

**A11 ARPAX LEMON CLEANER**
**Section: 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**

**1.1 Product identifier:** **A11 ARPAX LEMON CLEANER**  
 Substance type: CLP Mixture

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

Use of the Substance/Mixture : CLEANER

Recommended restrictions on use : Reserved for industrial and professional use.

**1.3 Details of the supplier of the safety data sheet:**

**COMPANY IDENTIFICATION**  
 Ecolab Ltd.  
 PO Box 11; Winnington Avenue  
 Northwich, Cheshire,, CW8 4DX, United Kingdom  
 TEL: + 44 (0)1606 74488

**LOCAL COMPANY IDENTIFICATION**  
 Ecolab Ltd.  
 PO Box 11; Winnington Avenue  
 Northwich, Cheshire,, CW8 4DX, United Kingdom  
 TEL: + 44 (0)1606 74488

For Product Safety information please contact: [msdseame@nalco.com](mailto:msdseame@nalco.com)

**1.4 Emergency telephone number:**

Emergency telephone number : Trans-European  
 +441618841235  
 +32-(0)3-575-5555 Trans-European Address European  
 Economic Area HQ

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**Section: 2. HAZARDS IDENTIFICATION**

**2.1 Classification of the substance or mixture**

**Classification (REGULATION (EC) No 1272/2008)**

Flammable liquids, Category 3	H226
Skin irritation, Category 2	H315
Serious eye damage, Category 1	H318
Skin sensitization, Category 1	H317
Acute aquatic toxicity, Category 1	H400
Chronic aquatic toxicity, Category 2	H411

**2.2 Label elements**

**Labelling (REGULATION (EC) No 1272/2008)**

Hazard pictograms :    

Signal Word : Danger

Hazard Statements : H226 Flammable liquid and vapour.  
 H315 Causes skin irritation.  
 H317 May cause an allergic skin reaction.  
 H318 Causes serious eye damage.

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H400 Very toxic to aquatic life.  
H411 Toxic to aquatic life with long lasting effects.

Precautionary Statements : **Prevention:**  
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273 Avoid release to the environment.  
P280 Wear protective gloves/ eye protection/ face protection.

**Response:**  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P310 Immediately call a POISON CENTER/doctor.

Hazardous components which must be listed on the label:

C9-C11 Alkyl alcohol, ethoxylate  
Limonene  
Amines, C12-14 alkyldimethyl, N-oxides

**2.3 Other hazards**

None known.

**Section: 3. COMPOSITION/INFORMATION ON INGREDIENTS****3.2 Mixtures****Hazardous components**

Chemical Name	CAS-No. EC-No. REACH No.	Classification (REGULATION (EC) No 1272/2008)	Concentration: [%]
C9-C11 Alkyl alcohol, ethoxylate	68439-46-3	Acute toxicity Category 4; H302 Serious eye damage Category 1; H318	10 - < 20
Amines, C12-14 alkyldimethyl, N-oxides	308062-28-4 01-2119490061-47- 0000	Acute toxicity Category 4; H302 Skin irritation Category 2; H315 Serious eye damage Category 1; H318 Acute aquatic toxicity Category 1; H400 Chronic aquatic toxicity Category 2; H411	5 - < 10
Isopropanol	67-63-0 200-661-7 01-2119457558-25	Flammable liquids Category 2; H225 Eye irritation Category 2; H319 Specific target organ toxicity - single exposure Category 3; H336	3 - < 5
Benzyl-(C12-C16 Alkyl)- Dimethyl-Ammonium Chloride	68424-85-1 270-325-2	Acute toxicity Category 4; H302 Skin corrosion Category 1B; H314 Serious eye damage Category 1; H318 Acute aquatic toxicity Category 1; H400 Chronic aquatic toxicity Category 1; H410	2.5 - < 3
propanaminium-1, amino-3 N- (carboxyméthyl) N,N-diméthyl-, dérivés N-acyles en C8-18, hydroxydes, sels internes	97862-59-4	Serious eye damage Category 1; H318	1 - < 2.5
Limonene	5989-27-5 227-813-5	Nota C Flammable liquids Category 3; H226 Skin irritation Category 2; H315	1 - < 2.5

