

Creation Date 28-Apr-2009

Revision Date 25-Jun-2013

Revision Number 6

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

1.1. Product identifier

Product Description:	Acetone
Cat No.	167640000; 167640025; 167645000
Synonyms	2-Propanone
CAS-No	67-64-1
EC-No.	200-662-2
Molecular Formula	C3 H6 O
Reach Registration Number	01-2119471330-49

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

Recommended Use	Laboratory chemicals.
Uses advised against	No Information available

1.3. Details of the supplier of the safety data sheet

Company	Acros Organics BVBA Janssen Pharmaceuticaaan 3a 2440 Geel, Belgium
E-mail address	begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number	For information in the US, call: 001-800-ACROS-01 For information in Europe, call: +32 14 57 52 11
	Emergency Number, Europe: +32 14 57 52 99 Emergency Number, US: 001-201-796-7100
	CHEMTREC Phone Number, US: 001-800-424-9300 CHEMTREC Phone Number, Europe: 001-703-527-3887

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - Regulation (EC) No 1272/2008

Physical hazards

Flammable liquids	Category 2
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Health hazards

Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity - (single exposure)	Category 3

Environmental hazards

Based on available data, the classification criteria are not met

Classification according to EU Directives 67/548/EEC or 1999/45/EC

Symbol(s)	Xi - Irritant F - Highly flammable
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SECTION 2: HAZARDS IDENTIFICATION

R-phrases(s)	R11 - Highly flammable R36 - Irritating to eyes R66 - Repeated exposure may cause skin dryness or cracking R67 - Vapors may cause drowsiness and dizziness
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For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16

2.2. Label elements**Signal Word****Danger****Hazard Statements**

H225 - Highly flammable liquid and vapor
H336 - May cause drowsiness or dizziness
H319 - Causes serious eye irritation
EUH066 - Repeated exposure may cause skin dryness or cracking

Precautionary Statements

P261 - Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P240 - Ground/Bond container and receiving equipment

2.3. Other hazards

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB)

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**3.1. Substances**

Component	CAS-No	EC-No.	Weight %	CLP Classification - Regulation (EC) No 1272/2008	DSD Classification - 67/548/EEC
Acetone	67-64-1	EEC No. 200-662-2	>95	Eye Irrit. 2 (H319) STOT SE 3 (H336) Flam. Liq. 2 (H225) EUH066	F; R11 Xi; R36 R66 R67

Reach Registration Number

01-2119471330-49

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

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

Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.
Ingestion	Do not induce vomiting. Obtain medical attention.
Inhalation	Move to fresh air. If breathing is difficult, give oxygen. Get medical attention immediately if symptoms occur.
Protection of First-aiders	No special precautions required.

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

Breathing difficulties. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. May cause pulmonary edema.

4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically. Symptoms may be delayed.

SECTION 5: FIREFIGHTING MEASURES**5.1. Extinguishing media****Suitable Extinguishing Media**

CO₂, dry chemical, dry sand, alcohol-resistant foam. Water spray. Cool closed containers exposed to fire with water spray.

Extinguishing media which must not be used for safety reasons

Do not use water jet.

5.2. Special hazards arising from the substance or mixture

Flammable. Risk of ignition. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

Hazardous Combustion Products

Carbon monoxide (CO), Carbon dioxide (CO₂), Formaldehyde, Methanol.

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

SECTION 6: ACCIDENTAL RELEASE MEASURES**6.1. Personal precautions, protective equipment and emergency procedures**

Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges. Keep people away from and upwind of spill/leak. Avoid contact with skin, eyes and inhalation of vapors..

6.2. Environmental precautions

Should not be released into the environment.

6.3. Methods and material for containment and cleaning up

Remove all sources of ignition. Take precautionary measures against static discharges. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Use spark-proof tools and explosion-proof equipment.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Wear personal protective equipment. Ensure adequate ventilation. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. Use only non-sparking tools. Use explosion-proof equipment. Do not breathe vapors or spray mist. Do not get in eyes, on skin, or on clothing. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.

7.2. Conditions for safe storage, including any incompatibilities

Flammables area. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Keep container tightly closed in a dry and well-ventilated place.

