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1. IDENTIFICATION OF THE SUBSTANCE & IDENTIFICATION OF THE COMPANY

Name of product : **LOTOS IFO 380**

Substance registration code: Name and registration number of the substance will be available upon registration

Application:

- for use in engines with automatic ignition
- for boilers used in maritime and inland navigation

Company identification

Grupa Lotos S. A.
80-718 GDANSK, ul. Elbląska 135
Phone: 058-308-71-11, fax: 058-308-88-38
www.lotos.pl
reach@grupalotos.pl

Emergency phone number

LOTOS Fire Brigade and Plant Alarm Center: 058-308-81-99; 058-308-81-09 *business hours only*

2. HAZARDS IDENTIFICATION

The product classified as **dangerous substance**.

Classification of the product and hazard identification have been done according to classification criteria specified in regulations listed in sec. 15, item 3 and 4, based on the analysis of test results and literature data base (sec. 16, item [3]).

The product has been classified as **toxic**:

- Carcinogenic, category 2; may cause cancer (R45)

In view of Note H and literature data (sec. 16, item [3]) the product has been classified as:

- harmful to environment: toxic to water organisms and may cause long-term unfavourable changes in water environment (R52/53);
- in case of repeated exposure may lead to skin dehydration or skin cracking (R66);
- Mutagenic, cat. 3: possible risk of irreversible health effects (R68);
- may irritate respiratory tract, if in the form of oil mist, hot fumes, or swallowed. Investigations carried out for similar products have not shown effects adverse to eyes or have shown occurrence of mild irritation.

Classification due to the physicochemical properties:

- in case of spillage of product under high pressure or contact with hot surface the product vapours emitted or mist may pose ignition or explosion hazard;
- in case of failure of machines operating under high temperatures and pressures the product may penetrate the skin to the subcutaneous layers;
- work with a hot product poses the hazard of scalding.

Complementary information on potential hazards to the human health and the environment has been discussed further in this Data Sheet.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Dangerous components, ranges of concentration in the compound and classification numbers:


Number			Concentr [% v/v]	Name of substance	Substance classification
reg.*	CAS	WE			
N/A	68476-33-5	270-675-6	100%	Fuel oil, residual oil Heavy fuel oil	Carcinogenic, Cat. 2; R45 Note** H

* the registration number will be available after registration of the substance by the producer;

** substantiation related to an appropriate note has been presented in sec. 2.

Note! A list of symbols and R terms showing the danger category and kind of hazard, including their full descriptions, has been specified in sec. 16.

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4. FIRST AID MEASURES

General recommendations

In each case presented below, when the symptoms do not resolve it is necessary to **immediately** call a doctor or take the injured to hospital. Product label or package must be presented.

If the injured remains unconscious, **do not administer** anything orally and put the person in recovery position. Keep the injured in a quiet place, control his breath and pulse. If the injured person stays conscious, do not administer any milk, fat or alcohol. In each specific case proceed as described below.

After inhalation

If harmful influence of fumes on the injured is observed, help him out or carry him out from the hazardous place into the fresh air. Remove contaminated clothing. Keep the injured in a quiet place and keep him warm (covered with blankets). Control the breath and pulse. Administer oxygen, if breathing troubles occur. If breathing stops, apply artificial respiration with the help of the Single Patient Use Resuscitator. This should be carried out upon removal of any foreign objects and mucus from the oral cavity of the injured. Apply heart massage, if necessary.

In case of contact with skin

Remove contaminated clothing. Wash the affected skin area, and, if needed, the whole body thoroughly with water and soap, provided there are no burns with hot product. It is **forbidden** to use any organic solvents for washing, such as kerosene, light distillates or petrol. If contact of the hot product with skin occurred, burnt site should be immersed **immediately** in cold water or put under a jet of cold running water for at least 10 minutes. If the product penetrated subcutaneous tissues under pressure, provide immediate medical help.

After contact with eyes

Take off the contact lenses immediately and wash the eyes with large amounts of water for at least 15 minutes (the eyelids folded backward). If only one eye is contaminated, protect the other eye against contamination when washing. Avoid the use of intense jet of running water, which could damage the cornea.

