Material Safety Data Sheet

Date of Issue : 26-6-06 **Authorised By :** Technical Manager

PRODUCT IDENTIFICATION

PRODUCT NAME : Tubular Exide Motive Power, Diesel Start, Energy Store

OTHER NAMES : Tubular Exide Motive Power, Exide Power Start, RAPS, Train lighting

PRODUCT TYPE : Flooded Lead Acid battery-Motive power, Diesel start and RAPS

UN Number : 2794 **CAS Number :** See Notes

HAZCHEM CODE : 2W **POISONS SCHEDULE No. :** S6

DANGEROUS GOODS CLASS : 8, This is classified as Hazardous. **PACKAGING GROUP :** III

PRODUCT USE : Power supply - EV, diesel locomotives and Remote areas

PRODUCT SUPPLIER DETAILS

Supplier: EXIDE TECHNOLOGIES

A.B.N.: **84 093 272 005**

ADDRESS: **Street:** 55 Bryant Street
PADSTOW
New South Wales 2211
Australia

Postal: Locked Bag 416
MILPERRA
New South Wales 1891
Australia

TELEPHONE: 61 2 9722 5700

FACSIMILE: 61 2 9774 2966

EMERGENCY TELEPHONE NUMBER: 1 800 033 111 (All Hours)

PRODUCT COMPOSITION / INGREDIANCE

MATERIAL OR COMPONENT	CAS Number	PERCENTAGE
Lead Lead Dioxide	7439-92-1 1309-60-0	40-60% 20-30%
Antimony	7440-36-0	2-6%
Tin	7440-31-5	0- 0.2%
Calcium	7440-70-2	0.02%
Arsenic	7440-38-2	0.02%
Electrolyte (Sulfuric Acid/ water Solution)	7664-93-9	26-40%
Fibre Glass		2-5%
Plastics- Polyester		1-2%
Plastics- Polyethylene	9002-88-4	2-3%
Plastics - Polypropylene	9003-07-0	5-12%

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This product is classified as Dangerous Goods for the purpose of transport by road, rail, or air. Reference must be made to the relevant regulations for the transport and storage requirements for this product or material.

PHYSICAL PROPERTIES

	Lead/Lead Compounds	Sulphuric Acid	Plastics
Appearance	Silver- grey metal, White powder, Brown	Clear liquid	Plastics sheet, rings, tubes, jar, lid
Melting Point	327 C	Liquid	NA
Boiling Point	1070C	95C- 115C	NA
Vapour Pressure	NA	17 to 11 mm HG	NA
Specific Gravity	11.34	1.230-1.350	NA
Flashpoint	NA	NA	NA
Flammability Limits	NA	NA	NA
Solubility in Water	NA	100%	NA

REACTIVITY DATA

	Lead/Lead Compounds	Sulphuric Acid	Polypropylene
Incompatibility	Strong acid, ammonium nitrate, sodium oxide, oxidants, Potassium, carbides, sulfides,peroxides, phosphorus and sulfur	Highly corrosive to most metals, carbides, chlorates , nitrates	NA
Stability	Stable	Stable	Stable
Hazardous decomposition products	Lead oxides	Sulfur dioxide, hydrogen sulfide, hydrogen and sulfuric acid mist	
Hazardous polymerisation	NA	NA	NA

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HEALTH HAZARD INFORMATION

ACUTE TOXICITY	Sulfuric acid may cause severe skin irritation, burns, and damage to cornea and possible blindness and upper respiratory irritation. Lead compounds may cause abdominal pain, nausea, headaches, vomiting, diarrhoea, severe cramping and difficulty in sleeping.
SWALLOWED	Sulfuric acid may cause severe irritation of mouth, throat, oesophagus and stomach. Lead compounds may cause abdominal pain, nausea, vomiting, diarrhoea and severe cramping. Acute ingestion should be treated by physician.
EYES	Sulfuric acid may cause severe irritation of eye, burns, cornea damage and possible blindness. If eyes get in contact with electrolyte, wash with plenty of water and continue flushing for 15 minutes.Acute ingestion should be treated by physician.
SKIN	Sulfuric acid may cause severe irritation, burns and ulceration. Lead compounds are not absorbed through the skin.
INHALED	Sulfuric acid vapours or mist may cause severe respiratory irritation. Lead dust or fumes may cause irritation of upper respiratory tract or lungs.
CHRONIC TOXICITY	Sulfuric acid may lead to scarring of cornea, inflammation of the nose, throat and bronchial tubes and possible erosion of tooth enamel. Lead compounds may cause anaemia, damage to kidneys and nervous system. May cause reproductive changes in both males and females.

