues, it provides information on their safe use, inspection and maintenance.

It is aimed at designers/manufacturers, buyers, employers, users and maintenance staff who work with skips and containers used with skip loader and hook loader vehicles.

Introduction

1 This guidance was produced by the Health and Safety Executive (HSE) in consultation with the Waste Industry Safety and Health (WISH) forum.

2 The guidance is aimed at designers/manufacturers, buyers, employers, users and maintenance staff who work with skips and containers used with skip loader and hook loader vehicles. It is applicable to most types of skips and containers commonly in use.

3 There are no national standards for skips and containers. However, a number of commonly used industry standards exist (see 'Further reading'). Deviations from these standards are not necessarily unsafe (depending on use, systems of work etc), but using different standards has the potential for a mismatch between the skip/container and the vehicle handling them. Any such mismatch can present risks which will need to be adequately controlled to ensure safety.

4 **Manufacturers** have duties under section 6 of the Health and Safety at Work etc Act 1974 (HSW Act) and the Supply of Machinery (Safety) Regulations 2008.¹ They should ensure that the design and manufacture of skips and containers are of good quality and that the selection and sizing of materials are adequate for the intended use.

5 **Buyers** also have duties under the HSW Act and Provision and Use of Work Equipment Regulations 1998 (PUWER)² to select skips and containers that are safe to use, and ensure they are maintained in a safe condition if intended for work purposes.

Skips

6 Skips (receptacles specifically designed for use with skip-loader vehicles) are used to store, transport and discharge dry waste and exist in a wide variety of sizes and configurations.

'Mini skips'

7 These smaller skips have a capacity of between 1.5 and 2 m³. They are not designed and manufactured to a common agreed industry standard but to suit the individual design of skip loader. Buyers should therefore ensure that the skip is compatible with the skip loader to ensure correct interfacing and safe use.

Larger skips

8 There is a commonly used industry standard for skips of 3 m³ up to the maximum 20 m³ (see 'Further reading'). It adopts general dimensions for:

- overall size;
- positioning of lugs for lifting;
- positioning of tipping bars for discharging.

Special applications skips

9 These require extra consideration and discussion between the buyer, the skip designer/manufacture, the skip loader supplier and any other associated equipment supplier to ensure equipment compatibility and safe use.

Design, manufacture and purchase of skips

10 The following should be considered when designing, manufacturing or purchasing skips:

- The skip shell is fully welded on all external edges and corners.
- Extra heavy-duty skips (eg used for scrap metal) are also fully welded on the inside, and additional reinforcing plates fitted to the discharge corners. (Some manufacturers weld the inside and outside of all skips as standard practice.)
- All upper edges are reinforced with channel section.
- Lifting lugs:
 - pass through horizontal channel sections that extend the full length of the skip or vertical channels welded between two horizontal channels, depending on the capacity of the skip;
 - have reinforcing plates welded to the inside of the skip shell where the shank of the lifting lug passes through the side plate;
 - all channels which carry lifting lugs should be fully welded to the side plate.
- All drop-down doors (eg on builders' skips) have a locking device keeping them securely closed, and a secondary lock fitted to the main lock to ensure that the door remains closed and safe during moving and transporting. Locks are of robust construction to withstand the rough treatment they are likely to receive, but easy to operate.

- Loading doors fitted to the sides of large, single-ended skips, and especially rear-end loader (REL) skips, have their hinges fitted towards the rear end of the skip to avoid injury to the operator if a door falls open while the skip is being discharged.
- Any hinged covers fitted to skips are light enough to permit safe opening and closing by hand from ground level. Hinges and locking devices are designed for ease of operation and durability.

11 Depending on their use, some lighter skips (notably REL skips, which have long, shallow, inclined front plates) have become unstable when heavy materials (rubble, scrap metal etc) have been loaded onto the inclined front plate without being evenly distributed across the base of the skip (see Figures 1 and 2). Where this could happen, manufacturers should provide information for the user so that this risk can be controlled.

12 Where foreseeable misuse could lead to an unevenly distributed load toppling the skip, possible design/manufacturing solutions could include:

- making the angle of incline at the front plate steeper to prevent excessive amounts of heavy materials accumulating on the incline (see Figure 3); and/or
- wedge-shaped 'stabilisers' under the inclined front plate (see Figure 4).

