

HEAVY FUEL OIL

Issued on: 1999-12-10

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Product Name: **HEAVY FUEL OIL**

1. Substance and Company Identification

1.1 Product identifier

Trade Name: **Heavy fuel oil : R2, R3, Z (low-sulphur; high-sulphur)**
Name according to 67/548/EEC: ES 270-675-6 Fuel oil, residual; Heavy fuel oil
Other names: TOT-R2 M; TOT-R2 V; TOT-R3 M; TOT-R3 V; TOT-Z M TOT-Z V;
Black oil, Bunker oil
Marketing authorisation number: **01-2119474894-22-0086**

1.2 Relevant identified uses of the substance and uses advised against

Fuel oil is used as a heating medium in a wide variety of industrial segments.
Heavy fuel oil shall not be used for other purposes not specified by a relevant process documentation.

1.3 Details of the Supplier of the Material Safety Data Sheet

1.3.1 Business Name and Identification No.

ČESKÁ RAFINÉRSKÁ, a.s.	Company ID: 62741772
Záluží 2	Tax ID: CZ62741772
Litvínov	www.ceskarafinerska.cz
Post Code 436 70	E-mail: info@crc.c

1.3.2 Place of Business

Litvínov Refinery	Kralupy Refinery
P. O. BOX 47	P. O. BOX 96
436 01 <u>Litvínov</u>	278 01 <u>Kralupy n/Vlt.</u>
Phone: +420 476 163 567	+420 315 718 500
Fax: +420 476 165 086	+420 315 718 640
www.crc.cz	info@crc.cz

1.3.3 Person in Charge of the Material Safety Data Sheet

Ing. Václav Pražák	Phone: +420 476 164 308
	E-mail: vaclav.prazak@crc.cz

1.4 Emergency Phone Number

1.4.1 TRINS (Transport Information and Emergency System)

It provides around-the-clock expert as well as practical assistance in handling emergency situations in connection with the transport and storage of hazardous chemical substances in the territory of the Czech Republic. The assistance is provided via fire brigade operational centres or via UNIPETROL RPA, s.r.o. Litvínov - the regional centre number 1 + the national coordination centre TRINS.

TRINS Contact: Mgr. Jaroslav Porteš; phone: +420 476 165 253, E-mail: jaroslav.portes@unipetrol.cz

1.4.2 Toxicological Information Centre

Address: Na Bojišti 1, 120 00 Prague 2
Telephone: +420 224 919 293, +420 224 915 402

Information on Health Risks Only - Acute poisoning of people and animals.

2. Hazard Identification

2.1 Substance Classification

2.1.1 According to Regulation (EC) No. 1272/2008

Heavy fuel oil (R2, R3, Z) is classified as a Category 1B carcinogen, which can cause cancer, as a Category 2 toxic substance for reproduction, which can have impact on fertility or an unborn child, and a STOT RE2 substance, which can harm organs in case of extended or repeated exposure. Heavy fuel oil is deleterious if swallowed. Heavy fuel oil is very harmful for the environment and very detrimental to water and soil.

2.1.2 According to Council Directive 67/548/EEC

Heavy fuel oil (R2, R3, Z) is classified as a Category 2 carcinogen, and Category 3 reproduction substance, which can harm an unborn child. Vacuum distillate is deleterious if swallowed or in case of repeated contact with skin. Heavy fuel oil is very harmful for the environment and very detrimental to water and soil.

2.2 Label Elements

2.2.1 According to Regulation (EC) No. 1272/2008



Hazard Indication: GHS07

GHS08

GHS09

Signal Words:

Danger (Dgr)

Hazard Phrases (H-phrases):

H332; H350; H361; H373; H410

Additional Hazard Information:

EUH 066

Instruction for safe handling (P-phrases):

P201; P260; P273; P281; P308+P313; P501

2.2.2 According to Council Directive 67/548/EEC



Hazard Indication:

N

Xn

Specific Risk Level (R-phrases):

R20; R45; R48/21; R50/53; R63; R66

Instructions for Safe Handling (S-phrases):

S23; S24; S36/37; S45; S51; S53; S61

2.3 Other Hazards

2.3.1 PBT Information

According to the criteria of the Annex XIII to the Regulation no. 1907/2006, heavy fuel oil, being a Category 2 carcinogen, meets the criteria T pursuant to the Clause 1.3 of the Annex mentioned above.

2.3.2 Other Hazardous Impacts

Heavy fuel oil is a flammable fluid with a flash point above 70 °C. Heavy fuel oil vapours form an explosive mixture with air.