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		Skin sensitization Category 1; H317 Acute aquatic toxicity Category 1; H400 Chronic aquatic toxicity Category 1; H410	
Citral	5392-40-5 226-394-6 01-2119462829-23	Skin irritation Category 2; H315 Skin sensitization Category 1; H317	0.1 - < 0.25
Cyclohexane, 1-methyl-4-(1-methylethylidene)	586-62-9 209-578-0 01-2119982325-32	Flammable liquids Category 3; H226 Skin sensitization Sub-category 1B; H317 Aspiration hazard Category 1; H304 Acute aquatic toxicity Category 1; H400 Chronic aquatic toxicity Category 1; H410	0.1 - < 0.25

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

**Section: 4. FIRST AID MEASURES**

**4.1 Description of first aid measures**

- If inhaled : Remove to fresh air.  
Treat symptomatically.  
Get medical attention if symptoms occur.
- In case of skin contact : Wash off immediately with plenty of water for at least 15 minutes.  
Use a mild soap if available.  
Wash clothing before reuse.  
Thoroughly clean shoes before reuse.  
Get medical attention.
- In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.  
Remove contact lenses, if present and easy to do. Continue rinsing.  
Get medical attention immediately.
- If swallowed : Rinse mouth.  
Get medical attention if symptoms occur.
- Protection of first-aiders : In event of emergency assess the danger before taking action.  
Do not put yourself at risk of injury. If in doubt, contact emergency responders. Use personal protective equipment as required.

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

See Section 11 for more detailed information on health effects and symptoms.

**4.3 Indication of immediate medical attention and special treatment needed**

- Treatment : Treat symptomatically.

**Section: 5. FIREFIGHTING MEASURES**

**5.1 Extinguishing media**

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

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**5.2 Special hazards arising from the substance or mixture**

- Specific hazards during firefighting : Not flammable or combustible.
- Hazardous combustion products : Depending on combustion properties, decomposition products may include following materials:  
Carbon oxides  
nitrogen oxides (NOx)

**5.3 Advice for firefighters**

- Special protective equipment for firefighters : Use personal protective equipment.
- Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. In the event of fire and/or explosion do not breathe fumes.

**Section: 6. ACCIDENTAL RELEASE MEASURES**

**6.1 Personal precautions, protective equipment and emergency procedures**

- Advice for non-emergency personnel : Ensure adequate ventilation.  
Keep people away from and upwind of spill/leak.  
Avoid inhalation, ingestion and contact with skin and eyes.  
When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.  
Ensure clean-up is conducted by trained personnel only.  
Refer to protective measures listed in sections 7 and 8.
- Advice for emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials.

**6.2 Environmental precautions**

- Environmental precautions : Do not allow contact with soil, surface or ground water.

**6.3 Methods and materials for containment and cleaning up**

- Methods for cleaning up : Stop leak if safe to do so.  
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).  
Flush away traces with water.  
For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway.

**6.4 Reference to other sections**

- See Section 1 for emergency contact information.  
For personal protection see section 8.  
See Section 13 for additional waste treatment information.

**Section: 7. HANDLING AND STORAGE**

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**7.1 Precautions for safe handling**

- Advice on safe handling : Avoid contact with skin and eyes. Do not breathe spray, vapour. Do not get in eyes, on skin, or on clothing. Wash hands thoroughly after handling. Use only with adequate ventilation.
- Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Remove and wash contaminated clothing before re-use. Wash face, hands and any exposed skin thoroughly after handling. Provide suitable facilities for quick drenching or flushing of the eyes and body in case of contact or splash hazard.

**7.2 Conditions for safe storage, including any incompatibilities**

- Requirements for storage areas and containers : Keep in a cool, well-ventilated place. Keep out of reach of children. Keep container tightly closed. Store in suitable labelled containers.
- Suitable material : Keep in properly labelled containers.