13 HSE has issued a safety notice highlighting a potential danger, where fabrication of the skip can result in a lip on which tipping hooks may 'falsely' engage, and provides advice on corrective actions. This can be found at: www.hse.gov.uk/safetybulletins/tippinghooks.htm.

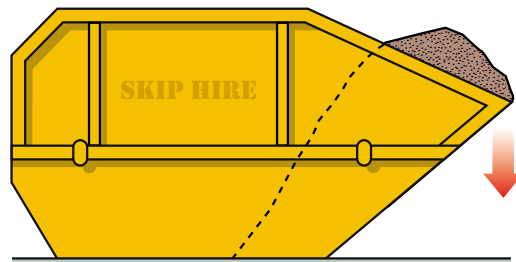


Figure 1 Excess heavy materials loaded onto front inclined plate, instead of being distributed evenly across the skip

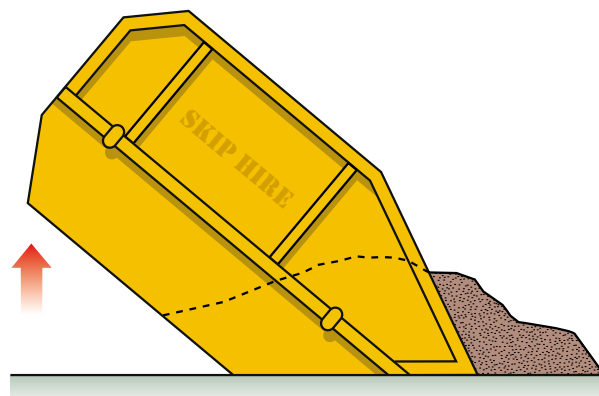


Figure 2 Result – skip topples

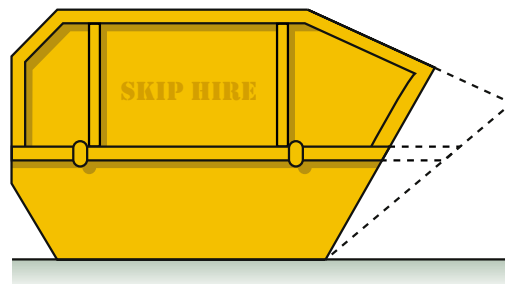


Figure 3 Make angle of incline steeper

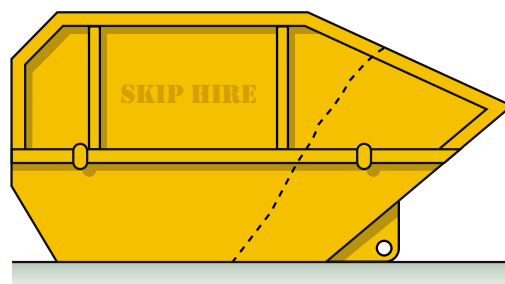


Figure 4 Fabricate and fit wedges to act as stabilisers

Containers for hook loaders

14 These containers (receptacles for storage, transportation and discharge of dry waste) are specifically designed for use with hook loader vehicles.

15 They are available in a variety of sizes and configurations. They can be open or closed, typically ranging in size from 1.5 m³ to 30 m³.

16 Containers for small hook units (3-10 tonnes gross vehicle weight (GVW)) and large hook units (11-32 tonnes GVW) should have subframes designed and manufactured in accordance with the appropriate accepted industry standards (see 'Further reading').

17 These standards set down the general dimensions for the subframes and front 'A' frames, including the position of the hook bar, locking points and other essential information to ensure correct interfacing and safe use with hook loader vehicles.

18 There is an accident history associated with hook loaders and HSE has issued two relevant safety alerts:

- Load security when raising and lowering (www.hse.gov.uk/waste/hookloader.htm);
- Failure of wishbone bale bar (hook bar) (www.hse.gov.uk/waste/wishbone.htm).

Design, manufacture and purchase of containers

19 Take the following issues into account when designing, manufacturing or purchasing containers:

- Container 'A' frame, body plates and all fittings such as hinges and locking devices are fully welded.
- Containers for extra heavy duty have additional reinforcing plates fitted to areas of high stress.
- All upper edges are reinforced with channel or rolled, hollow sections.
- Container subframes and 'A' frames are in accordance with the commonly used industry standards (see 'Further reading').
- Larger containers have a deflector plate fitted at the top of the 'A' frame above the hook bar to ensure that the vehicle hook engages correctly and safely with the container hook bar (bale bar).
- The main door locks are strong enough to keep the door(s) of a loaded container closed. They should withstand the forces exerted on them by the material in the container due to any movement during loading and travelling.
- The secondary lock is strong enough to keep the door(s) of a loaded container closed after releasing the main door locks before tipping.
- The operating device for the secondary lock is located at the side of the container and operates within a closed system (eg a labyrinth or slide) to ensure that the operator is in a safe position when the door(s) are released.
- Door holdback devices (restraints) are fitted. They are strong enough to withstand the forces exerted by the doors when the container is tipped for discharge. The design is such that the latch is positive and cannot become unlatched due to movement of the container. (Chains are not recommended for restraining open doors.)