3. Composition / Information on Ingredients

3.1 Preparation Composition, Concentration Limits and Ingredients Classification

The product contains the following hazardous substances:

<i>Substance (name)</i>	<i>Content (% V/V)</i>	<i>Number CAS</i>	<i>Number ES.</i>	<i>Registration number</i>
Fuel oil, residual; Heavy fuel oil	> 99	68476-33-5	270-675-6	01-2119474894-22-0086

3.2 Chemical Specification

Heavy fuel oil is a mixture of hydrocarbons of petroleum origin, with a boiling point above 350 °C.

4 First aid instructions

4.1 General instructions

When handling the product, it is necessary to observe all the requirements related to health and safety at work in compliance with the applicable legislation and this Material Safety Data Sheet.

In the case of risk of unconsciousness, transport in the recovery position.

4.2 Inhalation Hazards

Remove to fresh air, provide rest, prevent from walking. If breathing has stopped, apply mouth-to-mouth resuscitation. Seek medical attention promptly.

4.3 Contact with skin

Wash skin with water and soap, rinse, change clothes.

4.4 Contact with Eye

Flush eyes carefully with plenty of water and obtain medical attention.

4.5 Ingestion

Give water in case of ingestion. Do not induce vomiting. Seek medical attention promptly.

5 Fire Fighting Measures

5.1 Suitable Extinguishing Media

Foam, powder, carbon dioxide.

5.2 Unsuitable extinguishing media

Water (only suitable for cooling).

5.3 Special Hazards

Product vapours form an explosive mixture with air. It burns with a sooty flame in air. Carbon monoxide may be released.

5.4 Special Protective Equipment for Fire Fighters

Fire-resistant clothing, self-contained breathing apparatus.

6 Accidental Release Measures

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

Prevent contamination of clothes and shoes, prevent skin and eye contact. To escape a contaminated area, use a respirator fitted with an organic vapour cartridge. Do not smoke. Remove all potential sources of ignition. Evacuate all persons who are not participating in salvage operations.

6.2 Environmental Precautions

Prevent further leakage. Guard the area. Do not drain into sewers. Prevent entry into soil and water.

6.3 Methods and Material for Containment and Cleaning Up

Depending on the situation, drain or absorb into a suitable porous material and dispose of in compliance with the applicable waste legislation.

6.4 Reference to Other Sections

See sections 8 and 13

7 Handling and Storage

7.1 Measures for Safe Handling

When handling hazardous chemical substances and chemical preparations, everybody is obliged to protect human health and the environment and observe the warning symbols of hazards, standard phrases marking the degree of risk and standard instructions for safe handling.

7.2 Conditions for Safe Storing of Substances and Mixtures, including Incompatible Substances and Mixtures

The ČSN 65 0201 standard applies to storage. The premises must be equipped in accordance with ČSN 75 3415. Keep in a well-ventilated area away from ignition sources. Electrical equipment must conform to the respective regulations. Protect from electrostatic charges. Do not smoke.

7.3 Specific Final Use

Heavy fuel oil is mainly used as a heating medium in a wide variety of industrial segments. It may only be used for such purposes and in such facility that is approved for its use. Never drain into sewers.

8 Exposure Controls / Personal Protection

8.1.1 According to Government Resolution no. 361/2007 Coll.

		mineral oils (aerosol)	
PEL	mg/m ³		5
NPK-P	mg/m ³		10

8.1.2 DNEL according to CSR

	in workplace	population	
acute inhaling exposure	4 700	N/A	mg/m ³ /15 min

8.2 Exposure Controls

General safety and sanitary precautions: never eat, drink or smoke when working with heavy fuel oil. Before meals and drinks and after work wash the skin with warm water and soap and apply a suitable moisturizing cream.

8.2.1 Employee Exposure Controls

<i>Respiratory protection:</i>	Respirator with cartridge against organic gases and vapours of organic substances.
<i>Eye protection:</i>	Chemical type goggles.
<i>Hand protection:</i>	Safety gloves.
<i>Skin protection:</i>	Protective clothing

8.2.2 **Environmental Exposure Controls**

See also Clauses 2.1, 6.2 and 16.3.