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits

List source(s):

EU - 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 on the protection of the health and safety of workers from the risks related to chemical agents at work.

UK - EH40/2005 Containing the workplace exposure limits (WELs) for use with the Control of Substances Hazardous to Health Regulations (COSHH) 2002 (as amended). Updated by September 2006 official press release and October 2007 Supplement.

IRE - 2010 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001. Published by the Health and Safety Authority.

Component

Acetone

European Union	The United Kingdom	France	Belgium	Spain
TWA: 500 ppm 8 hr TWA: 1210 mg/m ³ 8 hr	TWA: 500 ppm TWA: 1210 mg/m ³ STEL: 1500 ppm STEL: 3620 mg/m ³	TWA / VME: 500 ppm (8 heures). restrictive limit TWA / VME: 1210 mg/m ³ (8 heures). restrictive limit STEL / VLCT: 1000 ppm. restrictive limit STEL / VLCT: 2420 mg/m ³ . restrictive limit	TWA: 500 ppm 8 uren TWA: 1210 mg/m ³ 8 uren STEL: 1000 ppm 15 minuten STEL: 2420 mg/m ³ 15 minuten	TWA / VLA-ED: 500 ppm (8 horas) TWA / VLA-ED: 1210 mg/m ³ (8 horas)

Component

Acetone

Italy	Germany	Portugal	The Netherlands	Finland
TWA: 500 ppm 8 ore. TWA: 1210 mg/m ³ 8 ore.	TWA: 500 ppm TWA: 1200 mg/m ³	STEL: 750 ppm 15 minutos TWA: 500 ppm 8 horas	STEL: 2420 mg/m ³ 15 minuten TWA: 1210 mg/m ³ 8 uren	TWA: 500 ppm 8 tunteina TWA: 1200 mg/m ³ 8 tunteina STEL: 630 ppm 15 minuutteina STEL: 1500 mg/m ³ 15 minuutteina

Component

Acetone

Austria	Denmark	Switzerland	Poland	Norway
STEL: 2000 ppm 15 Minuten STEL: 4800 mg/m ³ 15 Minuten TWA: 500 ppm 8 Stunden TWA: 1200 mg/m ³ 8 Stunden	TWA: 250 ppm 8 timer TWA: 600 mg/m ³ 8 timer	STEL: 1000 ppm 15 Minuten STEL: 2400 mg/m ³ 15 Minuten MAK: 500 ppm 8 Stunden MAK: 1200 mg/m ³ 8 Stunden	NDSch: 1800 mg/m ³ 15 minutach TWA: 600 mg/m ³ 8 godzinach	TWA: 125 ppm 8 timer TWA: 295 mg/m ³ 8 timer STEL: 156.25 ppm 15 minutter. STEL: 368.75 mg/m ³ 15 minutter.

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Acetone

Component	Bulgaria	Croatia	Ireland	Cyprus	Czech Republic
Acetone	TWA: 600 mg/m ³ STEL : 1400.0 mg/m ³	TWA: 750 ppm 8 satima. TWA: 1780 mg/m ³ 8 satima.	TWA: 500 ppm 8 hr. TWA: 1210 mg/m ³ 8 hr.	Skin-potential for cutaneous absorption TWA: 500 ppm TWA: 1210 mg/m ³	TWA: 800 mg/m ³ 8 hodinách. Ceiling: 1500 mg/m ³

Component	Estonia	Gibraltar	Greece	Hungary	Iceland
Acetone	TWA: 500 ppm 8 tundides. TWA: 1210 mg/m ³ 8 tundides.	TWA: 500 ppm 8 hr TWA: 1210 mg/m ³ 8 hr	STEL: 3560 mg/m ³ TWA: 1780 mg/m ³	STEL: 2420 mg/m ³ 15 percekben. TWA: 1210 mg/m ³ 8 órában.	TWA: 250 ppm 8 klukkustundum. TWA: 600 mg/m ³ 8 klukkustundum. Ceiling: 500 ppm Ceiling: 1200 mg/m ³

