



MATERIAL SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

SDS # : 081291

AURELIA LNG

Date of the previous version: 2012-04-13

Revision Date: 2013-07-05

Version 1.01

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product name	AURELIA LNG
Number	805
Pure substance/mixture	Mixture

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses	industrial gas engine.
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1.3. Details of the supplier of the safety data sheet

Supplier	TOTAL LUBRIFIANTS 562 Avenue du Parc de L'île 92029 Nanterre Cedex Tél: +33 (0)1 41 35 40 00 Fax: +33 (0)1 41 35 84 71
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For further information, please contact:

Contact Point	HSE
E-mail Address	rm.msds-lubs@total.com

1.4. Emergency telephone number

+33 1 49 00 00 49 (24h/24, 7d/7)
 France - ORFILA (INRS) Tél : +33 (0)1 45 42 59 59
 In France : - PARIS : Hôpital Fernand Widal 200, rue du Faubourg Saint-Denis 75475 Paris Cédex 10 , Tel : 01.40.05.48.48. -
 MARSEILLE : Hopital Salvator, 249 bd Ste Marguerite 13274 Marseille cedex 5, Tel : 04.91.75.25.25. - LYON : Hopital Edouard
 Herriot, 5 place d'Arsonvol, 69437 Lyon cedex 3, Tel : 04.72.11.69.11. - NANCY : Hopital central, 29 Av du Mal De Lattre de
 Tassigny, 54000 Nancy, Tel : 03.83.32.36.36 ou le SAMU : Tel (15)

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

REGULATION (EC) No 1272/2008

For the full text of the H-Statements mentioned in this Section, see Section 2.2.

DIRECTIVE 67/548/EEC or 1999/45/EC

For the full text of the R-phrases mentioned in this Section, see Section 16



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The substance/mixture is classified as dangerous in accordance with Directive(s) 67/548/EEC with amendments and/or 1999/45/EC with amendments

Classification

R52-53

2.2. Label elements

Labelled according to

Directive 1999/45/EC

R-phrase(s)

R52/53 - Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment

S-phrase(s)

S61 - Avoid release to the environment. Refer to special instructions/safety data sheets

Contains Calcium long chain alkarylsulphonate . May produce an allergic reaction.

2.3. Other hazards**Physical-Chemical Properties**

Contaminated surfaces will be extremely slippery.

Environmental properties

Should not be released into the environment.

3. COMPOSITION/INFORMATION ON INGREDIENTS3.2. Mixture

Chemical Name	EC-No	REACH registration No	CAS-No	Weight %	Classification (Dir. 67/548)	Classification (Reg. 1272/2008)
Polyolefin polyamine succinimide	-	no data available	^	<2.5	R53	
Alkylphenate sulfurised, calcium salt	291-829-9	01-2119524004-56	90480-91-4	<2.0	R53	Aquatic Chronic 4 (H413)
Zinc alkyldithiophosphate	272-028-3	no data available	68649-42-3	<0.5	Xi;R41 N;R51-53	Eye Dam. 1 (H318) Aquatic Chronic 2 (H411)
Acetic acid, [[[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]methyl]thio]-, C10-14-isoalkyl esters	404-800-4	no data available	118832-72-7	<0.5	N;R50-53	Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)

Additional information

Product containing mineral oil with less than 3% DMSO extract as measured by IP 346

For the full text of the R-phrases mentioned in this Section, see Section 16

For the full text of the H-Statements mentioned in this Section, see Section 16.



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4. FIRST AID MEASURES**4.1. Description of first-aid measures**

General advice	IN CASE OF SERIOUS OR PERSISTENT CONDITIONS, CALL A DOCTOR OR EMERGENCY MEDICAL CARE.
Eye contact	Rinse thoroughly with plenty of water, also under the eyelids.
Skin contact	Remove contaminated clothing and shoes. Wash off with soap and water. Wash contaminated clothing before reuse.
Inhalation	Move to fresh air.
Ingestion	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.

