



MATERIAL SAFETY DATA SHEET

The format of this Material Safety Data Sheet fulfills the requirements of Chilean norm NCh 2245 Of.03

LMFO's (30-380) RM 10- RM 35

I. PRODUCT IDENTIFICATION AND SUPPLIER

Product name	LMFO's (30-380) RM 10- RM 35
Supplier	Compañía de Petróleos de Chile Copec S. A.. Agustinas 1382 Santiago - Chile.
Emergency Phones	56 (02) 675 3713
Fax	56 (02) 699 3794

II. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name (IUPAC)	Mixture of paraffinnic, cycloparaffinnic and aromatic hydrocarbons with carbon atoms heavier than C ₁₄ .
Chemical Formula	Non applicable: mixture is variable.
Synonyms	Marine fuel: special bunker for ships.
Chemical Family	
CAS Nr.	68476-33-5
UN Nr.	1268 N.O.S. Petroleum distillates N.O.S. or Petroleum Products N.O.S.
Origin and use	Petroleum distillates for marine and industrial propulsion systems.

III. HAZARDS IDENTIFICATION

Label marks	Combustible Liquid Class 3.
Hazards Identification	Health: 0 Flammability: 2 Reactivity: 0
HAZARDS FOR PEOPLE'S HEALTH:	
Effects of an acute overexposure:	Contact with the product can generate skin and respiratory system irritation.
Inhalation	Vapors can irritate mucous membranes; can produce headache, difficult breathing, loss of muscular coordination, blurred vision, asphyxia caused by lack of oxygen, and convulsions.
Skin contact	It causes irritation if the contact is prolonged.
Eye contact	It causes irritation and even ocular damages in a long contact. It can produce conjunctive irritation.
Ingestion	It causes nausea, dizziness and convulsions.
Effects of a chronic overexposure:	Respiratory and dermatological upsets, depression of the central nervous system.
Medical conditions that will be aggravated by exposition to the product	Persons who suffer chronic respiratory illnesses must not be exposed to the product.
HAZARDS FOR THE ENVIRONMENT	Toxic for aquatic organisms. A big spill can cause a severe ecological damage.
SPECIAL HAZARDS OF THE PRODUCT	Exposed to heat or flames it constitutes a moderate fire danger.



IV. FIRST AID MEASURES

In case of accidental contact with the product, follow these instructions:

Inhalation	Take the person to fresh air. If it is necessary, give him assisted breathing.
Skin contact	Wash immediately the affected area with a sustancial quantity of running water and soap. Take away the contaminated clothes.
Eye contact	Immediately wash with plenty of running water at least for 15 minutes. Include the area under the eyelids. Seek the advice of a medical doctor.
Ingestion	Do not induce vomiting. Wash the mouth and give the person 2 to 3 glasses of water (200 to 300 cc) Seek the help of a medical doctor.
Notes for the medical doctor treating the patient	In case of ingestión consider an intestinal washing, if there is no signs of damage in the stomach.

V. FIRE FIGHTING MEASURES

Extinguishing media	Dry chemical powder, carbon dioxide, alcohol foam, ignifugal covering. Don't use water as a solid stream. For small fires you can use water as high or low pressure fog.
Special procedures to fight the fire	With a tridimensional fire (or with moving combustible) mechanical foam is not effective. Clear the area withdrawing every person that doesn't work in it. If it is possible, take containers away from the area of fire. Cool with water fog, containers that have been exposed to fire.
Personal protection equipment for fighting the fire	Use respiratory protection equipment, leather gloves and safety lenses when handling minor fires. For bigger fires use firefighter garment and positive pressure self-contained breathing equipment (SCBA). Ideally these should be aluminized so they can resist high temperatures.

VI. ACCIDENTAL RELEASE MEASURES

Emergency measures to take if there is a spill of the material	Isolate the area, eliminate every posible ignition source and cut, if it is posible, additional leaks of the product. Maintain all personnel not directly related to the emergency away from the area of fire. Don't allow anyone to smoke. Stop the flow of spilled product into streams of natural water. Stop the flow of spilled product into confined spaces.
Personal protection equipment to be used in treating the emergency	Use positive pressure self-contained breathing equipment (SCBA), chemical protection clothes, rubber boots and nitrile or PVC gloves.
Measures to take to avoid damages to the environment	Put the product in closed containers to avoid his evaporation. Don't drop it into natural water flows or into sewages.
Cleaning methods	Absorb the product with sand or another neutral material. Store it in closed drums properly marked for ulterior treatment.
Residue disposal methods	Dispose of in autorized sites according with norms of the sanitary authority of the country.