Component	Latvia	Lithuania	Luxembourg	Malta	Romania
Acetone	TWA: 500 ppm TWA: 1210 mg/m ³	TWA: 500 ppm TWA: 1210 mg/m ³ STEL: 1000 ppm STEL: 2420 mg/m ³	TWA: 500 ppm 8 Stunden TWA: 1210 mg/m ³ 8 Stunden	TWA: 500 ppm TWA: 1210 mg/m ³	TWA: 500 ppm 8 ore TWA: 1210 mg/m ³ 8 ore

Component	Russia	Slovak Republic	Slovenia	Sweden	Turkey
Acetone	TWA: 200 mg/m ³ STEL: 800 mg/m ³ vapor	Ceiling: 2420 mg/m ³ TWA: 500 ppm TWA: 1210 mg/m ³	TWA: 500 ppm 8 urah TWA: 1210 mg/m ³ 8 urah	STV: 500 ppm 15 minuter STV: 1200 mg/m ³ 15 minuter LLV: 250 ppm 8 timmar. LLV: 600 mg/m ³ 8 timmar.	TWA: 500 ppm 8 saat TWA: 1210 mg/m ³ 8 saat

Biological limit values

List source(s):

Component	European Union	United Kingdom	France	Spain	Germany
Acetone			Acetone: 100 mg/L urine end of shift	Acetone: 50 mg/L urine end of shift	Acetone: 80 mg/L urine end of shift

Component	Italy	Finland	Denmark	Bulgaria	Romania
Acetone				Acetone: 80 mg/L urine at the end of exposure or end of shift	Acetone: 50 mg/L urine end of shift

Component	Gibraltar	Latvia	Slovak Republic	Luxembourg	Turkey
Acetone			Acetone: 80 mg/L urine end of exposure or work shift		

Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

MDHS70 General methods for sampling airborne gases and vapours

MDHS 88 Volatile organic compounds in air. Laboratory method using diffusive samplers, solvent desorption and gas chromatography

MDHS 96 Volatile organic compounds in air - Laboratory method using pumped solid sorbent tubes, solvent desorption and gas chromatography

Derived No Effect Level (DNEL)

See table for values

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Acetone

Route of exposure	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral				
Dermal				186 mg/kg
Inhalation	2420 mg/m ³			1210 mg/m ³

Predicted No Effect Concentration (PNEC) See values below.

Fresh water	10.6 mg/l
Fresh water sediment	30.4 mg/kg
Marine water	1.06 mg/l
Marine water sediment	3.04 mg/kg
Water Intermittent	21 mg/l
Microorganisms in sewage treatment	100 mg/l
Soil (Agriculture)	29.5 mg/kg

8.2. Exposure controls

Engineering Measures

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting/equipment.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.

Personal protective equipment

Eye Protection Goggles (European standard - EN 166)

Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Butyl rubber	> 480 minutes	0.5 mm	EN 374 Level 6	As tested under EN374-3 Determination of Resistance to Permeation by Chemicals
Neoprene gloves	< 30 minutes	0.45 mm		

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. Remove gloves with care avoiding skin contamination.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure

Respiratory Protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators
To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly.

Large scale/emergency use Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Recommended Filter type: low boiling organic solvent, Type AX, Brown, conforming to EN371.

Small scale/Laboratory use Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Recommended half mask:- Valve filtering: EN405 or Half mask: EN140 plus filter, EN 141

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice

Environmental exposure controls Do not allow material to contaminate ground water system.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**9.1. Information on basic physical and chemical properties**

Appearance	Colorless	
Physical State	Liquid.	
Odor	sweet	
Odor Threshold	19.8 ppm	
pH	7	
Melting Point/Range	-95°C / -139°F	
Softening Point	No data available	
Boiling Point/Range	56°C / 132.8°F	
Flash Point	-20°C / -4°F	Method - Closed cup
Evaporation Rate	5.6 (Butyl Acetate = 1.0)	
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	Lower 2.1 vol% Upper 13 vol%	
Vapor Pressure	247 mbar @ 20 °C	
Vapor Density	2.0	(Air = 1.0)
Specific Gravity / Density	0.790	
Bulk Density	Not applicable	Liquid
Water Solubility	soluble	
Solubility in other solvents	No information available.	
Partition Coefficient (n-octanol/water)	Component Acetone	log Pow -0.24
Autoignition Temperature	465 - °C / 869 - °F	
Decomposition temperature	> 4°C	
Viscosity	0.32 mPa.s @ 20 °C	
Explosive Properties	Not explosive	Vapors may form explosive mixtures with air
Oxidizing Properties	Not oxidising	

