SAFETY DATA SHEET
MARINE FUEL (RMG 380)
According to Regulation (EU) No 2015/830

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier
   Product name  MARINE FUEL (RMG 380)
   Synonyms    Bunker Fuel Oil

1.2. Relevant identified uses of the substance or mixture and uses advised against
   Identified uses Used as a fuel in ships.

1.3. Details of the supplier of the safety data sheet
   Supplier    OMV PETROL OFİSİ A.Ş.
               Ayazağa Eski Büyükdere Cad.
               No:33-37 B Blok 34398
               Maslak-Istanbul/TURKEY
               Tel: +90 212 329 1500
               Fax: +90 212 329 1896
               www.poas.com.tr
               info@poas.com.tr

   Contact Person 0 800 211 02 29
                   0 555 675 55 55
                   info@poas.com.tr

1.4. Emergency telephone number
   POAŞ: +90 212 329 17 79 (working hours)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture
   Classification (EC 1272/2008)  Physical and Chemical Hazards  Not classified.
                                      Human health          Acute Tox. 4 - H332; Carc. 1B - H350; STOT RE 2 - H373;
                                      Repr. 2 - H361; EUH066
                                      Environment          Aquatic Acute 1 - H400; Aquatic Chronic 1 - H410

2.2. Label elements
   Label In Accordance With (EC) No. 1272/2008

   Signal Word  Danger
   Hazard Statements
                 H332  Harmful if inhaled.
                 H350  May cause cancer.
                 H361  Suspected of damaging fertility or the unborn child.
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H373 May cause damage to organs «thymus, blood» through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.
EUH066 Repeated exposure may cause skin dryness or cracking.

Precautionary Statements
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe vapours.
P273 Avoid release to the environment.
P280 Wear protective clothing and gloves.
P301+312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P331 Do NOT induce vomiting.
P302+P352 IF ON SKIN: Wash with plenty of water.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P501 Dispose of contents/container in accordance with national regulations.

2.3. Other hazards
In case of contact with hot product can burn. This material can contain hydrogen sulphide (H2S), a very toxic and extremely flammable gas. Vapours containing hydrogen sulphide may accumulate during storage or transport and may also be vented during filling of tanks. Hydrogen sulphide has a typical "bad egg" smell but at high concentrations the sense of smell is rapidly lost, therefore do not rely on sense of smell for detecting hydrogen sulphide.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

<table>
<thead>
<tr>
<th>Name</th>
<th>EC No.</th>
<th>CAS No.</th>
<th>Index No</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel oil, residual</td>
<td>270-675-6</td>
<td>68476-33-5</td>
<td>649-024-00-9</td>
<td>%100</td>
</tr>
</tbody>
</table>

Composition Comments
The data shown are in accordance with the latest EC Directives.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General information
General first aid, rest, warmth and fresh air. Get medical attention if any discomfort continues.

Inhalation
Move into fresh air and keep at rest. Rinse nose and mouth with water. If necessary, should be applied artificial respiration and heart massage. If there should be given oxygen. Get medical attention if any discomfort continues.

Ingestion
Immediately rinse mouth. Keep person under observation. Do not induce vomiting.
If vomiting occurs, keep head low. Transport immediately to hospital and bring along these instructions.
If you experience any of the following symptoms at first 6 hours, contact the nearest health center: high temperature above 37° C, shortness of breath, tightness in chest or persistent cough or wheezing.

Skin contact
Immediately remove contaminated clothing. Wash off promptly and flush contaminated skin with water.
Promptly remove clothing if soaked through and flush skin with water.
Large quantities: Remove contaminated clothing. Flush skin thoroughly with water. Get medical attention if any discomfort continues.
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Eye contact
Make sure to remove any contact lenses from the eyes before rinsing. Promptly wash eyes with plenty of water while lifting the eye lids. Get medical attention promptly if symptoms occur after washing.

4.2. Most important symptoms and effects, both acute and delayed

Inhalation  : Upper respiratory tract irritation, cough.
Ingestion : May be fatal if swallowed
Skin contact : Cause redness and irritation.
Eye contact : Eye irritation, redness, lacrimation.

