

Material Safety Data Sheet
According to Regulation (EC) No 1907/2006 (REACH)
RMA to RMK, IFO

1. Identification of the substance/preparation and of the company/undertaking
Identification of the substance or preparation

Fuel oil residual.

Trade name

Marine Residual Fuel Oil RMA to RML.

Bunker C, RMA 10, RMB 30, RMD 80, RME 180, RMG 180, RMG 380, RMG 500, RMG 700, RMK 380, RMK 500, RMK 700, IFO 180, IFO 380

Use of the substance/preparation

Fuel for industrial, marine and commercial boilers and furnaces; fuel for low and medium speed diesel.

Company/undertaking identification

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2. Hazards identification

This preparation is classified as hazardous according to EG No. 1272/2008 (GHS).

This preparation is classified as hazardous according to EG No. 67/548/EWG or 1999/45/EG.

Hazards characteristic

May cause cancer.

Very toxic to aquatic organisms may cause long-term adverse effects in the aquatic environment.

Informations pertaining to special dangers for human and environment

Repeated exposure may cause skin dryness or cracking.

People who suffer from skin sensitization problems, asthma, allergies, chronic or recurring respiratory illnesses should not be deployed in any process using this preparation.

Inhalation of vapour or mist may cause irritation of the respiratory system.

This material is combustible and can be ignited by heat, sparks, flames, or other sources of ignition (e.g. static electricity, pilot lights, or mechanical/electrical equipment).

Vapours of flammable solvents can accumulate in the gas phase of closed container, especially during heat treatment.

3. Composition/information on ingredients

Chemical characterization

Complex mixture of different hydrocarbons, organic nitric- and sulfur compounds. Bunker fuels varies with

the source of the crude oil and may contain sulphur derivatives and organic acids.

Fuel oil residual CAS-Nr. 68476-33-5 EINECS-Nr. 270-675-6 100 %

Carc. Cat. 2 Symb.: T R 20, 45, 48/21, 63, 66, 50/53.

4. **First aid measures** **Description of First aid measures**

General informations

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

If unconscious place in recovery position and seek medical advice.

Symptoms of poisoning may develop several hours following exposure; medical observation therefore necessary for at least 48 hours.

In case of inhalation

Remove casualty to fresh air and keep warm and at rest.

In case of inhalation of spray mist, seek medical advice.

In all cases of doubt, or when symptoms persist, seek medical advice.

Exposure to hydrogen sulphide

Casualties suffering ill effects as a result of exposure to hydrogen sulphide should be immediately removed to fresh air and medical assistance obtained without delay.

Unconscious casualties must be placed in the recovery position. Monitor breathing and pulse rate and if breathing is irregular or stopped, administer artificial respiration. Administer external cardiac massage if necessary. Seek medical attention immediately.

It is advisable that all who are engaged in operations, in which contact with H₂S may reasonably be anticipated, should be trained in the techniques of emergency resuscitation and in the care of an unconscious patient.

In case of skin contact

Wash immediately with: Water and soap.

Do not wash with: Solvents/thinner.

In case of contact with molten product, cool skin area rapidly with cold water.

Do not peel solidified product off the skin.

Burns caused by molten material must be treated clinically.

Medical advice must be obtained urgently if product under high pressure has been injected through the skin.

In case of eye contact

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately.

If hot material enters the eye, flood immediately with cold water for 10 minutes to dissipate the heat, if possible, ensuring eyelids are held open. Take the casualty to hospital for examination and treatment without delay.

In case of ingestion

Do NOT induce vomiting.

If accidentally swallowed rinse the mouth with plenty of water (only if the person is conscious) and obtain immediate medical attention.

Information to physician

a.) Symptoms

Unconsciousness; dyspnoea; headache; dizziness; nausea

b.) Potential hazards

Depression of the central nervous system; Pulmonary oedema. The onset of pulmonary oedema may be delayed for 24 to 48 hours in case of hydrogen sulphide intoxication.

c.) Treatment

Treat symptomatically.

Where appropriate artificial ventilation.

Regulation of the blood circulation, possible shock treatment.

Additional Information

Other recommendations

The odour of hydrogen sulphide (H₂S) gas is offensive and similar to rotten eggs. H₂S gas deadens the sense of smell, even at low concentrations. DO NOT depend on odour to detect presence of gas.