Containers for front-end loaders

20 These containers are designed specifically for use with front-end loading waste collection vehicles (FELs) and are available in a range of sizes from 1.5 to 7.5 m³.

21 Dimensions for positioning the lifting pockets should be in accordance with the commonly used industry standard (see 'Further reading').

22 The principles of construction regarding strength of the container shell and loading doors apply as outlined above for skips. The practice of modifying other types of container by the addition of lifting pockets is to be avoided unless carried out by a bona fide manufacturer who has the means to test the modified container.

Safe use and condition of skips and containers

Safe use

23 Collection workers should be provided with systems of work and adequate training to enable them to carry out their work safely and competently. They should also be competent, through training, to:

- recognise faults and/or damage to skips and containers that could make them unsafe to use;
- undertake regular checks and report on the condition of skips and containers including:
 - lifting points;
 - locking points;
 - tipping bars;
 - doors;
 - door locks;
 - restraints;
 - covers;
 - general condition.

24 Operators should be sufficiently competent to be able to select the correct type of skip for the intended task. This should include:

- strength, considering its intended load;
- stability, considering the weight and placement of skip contents;
- methods to ensure the acceptable distribution of load weight within the skip.

25 Instruct drivers to report hazardous situations which they believe would result in a risk to themselves or to the vehicle if they continued with the operation. For example:

- a grossly overloaded or unsafely loaded skip or container;
- insufficient headroom to retrieve the skip or container;
- insufficient space to be able to work safely;
- skip or container on sloping ground – up/down slope, cross slope or combination of up/down and cross slopes;
- a skip or container on soft ground.

Condition

26 Skips and containers don't require thorough examination under regulation 9 of the Lifting Operations and Lifting Equipment Regulations 1998 (LOLER).³ However, they do require inspection under regulation 5 of PUWER 1998² to ensure they remain in good repair and are fit for purpose. Those components that require checking under PUWER are listed in paragraph 23 above. Further information is available in CHEM Guidance Notes (see Further reading). There is no requirement to keep a record of these inspections but any defects that are identified should be notified to a responsible person.

27 Operators should have the authority, through written procedures, to return damaged and unsafe skips and containers to their depot for repair or destruction or, where this would be unsafe, to seek further advice.

28 Damaged and unsafe skips or containers should be removed from service for disposal or repair. Repaired items should be inspected before being put back into service.

29 Under LOLER,³ hoisting mechanisms (including any wire ropes or chains that form part of the mechanism) for skip loaders and hook loaders are defined as 'lifting equipment'. As such, they must be examined by a competent person at least every 12 months.

Information, instruction and training

30 Workers must be given enough information and training to carry out their duties safely and effectively. Lifting operations involving the use of skips and containers have a potential to expose workers to harm, particularly where inappropriate or damaged equipment is used. It is important that those involved have been inducted and trained on safe systems of work. They should be clear about the process to be followed and it is particularly important to consider the training needs and supervision of:

- new recruits and trainees;
- young people who are particularly vulnerable to accidents;
- people changing jobs, or taking on new responsibilities;
- workers for whom English is not their first language.

31 For more specific advice, see HSE leaflet *Health and safety training: A brief guide* (INDG345).⁴

Worker consultation and engagement

32 Workers should be consulted and engaged regarding the health and safety arrangements and working practices. Their support is essential in ensuring safe working. Safety representatives and other workers can contribute positively in achieving the desired outcomes by:

- identifying problems;
- indicating whether activities can be carried out safely under prevailing conditions;
- generating sound practical ideas and solutions.

33 For more information on worker involvement, see www.hse.gov.uk/involvement/.

Reporting and investigating accidents and dangerous occurrences

34 There is a requirement under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR), to report specific types of accidents/incidents, including dangerous occurrences, to the relevant enforcing authority (usually HSE).