4.3. Indication of any immediate medical attention and special treatment needed
Treat Symptomatically. Inhalation of H2S is collapsed respiratory system. May cause coma and death. If pulmonary edema occurs, patients should be kept under observation for 48 hours.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media
Extinguishing media
Use: Foam. Carbon dioxide (CO2). Dry chemicals, sand, earth, water mist.
Unsuitable extinguishing media DO NOT use water jet.

5.2. Special hazards arising from the substance or mixture
Unusual Fire & Explosion Hazards
No data available.
Specific hazards
Result of thermal decomposition may occur fume, carbon oxides and organic compounds with low molecular weight compounds which are not yet considered. Sulfur oxides (SOx). Hydrogen Sulphide (H2S)

5.3. Advice for firefighters
Special Fire Fighting Procedures
Dike and collect extinguishing water. Keep away all non-emergency personnel from fire area. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. Fires in enclosed places should be extinguished by trained personnel wearing protective clothing and an oxygen mask.
Protective equipment for fire-fighters
Self contained breathing apparatus and full protective clothing must be worn in case of fire.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures
Avoid contact with the substance has been spilled or released. Comply with all relevant local and national regulations. Evacuate the area of all non-essential personnel. Provide adequate ventilation. Do not breathe vapour or mist. Shut off leaks, if possible without personal risk.

6.2. Environmental precautions
Use appropriate container to avoid environmental contamination. Prevent spreading or entering to drains, ditches or rivers using sand, earth or other appropriate barriers. Try to distribute gas or direct the flow to a safe location for example using fog sprays.

6.3. Methods and material for containment and cleaning up
Eliminate all ignition sources. Stop leak if without risk. May be in liquid, semi solid and solid forms depending on its temperature. Large spills must remain in foam cover until danger is over.
Use a non-combustible material such as vermiculite, sand or earth to absorb the product and place into a container for later disposal. Wash the area with soap and water. Spills and contaminated materials are collected from the work area as soon as possible and placed into a suitable container and ingredients are indicated on the container.
Must be treated by trained personnel using oxygen mask due to H2S can be spread from spilled hot liquid in closed area. Recollecting of the spilled product must be performed by specialist staff. To prevent spreading to water must be used barriers and recollected the product on water surface. Product is heavy and can be difficult to collect. Please contact with experts in case of spills.

6.4. Reference to other sections

For personal protection, see section 8.
See section 11 for additional information on health hazards.
For waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Avoid inhalation, contact with eyes and skin. Use only in well-ventilated areas. It should be stored in tanks designating according to the product. Storage tanks should be labeled and should be kept closed when out of use. Do not remove the warning signs since some products may be present in empty tanks. If the concentration of hydrocarbon vapor is more than 1%, oxygen concentration is less than 20% in the tank should not be entered without oxygen mask. In closed area, because of present H2S, there is life-threatening.

7.2. Conditions for safe storage, including any incompatibilities

Provide good ventilation in the work environment and avoid inhalation of vapor formed during use. Avoid contact with skin and observe good personal hygiene. Avoid contact with eyes. To prevent eye contact goggles or face shield should be used. Do not eat or drink while using. Disposal clothes should be used.

Light hydrocarbons have flammability through they are collected at the top of the storage tank. Even at temperature lower than normal flashpoint, may create flammable / explosion hazard. (Note: Flash Point, should not be seen as a safe zone about the possibility of igniting the vapors in the tank headspace.) Therefore it is necessary to discharge the static electricity. Measures should be taken against the ignition source (cigarettes, static electricity, hot surfaces, grinding, …) while filling and discharge. Equipments such as pumps etc. must be earthed or transmission cables must be connected each other by a cable to avoid accumulation of static electricity. There is flammable and explosion risk if the product contact with hot surfaces. The contaminated cloth, paper and other materials must be disposed of after use without accumulation. Despite the possibility of the empty tanks containing product vapor should not be done cutting, welding, soldering processes.