Warning: Rescue of overexposed persons should be attempted only after notifying others of the emergency and only if appropriate personal protective equipment and positive pressure self-contained breathing apparatus (SCBA) is available.

Self-protection of the first aider

First aider: Pay attention to self-protection!

5. Fire-fighting measures

Extinguishing media

Suitable: Foam; extinguishing powder; carbon dioxide (CO₂); sand.

Unsuitable: Full water jet.

Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases

Nitrogen oxides (NO_x); Carbon monoxide; aldehyde; Sulphur dioxide (SO₂).

Informations for fire-fighters

Special protective equipment for fire-fighters

In case of fire: Wear self-contained breathing apparatus and fire-resistant clothing.

Additional information

Do not inhale explosion and combustion gases.

Burning produces heavy smoke.

Use water spray jet to protect personnel and to cool endangered containers.

Avoid spraying directly into storage containers because of the danger of boil-over.

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

Fire class

DIN EN 2: B

6. Accidental release measures

Personal precautions

Keep unprotected people away and stay on the upwind side.

Provide adequate ventilation.

Special danger of slipping by leaking/spilling product.

Remove all sources of ignition.

Wear personal protection equipment.

See protective measures under point 7 and 8.

Environmental precautions

Recovery of large spillages should be effected by specialist personnel.

Cover drains. Do not allow to enter into surface water or drains.

Do not allow to enter into soil/subsoil.

Prevent spread over a wide area (e.g. by containment or oil barriers).

Make sure spills can be contained (e.g. sump pallets or kerbed areas).

Methods for cleaning up

Treat the recovered material as prescribed in the section on waste disposal.

Take up mechanically. Remove from the water surface (e.g. skimming, sucking).

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).

Do not wash product into drainage system. Clear contaminated areas thoroughly under observing environmental regulations.

Additional information

Any spillage should be regarded as a potential fire risk. In the case of spillage at sea approved dispersants may be used where authorised by the appropriate government/regulatory authorities. In the event of spillages contact the appropriate authorities.

7. Handling and Storage

7.1. Handling

Advice on safe handling

Persons with a history of asthma, allergies, chronic or recurrent respiratory disease should not be exposed to any process in which this product is used.

Protective measures

Do not breathe vapour/spray/mist.

All work processes must always be designed so that the inhalation of vapours or spray/mist and the contact with skin and eyes is excluded.

Always close containers tightly after the removal of product.

Avoid exposure - obtain special instructions before use.

Use only in well-ventilated areas.

Only use the material in places where open light, fire and other flammable sources can be kept away.

Wear personal protective clothing (see chapter 8).

Technical measures

Floors should be impervious, resistant to liquids and easy to clean.

Measures required to protect the environment

Protect drains and sewers from entry of the product.

Specific requirements or handling rules

The floor should be leak tight, jointless and not absorbent.

Suitable materials for container/equipment: Stainless steel; Polytetrafluoroethylene (PTFE)

Unsuitable materials for container/equipment: Polyethylene (PE).

Precautions against fire and explosion

Flammable vapours can accumulate in head space of closed systems.

Take precautionary measures against static discharges.

Keep away from sources of ignition - No smoking.

7.2. Storage

Technical measures and storage conditions

Store and dispense only in well ventilated areas away from heat and sources of ignition. Never cut, weld, solder or braze empty containers.

Store and use only equipment/containers designed for use with this product.

Hints on joint storage

Keep away from: Oxidising agents

Do not store together with: Food and feedingstuffs

Keep container tightly closed in a cool, well-ventilated place.

Further information

If loading- or transportation-temperature is higher than 15 °C below the flash point, take measures against

fire and explosion. In case of doubt arrange measurement of flash point.

Empty packages may contain some remaining product. Retain hazard warning labels on empty packages as a guide to the safe handling, storage and disposal of empty packaging.

7.3.) Specific Uses

Do not enter storage tank without breathing apparatus unless the tank has been well ventilated and the tank atmosphere has been shown to contain hydrocarbon vapour concentration of less than 1 % of the lower flammability limit than an oxygen concentration of at least 20 % volume.

8. Exposure controls/Personal protection

8.1. Exposure limit values

To date, no national critical limit values exist.

Components with occupational exposure limit resp. biological occupational exposure limits requiring monitoring:

Hydrogen sulphide (H₂S) CAS-No.: 7783-06-4

Recommended monitoring procedures: 5 ml/m³

8.2.) Exposure controls

Occupational exposure controls

Respiratory protection

If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be worn.

