

Risk assessment
Storing Stacking of Battery Containers (Ref. RA-26 v.01)

Description / Location of the activity

Material storage on site is inclusive of batteries, aerosols, outputs from shredding facility (black mass, ferrous/non-ferrous outputs). All storage areas on site are within a bund to protect the environment from any spillages etc. Some of the material are required to be stored in specially segregated area, in particular lithium batteries, because of their high volatility. There are 4 dedicated storage buildings on site for lithium batteries, all are away from the main facility and have high fire protection systems within. 3 of the 4 building have been implemented on to site during 2023 for the proposed increased storage capacity of site to increase from currently 2000T to 7000T. All materials are stored on site in specially designed containers for that type of material, (leak proof) or stored in bags, cardboards boxes for shipping and palletised, either stored within dedicated bay or on racks within the storage building (cage for aerosols etc). The materials are moved about the site by fork lift trucks or by pallet pump trucks.

Those involved in the risk assessment

David Brookes/Steve Buckler

Assessment date

September 2023

Risk Assessor

Nicola Kerr

Next full review due

September 2024

Reviewed and updated (specify reasons)

Annual Review September 2023 (Update to include proposed increased storage tonnages)

								Person/s at risk during this activity			
	INSIGNIFICANT 1	MINOR 2	SIGNIFICANT 3	MAJOR 4	SEVERE 5	Code	Type	Number	Description		
ALMOST CERTAIN 5	MEDIUM 5	HIGH 10	VERY HIGH 15	EXTREME 20	EXTREME 25	E	Employee	4	Driver / collector, Drivers mate, Operative		
						LW	Employee		Lone working		
LIKELY 4	MEDIUM 4	MEDIUM 8	HIGH 12	VERY HIGH 16	EXTREME 20	PW	Employee		Pregnant worker		
						CO	Contractor	1	Agency supplied		
MODERATE 3	LOW 3	MEDIUM 6	MEDIUM 9	HIGH 12	VERY HIGH 15	YP	Youngster		Young person on work experience, etc.		
						LA	Employee		Less abled or disabled		
UNLIKELY 2	VERY LOW 2	LOW 4	MEDIUM 6	MEDIUM 8	HIGH 10	V	Visitor/s	1	Regulators / officials visiting site		
						CL	Clientele	1	Customer / Agent		
RARE 1	VERY LOW 1	VERY LOW 2	LOW 3	MEDIUM 4	MEDIUM 5	MP	Public		Passers by, other road users, etc.		

Hazards Identified	Who may be harmed and how?	Persons exposed (Code)	Likelihood (L) 1-5	Severity A1(S) 1-5	RISK RATING (LxS)	Controls currently in place	Post Likelihood (L) 1-5	Post Severity (S) 1-5	POST RESIDUAL RISK (LxS)	More actions required to control risk further?	Action by whom?	Action by when?	Completed?
Fire within storage area	Employees, visitors and clientele, may suffer from smoke inhalation, burns, environmental pollution, property damaged.	E V CL	3	5	15	Fire prevention plan in place and regularly practised. Each storage area has been assessed for specific tonnages along with storage plans. Each area has dedicated bays, racking where material is stored with fire protection in place, this may be in the form of fire walls or fire breaks. Each storage area has an assigned tonnage limit that is audit on a weekly basis during stock take. In the event of a fire material can be pulled from storage areas utilising plant and equipment on site. Storage areas allow access to containers with the plant on site.	2	5	10	No further action required at this time			
Incompatible materials stored together giving rise to endothermic reactions and fire	Employees may suffer from ill health, burns and smoke inhalation	E	3	5	15	Each storage area is identified by signage or permitted wastes within that area. Dedicated building are in place for specific materials. Use of trained and competent FLT drivers to access storage area. Fire detection and suppression systems available for early detection Regular inspections of stacks by supervisors and management. All storage areas monitored on a daily basis by site supervision, and weekly audit completed on emergency equipment in every storage area. Chemical areas are locked and only authorised personnel can access to store material inside and remove material. Each storage area has a in and out system therefore each material placed in to storage is signed in by an dedicated employee and recorded.	1	5	5	No further action required at this time			