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

Eye contact	Not classified.
Skin contact	Not classified. May produce an allergic reaction.
Inhalation	Not classified. Inhalation of vapors in high concentration may cause irritation of respiratory system.
Ingestion	Not classified. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

4.3. Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician	Treat symptomatically.
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5. FIRE-FIGHTING MEASURES**5.1. Extinguishing media**

Suitable Extinguishing Media	Carbon dioxide (CO ₂). ABC powder. Foam. Water spray or fog.
Unsuitable Extinguishing Media	Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Special Hazard	Incomplete combustion and thermolysis may produce gases of varying toxicity such as carbon monoxide, carbon dioxide, various hydrocarbons, aldehydes and soot. These may be highly dangerous if inhaled in confined spaces or at high concentration.
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5.3. Advice for fire-fighters

Special protective equipment for fire-fighters Wear self-contained breathing apparatus and protective suit.

Other information Cool containers / tanks with water spray. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

General Information Do not touch or walk through spilled material. Contaminated surfaces will be extremely slippery. Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition.

6.2. Environmental precautions

General Information Do not allow material to contaminate ground water system. Try to prevent the material from entering drains or water courses. Local authorities should be advised if significant spillages cannot be contained.

6.3. Methods and materials for containment and cleaning up

Methods for cleaning up Dam up. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Keep in suitable, closed containers for disposal.

6.4. Reference to other sections

Personal Protective Equipment See Section 8 for more detail.

Waste treatment See section 13.

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Advice on safe handling When using, do not eat, drink or smoke. For personal protection see section 8. Use only in well-ventilated areas. Do not breathe vapors or spray mist. Avoid contact with skin, eyes and clothing.

Prevention of fire and explosion Take precautionary measures against static discharges. Ground/bond containers, tanks and transfer/receiving equipment.

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Hygiene measures

Ensure the application of strict rules of hygiene by the personnel exposed to the risk of contact with the product. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Do not use abrasives, solvents or fuels. Do not dry hands with rags that have been contaminated with product. Do not put product contaminated rags into workwear pockets.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions

Keep away from food, drink and animal feedingstuffs. Keep in a bunded area. Keep container tightly closed. Keep preferably in the original container. Otherwise reproduce all indication of the regulation label on the new container. Do not remove the hazard labels of the containers (even if they are empty). Design the installations in order to avoid accidental emissions of product (due to seal breakage, for example) onto hot casings or electrical contacts. Protect from frost, heat and sunlight. Protect from moisture.

Materials to Avoid

Strong oxidizing agents.

7.3. Specific end uses

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits

oil mist : 10mg/m³, for 15 minutes
oil mist : 5mg/m³, for 8 hours

Legend

See section 16

8.2. Exposure controls

Occupational Exposure Controls

Engineering Measures

Apply technical measures to comply with the occupational exposure limits. When working in confined spaces (tanks, containers, etc.), ensure that there is a supply of air suitable for breathing and wear the recommended equipment.

Personal Protective Equipment

General Information

If the product is used in mixtures, it is recommended that you contact the appropriate protective equipment suppliers. These recommendations apply to the product as supplied.

Respiratory protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Respirator with combination filter for vapour/particulate (EN 14387). The use of breathing apparatus must comply strictly with the manufacturer's instructions and the regulations governing their choices and uses.

Eye Protection

If splashes are likely to occur, wear: Safety glasses with side-shields.

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Skin and body protection

Wear suitable protective clothing. Protective shoes or boots. Long sleeved clothing.

Hand Protection

Hydrocarbon-proof gloves. Fluorinated rubber. Nitrile rubber. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves.