Note! Persons that might be subject to eye contamination should be instructed on the necessity and manner of immediate eye washing.

After swallowing

Do not induce vomiting, as the risk of product penetrating to the respiratory tract occurs. It may cause damage to the lungs, which requires immediate treatment.

If the oral cavity is contaminated, rinse it thoroughly with water, until the taste of the product disappears. When the injured is conscious, give him about 200 ml (glass) of liquid paraffin to drink.

In case of vomiting put the injured face down on the ground in order to reduce the risk of product penetration to bronchi and lungs. Call a doctor or take the injured to hospital as quickly, as possible, show the product package or label.

Note for the physician: Stomach lavage in an unconscious patient should be carried out via the stomach probe, after previous insertion of an endotracheal tube. Heart beat should be monitored. Symptomatic treatment should be instituted.

5. FIRE FIGHTING MEASURES

Basic rules of proceeding in case of fire

- call the fire brigade immediately,
- inform the vicinity about the fire,
- ensure free evacuation path,
- remove from the hazard area all persons not involved in fire fighting,
- tanks exposed to fire or high temperatures should be cooled from a safe distance with water,
- do not allow penetration of effluents from fire extinguishing into sewage system and water and secure contaminated means used for fire fighting.

Appropriate fire extinguishing means

Carbon dioxide, fire foam resistant to alcohol influence, fire-extinguishing steam.


Inappropriate fire extinguishing means

Dense jets of water (water can only be used for cooling hot surfaces).

Particular hazards due to the physicochemical properties of the product

Foaming or splatter occur when hot product comes in contact with water.

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Gases and fumes produced during fire are heavier than air and may cumulate in terrain depressions, propagate just over the ground away from the source of fire and reignite. When vapours of the substance are ignited by sparks or hot air, a danger of flame recoil appears. The values of the physicochemical parameters have been specified in sec. 9.

Personal protective equipment for firemen

The firemen should be provided with protective clothing of anti-electrostatic variety, protective gloves, protective goggles adhering tightly to the face and equipment isolating the respiratory tract (breathing apparatus with an independent source of air, absorbing equipment with a multi-gas absorber) An explosimeter or indicator tubes should be used prior to fire fighting. In case of fire hazard a heat-resistant face protection shield should additionally be used.

6. ACCIDENTAL RELEASE MEASURES

Note! Fire hazard area.

General information

- Secure immediately the source of spillage: close the liquid outflow, seal the leaking spot.
- Ensure free evacuation path.
- Call rescue squads – fire brigade and police.
- Evacuate from the hazard area all persons not involved in the rescue operation.

Individual precautions

- Avoid, as far as possible, inhalation of vapours and direct contact with the liquid.
- Use of protective clothing is recommended (sec. 8).
- Operations of removal of the effects of a breakdown should be carried out by persons trained and provided with a personal protective equipment (sec. 5).

Precautions concerning the environmental protection

- A damaged package should be placed in an emergency package.
- Limit the spillage spread (on land – with embankments around the area; on water – with barriers).
- Prevent oil from entering sink basins and water reservoirs.
- In case of underground water contamination notify the appropriate authorities.

Cleaning methods

*Note! Such materials as rags, paper and similar materials, soaked with the product pose fire hazard. Thus, these materials should be utilized safely rather than be **allowed to accumulate** (sec. 13).*

Cover the surface of the leakage with foam and keep it so until the rescue squads take over the responsibility.

Minor leakages of the product should be collected into appropriate containers with the help of non-flammable sorbent (for instance: on land – soil, sand, on water – floating sorbent) (sec. 13).

7. SUBSTANCE HANDLING AND STORAGE

Note: The product contains residual amounts of hydrogen sulfide. However, during storage hydrogen sulfide may accumulate in the top part of the tank, reaching concentrations hazardous to human health and life.

7.1 Product handling

General rules and regulations concerning the occupational health and safety as well as fire fighting should be observed when handling the product.