FIRST AID INFORMATION

SWALLOWED	**Sulfuric acid** – Give large quantities of water or milk. DO NOT induce vomiting, then consult physician. **Lead** – Consult physician.
EYES	**Sulfuric acid**s – flush immediately with cool water for atleast 15 minutes, then consult physician. **Lead compounds** – flush immediately with cool water for atleast 15 minutes, then

	consult physician.
SKIN	**Sulfuric acid** – Flush with large amounts of water for atleast 15 minutes, remove any contaminated clothing and do not wear again until cleaned. If acid is splashed on shoes, remove and discard if they contain leather. Lead compounds are not absorbed through the skin.
INHALED	**Sulfuric acid** – Remove o fresh air immediately. If breathing is difficult, give oxygen. **Lead compounds** – Remove from exposure; gargle, wash nose and eyes and consult physician.
ADVICE TO DOCTOR	Treatment for sulfuric acid and lead.

PRECAUTIONS FOR USE

EXPOSURE STANDARDS	Threshold limit value for Metallic Lead is 0.15 mg/ cubic meter in air Threshold limit value for Sulphuric acid is 1 mg/ cubic meter in air
ENGINEERING CONTROLS	Store and handle lead acid batteries in well-ventilated areas.
PERSONAL PROTECTION	**Respiratory protection**: None required under normal conditions. If concentration of sulfuric acid mist is noticed, use respirators. **Eyes and face**: Face shields or goggles as per AS2676. **Hands, Arm, Body**: Rubber or plastic acid resistant gloves with elbow gauntlet. **Other protective clothing**: Acid resistant Apron. Under severe exposure or emergency conditions, wear acid resistant clothing and boots.
FLAMMABILITY	**Flash point**: NA **Flammability limits**: 2%- (Hydrogen gas) **Extinguishing media**: CO_2 : Foam: Dry chemicals **Special fire fighting procedures**: If batteries are on charge, turn off power. Use positive pressure, self-contained breathing apparatus. Water applied to electrolyte generates heat and causes it to splatter. Hence do not use water. Wear acid resistant clothing. Avoid contact with all short circuit across battery terminals. **Unusual fire and Explosion hazards**: Hydrogen and Oxygen gases are produced in the cells during normal battery operation or when on charge (Hydrogen is highly flammable and Oxygen supports combustion). These gases enter the air through the vent caps. To avoid risk of fire or explosion, keep sparks and other sources of ignition away from the battery. Do not allow metallic material to simultaneously contact both the positive and negative

	terminals of the batteries. By-products of some of the burnt plastics (used in the battery containers and cases) could cause serious injury or death. Breathing apparatus should be used. Follow manufacturer's instructions for installation. **Other effects of Fire or Abnormal temparature**: Sulfuric acid vapour, combustion products of Lead oxide, PVC, Polypropylene, Fibre glass, polyester.

