

MATERIAL SAFETY DATA SHEET – L84 (GHS)

Updated: 23/2/2023

SECTION I: IDENTIFICATION OF CHEMICAL PRODUCT AND COMPANY**1.1 Product Identifier**

Trade name/designation: DNT, LBT, MRX/MRXF, MPS, TEL, TFA/FG/FGC, CPS, CPHS, DCS, MSE, SHC series batteries.

1.2 Details of the supplier

Manufacturers Name: Shanghai C&D Battery Co., Ltd.
Website: www.cdtechno.com.cn





1.3 Emergency Contact

Information contact: YHI POWER PTY LTD
Address: Head Office: 20-22 Venture Way, Braeside VIC 3195
Email: inquiry@yhipower.com.au
Contact number: +61 3 9588 1888 / 0413 381 228


SECTION II: HAZARDS IDENTIFICATION

No health effects during normal use of this product. Hazardous may occur when the product is heated, oxidized or otherwise processed, damaged or subjected to misuse. Please follow manufacturer's instructions for installation, service use.

2.1 Health effect

GHS code	Hazard class/category	Hazard statements	Labels
H302	Acute Toxicity Category 4 (Oral)	Harmful if swallowed	
H314	Skin corrosion Category 1A	Causes severe skin burns and eye damage	
H335	Specific target organ toxicity, single exposure, Respiratory tract irritation Category 3	Might cause respiratory irritation	
H361	Reproductive toxicity Category 2	Suspected damaging of fertility or the unborn child	


2.2 Environment effect

GHS code	Hazard class/category	Hazard statements	Labels
H 411	Hazardous to the aquatic environment, acute hazard Category 2	Toxicity to aquatic life with long lasting effect	

2.3 Physical effect

Under abnormal use in not ventilated rooms may form explosive air/gas mixture during charging or when extreme

overcharging / Extremely flammable gas (hydrogen) / Explosive, fire, blast or projection hazard.

GHS code	Hazard class/category		Hazard statements	Labels
H203	Explosives	Division 1.3	Explosive; fire, blast or projection hazard	

2.4 hazardous display

Hazardous material	Routes of entry	Health Hazards acute	Health Hazards chronic
Sulfuric Acid	Inhalation, skin, ingestion.	Acute sulfuric acid exposure may cause irritation of the skin, corneal damage of the eyes, irritation of the mucous membranes and upper respiratory system, including the lungs.	Chronic exposure to sulfuric acid may cause scarring of skin and mucous membranes, bronchitis, contact dermatitis, and erosion of tooth enamel.
Lead	Inhalation and Ingestion. Metallic lead cannot be absorbed through the skin.	Acute lead exposure may cause GI upset, loss of appetite, diarrhea, constipation, fatigue, joint pain, and difficulty sleeping.	Chronic exposure to lead may cause anemia, kidney damage and damage to the central nervous and reproductive systems. Lead exposure may also affect developing fetuses in pregnant women.

SECTION III: COMPOSITION / INFORMATION ON INGREDIENTS

HAZARDOUS OSHA COMPONENT	CAS#	OSHA PEL	ACGIH TLV	% BY WEIGHT
*Sulfuric Acid / Battery Electrolyte 1.320 sg 40 wt %	7664-93-9	1mg/m ³	1mg/m ³ STEL	~22
*Lead/Grid	7439-92-1	50 ug/m ³	150 ug/m ³	~50
*Lead Oxide/Dioxide	1309-60-0	50 ug/m ³	150ug/m ³	~21
*Lead Sulfate/ Anglesite	7446-14-2	50ug/m ³	150ug/m ³	~1
¹ Plastic Parts	--	--	--	~6

Section 313 (40 CFR 372) Listed Toxic Chemicals are Preceded by an*

¹Composition of the plastic may vary due to different customer requirements

SECTION IV: FIRST AID MEASURES

4.1 Description of first aid measures:

Electrolyte (diluted sulphuric acid): sulphuric acid acts corrosively and damages skin

Lead compounds: lead compounds are classified as toxic for reproduction (if swallowed)

4.1.1 Electrolyte (Sulphuric acid)

after skin contact:	rinse with water, remove and wash wetted clothing
after inhalation of acid mist:	inhale fresh air, seek advice of a medical doctor
after contact with the eyes:	rinse under running water for several minutes, seek advice of a medical

after swallowing:	doctor drink lot of water immediately, swallow activated carbon, do not induce vomiting, seek advice of a medical doctor
4.1.2 Lead compounds	
after skin contact:	clean with water and soap
after inhalation:	inhale fresh air, seek advice of a medical doctor
after contact with the eyes:	rinse under running water for several minutes, seek advice of a medical doctor
after swallowing:	wash mouth with water, seek advice of a medical doctor