9 Physical and Chemical Properties

9.1 **Basic Physical and Chemical Properties**

<i>Physical state (at 20°C):</i>	viscous liquid to semi-solid paste-like substance
<i>Colour:</i>	dark brown to black
<i>Odour:</i>	characteristic petroleum odour
<i>Density at 15°C:</i>	900 to 1050 kg/m ³
<i>Boiling point range:</i>	> 350°C
<i>Relative vapour density:</i>	approx. 6 (air =1)
<i>Solubility in water:</i>	negligible
<i>Vapour pressure at 20°C:</i>	< 0.01 kPa
<i>Flash point:</i>	> 70°C
<i>Concentration explosion limits:</i>	lower: 0.5 % (V/V) upper: 6.5% (V/V)
<i>Maximum Experimental Safe Gap</i>	> 0.9 mm

9.2 **Additional information**

<i>Pour point:</i>	0 to 60°C
<i>Ignition point:</i>	> 100°C
<i>Self-ignition temperature:</i>	approx. 250°C
<i>Viscosity/100°C:</i>	approx. 10 to 75 mm ² /s

10 Stability and Reactivity

10.1 **Reactivity**

The product is stable at normal use conditions.

10.2 **Chemical stability**

The product is stable at normal use conditions.

10.3 **Possibility of Hazardous Chemical Reactions**

When burning with limited air carbon monoxide can be released.

10.4 **Conditions to Avoid**

Concentrations within explosion limits, presence of ignition sources, contact with naked flames.

10.5 **Incompatible Materials**

Oxidizing agents.

10.6 **Hazardous Decomposition Products**

None under normal conditions; incomplete burning can produce carbon monoxide and soot.

11 Toxicological Information

11.1 Acute toxicity

Low acute hazard.

11.2 Skin Causticity / Irritation

Slightly irritating to skin.

11.3 Serious Damage / Irritation to Eyes

Not irritating to eyes.

11.4 Respiratory / Skin Sensitisation

In long-term and intense contact with skin the skin gets dry and irritated (dermatitis).

11.5 Mutagenic Impacts in Elementary Cells

N/A.

11.6 Carcinogenicity:

Category 2 carcinogen.

11.7 Reproductive Toxicity

Adverse impact on unborn child.

11.8 STOT - Single Exposure

N/A.

11.9 STOT - Repeated Exposure

N/A.

11.10 Inhalation Hazards

N/A.

12 Ecological Information

12.1 Toxicity

Fish:	LL50	79	mg/l/96 h
Invertebrates:	EL50	2	mg/l/48 h
Algae:	EL50	0.75	mg/l/72 h

12.2 Persistency and Degradability

Due to slight solubility in water, persistency in organisms is not assumed.

Difficult to degrade.

12.3 Bio-Accumulative Potential

Assessment of representative hydrocarbon structures indicates some structures, which can meet the B criteria, but none, which could meet vB criteria.

12.4 Mobility in Soil:

Not expected.

12.5 PBT Assessment Results

No hydrocarbon structures indicating compliance with the criteria for PBT or vPvB substances have been identified.

According to the criteria in the Regulation Annex XIII, heavy fuel oil, being a Category 2 carcinogen, meets the criteria T pursuant to the Clause 1.3 of the Annex mentioned above.

12.6 Other Adverse Effects

It forms a continuous layer on water surfaces preventing access of oxygen.

It does not contain substances that deplete the ozone in accordance with the Montreal Protocol and its Copenhagen Amendment.

13 Disposal Considerations

13.1 Legal Regulations on Wastes

In accordance with the Act No. 185/2001 Coll., on wastes, as amended, including related regulations and provisions, the product is classified as follows:

Waste type code according to the inventory: **13 07 01 (in sorbent 15 02 02)**
Waste category: **N**

13.2 Substance Disposal

Wastes and unused residues are disposed of in compliance with the applicable legislation on wastes, usually by incineration in the reserved incinerators. Dumping is inappropriate.

13.3 Contaminated Container Disposal

Heavy fuel oil is usually supplied in railway or road tank cars. Decontamination and disposal of these containers follows the applicable ADR/RID regulations.

14 Transportation

The product is usually transported using railway or road tank cars.

Nomenclature and labelling in accordance with the European Agreement on Dangerous Goods RID/ADR as amended:

ENVIRONMENTALLY HAZARDOUS, LIQUID, J.N. ENVIRONMENTALLY HAZARDOUS	Hazard ID No.: 90 UN No.: 3082	Classification Code: M6 Class: 9 Packing Group: III
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15 Regulatory Information

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

- Act No. 258/2000 Coll., on public health protection, as amended, including the related regulations and provisions
- Act No. 262/2006 Coll., the Labour Code, as amended, including the related regulations and provisions
- Government Regulation No. 361/2007 Coll., on Occupational Safety, as amended, including the related regulations and provisions

15.2 Chemical Safety Assessment

Has been performed.