Environmental exposure controls

General Information

The product should not be allowed to enter drains, water courses or the soil.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance		limpid	
Color		brown	
Physical State @20°C		liquid	
Odor		No information available	
Property	Values	Remarks	Method
pH		Not applicable	
Boiling point/boiling range		Not applicable	
Flash point	284 °C 543 °F		Cleveland Open Cup (COC) Cleveland Open Cup (COC).
Evaporation rate		No information available	
Flammability Limits in Air		No information available	
Vapor Pressure		No information available	
Vapor density		No information available	
Density	869 - 879 kg/m ³	@ 15 °C	
Water solubility		Insoluble	
Solubility in other solvents		No information available	
logPow		No information available	
Autoignition temperature		Not applicable	
Viscosity, kinematic	122.5 mm ² /s 12.9 - 14.7 mm ² /s	@ 40 °C @ 100 °C	ISO 3104 ISO 3104
Explosive properties	Not explosive		
Oxidizing Properties	Not applicable		
Possibility of hazardous reactions	Not applicable		

9.2. Other information

10. STABILITY AND REACTIVITY



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10.1. Reactivity10.2. Chemical stability**Stability** Stable under recommended storage conditions.10.3. Possibility of hazardous reactions**Hazardous Reactions** None under normal processing.10.4. Conditions to Avoid**Conditions to Avoid** Heat (temperatures above flash point), sparks, ignition points, flames, static electricity.10.5. Incompatible Materials**Materials to Avoid** Strong oxidizing agents.10.6. Hazardous Decomposition Products**Hazardous Decomposition Products** None under normal use.**11. TOXICOLOGICAL INFORMATION**11.1. Information on toxicological effects**Acute toxicity Local effects Product Information****Skin contact** . Not classified. May produce an allergic reaction.**Eye contact** . Not classified.**Inhalation** . Not classified. Inhalation of vapors in high concentration may cause irritation of respiratory system.**Ingestion** . Not classified. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.**Acute toxicity - Component Information**

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Alkylphenate sulfurised, calcium salt	LD50 >5000 mg/kg Oral	LD50 >5000 mg/kg Dermal	
Zinc alkyldithiophosphate	LD50 2900 mg/kg (Rat)	LD50 > 2000 mg/kg (Rabbit)	
Acetic acid, [[[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]methyl]thio]-, C10-14-isoalkyl esters	LD50 > 2000 mg/kg (Rat-OECD 401)	LD50 > 2000 mg/kg (Rat-OECD 402)	



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Sensitization**Sensitization**

Not classified as a sensitizer. Contains sensitizer(s). May produce an allergic reaction.

Specific effects**Carcinogenicity**

This product is not classified carcinogenic. During use in engines, contamination of oil with low levels of combustion products occurs. Used motor oils have been shown to cause skin cancer in mice following repeated application and continuous exposure. Brief or intermittent skin contact with used motor oil is not expected to have serious effects in humans if the oil is thoroughly removed by washing with soap and water.

Mutagenicity

This product is not classified as mutagenic.

Reproductive toxicity

This product does not present any known or suspected reproductive hazards.

Repeated Dose Toxicity**Subchronic toxicity**

No information available.

Target Organ Effects (STOT)**Target Organ Effects (STOT)**

No information available.

Other information**Other adverse effects**

Characteristic skin lesions (pimples) may develop following prolonged and repeated exposures (contact with contaminated clothing).

12. ECOLOGICAL INFORMATION**12.1. Toxicity**

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Acute aquatic toxicity - Product Information

No information available.

Acute aquatic toxicity - Component Information

Chemical Name	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates	Toxicity to fish	Toxicity to microorganisms
Alkylphenate sulfurised, calcium salt 90480-91-4	EC50 (72h) > 500 mg/l (Desmodesmus subspicatus - OECD 201)	EL50 (48h) > 1000 mg/l (Daphnia magna - OECD 202)	LC50 (96h) > 1000 mg/l (Pimephales promelas - OECD 203)	
Zinc alkyldithiophosphate 68649-42-3	EC50 (72h) 2.2 mg/l	EC50 (48h) 1.2 mg/l (Daphnia magna)	LC50 (96h) 4.5 mg/l	
Acetic acid, [[[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]methyl]thio] -, C10-14-isoalkyl esters 118832-72-7	LC50 (72h) 0.16 mg/l	EC50(24h) 1.3 mg/l Daphnia magna (OECD 202)	LC50(96h) > 74 mg/l (Brachydanio rerio-OECD 203)	

Chronic aquatic toxicity - Product Information

No information available.