9.2. Other information

Molecular Formula	C3 H6 O
Molecular Weight	58.08
Refractive index	1.358 - 1.359

SECTION 10: STABILITY AND REACTIVITY**10.1. Reactivity**

None known, based on information available.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing..

10.4. Conditions to avoid

Heat, flames and sparks, Incompatible products, Keep away from open flames, hot surfaces and sources of ignition.

10.5. Incompatible materials

Strong oxidizing agents. Strong reducing agents. Strong bases. Peroxides. Halogenated compounds. Alkali metals. Amines.

10.6. Hazardous decomposition products

Carbon monoxide (CO), Carbon dioxide (CO₂), Formaldehyde, Methanol.

SECTION 11: TOXICOLOGICAL INFORMATION**11.1. Information on toxicological effects****Product Information****(a) acute toxicity;****Oral**

Based on available data, the classification criteria are not met

Dermal

Based on available data, the classification criteria are not met

Inhalation

Based on available data, the classification criteria are not met

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Acetone	5800 mg/kg (Rat)	> 15800 mg/kg (rabbit) > 7400 mg/kg (rat)	76 mg/l, 4 h, (rat)

(b) skin corrosion/irritation;

Based on available data, the classification criteria are not met

(c) serious eye damage/irritation;**Test method**

Category 2

Test species

OECD Test Guideline 405

Observation end point

rabbit

Irritating to eyes

(d) respiratory or skin sensitization;**Respiratory**

Based on available data, the classification criteria are not met

Skin

Based on available data, the classification criteria are not met

(e) germ cell mutagenicity;

Based on available data, the classification criteria are not met

Component	Test method	Test species	Study result
Acetone	OECD Test Guideline 471 AMES test	in vivo	negative
	OECD Test Guideline 476 Mammalian Gene cell mutation	in vitro	negative

(f) carcinogenicity;

Based on available data, the classification criteria are not met

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity;

Based on available data, the classification criteria are not met

(h) STOT-single exposure;

Category 3

(i) STOT-repeated exposure;

Based on available data, the classification criteria are not met

Target Organs

Central nervous system (CNS), Liver, Kidney, Blood, Bone Marrow, Skin.

(j) aspiration hazard;

Based on available data, the classification criteria are not met

Other Adverse Effects

Neurotoxic effects have occurred in experimental animals.

**Symptoms / effects,
both acute and delayed**

Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. May cause pulmonary edema.

SECTION 12: ECOLOGICAL INFORMATION**12.1. Toxicity****Ecotoxicity effects**

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Acetone	Oncorhynchus mykiss: LC50 = 5540 mg/l 96h Alburnus alburnus: LC50 = 11000 mg/l 96h Leuciscus idus: LC50 = 11300 mg/L/48h Salmo gairdneri: LC50 = 6100 mg/L/24h	EC50 = 8800 mg/L/48h EC50 = 12700 mg/L/48h EC50 = 12600 mg/L/48h	NOEC = 430 mg/l (algae; 96 h)	EC50 = 14500 mg/L/15 min

12.2. Persistence and degradability**Persistence**

Readily biodegradable

Persistence is unlikely, based on information available.

Component	Degradability
Acetone	91 % (28 d) (OECD 301 B)

12.3. Bioaccumulative potential

Does not bioaccumulate

Component	log Pow	Bioconcentration factor (BCF)
Acetone	-0.24	0.69

12.4. Mobility in soil

The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces. Will likely be mobile in the environment due to its volatility. Disperses rapidly in air.

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

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB).