According to experience this refers to the following tasks: Cleaning work.

Suitable respiratory protection apparatus: Gas filtering device (DIN EN 141). Use only respiratory protection equipment with CE-symbol including four digit test number.

Observe the wear time limits according GefStoffV in combination with the rules for using respiratory protection apparatus (BGR 190).

Hand protection

Tested gloves must be worn by short-term hand contact.

Suitable gloves type: NBR (nitrile rubber).

Unsuitable material: Leather; thick fabric.

Before using check leak tightness / impermeability.

For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Eye protection

Suitable eye protection where eye contact can accidentally occur: Eye glasses with side protection.

Protective clothing

Suitable protective clothing: Chemical protection clothing; Safety shoes.

Protective clothing should be regularly inspected and maintained; overalls should be dry-cleaned, laundered and preferable stashed after use.

When handling with chemical substances, protective clothing with CE-labels including the four control digits or comparable must be worn.

Remove heavily contaminated clothing and wash underlying skin.

General health and safety measures

Work in well ventilated zones or use proper respiratory protection.

Avoid contact with skin, eye and clothing.

Remove contaminated, saturated clothing. Wash contaminated clothing prior to re-use.

Thorough skin-cleansing after handling the product.

Apply skin care products after work.

Street clothing should be stored separately from work clothing.

9. Physical and chemical Properties

9.1. General informations

Physical state:

Liquid, viscous

Colour:

dark brown to black

Odour:

characteristic mineral oil odour

9.2. Safety relevant basis data

pH value:		Not applicable.
Pour point:		-10 to 30 °C *
Flash Point:	ASTM D 93	> 60 °C
Auto Ignition temperature:		> 200 °C
Vapour pressure:		< 0,4 mbar
Density at 15 °C:	ASTM D 1298	max. 1.010 kg/m ³ *
Water solubility at 15 °C:		Insoluble
Soluble in:		Alcohol
Partition coefficient:		No data.
n-Octanol/Water (log Po/w):		No data.
Kinematic viscosity at 50 °C:	ASTM D 445	10 – 700 mm ² /s *
Explosive limits:	lower	0,7 % Vol. in air
	upper	5,0 % Vol. in air

* Data dependant on particular blend. For further information see ISO 8217:2010 Petroleum products – Fuels (class F) – Specifications of marine fuels

9.3. Other informations

Combustible liquid.

10. Stability and Reactivity

Chemical stability

Stable at ambient temperatures.
Possibility of hazardous reactions
Hazardous reactions will not occur.

10.1. Conditions to avoid

In case of exceeding the storage temperature: Danger of fire.

10.2. Incompatible materials

Strong oxidising agent.

10.3. Hazardous decomposition products

Decomposition under formation of: Hydrogen sulfide (H₂S).
Thermal decomposition products will vary with conditions.
Overheating in storage may cause partial vapourisation and decomposition with the production of toxic hydrogen sulphide gas (H₂S).
Incomplete combustion will generate smoke, carbon dioxide and hazardous gases, including carbon monoxide.

11. Toxicological information

11.1. Acute Toxicity

Acute oral toxicity:	LD50 (rabbit): > 2.000 mg/kg
Acute dermal toxicity:	LD50 (rat): > 2.000 mg/kg
Acute inhalative toxicity:	LC50 (rat): > 5 mg/m ³ (gas)

May be toxic by inhalation when hydrogen sulphide (H₂S) is present in the vapour.

Skin corrosion/irritation

Will cause burns if hot material contacts skin. Prolonged or repeated skin contact may eventually result in dermatitis or more serious irreversible skin disorders including cancer.

Serious eye damage/irritation

Conjunctival redness. Will cause burns if hot material contacts eyes.

Irritation to respiratory tract

May be toxic by inhalation when hydrogen sulphide is present in the vapour. Hydrogen sulphide gas may in addition produce nausea, headache, dizziness, loss of consciousness and death. The inhalation of vapour, mists or fumes over long periods may be hazardous.

Dusts generating during the removal of ash deposits from engine/boiler combustion surfaces or exhaust spaces, will be harmful if inhaled and may cause nausea and eye, nose and throat irritation. Repeated contact may result in serious irreversible disorder.

11.2. Sensitation

No data available.

11.3. Repeated dose toxicity (sub-acute, sub-chronic, chronic)

Prolonged or repeated skin contact may eventually result in dermatitis or more serious irreversible skin disorders.