SECTION V: FIREFIGHTING MEASURES

Unusual Fire and Explosion Hazards:	Hydrogen and Oxygen gases are produced in cells during normal battery operation and expel into air through vent caps.
Suitable fire extinguishing agents:	CO ₂ or dry powder extinguishing agents
Unsuitable fire extinguishing agents:	Water, if the battery voltage is above 120 V
Special protective equipment:	Protective goggles, respiratory protective equipment, acid protective equipment, acid proof clothing in case of larger stationary battery plants or where larger quantities are stored.
Special Firefighter Procedures	Use Positive Pressure, self-contained breathing apparatus.
Extinguishing Media:	Dry Chemical, Foam or CO ₂
Note:	
Hydrogen Flash point: -259°C.	Hydrogen Auto ignition point: 580°C
Hydrogen Flammable Limits in Air (% by Volume):	Lower Explosion Limit (LEL) : 4.1 ; Upper Explosion Limit (UEL) : 74.2

SECTION VI: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Eye Protection	Chemical goggles, safety glasses with side shields and or a full-face shield.
Protective gloves	Rubber, PVC or neoprene
Respiratory Protection	NIOSH approved acid mist/organic vapor respirator, if OSHA PEL is exceeded.
Other Protective Equipment	Acid resistant apron or clothes.

Note: Personal Protective Equipment advice is contained in Section 8 of the SDS.

6.2 Environmental precautions

Prevent entry into waterways, sewers, basements or confined areas. Runoff from fire control and dilution water may be toxic and corrosive and may cause adverse environmental impacts.

6.3 Methods and materials for containment and cleaning up

6.3.1 For Containment	In the event of a battery rupturing; stop the leak if you can do it without risk. Absorb with earth, sand or other non-combustible material. Cautiously neutralize spilled liquid.
6.3.2 For Cleaning up	Dispose of in accordance with local, State, and national regulations.

SECTION VII: HANDLING AND STORAGE

7 Precautions for safe handling

Handling:

Keep away from heat and sources of ignition.

Wash hands thoroughly after use.

Do not use organic solvents; use only manufacturer recommended cleaners on the batteries.

Avoid sparks.

Do not remove vent caps.

Do not double stack industrial batteries, it may cause damage.

Storage:

Store batteries in a cool, dry area. Store batteries in a covered area that protects against adverse weather conditions. Protect batteries from coming into contact with conductive materials to prevent fire or battery failures. Don't store or charge batteries in temperatures under -40 F (-20o C). Keep away from fire, sparks and heat sources. Protect from damage to prevent possible leaks or spills. It is imperative that these instructions be followed if the batteries are being stored.

SECTION VIII: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Appropriate engineering controls

Store batteries with adequate ventilation. Room ventilation is also required for batteries utilized for standby power generation. Never recharge batteries in an unventilated, enclosed space.

Substance name	EC-No.	CAS-No	Description
Lead	231-100-4	7439-92-1	No exposure to lead and lead containing paste during normal conditions of use.
Sulfuric Acid	231-639-5	7664-93-9	R35: causes severe chemical burns

S2: Keep out of reach of children
S16: Keep away from sparks or naked flame, No smoking
S26: In case of contact with eyes rinse immediately with plenty of water and seek medical advice
S45: In case of accident or if you feel unwell seek medical advice immediately (show the label where possible).

8.2 Individual protection measures

Personal Protective Equipment: During installation under normal conditions there is no exposure to lead or sulphuric acid. In the event of battery breakage, exposure to sulphuric acid and lead may occur. During high rate charges or overcharging acid mist may occur.

Eye/Face Protection: Chemical goggles, safety glasses with side shields and or a full-face shield.

Protective gloves: Rubber, PVC or neoprene

Respiratory Protection: NIOSH approved acid mist/organic vapor respirator, if OSHA PEL is exceeded.

Other Protective Equipment: Acid resistant apron or clothes.

Work Practices: Use standard lead-acid battery practices. Do not wear metallic jewelry when working with batteries. Use non-conductive tools only. Discharge static electricity prior to working on a battery. Maintain eyewash, fire extinguisher and emergency communication device.