**7.3 Specific end uses**

- Specific use(s) : CLEANER

**Section: 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**8.1 Control parameters**

**Occupational Exposure Limits**

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Isopropanol	67-63-0	OELV - 8 hrs (TWA)	200 ppm	IR_OEL
Further information	Sk	Substances which have the capacity to penetrate intact skin when they come in contact with it, and be absorbed into the body		
		OELV - 15 min (STEL)	400 ppm	IR_OEL
Further information	Sk	Substances which have the capacity to penetrate intact skin when they come in contact with it, and be absorbed into the body		

**DNEL**

Isopropanol	:	End Use: Workers Exposure routes: Dermal Potential health effects: Long-term systemic effects Value: 888 mg/cm2
		End Use: Workers Exposure routes: Inhalation Potential health effects: Long-term systemic effects Value: 500 mg/m3
		End Use: Consumers Exposure routes: Dermal Potential health effects: Long-term systemic effects Value: 319 mg/cm2
		End Use: Consumers Exposure routes: Inhalation Potential health effects: Long-term systemic effects

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		Value: 89 mg/m3
		End Use: Consumers Exposure routes: Ingestion Potential health effects: Long-term systemic effects Value: 26 ppm
Limonene	:	End Use: Workers Exposure routes: Dermal Potential health effects: short-term - local Value: 0.222 mg/cm2
		End Use: Workers Exposure routes: Inhalation Potential health effects: long term - systemic Value: 33.3 mg/m3

**PNEC**

Isopropanol	:	Fresh water Value: 140.9 mg/l
		Marine water Value: 140.9 mg/l
		Intermittent use/release Value: 140.9 mg/l
		Fresh water Value: 552 mg/kg
		Marine sediment Value: 552 mg/kg
		Soil Value: 28 mg/kg
		Sewage treatment plant Value: 2251 mg/l
		Oral Value: 160 mg/kg
Limonene	:	Fresh water Value: 0.0054 mg/l
		Marine water Value: 0.00054 mg/l
		STP Value: 1.8 mg/l
		Fresh water sediment Value: 1.32 mg/kg
		Marine sediment Value: 0.13 mg/kg
		Soil Value: 0.262 mg/kg
		Oral Value: 3.33 mg/kg

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**8.2 Exposure controls**

**Appropriate engineering controls**

Effective exhaust ventilation system.  
Maintain air concentrations below occupational exposure standards.

**Individual protection measures**

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Remove and wash contaminated clothing before re-use. Wash face, hands and any exposed skin thoroughly after handling. Provide suitable facilities for quick drenching or flushing of the eyes and body in case of contact or splash hazard.

Eye/face protection (EN 166) : Safety goggles  
Face-shield

Hand protection (EN 374) : Recommended preventive skin protection  
Gloves  
Nitrile rubber  
butyl-rubber  
Breakthrough time: 1 – 4 hours  
Minimum thickness for butyl-rubber 0.7 mm for nitrile rubber 0.4 mm or equivalent (please refer to the gloves manufacturer/distributor for advise).  
Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Skin and body protection (EN 14605) : Wear suitable protective clothing.

Respiratory protection (EN 143, 14387) : When respiratory risks cannot be avoided or sufficiently limited by technical means of collective protection or by measures, methods or procedures of work organization, consider the use of certified respiratory protection equipment meeting EU requirements (89/656/EEC, (EU) 2016/425), or equivalent, with filter type:A-P

**Environmental exposure controls**

General advice : Consider the provision of containment around storage vessels.

**Section: 9. PHYSICAL AND CHEMICAL PROPERTIES**

**9.1 Information on basic physical and chemical properties**

Appearance : liquid

Colour : Clear Yellow

Odour : characteristic

Flash point : > 100 °C

pH : 10 - 11, (20 °C)

Odour Threshold : no data available

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Melting point/freezing point	: no data available
Initial boiling point and boiling range	: no data available
Evaporation rate	: no data available
Flammability (solid, gas)	: no data available
Upper explosion limit	: no data available
Lower explosion limit	: no data available
Vapour pressure	: no data available
Relative vapour density	: no data available
Relative density	: 1.005 - 1.015
Solubility(ies)	
Water solubility	: soluble in cold water, soluble in hot water
Solubility in other solvents	: no data available
Partition coefficient: n-octanol/water	: no data available
Auto-ignition temperature	: no data available
Thermal decomposition	: no data available
Viscosity, dynamic	: no data available
Viscosity, kinematic	: no data available
Explosive properties	: no data available
Oxidizing properties	: no data available

**9.2 Other information**

no data available

**Section: 10. STABILITY AND REACTIVITY**

**10.1 Reactivity**

No dangerous reaction known under conditions of normal use.