35 RIDDOR applies to all work activities but not all incidents are reportable. However, because all incidents involving the lifting of skips and containers could have potentially serious outcomes, it is recommended that all such incidents, including those that are non-RIDDOR-reportable and near misses, should be reported to management and investigated. Investigations should aim to reveal the immediate and underlying causes, ensure lessons are learnt and remedial action is taken.¹

36 Further information about what must be reported and how to report it can be found at www.hse.gov.uk/riddor, and in the leaflet *Reporting accidents and incidents at work* (INDG453).⁵

References

- 1 *Supply of Machinery Safety Regulations 2008*
<http://www.legislation.gov.uk/uksi/2008/1597/contents/made>
- 2 *Safe use of work equipment. Provision and Use of Work Equipment Regulations 1998. Approved Code of Practice and guidance L22* (Third edition) HSE Books 2008 ISBN 978 0 7176 6295 1 www.hse.gov.uk/pubns/books/l22.htm
- 3 *Safe use of lifting equipment. Lifting Operations and Lifting Equipment Regulations 1998. Approved Code of Practice and guidance L113* HSE Books 1998 ISBN 978 0 7176 1628 2 www.hse.gov.uk/pubns/books/l113.htm
- 4 *Health and safety training: A brief guide* Leaflet INDG345(rev1) HSE Books 2001 www.hse.gov.uk/pubns/indg345.htm
- 5 *Reporting accidents and incidents at work: A brief guide to the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR)* Leaflet INDG453 HSE Books 2012 www.hse.gov.uk/pubns/indg453.htm

Further reading

Safe use of skip loaders: Advice for employees Pocket card INDG378(rev1) HSE Books 2013 www.hse.gov.uk/pubns/indg378.htm

Investigating accidents and incidents: A workbook for employers, unions, safety representatives and safety professionals HSG245 HSE Books 2004 ISBN 978 0 7176 2827 8 www.hse.gov.uk/pubns/books/hsg245.htm

Commonly agreed industry standards are produced, and available as priced publications, from the Container Handling Equipment Manufacturers Association (CHEM) www.chem.uk.com/.

CHEM represents a number of manufacturers and suppliers providing equipment to the waste industry. Its members adopt, where appropriate, the standards outlined in the following documents to permit safe vehicle/container interfacing:

- TS2 10 cu.m. *Compacted Waste Container for Lift-off Vehicle*
- TS5 15 cu.m. *Compacted Waste Container*
- TS6 *Compaction Containers for Hook Type Units*
- TS7 *Open Top Containers to Suit Hook Type Units*
- TS8 *Subframe Specification for Large Hook Type Units (11 to 32 Tonnes GVW)*
- TS10 *General Arrangement of 11.5 cu.m for Rear End Loader (REL) Container*
- TS11 *Lifting Pocket Criteria Front End Loader (FEL)*
- TS13 *Subframe for Smaller Hook Type Units (3 to 10 Tonnes GVW)*
- TS14 *Standard Specifications for Skip Containers*
- CHEM Code Of Practice No. 2 *The Safe operation of Skip Vehicles*
- CHEM Code of Practice No. 4 *The Safe Operation of Ground Level Demountable Body Systems (Hook Type)*
- CHEM Code of Practice No. 6 *The Safe Operation of Front End Loaders*
- CHEM Guide Part C *Guidance Note PUWER and LOLER: Guidance to Operators of Container Handling Equipment and Compactors used in the Waste Industry*

Useful links

HSE's waste website: www.hse.gov.uk/waste/

Safety alerts for the industry: www.hse.gov.uk/waste/issues.htm

Further information

For information about health and safety, or to report inconsistencies or inaccuracies in this guidance, visit www.hse.gov.uk/. You can view HSE guidance online or order priced publications from the website. HSE priced publications are also available from bookshops.

This guidance is issued by the Health and Safety Executive. Following the guidance is not compulsory, unless specifically stated, and you are free to take other action. But if you do follow the guidance you will normally be doing enough to comply with the law. Health and safety inspectors seek to secure compliance with the law and may refer to this guidance.

This document is available at: www.hse.gov.uk/pubns/waste06.htm

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The Waste Industry Safety and Health forum (WISH) exists to communicate and consult with key stakeholders, including local and national government bodies, equipment manufacturers, trade associations, professional associations and trades unions. The aim of WISH is to identify, devise and promote activities that can improve industry health and safety performance. www.hse.gov.uk/waste/wish.htm