SECTION IX: PHYSICAL AND CHEMICAL PROPERTIES

Item		Lead and lead compounds	Electrolyte
Appearance	Form:	Solid	Liquid
	Color:	Grey	Colorless

Odor:	Odorless	
PH	N/A	
Melting point/freezing point.	327.4 °C(melting point)	-35 to -60 °C
Initial boiling point and boiling range.	1740 °C (lit.)	Approx. 108~114°C
Flash point.	N/A	
Evaporation rate.	N/A	
Vapor pressure. (mm Hg at 20°C)	N.A.	< 0.3 mmHg
Vapor density.(Air=1)	7.1	3.4
Density(20°C)	11.35 g/cm ³	1.2 to 1.3 g/cm ³
solubility in water :	Very low (0.15mg/l)	Fully soluble
Partition coefficient: n-octanol/water.	N/A	
Decomposition temperature.	N/A	

Lead and Lead compounds used in Lead Acid batteries are poorly soluble in water;
Lead can be dissolved in an acidic or alkaline environment only

SECTION X: STABILITY AND REACTIVITY

10.1 Reactivity:	Broken batteries may result in small amounts of spilled electrolyte. Electrolyte is a corrosive, nonflammable liquid. Electrolyte can destroy organic materials such as cardboard, wood, textiles. Electrolyte may produce hydrogen as a reaction with some metals.
10.2 Chemical Stability:	The battery and contents are stable under normal conditions.
10.3 Possibility of hazardous reactions:	Hazardous polymerization will not occur.
10.4 Conditions to avoid:	Overheating or overcharging the battery may results in acid mist and hydrogen generation.
10.5 Incompatibility (materials to avoid):	Overheating, overcharging which results in acid mist/Hydrogen generation. Strong alkaline materials, conductive metals, organic solvents, spark or open flame.
10.6 Hazardous decomposition products:	Hydrogen gas may be generated in an overcharged condition, in fire or at very high temperatures. In fire, may emit CO, CO2 and Sulfur Oxides.

SECTION XI: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:

VRLA batteries are sealed, recombinant design that require no water replacement throughout their service life, thus no contact is made with the battery's internal components or chemical hazards. Under normal use and handling, these batteries do not emit regulated or hazardous substances.

Sulfuric Acid (7664-93-9)

	Administration Route	Dose	Test Animal
LD 50	Oral	2140 mg/kg	Rat
LDLo	Unreported	135 mg/kg	Man
LC50	Inhalation	510mg/m ³	Rat

11.2 Routes of exposure:

	Acute	Chronic
Inhalation	Under normal conditions of use, no health effects are expected. Contents of an open battery can cause respiratory irritation.	Repeated and prolonged exposure may cause

		irritation.
Skin	Under normal conditions of use, no health effects are expected.	No data available
Eye	Under normal conditions of use, no health effects are expected. Exposure to dust may cause irritation.	No data available.
Ingestion	Under normal conditions of use, no health effects are expected. Lead ingestion may cause abdominal pain, nausea, vomiting, diarrhea and severe cramping.	No data available
Carcinogenicity: The International Agency on Cancer (IARCC) has classified “strong inorganic acid mists containing sulfuric acid” as a category 1 carcinogen (inhalation), a substance that is carcinogenic to humans. This classification does not apply to the liquid forms of sulfuric acid contained within the battery. Misuse of the product, such as overcharging, may result in the generation of sulfuric acid mist at high levels.		

SECTION XII: ECOLOGICAL INFORMATION

This information is of relevance if the battery is broken and the ingredients are released to environment.

12.1 Electrolyte (diluted sulphuric acid)

In order to avoid damage to the sewage system, the acid has to be neutralized by means of time or sodium carbonate before disposal. Ecological damage is possible by change of pH. The electrolyte solution reacts with water and organic substances, causing damage to flora and fauna. The electrolyte may also contain soluble components of lead that can be toxic to aquatic environments.

12.2 Lead and Lead compounds

Chemical and physical treatment is required for the elimination from water. Waste water containing lead must not be disposed of in an untreated condition. The former classification of Lead compounds as toxic for the aquatic environment R50/53 had been triggered from test results generated in the 80's for soluble Lead compounds (Lead Acetate). The hardly soluble Lead compounds such as Battery Lead Oxide were not tested at this time. Tests on Battery Lead Oxide were carried out in 2001 and 2005. The respective test results conclude that Battery Lead Oxide is not toxic for the environment, neither R50 nor R50/53 nor R51/53. From this it follows that the general classification for Lead compounds (R50/53) does not apply to Battery Lead Oxide. As the result of this the Risk Phrase R52/53 (Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment) applies to Battery Lead Oxide.