**10.2 Chemical stability**

Stable under normal conditions.

**10.3 Possibility of hazardous reactions**

Hazardous reactions : No dangerous reaction known under conditions of normal use.

**10.4 Conditions to avoid**

Conditions to avoid : None known.

**10.5 Incompatible materials**

Materials to avoid : None known

**10.6 Hazardous decomposition products**

Hazardous decomposition products : Depending on combustion properties, decomposition products may include following materials:



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Carbon oxides  
nitrogen oxides (NOx)

**Section: 11. TOXICOLOGICAL INFORMATION**

**11.1 Information on toxicological effects**

Information on likely routes of exposure : Inhalation, Eye contact, Skin contact

**Toxicity**

**Product**

Acute oral toxicity : Acute toxicity estimate : > 2,000 mg/kg  
Acute inhalation toxicity : There is no data available for this product.  
Acute dermal toxicity : There is no data available for this product.  
Skin corrosion/irritation : There is no data available for this product.  
Serious eye damage/eye irritation : There is no data available for this product.  
Respiratory or skin sensitization : There is no data available for this product.  
Carcinogenicity : There is no data available for this product.  
Reproductive effects : There is no data available for this product.  
Germ cell mutagenicity : There is no data available for this product.  
Teratogenicity : There is no data available for this product.  
STOT - single exposure : There is no data available for this product.  
STOT - repeated exposure : There is no data available for this product.  
Aspiration toxicity : There is no data available for this product.

**Components**

Acute oral toxicity : Amines, C12-14 alkyldimethyl, N-oxides  
LD50 rat: 1,064 mg/kg

Isopropanol  
LD50 rat: 5,840 mg/kg

Benzyl-(C12-C16 Alkyl)-Dimethyl-Ammonium Chloride  
LD50 rat: 344 mg/kg

Limonene  
LD50 rat: 4,400 mg/kg

Citral

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LD50 rat: 4,960 mg/kg

Cyclohexane, 1-methyl-4-(1-methylethylidene)  
LD50 rat: 3,740 mg/kg

**Components**

Acute inhalation toxicity : Isopropanol  
LC50 rat: > 30 mg/l  
Exposure time: 4 h  
Test atmosphere: vapour

**Components**

Acute dermal toxicity : Isopropanol  
LD50 rabbit: 12,870 mg/kg  
Benzyl-(C12-C16 Alkyl)-Dimethyl-Ammonium Chloride  
LD50 rabbit: 3,340 mg/kg  
Limonene  
LD50 rabbit: > 5,000 mg/kg  
Citral  
LD50 rat: 2,250 mg/kg

**Potential Health Effects**

Eyes : Causes serious eye damage.  
Skin : Causes skin irritation. May cause allergic skin reaction.  
Ingestion : Health injuries are not known or expected under normal use.  
Inhalation : Health injuries are not known or expected under normal use.  
Chronic Exposure : Health injuries are not known or expected under normal use.

**Experience with human exposure**

Eye contact : Redness, Pain, Corrosion  
Skin contact : Redness, Irritation, Allergic reactions  
Ingestion : No symptoms known or expected.  
Inhalation : No symptoms known or expected.

**Further information** : no data available

**Section: 12. ECOLOGICAL INFORMATION**

**12.1 Ecotoxicity**

**Product**

Environmental Effects : Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.