These operations should be carried out in well ventilated rooms. Contact of the product with skin and eyes should be avoided.

Release to the environment should be avoided. It is forbidden to dump the product to the sewage system.

Complementary information and the personal protective equipment have been presented in para. 8.2.1.

7.2 Storage of the product


Note! Tanks exposed to fire or high temperature may explode.

The product may only be stored with materials of the same hazard class, far from materials with properties of oxidizers as well as from acids and bases that might cause tanks corrosion. Do not store the product close to food and feeding stuff.

Certified and properly marked packages or closed steel containers protecting the product against water absorption and contamination should only be used for storage, according to binding regulations.

The drums and containers should be vertically positioned, secured against overturning, shocks or mechanical damage, protected against heating.

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Storage should be cool, well ventilated, with duct ventilation and vent holes in the top and bottom part of the room. Standard safety measures should be adopted to protect the place against electrostatic discharges. Install electric equipment in explosion proof execution, with bridging and grounding.

7.3 Specific applications of the product: no data available.

8. EXPOSURE CONTROL AND PERSONAL PROTECTION

8.1 Limiting values of exposure MPC (legal basis – sec. 15, items **Błąd! Nie można odnaleźć źródła odwołania., Błąd! Nie można odnaleźć źródła odwołania.**):

	MPC (mg/m³)	MPC instant (mg/m³)	MPC thresh.	Notes
Mineral oils (liquid phase of aerosol)	5	10	-	Not applicable - when no mists or fumes are produced
Kerosene	100	300	-	
Toluene	100	350	-	
Hydrogen sulfide	10	20	-	
Polycyclic aromatic hydrocarbons (PAHs)*	0.002	-	-	

* - as a sum of products of concentrations and cancerogenicity factors of 9 carcinogenic PAHs

- **DNEL:** no data available
- **PNEC:** no data available

8.2 Exposure control

8.2.1. Control of exposure in the working environment

- Proceed in accordance with regulations concerning air cleanliness monitoring and e.g. in accordance with the following Polish Standards:
 - *PN-Z-04008-7:2002* "Principles of air sampling in a working environment and interpretation of the results";
 - *PN-Z-04108-6:2006* "Air cleanliness protection. Oil content testing. Mineral oils (mist) assaying at workplaces by the method of UV absorption spectrophotometry";
 - *PN-Z-04108-5:2006* "Air cleanliness protection. Oil content testing. Mineral oils. Assaying the liquid phase of mineral oils by the method of infrared absorption spectrophotometry"
- Do not allow developing in air of substance components concentrations exceeding normative hygienic values.
- Use overall ventilation of compartments as well as local exhaust ventilation removing vapours from the emission place. Overall ventilation exhausts should be located in the upper part of the compartment and at the floor; local ventilation exhausts should be placed in the working plane or below it. Local ventilation is indispensable where mists and fumes develop.
- Observe the occupational health and safety regulations:
 - it is forbidden to eat or drink at a workplace; hands should be washed each time after finishing the work (wash the whole body, if necessary. Hot water and soap should be used for washing. **Do not** use organic solvents;
 - do not use the product close to ignition sources and hot surfaces, avoid open flame, do not smoke, do not use sparking tools and clothing from tissues susceptible to electrification;
 - keep the protective clothing clean.

Protection of the respiratory tract

Does not require any special protection, however the product should not be inhaled. If the risk of contact with concentrated vapour occurs or the risk of creating the oil mist, a protective mask with a gas filter type A should be used.

Hand and skin protection

Coated protective gloves, coated protective clothing, coated protective shoes.

Protection of eyes and face


Safety goggles, tightly fitted.

8.2.2. Environment exposure control:

The permissible level of oil-derived hydrocarbons in the atmospheric air and permissible contamination of inland surface waters have not been defined.

The permissible content of oil-derived hydrocarbons in effluents released to water and soil is equal to **5 mg/l** [for refinery effluents] or **15 mg/l** for other industrial effluents [sec. 15 ! **Error Reference cannot be found** item 20].

