

# Risk Assessment

## Commercial & Public storage arrangements for waste batteries

### Introduction

This risk assessment is a general assessment of risks inherent in the storage of waste batteries and provides a comprehensive appraisal of controls that can be easily implemented to manage the activity in a safe and controlled manner.

### Scope

This document provides an assessment of risk for waste batteries' storage in the following environments;

- Industrial & commercial areas, e.g. Offices, Factories, Production & manufacturing plants, etc...
- HM Armed forces premises.
- Telecoms & other utility sites;
- Education establishments, e.g. Junior Schools, Secondary schools, Colleges & Universities.
- Other public domains, e.g. Council offices, retail outlets, shopping precinct foyers, Civic Amenity sites, etc...
- Unmanned sites in either the public or private domain.

Consideration is given to:

- Public safety
- Safety of employees, contractors, visitors, neighbours, etc...
- Vulnerable groups, i.e. Children, disabled people, Elderly, etc...

The Risk assessment is designed to not only raise awareness but to propose control measures for all types of establishments, buildings, etc... where battery waste may be stored.

As this is therefore a general risk assessment it should be customised to reflect the hazards within your own specific context.

E.g. If you occupy a factory with good waste management practises, your risks will be different to those of a supermarket where the public can access the waste batteries, and both will be different to a school where it is principally children or young persons exposed to risk.

### Regulatory Scope

The legislation relevant to the collection and subsequent storage/handling of battery wastes are listed in table 1:

Environment	Health & Safety
Environmental Protection Act 1990	Health & Safety at Work Act 1974
Waste Management Licensing Regs 1994	Control of Substances hazardous to health (amended) 2002
Special Waste Regulations 1996	Management of Health & Safety at Work Regulations 1999
Environmental Protection (Duty of Care) Regulations 1991	Occupiers Liability Act 1957
The Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations 1998	Fire Precautions (Workplace) regulations 1997

Table 1 Regulations applicable

### Risk Assessment Criteria

The methodology for this risk assessment is based on semi-quantitative analyses of Job safety. The activity is broken down into key stages and a team of at least 3 trained and experienced people at G&P Batteries are tasked to undertake this risk assessment. The team comprises;

- Transport & Contracts Manager;
- Commercial driver who undertakes collections;
- Safety professional.

A comprehensive list of hazards are compiled and graded as high, medium or low rating with a cumulative risk rating being calculated for the whole activity based on a semi-quantitative scoring system (our risk scoring methodology can be supplied on request).

The relevant control measures are then applied and recorded, and the residual risk calculated. The residual risk is based on both the level of perceived and experienced risk to safety & health by our risk assessment team.

Our risk assessment approach is adapted from HSE's guidance HS(G) 183 "5 Steps to Risk Assessment" (1998), and "Quantified Risk Assessment" (1989).

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### General Hazards Appraisal

Behavioural Hazards are those hazards caused by the way people behave, or the way in which they could behave.

Conditional Hazards are all the other hazards – they tend to be physical hazards associated with plant/equipment, materials and the environment.

Conditional Hazards	Initial Rating	Behavioural Hazards	Initial Rating
Exposure to hazardous substances/liquids / etc... from ruptured batteries	M	Poor housekeeping & waste management creating material, physical and environmental hazards around battery storage area.	H
Release of hazardous substances to ground/water	L	Disposal of substances (other than batteries) that present a chemical hazard (corrosive, toxic, etc... materials)	H
Pressure relief valves activate on stored batteries releasing very low volumes of Toxic gases	L	Disposal of substances (other than batteries) that present a biological hazard (hyperdermic needles, body tissues, etc...)	H
Sharp parts of batteries caused by damaged batteries.	M	Biological hazards created by urination, sickness, etc... where storage units are left in public places un supervised.	H
Uneven & slippery surfaces	H	Horseplay causing contact injuries	H
Vehicle movements near to operator collecting batteries or near to stored batteries (resulting in battery spills from contact)	H	Horseplay causing environmental damage or pollution potential	H
Battery fire from short circuit of batteries	H	Unfamiliarity with hazards associated with the environment in which the batteries are stored.	H
No means of escape in the event of a fire	H	Poor emergency egress arrangements.	H
Water ingress within battery container leading to battery corrosion	M	Careless acts, e.g. poor housekeeping – batteries spilled on floor causing slip and trip hazards.	H
Biological hazards (dependant on environment)	H	Poor emergency response resulting in environmental pollution incidents	M
Poor visibility due to low lighting levels	M	Inadequate supervision and monitoring of battery storage arrangements	H
Poorly stored materials leading to slips, trips, falls, etc...	H	Failure to wear appropriate PPE when handling batteries	M
Poor access to storage units	L	Poor manual handling practises resulting in operator upper limb disorders	H
Manual handling – bulky/heavy materials	H	Improper/no use of correct tools & equipment	M
Very low or high indoor temperature	M	No notice taken of signs and labels or other information provided	H
Falling material hazards from neighbouring storage operations	H	Staff fail to follow safe systems of work/procedures	H
Exploding batteries – vehicle drives over batteries spilled on the floor	M	Members of the public disposing of lighted cigarettes or hot ash within storage container	H
Battery storage above or below ground level creating collection complexity hazards	H	No Emergency contact information or advice available in an emergency	M
Exposure to live electrical conductors (depending on location of battery storage units, i.e. near to sub-stations, rectifiers, etc...)	H	Theft of batteries or battery storage container	M
Poor stability of the battery storage container resulting in falling materials or battery spills	H	Vandalism	H
		Dumping of larger batteries outside battery storage container	H