Effects of Battery Lead Oxide in the aquatic environment:

Toxicity for fish: 96 h LC 50 > 100 mg/l

Toxicity for daphnia: 48 h EC 50 > 100 mg/l

Toxicity for alga: 72 h IC 50 > 10 mg/l

The results demonstrate these Battery Lead Oxide compounds in a concentration of 100 mg/l have no adverse effect on fish and daphnia. A concentration of this Battery Lead Oxide of 10 mg/l has no adverse effect on the rate of growth and the biomass. For the classification according to Directive 67/548/EEC the most sensitive adverse effect has to be considered. As a result of the toxicity for alga at > 10 mg/l Battery Lead Oxide has to be classified according to the R-Phrases 52/53 (Harmful to aquatic organisms, may cause long term adverse effects in the aquatic environment).

SECTION XIII: DISPOSAL CONSIDERATIONS

Waste Disposal Method: Send to lead smelter for reclamation following applicable Federal, State and Local regulations. Product can be recycled along with automotive (SLI) lead-acid batteries.

Spent lead acid batteries (EWC 160601) are subject to regulation of the EU Battery Directive and its adoptions into national legislation on the composition and end of life management of batteries.

Spent Lead Acid batteries are recycled in lead refineries (secondary lead smelters). The components of a spent Lead Acid battery are recycled or reprocessed.

SECTION XIV: TRANSPORTATION AND INTERNATIONAL REGULATIONS

All SC&D batteries, when transported by air, surface or by vessel are identified as “**Battery, Electric Storage, Wet, Nonspillable, Not Regulated**”.

The battery(s) must be identified as above on the Bill of Lading and properly packaged with their terminals protected from short circuit. **NA or UN numbers do not apply.**

SC&D battery(s) warning label identifies each battery as **NONSPILLABLE**.

SC&D battery(s) preprinted cartons identify each battery as **NONSPILLABLE**.

SC&D battery(s) shipped without Dynasty cartons (bulk packed) need to be Identified as **NONSPILLABLE** or **NONSPILLABLE BATTERY** on the outer packaging.

Air: SC&D batteries meet the conditions in IATA/ICAO Special Provision A48, A67, A164 and A183.

Surface: SC&D batteries meet the conditions for DOT Haz Mat Regulations CFR-Title 49 parts 171-189.

Vessel: SC&D Batteries meet the conditions of IMDG exception 238.

SECTION XV: REGULATORY INFORMATION

Lead Acid batteries have to be marked by a crossed out dust bin with the chemical symbol for lead shown below, together with the ISO return/recycling symbol.



In addition some of the following hazard symbols described below might apply:

Corrosive



Explosive gas mixture



Read Instructions



Keep out of reach of children



No Smoking, no open flames, no sparks.



Wear Safety Goggles



15.1 STATE REGULATIONS (US):

California proposition 65 warning:

Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the state of California to cause cancer and reproductive harm. Wash hands after handling.

15.2 INTERNATIONAL REGULATIONS (Non-US):

National regulations(Canada):

Canadian Domestic Substances List (DSL):

All ingredients remaining in the finished product as distributed into commerce are included on the Domestic Substances List.

Canada NDSL:

None of the components on this SDS are listed on the Canadian NDSL

WHMIS Classifications:

Class E: Corrosive materials present at greater than 1%

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all the information required by the Controlled Products Regulations.

About Battery Handling, please see the OSHA 29 CFR 1910.268(b) as below:

910.268(b)(2)(I)

Eye protection devices which provide side as well as frontal eye protection for employees shall be provided when measuring storage battery specific gravity or handling electrolyte and the employer shall ensure that such devices are used by the employees. The employer shall also ensure that acid resistant gloves and aprons shall be worn for protection against spattering. Facilities for quick drenching or flushing of the eyes and body shall be provided unless the storage batteries are of the enclosed type and equipped with explosion proof vents, in which case sealed water rinse or neutralizing packs may be substituted for the quick drenching or flushing facilities.

Employees assigned to work with storage batteries shall be instructed in emergency procedures such as dealing with accidental acid spills.

1910.268(b)(2)(II)

Electrolyte (acid or base, and distilled water) for battery cells shall be mixed in a well ventilated room. Acid or base shall be poured gradually, while stirring, into the water. Water shall never be poured into concentrated (greater than 75 percent) acid solutions. Electrolyte shall never be placed in metal containers nor stirred with metal objects.

1910.268(b)(2)(III)

When taking specific gravity readings, the open end of the hydrometer shall be covered with an acid resistant material while moving it from cell to cell to avoid splashing or throwing the electrolyte.

SECTION XVI: OTHER INFORMATION

The information given above is provided in good faith based on existing knowledge and does not constitute an assurance of safety under all conditions. It is the user's responsibility to observe all laws and regulations applicable for storage, use, maintenance or disposal of the product. If there are any queries, the supplier should be consulted.



Tel: 1300 722 028

www.yhipower.com.au