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Note! It is an obligation of the employer to know and use in practice provisions of the laws concerning the environmental protection, water law and rules of collective water supply and sewage draining off. The employer should also observe legal provisions regarding waste management, as presented in sec. ! **Error Reference cannot be found.**

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. General information:

Form:	- brown-black liquid, - at a temperature below about 30°C may have the form of a solid
Odour:	characteristic

9.2. Important information concerning the health, safety and environment:

pH:	not applicable
Temperature (at 1013 hPa):	
- boiling [°C]:	>180
- flow [°C]:	< 30
- ignition [°C]:	≥62 (closed melting pot)
- spontaneous ignition [°C]:	no data available
Flammability (solid, gas):	flammable
Explosive properties:	does not have explosive properties
Oxidizing properties:	no data available
Vapour pressure at 20 °C [hPa]:	>20 ¹⁾
Product density at 15 °C [g/cm³]:	>0.991
Solubility:	
- in water:	insoluble
- in organic solvents:	soluble in a majority of organic solvents
n-octanol/water partition coefficient (log K_{ow}):	2.7 - 6 ¹⁾
Kinematic viscosity at 50 °C [mm²/s]:	<380
Vapour density relative to air:	no data available
Volatility:	no data available

9.3. Other information:

- mixing capability:	no data available
- solubility in fats:	no data available
- electric conductivity:	no data available
- melting point:	no data available

¹⁾ no data available for that product; literature data for similar products (sec. 16, item [2]) are shown in the table

10. STABILITY AND REACTIVITY

The product is stable in recommended conditions

10.1. Conditions to be avoided

In explosive atmosphere avoid ignition sources and heat influence.

10.2. Agents to be avoided

Contact with strong oxidizers should be avoided.

10.3. Dangerous products of decomposition

Thermal decomposition of substances of which the product is composed may occur at high temperatures. The nature of the resulting compounds will depend on decomposition conditions. Gases and fumes may be released, such as carbon oxides, sulfur oxides, nitrogen oxides and hydrocarbons.


11. TOXICOLOGICAL INFORMATION

According to regulations provided in sec. 15, items 3 and 4, the product has been classified as dangerous.

Effect on the respiratory tract

The product has not been classified as irritating to the respiratory tract, although low concentrations of the vapour may slightly irritate the respiratory tract. Higher concentrations may cause coughing, headache and dizziness, nausea, difficulty breathing, sometimes

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psychomotoric disorders, weakening, retrosternal pain, drowsiness, memory troubles, nervousness; toxic pneumonia may develop. At high concentrations loss of consciousness, convulsions, and respiratory failure may occur. In high concentrations loss of consciousness, convulsions, respiratory insufficiency may occur.

Direct contact with respiratory tract by suction is little probable (sec.9), however in case of accidental ingestion respiratory tract irritation, vomiting may occur. In case of ingestion of larger quantities – acute pulmonological conditions may occur.

Effect on the alimentary system due to inhalation

Inhalation of fumes may cause irritation to the alimentary system.

Effect on the skin

A direct, prolonged and frequent contact with the liquid or a repeated exposure may cause skin irritation and its drying up or fissuring. Prolonged exposure of skin to highly concentrated fumes of the product may cause skin irritation due to possible condensation of the fumes on the skin.

Effect on the eyes

A contact with the product may lead to irritation of eyes and conjunctivitis.

Remote effects of exposure:

The product classified as category 2 carcinogen. Therefore the product may cause cancer Due to the chrysene (PAH) content above 1% the product has been classified as a mutagen of category 3 – it presents a possible risk of irreversible health deterioration.

Subject to regulations contained in sec. 15, ! **Error Reference cannot be found.** item 12.

Acute toxicity: no data available

Additional toxicological information: no data available

12. ECOLOGICAL INFORMATION

12.1. Ecotoxicity: no specific data available

The product has been classified, based on the literature data (sec. 16, item [3]), as harmful to aquatic organisms and causing long-term unfavourable changes to water environment.