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Toxicity to fish : no data available

Toxicity to daphnia and other aquatic invertebrates : no data available

Toxicity to algae : no data available

**Components**

Toxicity to fish : Amines, C12-14 alkyldimethyl, N-oxides  
LC50: 2.67 mg/l

Isopropanol  
96 h LC50 Pimephales promelas (fathead minnow):  
9,640 mg/l

Limonene  
96 h LC50 Fathead Minnow: 0.72 mg/l  
Method: OECD 203

Citral  
96 h LC50 Fish: 6.78 mg/l

**Components**

Toxicity to daphnia and other aquatic invertebrates : Amines, C12-14 alkyldimethyl, N-oxides  
EC50 Daphnia magna (Water flea): 3.1 mg/l

Isopropanol  
LC50 Daphnia magna (Water flea): > 10,000 mg/l

Benzyl-(C12-C16 Alkyl)-Dimethyl-Ammonium Chloride  
48 h EC50 Daphnia magna (Water flea): 0.016 mg/l

Limonene  
48 h EC50 Daphnia magna: 0.36 mg/l  
Method: OECD 202

Cyclohexane, 1-methyl-4-(1-methylethylidene)  
48 h EC50: 0.634 mg/l

**Components**

Toxicity to algae : Amines, C12-14 alkyldimethyl, N-oxides  
LC50: 0.143 mg/l  
NOEC: 0.067 mg/l

Limonene  
72 h EC50 Desmodesmus subspicatus (green algae):  
ca. 8 mg/l  
Method: OECD 201

Citral  
72 h EC50 Desmodesmus subspicatus (green algae):  
103.8 mg/l  
Method: DIN 38412  
GLP: No

**Components**

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Toxicity to bacteria : Isopropanol  
1,050 mg/l

Limonene  
3 h EC50 Sewage Microorganisms: 209 mg/l  
Method: OECD 209

**Components**

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : Limonene  
16 d NOEC Daphnia: 0.115 mg/l  
Method: Calculated

**12.2 Persistence and degradability**

**Product**

no data available

**Components**

Biodegradability : C9-C11 Alkyl alcohol, ethoxylate  
Result: Readily biodegradable.

Amines, C12-14 alkyldimethyl, N-oxides  
Result: Readily biodegradable.

Isopropanol  
Result: Readily biodegradable.

Benzyl-(C12-C16 Alkyl)-Dimethyl-Ammonium Chloride  
Result: Biodegradable

propanaminium-1, amino-3 N-(carboxyméthyl) N,N-diméthyl-,  
dérivés N-acyles en C8-18, hydroxydes, sels internes  
Result: no data available

Limonene  
Result: Readily biodegradable.

Limonene  
Result: Readily biodegradable.

Citral  
Result: Readily biodegradable.

Cyclohexane, 1-methyl-4-(1-methylethylidene)  
Result: Readily biodegradable.

**12.3 Bioaccumulative potential**

no data available

**12.4 Mobility in soil**

no data available

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**12.5 Results of PBT and vPvB assessment**

**Product**

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

**12.6 Other adverse effects**

no data available

**Section: 13. DISPOSAL CONSIDERATIONS**

Dispose of in accordance with the European Directives on waste and hazardous waste. Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.

**13.1 Waste treatment methods**

- Product : The product should not be allowed to enter drains, water courses or the soil.  
Where possible recycling is preferred to disposal or incineration.  
If recycling is not practicable, dispose of in compliance with local regulations.  
Dispose of wastes in an approved waste disposal facility.
- Contaminated packaging : Dispose of as unused product.  
Empty containers should be taken to an approved waste handling site for recycling or disposal.  
Do not re-use empty containers.
- Guidance for Waste Code selection : Organic wastes containing dangerous substances. If this product is used in any further processes, the final user must redefine and assign the most appropriate European Waste Catalogue Code. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable European (EU Directive 2008/98/EC) and local regulations.

**Section: 14. TRANSPORT INFORMATION**

The shipper/consignor/sender is responsible to ensure that the packaging, labeling, and markings are in compliance with the selected mode of transport.

**Land transport (ADR/ADN/RID)**

- 14.1 UN number: UN 1987  
14.2 UN proper shipping name: ALCOHOL, N.O.S. (Isopropanol)  
14.3 Transport hazard class(es): 3  
14.4 Packing group: III  
14.5 Environmental hazards: Yes  
14.6 Special precautions for user: Not applicable.

**A11 ARPAX LEMON CLEANER****Air transport (IATA)**

14.1 UN number:	UN 1987
14.2 UN proper shipping name:	ALCOHOL, N.O.S. (Isopropanol)
14.3 Transport hazard class(es):	3
14.4 Packing group:	III
14.5 Environmental hazards:	Yes
14.6 Special precautions for user:	Not applicable.