7.3. Specific end use(s)

The identified uses for this product are detailed in Section 1.2.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Exposure</th>
<th>Value</th>
<th>Population</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel oil, residual</td>
<td>DNEL</td>
<td>Short-term (15 min) - inhalation</td>
<td>4700 mg/m³</td>
<td>Workers</td>
<td>Systemic</td>
</tr>
<tr>
<td>Hydrogen Sulphide</td>
<td>DNEL</td>
<td>Long-term (8 hours) - dermal</td>
<td>0.065 mg/kg bw/day</td>
<td>Workers</td>
<td>Systemic</td>
</tr>
</tbody>
</table>

ACGIH : American Conference of Industrial Hygienists
TWA = Time Weighted Average
STEL = Short-term exposure limit

DNELs (Derived No Effect Level)
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<table>
<thead>
<tr>
<th></th>
<th>Long-term (8 hours) - inhalation</th>
<th>Workers</th>
<th>Systemic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.12 mg/m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Long-term (24 hours) - oral</td>
<td>0.015 mg/kg bw/day</td>
<td>Consumers</td>
</tr>
</tbody>
</table>

8.2. Exposure controls

Protective equipment

Process conditions
The level of protection and types of necessary controls will vary depending upon potential exposure conditions. Appropriate measures include: use of isolated systems as far as possible. Provide adequate ventilation to control exposure rules / airborne concentrations below the limits. Local exhaust ventilation is recommended. Eyewash and body showers for emergency use.

Engineering measures
Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limit is not exceeded.

Respiratory equipment
In places where adequate control airborne concentrations to protect workers' health, use respiratory protective equipment selected according to the specific conditions related and appropriate to local regulations. Contact with respirator suppliers. Use appropriate positive pressure breathing apparatus where it is not appropriate for air-filtering respirators (e.g. at confined space where airborne concentrations are high, where present risk of oxygen deficiency). In place of using air filter breathing apparatus, select an appropriate combination of mask and filter. All respiratory protection equipment and using of them must be in accordance with local regulations.

Hand protection
It is important personal hygiene to ensure effective hand care. Gloves should be worn only on clean hands. After using gloves, hands should be washed and thoroughly dried. The use of a non-perfumed moisturizer is recommended. Suitability and durability of a glove depend on using e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, using expertly in the fingers and hands. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Select gloves tested according to a relevant standard (eg Europe EN 374, US F739). In case of prolonged or frequent exposure, nitrile gloves (Permeation time> 240 minutes) might be more appropriate to use. Neoprene or PVC gloves may be used to protect against incidental contact / splash.

Eye protection
Chemical splash goggles (chemical monogoggles). Approved by European Standard EN 166

Hygiene measures
DO NOT SMOKE IN WORK AREA! Wash your hands in each work shift and before eating, smoking and before going to the toilet. Wash promptly if skin becomes contaminated. Remove all contaminated clothing immediately. When using do not eat, drink or smoke.

Skin protection
Protective clothing should be worn.

Environmental Exposure Controls
In the discharge of exhaust air containing vapor local rules on emission limits for volatile substances must be complied.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>Black</td>
</tr>
</tbody>
</table>
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Odour
Hydrocarbon Odor.

Boiling point
No data available.

Density
0.991 kg/l max. @15 °C  TS1013 EN ISO 3675

Viscosity
380 cSt 50 °C TS1451 EN ISO 3104

Flash Point
60 °C min. ASTM D 93

Auto-ignition temperature
No data available.

9.2. Other information
No information required.

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity
There are no known reactivity hazards associated with this product.

10.2. Chemical stability
Stable under normal temperature conditions and recommended use.
Stable under the prescribed storage conditions.

10.3. Possibility of hazardous reactions
Will not polymerise.

10.4. Conditions to avoid
Avoid heat, sparks, open flames and other ignition sources.

10.5. Incompatible materials
Avoid contact with strong reducing agent (oxidizing).

10.6. Hazardous decomposition products
Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.
Thermal decomposition products varies depending on conditions. If storage tank heats up, increase H2S gas.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute Toxicity
Fuel oil, residual (CAS: 68476-33-5)

Acute Toxic Dose 1 – LD 50
>2000 mg/kg (oral - rat)

Acute Toxic Doz 2 – LD 50
>2000 mg/kg (dermal - rabbit)

Acute Toxic Conc.– LC 50
10-20 mg/l/4hrs (inh. (vapours)- rat)

Serious eye damage / irritation
In case of accidentally eye contact causes temporary blindness.

Skin Irritation/Corrosion
Skin contact with hot product creates skin burns. Prolonged or repeated contact can cause skin diseases and skin cancer due to containing Polycyclic Aromatic Hydrocarbons.