12.2. Mobility

The product gathers on the water surface; large amounts cause reduction of oxygen transfer to water. Literature data for oil-derived products (sec. 16, item [2]) show that lower aliphatic and aromatic hydrocarbons go mostly to air. The remaining hydrocarbons with increase of the molecular weight penetrate into ground or sediment in water. Soil lumps may develop, which will change the physicochemical and biological properties of the soil. Organisms dwelling in the surface layers of the soil and plants may die out.

12.3. Persistence and degradability (biodegradation): no specific data available

12.4. Bio-accumulation capability

No specific data are available. The bioconcentration factor (BCF) has not been assayed. Investigations have shown that for some oil-derived products BCF is small because of the weak solubility of the product in water.

12.5. Results of PBT properties assessment: no data available

12.6. Other harmful effects

The product does not contain substances harmful for the ozone layer which have been specified in the legal rules and regulations (see sec. 15, item 24).


13. DISPOSAL CONSIDERATIONS

Note! Product remnants in empty packages that have not been cleaned may present explosion and fire hazard. It is forbidden to weld, heat up, cut or drill in containers or metal packages with the product or emptied of it.

Do not dispose of the product by letting it in a sewage system, do not allow contamination of surface and underground waters and soil. Use closed containers.

Recycling or neutralization of the product should be carried out in accordance with waste management rules and plans as well as environmental protection requirements in a designated place only, that is in installations or equipment meeting the specific requirements. Thermal conversion is the recommended way of neutralizing.

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Disposable packages should be utilized in accordance with regulations in force that concern proceeding with package wastes. Multiple use packages may be used again after cleaning. The containers should be open-top type, resistant to hydrocarbons and marked.

Waste code

13 07 01* - Liquid fuel wastes. Fuel oil and diesel oil.

Note! The wastes are dangerous. Wastes are classified according to their origination source, hence the waste code may change depending on the way and place of development. This should be agreed upon with the Environmental Protection Department or with a department responsible for such functions.

Waste management should be carried out in accordance with the legal rules and regulations (sec. 15, items 8-10).

14. TRANSPORT INFORMATION

Special precautions

Proceed with the product as recommended in sec. 7 of this Data Sheet.

Transport classification of the product

- The product is not subject to the rules and regulations concerning carriage of dangerous goods (sec. 15 pos. 26-30)

15. INFORMATION ON LEGAL REGULATIONS

The product is dangerous and requires the use of warning marking (sec. 15, item 5).

Toxic (T)

Phrases indicating the kind of hazard:

May cause cancer(R45)

Harmful to water organisms and may cause long-term unfavourable changes in water environment (R52/53)

Repeated exposure may lead to skin dehydration or skin cracking (R66)

Possible risk of irreversible health effect (R68).

Phrases defining conditions of safe use:

Store under lock and key and keep away from children (S1/2)

Wear suitable protective clothing and gloves (S36/37)

Avoid exposure – prior to use get acquainted with the instructions (S53).


In case of emergency or feeling bad the advice of a physician should be sought immediately – if possible, the label or package should be shown (S 45)

Avoid release to the environment. Refer to special instructions/Safety Data Sheet (S61).