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Badly stacked sacks on pallets fall	Employees, visitors and clientele, may suffer from crush injuries, or hit by falling object	E V CL	3	5	15	Monitoring of store sacks on pallets completed during a monthly visual inspection. Any corroded pallets or pallets that may look unstable are removed and re-palletised. The storage of sacks on pallets can occur within unit 8 warehouse that is fully locked and only authorised personnel are permitted to access.	2	5	10	No further action required at this time			
Damaged storage stack containers causing leakage of acid / alkali etc	Employees, visitors and clientele, may suffer from ill health due to chemical exposure and environmental pollution may occur	E V CL	3	4	12	Inspection of container before being put into storage/used - sent for repair if damaged. Defect reporting system Regular inspection of stacks by supervisors and management All storage areas within site permitted area and bunded area, where water is treated on site in the event of a spillage	1	4	4	No further action required at this time			
Palletised goods placed upon stack that does not have a flat surface or is crushed causing the upper pallet of good to become unstable	Employees, visitors and clientele, may suffer from crush injuries, struck by injuries or hit by falling object	E V CL	3	4	12	Damaged pallets must not be used, re-packing of goods required. Do not stack pallets, only suitable and compatible containers permitted to be stacked on site. Use of trained, competent, experienced FLT drivers. Reporting system in place, regular site audits undertaken Regular inspect of stacks by supervisors and management	1	4	4	No further action required at this time			
FLT or other mechanical devices striking the battery stack causing them to topple over	Employees may suffer from crush injuries, damage to property may also occur	E	3	4	12	Storage areas segregated away from pedestrian areas. Only compatible container permitted to be stacked. Damaged containers not to be stacked. Regular monitoring of the storage areas. Crash barriers in place. Use of competent FLT drivers Training, supervision, instruction of FLT and other site operatives	2	4	8	No further action required at this time			
Pedestrians and operatives being crushed by storage stacks as they are manoeuvred or by the manoeuvring FLT	Employees, visitors and clientele may suffer from crush injuries, damage to property may also occur	E V CL	4	4	16	Competent FLT drivers Designate walkways to ensure vehicle & people interaction does not occur - no battery storage areas near to walkways. FLT permitted to carry maximum 2 high stacks, if visibility reduced then to reverse and advise all within the area. No pedestrians authorised within operational yard area when FLT movement Training, supervision, instruction of FLT and other site operatives	2	4	8	No further action required at this time			
Cardboard or other deleterious material failing due to becoming wet and unstable	Employees may suffer from hit injuries from objects falling from height	E	3	3	9	All batteries stored in strong plastic or metal, meter square containers or on single pallets. All stillages to have liner over top which is shrink wrapped on, whilst containers have lidded top with pallet placed on top. During certain weather conditions, inspections completed by supervisors.	1	3	3	No further action required at this time			
Contamination of storage stacks from other waste, vermin or airborne contaminates	Employees may suffer from ill health	E	2	3	6	Regular pest control on site Inspection of all container prior to stacking/storing to ensure no contamination, containers then lidded/covered. PPE when handling battery stack	1	3	3	No further action required at this time			
Person climbing storage stacks to access upper stacks	Employees may suffer from crush injuries, falls from height	E	2	5	10	Strict instruction in place, no personnel to attempt to climb or stand on/within any container stacks on site. Training, supervision and instruction of all staff Disciplinary process Whole site covered by CCTV	1	5	5	No further action required at this time			
Poor stacking on pallets allowing items to fall from pallets	Employees, visitors and clientele may suffer from hit by injuries, slip, trip injuries and environmental pollution may occur	E V CL	2	4	8	Pallet Wrapper Machine - all pallets are shrink wrapped when the driver collects and when operatives are putting batteries in to stock awaiting shipment. Sacks put on to pallets ensure they are smaller dimensions to the pallet, repacking of sack on to pallet completed if sack is unstable / slopped whilst on the pallet, this can be done using a FLT & hooks on the sack to lift. Training, supervision, instruction to all site operatives Regular inspect of stacks by supervisors and management	1	4	4	No further action required at this time			

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Poor lighting causing FLT to stack containers unsafely	EBL employees, visitors and clientele may suffer from crush injuries, damage to property may also occur	E V CL	3	4	12	Stacking only to be completed during daylight hours. During winter months, increased monitoring of the lighting on site carried out. Full site fitted with LED lighting Daily inspections of yard by Yard Supervisor	1	4	4	No further action required at this time			
Lids being blown from containers in high winds causing struck by injuries / slip, trip hazards	EBL employees, visitors and clientele may suffer from strike and hit by injuries	E V CL	4	3	12	Battery containers stacked in layers of 4. A pallet is placed on the lid of the top containers to hold it down in different weather conditions. If weather conditions become extreme, areas will be cordoned off and stacks reduced to 2 high	1	3	3	No further action required at this time			