VII. HANDLING AND STORAGE

Technical suggestions	Store in fresh and well ventilated areas, away from ignition and heat sources. Electrical transfer equipment and electrical equipments in work areas must be approved for areas class II (Chilean norm D.S. 90/96).
Points to consider for a safe handling	Store away from ignition sources. Don't smoke. Take appropriate measures to discharge electrostatic current generated, by connecting to earth the containers.
Specific suggestions for a safe handling	Avoid contact with the product. Don't handle or store near open flames, heat, sparks. Use no sparks tools.
Storage conditions	It is recommendable to store this combustible product in well ventilated areas, away from any other combustible or oxidant material. Safety distances are defined as a function of volume and container characteristics.
Recommended containers and inadecuated containers	Tanks, drums and containers authorized by SEC (Chilean authority). No glass containers are allowed, except for products to be used in laboratories or analysis.

VIII. EXPOSURE CONTROLS / PERSONAL PROTECTION

Measures to reduce the possibility of exposure	Store in fresh and well ventilated areas, preferably open areas. Electrical equipments must be approved for areas class II (Chilean norm D.S. 90/96).
Control parameters	Permissible Limits for Fuel Oil: TWA= 4 mg/ m3 as aerosol (ACGIH). PEL= 8 mg/ m3 as aerosol (ACGIH).
Respiratory protection	Only if Permissible Limits are surpassed. In emergency situations, use respiratory protection or positive pressure self-contained breathing equipment (SCBA).
Protection gloves	Nitrile, PVC or neoprene gloves.
Eye protection	Safety lenses, goggles or mask (Full-Face).
Other protection equipment	Protect the body with PVC apron and rubber or neoprene boots.
Ventilation	General and localized (explosion proof).

IX. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	Liquid.
Appearance and odour	Black liquid, with strong asphalt odour.
Concentration	Not applicable.
pH	Not applicable.
Decomposition temperature	No available data.
Flash point	71° C.
Selfignition temperature	407° C (765 ° F).
Explosive properties	Lower explosiveness limit = 2,0 % Upper explosiveness limit = 6,0 %.
Hazards of fire and explosion	Vapors can travel long distances, reach ignition sources and backfire to the product. Mixtures air-vapors are explosives if temperatures go over the flash point.
Vapor pressure at 20°C	6,9 Kpa at 38°C.



Vapor density	Greater than 6 (aire=1).
Density at 20°C	999,4 Kg/M3
Boiling point	Information not available.
Solubility in water and other solvents	Insoluble in water.

X. STABILITY AND REACTIVITY

Stability	Stable when kepted in closed containers, under normal conditions of temperature and pressure.
Conditions to avoid	High temperatures, sparks and fire. Container overheating can produce their violent rupture due to excessive pressure generated.
Incompatibility (materials to avoid)	Strong oxidants such as: peroxides, nitric acid and perclorates.
Dangerous products of the decomposition	On decomposing the product can generate toxic carbon oxides and oxidated hydrocarbons.
Dangerous products of combustion	Carbon monoxide y dioxide are generated. Toxic fumes of incomplete combustión.
Dangerous polimerization	It doesn't occur.

XI. TOXICOLOGICAL INFORMATION

Acute toxicity	LD 50 (oral rats)= 9 g/kg. Gastrointestinal irritation with vomits, diarrhea. In severe cases, depressor of the central nervous system.
Chronical or delayed toxicity	Repeated skin contact causes dermatitis.
Local Effects	Irritant of mucous tissues and skin.
Sensitiveness	Information not available.

XII. ECOLOGICAL INFORMATION

Stability	Stable product.
Persistence/Degradation	Degradable.
Bio-accumulation	No information available.
Effects on the environment	If it gets into natural water streams, soil or air, it contaminates them.

XIII. DISPOSAL CONSIDERATIONS

Method of disposal of the product in the residues	Dispose of the product or its residues in specially designed and appropriately authorized instalations.
Disposal of contaminated containers	It is hardly recommended its disposition of in specially designed and appropriately authorized instalations. Metallic containers can be reused after their treatment by specially authorized operators. If they are disposed of as garbage, itthey must first be decontaminated in special sites, authorized for that operation.

XIV. TRANSPORT INFORMATION

Marks	Combustible Liquid Class 3.
UN Nr	1268
Emergency Response Guide	Nr 27 (DOT) Nr 128 (GRENA)

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XV. REGULATORY INFORMATION

International norms applicable	IMDG / UN: 3141, 3271, 3375 / 1268
National (chilean) norms applicable.	NCh 382; NCh 2190; NCh 2120/03; D.S. 298; D.S. 594; D.S. 90; D.S. 379/85
Marks on label	Combustible Liquid Class 3.

XVI. OTHER INFORMATIONS

None available at this time.

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RCV/Safety Department