Specific legal regulations

1. Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 *concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) and establishing a European Chemicals Agency* (Official Journal of the UE, series L No 396 of 30 December 2006 and correction Official Journal of the UE, series L No 136 of 29 May 2007 as amended).
2. Law of 11 September 2001 *on chemical substances and formulations* (Dz. U. (Law Gazette) 01. 11 84 as amended).
3. Regulation of the Minister of Health of 2 September 2003 *concerning criteria and manner of classification of chemical substances and formulations* (Dz. U. (Law Gazette) 03. 171. 1666 as amended).
4. Regulation of the Minister of Health of 28 September 2005 *concerning a list of dangerous substances together with their classification and marking* (Dz. U. (Law Gazette) 05. 201. 1674).
5. Regulation of the Minister of Health of 2 September 2003 *concerning the marking of packages for dangerous substances and dangerous formulations* (Dz. U. (Law Gazette) 03. 173. 1679 as amended).
6. Council Directive 75/442/EEC *on waste*, amended and extended by the Council Directive 91/156/EEC, Council Directive 91/692/EC, Commission Decision 94/3/EC (European Waste Catalogue) and Commission Decision 96/350/EC.
7. Council Directive 91/689/EEC *on hazardous waste*, amended by Council Directive 94/31/EEC and extended by Council Decision 94/904/EC establishing a list of hazardous waste.
8. Law of 27 April 2001 *on waste* (Dz. U. (Law Gazette) 07. 39. 251 as amended).
9. Regulation of the Minister of the Environment of 27 September 2001 *concerning a waste catalogue* (Dz. U. (Law Gazette) 01. 112. 112. 1206).
10. Law of 11 May 2001 *on packages and packaged waste* (Dz. U. (Law Gazette) 01. 63. 638 as amended), together with related regulations.
11. Law of 26 June 1974 – *Labour Code* (Dz. U. (Law Gazette) 98. 21. 094 as amended).

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12. Regulation of the Minister of Health of 1 December 2004 *concerning substances, formulations, agents or production engineering processes of carcinogenic or mutagenic effect in a working environment* (Dz. U. (Law Gazette) 04. 280. 2771 as amended).
13. Regulation of the Minister of Economy and Labour of 5 July 2004 *concerning restrictions, prohibitions or conditions of production, turnover or usage of dangerous substances and dangerous formulations as well as containing them products* (Dz. U. (Law Gazette) 04. 168. 1762 as amended).
14. Regulation of the Minister of Labour and Social Policy of 26 September 1997 *concerning general rules of the occupational health and safety* (Dz. U. (Law Gazette) 03. 169. 1650 as amended).
15. Commission Directive 200/39/EC establishing a first list of indicative exposure limit values in the working environment for the protection of the health and safety of workers from the risks related to chemical agents at work (Dz. U. (Law Gazette) Series L No 142 of 16 June 2000).
16. Commission Directive 2006/15/EC of 7 February 2006, establishing a second list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Directives 91/322/EEC and 2000/39/EC (Official Journal of the UE Series L No 38 of 9 February 2006).
17. Regulation of the Minister of Labour and Social Policy of 29 November 2002 *concerning maximum permissible concentrations and intensities of agents harmful to the health in the working environment* (Dz. U. (Law Gazette) 02. 217. 1883 with later amendments)
18. Regulation of the Minister of Health of 5 April 2005 *concerning the testing and measuring of agents harmful to the health in the working environment* (Dz. U. (Law Gazette) 05. 73. 645).
19. Regulation of the Minister of Health of 30 December 2004 *concerning the occupational health and safety in connection with the presence of chemical agents at work* (Dz. U. (Law Gazette) 05. 11. 86).
20. Regulation of the Minister of the Environment of 24 July 2006 *concerning the conditions to be fulfilled when releasing liquid wastes to waters or ground and concerning substances particularly harmful to the water environment* (Dz. U. (Law Gazette) 06. 137. 984).
21. Regulation of the Minister of Health of 14 March 2003 *concerning the manner of marking of places, pipelines and containers and tanks serving for storage or containing dangerous substances or dangerous formulations* (Dz. U. (Law Gazette) 03. 61. 552).
22. Regulation of the Minister of the Environment of 6 June 2002 *concerning permissible levels of certain substances in the air, alarm levels of certain substances in the air and tolerance margins for the permissible levels of certain substances* (Dz. U. (Law Gazette) 02. 87. 796).
23. Regulation of the Minister of the Environment of 5 December 2003 *concerning the reference values for certain substances in the air* (Dz. U. (Law Gazette) 03. 1. 12).
24. Regulation (EC) No 2037/2000 of the European Parliament and of the Council of 29 June 2000 *on substances that deplete the ozone layer* (Official Journal of the UE, series L No 244 of 29 September 2000)
25. Regulation of the Minister of Building of 14 July 2006 *concerning the way of accomplishing obligations of liquid industrial wastes suppliers and conditions of liquid waste release to sewage devices* (Dz. U. (Law Gazette) 06. 136. 994)
26. European agreement *concerning the international carriage of dangerous goods by road (ADR)* (Dz. U. (Law Gazette) 05. 178. 1481 as amended).
27. Law of 20 June 1997 – *Traffic Law* (Dz. U. (Law Gazette) 05. 108. 908 as amended).
28. Council Directive 94/55/EC of 21 November 1994 *on the approximation of the laws of the Member States with regard to the transport of dangerous goods by road* (Official Journal of the UE, series L No 319 of 12 December 1994) amended with the Commission Directive 2004/111/EC (Official Journal of the UE, series L No 365 of 10 December 2004).
29. Law of 28 October 2002 *on the carriage of dangerous goods by road* (Dz. U. (Law Gazette) 02. 199. 1671 with later amendments)
30. Regulations *on the international rail transport of dangerous goods (RID)* issued based on the Convention *on the international rail transport (COTIF)*, worked out in Bern on 9 May 1980 (Dz. U. (Law Gazette) 85. 834. 158 as amended)