12.6. Other adverse effects**Endocrine Disruptor Information
Persistent Organic Pollutant
Ozone Depletion Potential**

This product does not contain any known or suspected endocrine disruptors

This product does not contain any known or suspected substance

This product does not contain any known or suspected substance

SECTION 13: DISPOSAL CONSIDERATIONS**13.1. Waste treatment methods****Waste from Residues / Unused
Products**

Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging

Dispose of this container to hazardous or special waste collection point.. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.

European Waste Catalogue (EWC)

According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.

Other Information

Waste codes should be assigned by the user based on the application for which the product was used. Do not dispose of waste into sewer. Can be incinerated, when in compliance with local regulations.

SECTION 14: TRANSPORT INFORMATION**IMDG/IMO**

Acetone

14.1. UN number	UN1090
14.2. UN proper shipping name	ACETONE
14.3. Transport hazard class(es)	3
14.4. Packing group	II

ADR

14.1. UN number	UN1090
14.2. UN proper shipping name	ACETONE
14.3. Transport hazard class(es)	3
14.4. Packing group	II

IATA

14.1. UN number	UN1090
14.2. UN proper shipping name	ACETONE
14.3. Transport hazard class(es)	3
14.4. Packing group	II

14.5. Environmental hazards	No hazards identified
14.6. Special precautions for user	No special precautions required
14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable, packaged goods

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

International Inventories X = listed

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	CHINA	AICS	KECL
Acetone	200-662-2	-		X	X	-	X	X	X	X	X

National Regulations

Component	Germany - Water Classification (VwVwS)	Germany - TA-Luft Class
Acetone	WGK 1	

Component	France - INRS (Tables of occupational diseases)
Acetone	Tableaux des maladies professionnelles (TMP) - RG 84

Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment
 Take note of Dir 94/33/EC on the protection of young people at work

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has been conducted by the manufacturer/importer

SECTION 16: OTHER INFORMATION**Full text of R-phrases referred to under sections 2 and 3**

R11 - Highly flammable
 R36 - Irritating to eyes
 R66 - Repeated exposure may cause skin dryness or cracking
 R67 - Vapors may cause drowsiness and dizziness

SECTION 16: OTHER INFORMATION**Full text of H-Statements referred to under sections 2 and 3**

H225 - Highly flammable liquid and vapor

H319 - Causes serious eye irritation

H336 - May cause drowsiness or dizziness

EUH066 - Repeated exposure may cause skin dryness or cracking

Legend**CAS** - Chemical Abstracts Service**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances**PICCS** - Philippines Inventory of Chemicals and Chemical Substances**IECSC** - China Inventory of Existing Chemical Substances**KECL** - Existing and Evaluated Chemical Substances**WEL** - Workplace Exposure Limit**ACGIH** - American Conference of Industrial Hygiene**DNEL** - Derived No Effect Level**RPE** - Respiratory Protective Equipment**LC50** - Lethal Concentration 50%**NOEC** - No Observed Effect Concentration**PBT** - Persistent, Bioaccumulative, Toxic**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code**OECD** - Organisation for Economic Co-operation and Development**BCF** - Bioconcentration factor**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**AICS** - Australian Inventory of Chemical Substances**NZIoC** - New Zealand Inventory of Chemicals**TWA** - Time Weighted Average**IARC** - International Agency for Research on Cancer**PNEC** - Predicted No Effect Concentration**LD50** - Lethal Dose 50%**EC50** - Effective Concentration 50%**POW** - Partition coefficient Octanol:Water**vPvB** - very Persistent, very Bioaccumulative**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association**MARPOL** - International Convention for the Prevention of Pollution from Ships**ATE** - Acute Toxicity Estimate**VOC** - Volatile Organic Compounds**Key literature references and sources for data**

Suppliers safety data sheet,

Chemadvisor - LOLI,

Merck index,

RTECS

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Fire prevention and fighting, identifying hazards and risks, static electricity, explosive atmospheres posed by vapours and dusts.

Creation Date 28-Apr-2009**Revision Date** 25-Jun-2013**Revision Summary****Reason for revision** Update to Format, (M)SDS sections updated, 4, 8, 9, 11, 12, 15, 16.**This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006****Disclaimer**

The information provided on 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 guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as 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 material or in any process, unless specified in the text.

End of Safety Data Sheet