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Chronic aquatic toxicity - Component Information

Chemical Name	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates	Toxicity to fish	Toxicity to microorganisms
Zinc alkyldithiophosphate 68649-42-3	NOEC 1.0 mg/l	NOEC (21d) 0.4 mg/l (Daphnia magna)	NOEC(28d) 1.8 mg/l	

Effects on terrestrial organisms

No information available.

12.2. Persistence and degradability**General Information**

No information available.

12.3. Bioaccumulative potential**Product Information**

No information available.

logPow

No information available

Component Information

Chemical Name	log Pow
Alkylphenate sulfurised, calcium salt - 90480-91-4	9.5
Zinc alkyldithiophosphate - 68649-42-3	0.56
Acetic acid, [[[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]methyl]thio]-, C10-14-isoalkyl esters - 118832-72-7	11.6 at 20-25°C

12.4. Mobility in soil**Soil**

Given its physical and chemical characteristics, the product has no soil mobility.

Air

Loss by evaporation is limited.

Water

The product is insoluble and floats on water.

12.5. Results of PBT and vPvB assessment**PBT and vPvB assessment**

No information available.

12.6. Other adverse effects**13. DISPOSAL CONSIDERATIONS**13.1. Waste treatment methods



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Waste from Residues / Unused Products

Should not be released into the environment. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations. Where possible recycling is preferred to disposal or incineration. After use, this oil must be sent to a licensed waste oil facility. Incorrect disposal of used oil poses a risk to the environment. Mixture with other waste types such as solvents, brake- and cooling liquids is forbidden.

Contaminated packaging

Empty containers should be taken to an approved waste handling site for recycling or disposal.

EWC Waste Disposal No.

The following Waste Codes are only suggestions: 13 02 05. According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used.

14. TRANSPORT INFORMATION

ADR/RID Not regulated

IMDG/IMO Not regulated

ICAO/IATA Not regulated

ADN Not regulated

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

European Union

International Inventories

EINECS/ELINCS	-
TSCA	-
DSL	-
ENCS	-
IECSC	-
KECL	-
PICCS	-
AICS	-
NZIoC	-
<u>Legend</u>	



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EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

Further information

15.2. Chemical Safety Assessment**Chemical Safety Assessment** No information available**16. OTHER INFORMATION****Full text of R-phrases referred to under sections 2 and 3**

R41 - Risk of serious damage to eyes
 R53 - May cause long-term adverse effects in the aquatic environment
 R52/53 - Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment
 R51/53 - Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
 R50/53 - Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Full text of H-Statements referred to under sections 2 and 3

H318 - Causes serious eye damage
 H400 - Very toxic to aquatic life
 H410 - Very toxic to aquatic life with long lasting effects
 H411 - Toxic to aquatic life with long lasting effects
 H413 - May cause long lasting harmful effects to aquatic life

Abbreviations, acronyms**Legend Section 8**

+	Sensitizer	*	Skin designation
**	Hazard Designation	C:	Carcinogen
M:	Mutagen	R:	Toxic to reproduction

Revision Date: 2013-07-05**Revision Note** *** Indicates updated section.**This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006**



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This safety data sheet serves to complete but not to replace the technical product sheets. The information contained herein is given in good faith and is accurate to the best of knowledge at the date indicated above. It is understood by the user that any use of the product for purposes other than those for which it was designed entails potential risk. The information given herein in no way dispenses the user from knowing and applying all provisions regulating his activity. The user bears sole liability for the precautions required when using the product. The regulatory texts indicated herein are intended to aid the user to fulfil his obligations. This list is not to be considered complete and exhaustive. It is the user's responsibility to ensure that he is subject to no other obligations than those mentioned.

End of the safety data sheet