Germ cell mutagenicity:
Mutation studies in test tube, showed that mutating events associated with 4-6 cyclic polycyclic aromatic content.
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Carcinogenicity:
May cause cancer.

Reproductive Toxicity – Fertility/ Development
Suspected of damaging fertility or the unborn child.

Specific target organ toxicity - single exposure:
No data available.

Specific target organ toxicity - repeated exposure:
May cause damage to organs «thymus, liver» through prolonged or repeated exposure.

Inhalation
In case of mist or vapour inhalation, eyes, nose and throat are irritated. Inhalation is dangerous due to \( \text{H}_2\text{S} \) and PCA.

Ingestion
It is harmful if swallowed in small doses. If swallowed a greater amount causes nausea and diarrhea. If exceed to lungs damages during vomiting.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity
Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Spillages prevent the transfer of oxygen by forming a film layer on the water surface.

Fuel oil, residual (CAS: 68476-33-5)
- LL 50, 96 Hrs, Fish 79 mg/l Acute, OECD 203
- NOEL 28 Days, Fish 0,1 mg/l Chronic
- EL 50 48 Hrs, Daphnia 2 mg/l Acute, OECD 202
- NOEL 21 Days, Daphnia 0,27 mg/l Chronic

12.2. Persistence and degradability
This product is soluble in the soil without harming the environment.
Volatile components in the product have the photochemical ozone formation potential.

12.3. Bioaccumulative potential
Accumulates in soil.

12.4. Mobility in soil
Products insoluble in water. Some components of the product collapse the water system, the product spread on the water surface. Volatile components of the product will be dispersed into the atmosphere.

12.5. Results of PBT and vPvB assessment
Not contain any components considered as PBT and vPvB

12.6. Other adverse effects
Toxic to aquatic life with long lasting effects. Spills of petroleum products is often dangerous for the environment. Volatile components in the product have the photochemical ozone formation potential.

SECTION 13: DISPOSAL CONSIDERATIONS

General information
Disposed of as hazardous waste. Waste must be treated as the product itself.

13.1. Waste treatment methods
Empty containers, dispose of waste and residues in accordance with legislation of the local authority.
Environmental manager must be informed of all major spillages.
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Make sure containers are empty before discarding. Empty containers must not be burned because of explosion hazard. Please recycle empty pack in accordance with legislation of the local authority. Do not re-use empty containers. Some products may remain in empty containers. Do not perform heat treatment without erased or removed danger signs or labels from empty containers.

SECTION 14: TRANSPORT INFORMATION

General
This substance/mixture may be classified as hazardous. However, it may be dispatched as non-hazardous substance in cases when the packaging is under limited / exceptional quantity. Please follow the relevant regulations.

14.1. UN number
UN No. (ADR/RID/ADN) 3082
UN No. (IMDG) 3082
UN No. (ICAO) 3082

14.2. UN proper shipping name
Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

14.3. Transport hazard class(es)
ADR/RID/ADN Class 9
ADR/RID/ADN Class 9: Miscellaneous dangerous substances and articles.
ADR Label No. 9
IMDG Class 9
ICAO Class/Division 9

14.4. Packing group
ADR/RID/ADN Packing group III
IMDG Packing group III
ICAO Packing group III

14.5. Environmental hazards
Environmentally Hazardous Substance/Marine Pollutant Yes.

14.6. Special precautions for user
Quantities Limit 5L
EMS F-A, S-F
Emergency Action Code •-3Z
Hazard No. (ADR) 90
Tunel kısıtlama kodu (E)

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
No data available.
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SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Uk Regulatory References
Chemicals (Hazard Information & Packaging) Regulations.
Highly Flammable Liquid Regulations 1972.
Fire precautions Act 1971.

Environmental Listing
No listing noted.

Statutory Instruments
Export of Dangerous Chemicals Regulations.

Approved Code Of Practice
Safety Data Sheets for Substances and Preparations.

EU Legislation

15.2. Chemical Safety Assessment
No chemical safety assessment has been carried out.

SECTION 16: OTHER INFORMATION

Revision Comments
This form is designed for the first time for this product.

Issued By
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www.crad.com.tr bulent@crad.com.tr Tel: +90 216 335 4600

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