SAFE HANDLING INFORMATION

STORAGE AND TRANSPORT	Do not place anything on the battery tops. Do not use or allow metallic items to short circuit the battery terminals. Do not cover the batteries with aluminium coated sarking. This product contains scheduled poison (S6).
SPILLS AND DISPOSAL	Remove combustible materials and all sources of ignition. Stop flow of material and contain spill by dyking with Soda ash (sodium carbonate) or Quick lime (calcium oxide) or Baking soda (Sodium bicarbonate). Carefully neutralise spill with soda ash, etc. Make certain mixture is neutral then collect residue and place in a drum or other suitable container with a label specifying "contains hazardous waste". Dispose off as hazardous waste. If battery is leaking, place battery in a heavy-duty plastic bag. Wear acid resistant boots, faceshield, acid resistant apron, and acid resistant gloves. **DO NOT RELEASE UNNEUTRALISED ACID TO SEWER.** **Waste disposal** : **Sulfuric acid**: Neutralise as described above for a spill, collect residue in a container labelled as containing hazardous waste. Dispose off as a hazardous waste. If uncertain, call the supplier. **DO NOT FLUSH LEAD CONTAMINATED ACID TO SEWER.** **Batteries**: Send to lead smelter after consulting Exide.
FIRE/EXPLOSION HAZARD	Refer to section on FLAMMABILITY.
OTHER PRECAUTIONS	Sulfuric acid is highly corrosive to most metals. Lead is not compatible with Strong acid, ammonium nitrate, sodium oxide, and oxidants. Follow supplier's instructions. Avoid naked flames and prohibit smoking, sparks, etc. from battery charging areas. Avoid mixing acid with other chemicals.
	The international agency for research on cancer (IARC) has classified "strong inorganic acid mist containing sulfuric acid" as a category carcinogen, a substance that is carcinogenous to humans. This classification does not apply to liquid forms of sulfuric acid or sulfuric acid solutions contained within a battery. Inorganic acid

SUBSIDUARY RISK	mist (sulfuric acid mist) is not generated under normal use of this product. Misuse of the product, such as overcharging, may however result in the generation of sulfuric acid mist.

Material Safety Data Sheet

Issued : 15-9-03 **Reviewed**: Jan 2007 **Authorised By :** Technical manager

PRODUCT IDENTIFICATION

PRODUCT NAME : CLASSIC, FaureX

OTHER NAMES :

PRODUCT TYPE : Flooded Lead Acid battery- Standby, UPS application

UN Number : 2794 **CAS Number :** See Notes

HAZCHEM CODE : 2W **POISONS SCHEDULE No. :** S6

DANGEROUS GOODS CLASS : 8 **PACKAGING GROUP :** III

PRODUCT USE : Power supply – Photo Voltaic application

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Arsenic	7440-38-2	0.02%
Electrolyte (Sulfuric Acid/ water Solution)	7664-93-9	26-40%
Fibre Glass		2-5%
Plastics- SAN	9003-54-7	3-10%
Plastics- Polyethylene	9002-88-4	2-3%

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Specific Gravity	11.34	1.230-1.350	NA
Flashpoint	NA	NA	NA
Flammability Limits	NA	NA	NA
Solubility in Water	NA	100%	NA

REACTIVITY DATA

	Lead/Lead Compounds	Sulphuric Acid	SAN
Incompatibility	Strong acid, ammonium nitrate, sodium oxide, oxidants, Potassium, carbides, sulfides,peroxides, phosphorus and sulfur	Highly corrosive to most metals, carbides, chlorates , nitrates	NA
Stability	Stable	Stable	Stable
Hazardous decomposition products	Lead oxides	Sulfur dioxide, hydrogen sulfide, hydrogen and sulfuric acid mist	Attacked by aromatic hydrocarbons, esters, ketones and chlorinated hydrocarbons
Hazardous polymerisation	NA	NA	NA

HEALTH HAZARD INFORMATION

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EYES	Sulfuric acid may cause severe irritation, burns, cornea damage and possible blindness. If electrolyte contacts eyes, immediately wash with large amounts of water and continue flushing for 15 mins.Acute ingestion should be treated by physician.
SKIN	Sulfuric acid may cause severe irritation, burns and ulceration. Lead compounds are not absorbed through the skin.
INHALED	Sulfuric acid vapours or mist may cause severe respiratory irritation. Lead dust or fumes may cause irritation of upper respiratory tract or lungs.
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ADVICE TO DOCTOR	Treatment for sulfuric acid and lead.

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