**Sea transport (IMDG/IMO)**

14.1 UN number:	UN 1987
14.2 UN proper shipping name:	ALCOHOL, N.O.S. (Isopropanol)
14.3 Transport hazard class(es):	3
14.4 Packing group:	III
14.5 Environmental hazards:	Yes (Marine Pollutant)
14.6 Special precautions for user:	Not applicable.
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:	Not applicable.

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

INTERNATIONAL CHEMICAL CONTROL LAWS

**15.2 Chemical Safety Assessment:**

No Chemical Safety Assessment has been carried out on the product.

**Section: 16. OTHER INFORMATION****Procedure used to derive the classification according to REGULATION (EC) No 1272/2008**

Classification	Justification
Flammable liquids 3, H226	Based on product data or assessment
Skin irritation 2, H315	Calculation method
Serious eye damage 1, H318	Calculation method
Skin sensitization 1, H317	Calculation method
Acute aquatic toxicity 1, H400	Calculation method
Chronic aquatic toxicity 2, H411	Calculation method

**Full text of H-Statements**

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
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.

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**Full text of other abbreviations**

ADN – European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR – European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS – Australian Inventory of Chemical Substances; ASTM – American Society for the Testing of Materials; bw – Body weight; CLP – Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR – Carcinogen, Mutagen or Reproductive Toxicant; DIN – Standard of the German Institute for Standardisation; DSL – Domestic Substances List (Canada); ECHA – European Chemicals Agency; EC-Number – European Community number; ECx – Concentration associated with x% response; ELx – Loading rate associated with x% response; EmS – Emergency Schedule; ENCS – Existing and New Chemical Substances (Japan); ErCx – Concentration associated with x% growth rate response; GHS – Globally Harmonized System; GLP – Good Laboratory Practice; IARC – International Agency for Research on Cancer; IATA – International Air Transport Association; IBC – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 – Half maximal inhibitory concentration; ICAO – International Civil Aviation Organization; IECSC – Inventory of Existing Chemical Substances in China; IMDG – International Maritime Dangerous Goods; IMO – International Maritime Organization; ISHL – Industrial Safety and Health Law (Japan); ISO – International Organisation for Standardization; KECI – Korea Existing Chemicals Inventory; LC50 – Lethal Concentration to 50 % of a test population; LD50 – Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL – International Convention for the Prevention of Pollution from Ships; n.o.s. – Not Otherwise Specified; NO(A)EC – No Observed (Adverse) Effect Concentration; NO(A)EL – No Observed (Adverse) Effect Level; NOELR – No Observable Effect Loading Rate; NZIoC – New Zealand Inventory of Chemicals; OECD – Organization for Economic Co-operation and Development; OPPTS – Office of Chemical Safety and Pollution Prevention; PBT – Persistent, Bioaccumulative and Toxic substance; PICCS – Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR – (Quantitative) Structure Activity Relationship; REACH – Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID – Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT – Self-Accelerating Decomposition Temperature; SDS – Safety Data Sheet; TCSI – Taiwan Chemical Substance Inventory; TRGS – Technical Rule for Hazardous Substances; TSCA – Toxic Substances Control Act (United States); UN – United Nations; vPvB – Very Persistent and Very Bioaccumulative

Sources of key data used to compile the Safety Data Sheet : IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, Geneva: World Health Organization, International Agency for Research on Cancer.

The possible key literature references and data sources which may have been used in conjunction with the consideration of expert judgment to compile this Safety Data Sheet: European regulations/directives (including (EC) No. 1907/2006, (EC) No. 1272/2008), supplier data, inter-net, ESIS, IUCLID, ERICards, Non European official regulatory data and other data sources.

Prepared By : Regulatory Affairs

Numbers quoted in the MSDS are given in the format: 1,000,000 = 1 million and 1,000 = 1 thousand. 0.1 = 1 tenth and 0.001 = 1 thousandth

REVISED INFORMATION: Significant changes to regulatory or health information for this revision is indicated by a bar in the left-hand margin of the SDS.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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