Table 2 Principal Hazard Appraisal

Our overall Risk Rating when considering these hazards is:

<b>Likelihood rating</b>	<b>10</b> (easily foreseeable)
<b>Severity rating</b>	<b>8</b> (major injury)
<b>Frequency</b>	<b>5</b> (at least daily exposure)

**Resultant Risk rating = 400**

401	→					1500
200	→					400
140	150	160	170	180	192	
90	96	100	110	120	130	
70	72	76	80	84	88	
48	52	56	60	64	68	
24	28	32	36	40	44	
6	8	10	12	16	20	
2	4					

KEY		Priority
	Trivial	Low
	Indicates effective controls may be in place	Normal
	Indicates risks are not being adequately controlled	Medium
	Urgent additional control measures are required	High
	Consider suspending activity until additional control measures are in place	Very High

# Risk Assessment

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### Control Measures

Technical Controls	Procedural Control	Behavioural Control
Integral battery storage container provided	Collections arranged at times to minimise interactions with the public, etc...	Continuous monitoring of battery disposal to the battery storage container
Adequate ventilation in areas of work where battery containers may be stored	Battery containers stored in easy to access areas at ground level	Adequate Supervision of battery storage arrangements.
Adequate lighting provided at collection point and along egress route to collection vehicle	Store container away from direct sunlight or other sources of heat	Inform/instruct staff within a premises on the battery storage arrangements and the associated risks & controls
Pallet trucks and sack trucks provided for moving heavy materials	Ensure, so far as is reasonably practicable, that batteries are fully discharged of electrical energy.	Provide necessary information to public, taking account of how to inform children, the elderly or those that may be disabled.
Emptying battery container contents into a polypropylene, quick-draw sealable bag without having to handle container content	Provision of safety man to assist in public safety during collections (depending on sensitivity of establishment)	Training in risks, and relevant procedures.
Vehicle mounted mechanical lifting equipment	Protective clothing for skin, head, eye, foot and respiratory protection.	Collection staff to carry out workplace hazards assessment on arrival, prior to collection
Chemical spills Kits available during collections and in some cases available close to the storage bin (dependant on battery types stored)	Safety labels and/or signs on battery containers warning of particular hazards	Manual handling training for people handling battery containers
See-through containers for high risk storage areas (for monitoring contents of container)	Maintain battery containers in good condition at all times and report faults, such as broken locks or fixings	
Indoor temperature control	Security of battery storage arrangements	
Lockable containers to prevent unauthorised access	Minimise accessibility to members of the public or other vulnerable groups where practicable	
Containers fixed to walls & floors	Do not obstruct emergency egress routes or place battery containers close to emergency exits.	
Base plate for free-standing containers are large enough to prevent instability of stored containers – Bin design prevents instability.	Keep battery storage containers away from potential ignition sources	
Battery container designed to prevent people accessing battery bin contents	Provision of adequate emergency contact numbers in the event of a problem	
Fire extinguisher or other fire fighting equipment placed close to the Battery storage unit	Do not store battery containers close to access routes for vehicles, or keep within a traffic route segregation barrier	
	Strictly no handling of battery bin contents once they have been deposited.	
	Immediately clean up, or remove any spilled batteries or other materials on the floor from around battery containers, as long as it is safe to do so.	

Table 3 Principal Control Measures

Our overall Risk Rating after applying controls is:

<b>Likelihood rating</b>	<b>2</b> (Highly unlikely)
<b>Severity rating</b>	<b>5</b> (Injury)
<b>Frequency</b>	<b>5</b> (at least daily exposure)

**Residual Risk rating = 50**

401	1500				
200	400				
140	150	160	170	180	192
90	96	100	110	120	130
70	72	76	80	84	88
48	52	56	60	64	68
24	28	32	36	40	44
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KEY		Priority
Trivial		Low
Indicates effective controls may be in place		Normal
Indicates risks are not being adequately controlled		Medium
Urgent additional control measures are required		High
Consider suspending activity until additional control measures are in place		Very High