11.4. CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

Prolonged or repeated skin contact may cause cancer.

11.5. Experiences made in practice

No data.

11.6. Additional informations

Hydrogen sulphide can also paralyse the olfactory system (150 – 200 ppm) making it impassible to detecting this odour as a warning of its presence

12. Ecological information

12.1. Ecotoxicity

Aquatic toxicity

Acute fish toxicity: 10 – 100 mg/l

Long term toxicity to fish: No data.

Acute daphnia toxicity: No data.

Chronic daphnia toxicity: No data.

Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired. May cause long term adverse effects in the aquatic environment.

12.2. Mobility

In case of a penetration into the soil the product is mobile and may contaminate the groundwater. This material may accumulate in sediments.

12.3. Persistence and degradability

Not persistent. Not readily biodegradable.

12.4. Bioaccumulative potential

No indication to bioaccumulation potential.

12.5. Results of PBT assessment

This substance does not meet the criteria for classification as PBT or vPvB.

12.6. Further ecological information

Discharge into the environment must be avoided.

12.7. Additional Information

No data.

13. Disposal considerations

Appropriate disposal/product

Dispose of waste according to applicable local, state, and federal regulations.

Appropriate disposal/package



Contaminated packages must be completely emptied and can be re-used following proper cleaning.
Non-contaminated packages may be recycled.

List of proposed waste codes/waste designations in accordance with EWC

EWC-Codes: 16 07 08
Waste name: Wastes, containing oil.

14. Transport information

ADR/RID/ADN/IMDG

UN-No.:	3082		
Class(es):	9		
Packing group:	III		
Proper shipping name:	ENVIRONMENTALLY HAZARDOUS LIQUID, N.O.S. (Heavy fuel oil)		
Marine Pollutant:	yes		
EmS-No.	F-A, S-F		

15. Regulatory information

15.1. Chemical Safety Assessment

Chemical safety assessments for substances in this preparation were not carried out.

15.2. Labelling

Labelling (Regulation (EC) No 1272/2008)

Hazard components for labelling

Acute Toxicity inhalative, 4
Carc. 1B
Reprod. toxicity d, 2
TOST 2
Aquatic Chronic 1

Signal word

Danger.

Hazard pictograms



GHS07



GHS08



GHS09

Hazard Statements

H332; H350; H361d; H373; H410

Precautionary Statement

P201; P202; P281; P308+P313; P391; P405; P501

Health properties

EUH066

Labelling (67/548/EEC or 1999/45/EC)

Hazard symbols and hazard statements of dangerous substances and preparations



Carc. Cat. 2

R-phrases

R20	Harmful by inhalation
R45	May cause cancer.
R48/21	Harmful: danger of serious damage to health by prolonged exposure in contact with skin
R63	Possible risk of harm to the unborn child
R66	Repeated exposure may cause skin dryness or cracking.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

S-phrases

S45	In case of accident or if you feel unwell, seek medical advice immediately. (Show the label where possible.)
S53	Avoid exposure - obtain special instructions before use.

15.3. Other regulations (EU)

Authorisation and /or registration on use

Authorisation: Combustible.

Restriction on use: No data.

Other EU regulations

Informations according 1999/13/EC about limitation of emissions of volatile organic compounds (VOC guideline): This chemical is a VOC according to 99/13/EC.

16. Other information**Relevant R-, S-, H- and P-phrases (Number and full text)**

R20	Harmful by inhalation
R45	May cause cancer.
R48/21	Harmful: danger of serious damage to health by prolonged exposure in contact with skin
R66	Repeated exposure may cause skin dryness or cracking.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
S45	In case of accident or if you feel unwell, seek medical advice immediately. (Show the label where possible.)
S53	Avoid exposure - obtain special instructions before use.
H332	Harmful if inhaled
H350	May cause cancer.
H361d	Suspected of damaging the unborn child
H373	May cause damage to organs through prolonged or repeated exposure
H410	Very toxic to aquatic life with long lasting effects.
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P281	Use personal protective equipment as required.
P308+313	IF exposed or concerned: Get medical advice/attention.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulation (to be specified).
EUH066	Repeated exposure may cause skin dryness or cracking

Recommended restrictions on use

For industrial purposes only.

Data change compared with the previous version.

Adaption according European Chemicals Regulation (REACH) 1907/2006/EC.

Data sheet issuing division

United Bunkers BVBA

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The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.