15.3 Other Regulatory Information

15.3.1 Act No. 86/2002 Coll., on air conservation

The product is not a volatile organic compound (VOC) in accordance with Act No. 86/2002 Coll., on air conservation, as amended, including the related regulations and provisions.

15.3.2 ČSN 65 0201 Flammable Liquids – Plants and Storage Facilities

In accordance with ČSN 65 0201, the product is classified as Class III flammability product.

15.3.3 ČSN 33 0371 Non-explosive Electrical Equipment – Explosive Mixtures – Classification and Test Methods

In accordance with ČSN 33 0371, the product is classified in the T3 temperature class and the IIA explosion group.

16 Other Information Applying to the Dangerous Chemical Substance or Preparation

16.1 Information on Changes

All changes in this safety data sheet were made in accordance with the new data on substance hazardness gained during its registration process and in accordance with the requirements of the regulation no. 1907/2006/EC and the regulation no. 1272/2008.

16.2 Used literature

- Regulation (EC) No. 1907/2006 of the European Parliament and the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), as amended, including related rules and regulations
- Regulation of the European Parliament and of the Council (EC) no. 1272/2008 dated 16 December 2008 on classification, labelling and packaging of substances and mixture, as amended, including related rules and regulations
- Act No. 86/2002 Coll., on air conservation, as amended, including the related regulations and provisions
- Act No. 111/1994 Coll., on road transport, as amended, including the related regulations and provisions (ADR)
- Act No. 185/2001 Coll., on wastes, as amended, including the related regulations and provisions
- Act No. 254/2001 Coll., Water Act, as amended, including the related regulations and provisions
- Act No. 258/2000 Coll., on public health protection, as amended, including the related regulations and provisions
- Act No. 262/2006 Coll., the Labour Code, as amended, including the related regulations and provisions
- Act No. 266/1994 Coll., on railways, as amended, including the related regulations and provisions (RID)
- Act No. 356/2003 Coll., on chemical substances and chemical preparations, as amended, including the related regulations and provisions
- Government Regulation No. 361/2007 Coll., on Occupational Safety, as amended, including the related regulations and provisions
- ČSN 33 0371 Non-explosive Electrical Equipment – Explosive Mixtures – Classification and Test Methods
- ČSN 65 0201 Flammable Liquids – Plants and Storage Facilities
- ČSN 65 7991 Petroleum products – Fuel oils – Technical requirements and test methods
- ČSN 75 3415 Protection of Water from Petroleum Products – Facilities for Petroleum Products Handling and Storage

16.3 List of Used R-Phrases and H-Phrases, S-Phrases and P-Phrases

16.3.1 Standards Phrases for Specific Degree of Risk (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
R50/53	Highly toxic to aquatic organisms, may cause long-term adverse effects in aquatic environment
R63	Possible risk of harm to the unborn child
R66	Repeated exposure may cause skin dryness or cracking

16.3.2 Hazard phrases (H-phrases):

H332	Harmful by inhalation
H350	May cause cancer
H361	Suspected of damaging fertility or the unborn child
H373	May cause damage to organs through prolonged or repeated exposure
H410	Highly toxic to aquatic life with long lasting effects.
EUH 066	Repeated exposure may cause skin dryness or cracking

16.3.3 Standard Instructions for Safe Handling (S-Phrases)

S23	Do not breathe vapours/aerosols
S24	Avoid contact with skin
S36/37	Wear suitable protective clothing; Wear suitable gloves
S45	In case of an accident or if you feel unwell, seek medical advice immediately (show the label where possible)
S51	Use only in well-ventilated areas.
S53	Avoid exposure - obtain special instructions before use; S23; S24; S29; S36/37; S43; S61 Avoid release to the environment. Refer to special instructions or Safety data sheets

16.3.4 Instructions for Safe Handling (P-phrases):

P201	Obtain special instructions before use
P 260	Do not breathe vapours/aerosols
P273	Avoid release to the environment.
P281	Use personal protective equipment as required
P308+P313	IF exposed or concerned: Get medical advice/attention
P501	Dispose of container in accordance with current legislation

16.4 Training Instructions

Trainings are carried out in accordance with the requirements of the Labour Code and Act No. 258/2000 Coll.

16.5 Other Information

The information contained in this Material Safety Data Sheet applies to the specified product only and is based on our current knowledge and experience and need not be comprehensive. The user is responsible for the proper handling of the product in accordance with the applicable legislation.