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MATERIAL SAFETY DATA SHEET

Date of issue: January 2008

1.0 PRODUCT AND COMPANY IDENTIFICATION

Product name Emulex®
General name Emulex® packaged / cartridged emulsion explosive
General description Water-in-oil emulsion

Product type	Packing	Product use
E100	In paper shell or clear plastic film cartridge with metal clips on both ends	For use as primer / general blasting application
E100G	In 17 mm diameter clear plastic pipe	For use in contour blasting / pre-splitting application
E150	In paper shell or yellow plastic film cartridge with metal clips on both ends	For use as primer / general blasting application
E180	In paper shell or clear plastic film cartridge with metal clips on both ends	For use in tough underwater / underground application
E300	In pink plastic film cartridge with metal clips on both ends	For use as column charge
E400	In paper shell	Permissible explosive for use in flammable, gassy, or dusty atmosphere
E700	In orange ABS plastic canister	For use in seismic operations

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2.0 **PRODUCT COMPOSITION / INFORMATION ON INGREDIENTS**

Description	Proportion
Oxidiser (Nitrate Salts, Perchlorate)	70 – 100 %
Fuel oil materials	0 – 10 %
Other components determined not to be Hazardous	Balance to 100%

All given values are approximated for the purpose of the MSDS.

3.0 **HAZARDS IDENTIFICATION**

Risk of explosion by friction, impact, supersonic shock, heat, flame or other ignition sources, especially under confinement.

Health hazard

Acute-ingestion May cause abdominal discomfort, pain, diarrhoea, vomiting and nausea.

Acute-eye May cause discomfort and impairment of vision.

Acute-skin May cause discomfort and rash for sensitive skin.

Acute-inhalation May cause nausea, giddiness, tiredness.

Other info None of the components of this material are listed as a carcinogen by OSHA.

Other health hazard information

None established.

4.0 **FIRST AID MEASURES**

Ingestion Do not induce vomiting. Rinse mouth and drink one glass of water. If vomited, lower head below hips to prevent breathing in the vomit matter. Do not attempt to give liquid to an unconscious person. Seek medical attention.

Eye Flush with copious amount of running water for a minimum of 15 minutes. Eyelids should be held open to ensure a thorough rinsing. If irritation persists, seek medical attention.

Skin	Remove contaminated clothing immediately. Wash affected area with soap and copious amount of water. If irritation persists, seek medical attention.
Inhalation	Remove patient to fresh air. Allow patient to rest in a comfortable position until fully recovered. Administer artificial resuscitation if not breathing. If symptom persists, seek medical attention.
Advice to doctor	Treat symptomatically.

5.0 FIRE FIGHTING MEASURES

It is unlikely to be a fire hazard under normal conditions. However, it will explode if suitably primed. For small fire, a fire extinguisher can be used or a heavy dousing of water is effective. For big fire, the area should be isolated and all personnel should be evacuated to a safe distance. Toxic fumes may be generated as the product decomposes.

6.0 ACCIDENTAL RELEASE MEASURES

Spill release Evacuate area of all non-essential personnel. Eliminate all ignition sources. Contain the source and spread of the spill. Make sure the spilt material does not enter any waterways or drains.

Spilt material should be scooped and placed in clean, approved containers, which are then labelled and sealed. All residues should be scraped up for disposal if possible. Inert absorbent material such as sand should be spread over the area.

7.0 STORAGE AND HANDLING

Store in a clean, dry, cool and well-ventilated magazine, in accordance with the local, state and federal laws and regulations. Store away from all ignition sources such as heat, flame and spark.

It should only be used by or under guidance of trained personnel.

8.0 EXPOSURE CONTROLS & PERSONAL PROTECTION

Engineering controls Use in well-ventilated area.

Personal protective equipment

Respirator Not required according to the conditions of use.

Eye protection Safety goggles if eye contact is likely.

Protective clothing Protective clothing if splash is likely.

Glove Impervious rubber gloves if contact with product is likely.

Flammability

Fire hazards Product is combustible. All ignition sources should be eliminated.

9.0 PHYSICAL AND CHEMICAL PROPERTIES

Appearance On exposure, product inside is grey (type with aluminium powder).
On touch, product is plasticine like and feels oily.

Melting point Not applicable

Boiling point Not applicable

Vapour pressure Not applicable

Specific gravity

	Product type						
	E100	E100G	E150	E180	E300	E400	E700
Specific gravity, g/ml	1.10 to 1.25	1.05 to 1.15	1.10 to 1.25	1.10 to 1.25	1.25 to 1.32	1.10 to 1.25	1.15 to 1.20

Flash point Not applicable

Flammability limit Not applicable

Solubility in water Insoluble but dispersible with jets of water

Other properties None established

10.0 STABILITY AND REACTIVITY DATA

Stability The product is stable under normal conditions. It may explode when subjected to supersonic shock, burning, strong energy, fire, or heavy impact, particularly when under confinement.

Conditions to Avoid Avoid contact with fire, heat and strong shock or impact, all ignition sources.

Materials to Avoid Avoid corrosives chemicals (e.g. strong acids or strong alkalis), oxidizing material, metal powder, combustible material.

Hazardous Decomposition Products Nitrogen Oxides (NO_x), Carbon Monoxide (CO)

Hazardous Polymerization Will not occur

11.0 TOXICOLOGY INFORMATION

Toxic fumes nitrogen oxides and carbon monoxide can be released on detonation and fire.

Nitrogen oxides vapour is reddish brown with acrid suffocating odour. It is poisonous, oxidising and corrosive. It may cause severe eye, skin, and mucous membrane irritation or corrosive burns. Inhalation may cause severe irritation, chemical pneumonitis and pulmonary edema. Prompt medical attention is mandatory in all cases of over exposure.

Carbon monoxide is an odourless, colourless, highly flammable and poisonous gas. Carbon monoxide acts as a chemical asphyxiant binding to the blood haemoglobin, greatly reducing the red blood cells' ability to transport oxygen to body tissues. Effects may include headaches, dizziness, convulsions, loss of consciousness and death.

12.0 ECOLOGICAL INFORMATION

Prevent contamination of waterways. Poisonous to aquatic organisms.

13.0 DISPOSAL CONSIDERATION

Wastes of matrix should be notified to supplier or disposed in blast holes by qualified personnel. Do not put remainders in a bin or to the dumping.

14.0 TRANSPORT INFORMATION

Classified as Class 1 Dangerous Goods. Transport in accordance with the local, state and federal laws and regulations.

Shipping name	Explosive, blasting, type E
General description	Water-in-oil emulsion
UN Classification	1.1D
UN Number	0241
Hazchem code	E
Poisons schedule	Not scheduled

15.0 REGULATORY INFORMATION

Classification	Based on available information, not classified as hazardous.
Risk Phrase	Risk of explosion by shock, fire or other sources of ignition
Safety Phrase	Keep and store away from combustible material. Prevent contact with skin and eyes. Rinse immediately with water and seek medical advice in case of contact with eyes. Wear suitable gloves and eye & face protection.
Poisons Schedule	Not scheduled.
SARA Title III Information	N/P
Federal Regulatory Information	N/P
State Regulatory Information	N/P

16.0 OTHER INFORMATION

DISCLAIMER

The information given should be dealt with by competent and experienced personnel in accordance with all applicable local, state, and federal regulations.

The information provided has been compiled as current and accurate as possible, according to universally known knowledge and researches. As the conditions under which the products are used are not within TKSB's control, TKSB will not be responsible for any liabilities arising from the use of the products and the information in this data sheet.

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