16. OTHER INFORMATION

List of symbols indicating the category of danger and R phrases that have been used in sec. 2, 3 and 15 of the Data Sheet: **Carcinogenic, cat. 2** – Carcinogenic product of category 2; **Muta, cat. 3** – Mutagenic cat. 3; **T** – Toxic; **R45** – May cause cancer; **R52/53** – Is harmful to water organisms; may cause long-term unfavorable changes in a water environment; **R66** - Repeated exposure may lead to skin drying or fissuring, **R68** - Possible risk of irreversible health effects.

The sources of key data on which working out of the Data Sheet has been based and possibility of acquiring further information:

The present Data Sheet has been worked out in accordance with the rules defined in the REACH Regulation and with use of information presented in the Production Engineering Sheet, available literature data given, among others, by especially appointed international organizations and to our best knowledge. Analyses of the physicochemical properties are being carried out as needed in Grupa LOTOS S.A.

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References:

- [1] Atkinson, R., Gas-phase tropospheric chemistry of organic compounds: a review, Atmos. Environ., vol. 24A, pp. 1-41, 1990.
- [2] IUCLID 4 database.
- [3] Boogaard, P., Dmytrasz, B., King, D., Waterman, S., Wennington, J., Report no. 6/05: Classification and labelling of petroleum substances according to the EU dangerous substances directive, CONCAWE recommendations – July 2005.
- [4] Łuksy, A. (ed.), Ecology of operating liquids (*translator's note*: in Polish), Radom 1991.
- [5] Regulations concerning chemical substances and formulations, in force in Poland.
- [6] Technical specifications.

Scope of updating:

Updating of present Data Sheet involved the change of telephone and fax number in sec. 1
This edition of the Data Sheet cancels all the previous editions.

STATEMENT

Information presented in this Data Sheet reflects our knowledge on the day of Sheet issuing. The future Users and Distributors are asked to note that we take no responsibility for incorrect use of our product, in other way than recommended by us. The precautions concerning the health and safety, as well as the advice regarding the environmental protection, as presented in this Sheet, may not be suitable for all individuals or situations. It is an obligation of the User to carry out an assessment and use the product in a safe manner and in accordance with the law and regulations in force. The regulations specified in this Sheet release in no way the User from observing the regulations that regard his/her activities.

This document has been worked out in Grupa LOTOS S.A.

THIS DATA SHEET HAS TO IMMEDIATELY BE TRANSFERRED DOWN THE SUPPLY CHAIN

The above has been faithful rendering into English of the contents of the document in Polish as presented to me for translation. In witness whereof I have set my hand and affixed my seal of office in the City of Gdansk this 6 December, 2009.
Ewa Kocik, duly sworn translator and interpreter of Gdansk,
ref. no on the list held by the Minister of Justice: 3245/05.
Fee collected under the regulation by the Minister of Justice of 24.01.2005 (Dz. U. No.15, pos. 131)
Register: 401 / 2009