

Creation Date Oct-2013 Revision Date Oct-2018 Revision Number 2

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

## 1.1. Product identification

Product Description: n-Butyl acetate

Product Grade: ER, SQ

Cat No.: Q14055, Q14057, Q22005, Q22007

Synonyms Butyl acetate; Acetic acid, butyl ester; 1-Butyl acetate

 CAS-No
 123-86-4

 EC-No.
 204-658-1

 Molecular Formula
 C6H12O2

Reach Registration Number 01-2119485493-29

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

Recommended Use Laboratory chemicals.

Sector of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

Product category PC21 - Laboratory chemicals

Process categories PROC15 - Use as a laboratory reagent

**Environmental release category** ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

Uses advised against No Information available

#### 1.3. Details of the supplier of the safety data sheet

Company Thermo Fisher Scientific India Pvt. Ltd

403-404, B-wing, Delphi, Hiranandani Business Park,

Powai, Mumbai 400076, INDIA.

E-mail address laboratorysolutions@thermofisher.com

1.4. Emergency telephone number

India Toll Free: 18 00 22 22 30 Chemtrec US: (800)424-9300 Chemtrec EU: 001(202)483-7616

## **SECTION 2: HAZARDS IDENTIFICATION**

#### 2.1. Classification of the substance or mixture

#### CLP Classification - Regulation (EC) No 1272/2008

**Physical hazards** 

Flammable liquids Category 3 (H226)

**Health hazards** 

Specific target organ toxicity - (single exposure)

Category 3 (H336)

**Environmental hazards** 

Based on available data, the classification criteria are not met

#### 2.2. Label elements

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Signal Word Warning

#### **Hazard Statements**

H226 - Flammable liquid and vapor

H336 - May cause drowsiness or dizziness

EUH066 - Repeated exposure may cause skin dryness or cracking

#### **Precautionary Statements**

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking

P303 + P361 + P353 - IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower

P261 - Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray

P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing

P312 - Call a POISON CENTER or doctor/ physician if you feel unwell

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

#### 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
n-Butyl acetate	123-86-4	EEC No. 204-658-1	100	Flam. Liq. 3 (H226) STOT SE 3 (H336) EUH066

Reach Registration Number	01-2119485493-29
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Full text of Hazard Statements: see section 16

## **SECTION 4: FIRST AID MEASURES**

## 4.1. Description of first aid measures

General Advice If symptoms persist, call a physician.

**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. If skin irritation persists,

call a physician.

Ingestion Clean mouth with water and drink afterwards plenty of water.

Inhalation Move to fresh air. If not breathing, give artificial respiration. Get medical attention if

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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

### 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

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Cool closed containers exposed to fire with water spray.

#### Extinguishing media which must not be used for safety reasons

Do not use a solid water stream as it may scatter and spread fire.

#### 5.2. Special hazards arising from the substance or mixture

Flammable. 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).

## 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.

## **SECTION 6: ACCIDENTAL RELEASE MEASURES**

### 6.1. Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Use personal protective equipment. Remove all sources of ignition. Take precautionary measures against static discharges.

#### 6.2. Environmental precautions

Should not be released into the environment. Do not flush into surface water or sanitary sewer system.

## 6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Take precautionary measures against static discharges. 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. Avoid ingestion and inhalation. Do not get in eyes, on skin, or on

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clothing. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Use explosion-proof equipment. Take precautionary measures against static discharges.

## **Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing before re-use. Wash hands before breaks and at the end of workday.

#### 7.2. Conditions for safe storage, including any incompatibilities

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

#### 7.3. Specific end use(s)

Use in laboratories

## **SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

#### 8.1. Control parameters

#### **Exposure limits**

List source(s): **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	European Union	The United Kingdom	France	Belgium	Spain
n-Butyl acetate		STEL: 200 ppm 15 min	TWA / VME: 150 ppm (8	TWA: 150 ppm 8 uren	STEL / VLA-EC: 200
•		STEL: 966 mg/m <sup>3</sup> 15	heures).	TWA: 723 mg/m <sup>3</sup> 8 uren	ppm (15 minutos).
		min	TWA / VME: 710 mg/m <sup>3</sup>	STEL: 200 ppm 15	STEL / VLA-EC: 965
		TWA: 150 ppm 8 hr	(8 heures).	minuten	mg/m³ (15 minutos).
		TWA: 724 mg/m <sup>3</sup> 8 hr	STEL / VLCT: 200 ppm.	STEL: 964 mg/m <sup>3</sup> 15	TWA / VLA-ED: 150
		_	STEL / VLCT: 940	minuten	ppm (8 horas)
			mg/m³.		TWA / VLA-ED: 724
			_		mg/m³ (8 horas)

Component	Italy	Germany	Portugal	The Netherlands	Finland
n-Butyl acetate		TWA: 62 ppm (8	STEL: 200 ppm 15		TWA: 150 ppm 8
		Stunden). AGW -	minutos		tunteina
		exposure factor 2	TWA: 150 ppm 8 horas		TWA: 720 mg/m <sup>3</sup> 8
		TWA: 300 mg/m <sup>3</sup> (8			tunteina
		Stunden). AGW -			STEL: 200 ppm 15
		exposure factor 2			minuutteina
		TWA: 100 ppm (8			STEL: 960 mg/m <sup>3</sup> 15
		Stunden). MAK			minuutteina
		TWA: 480 mg/m <sup>3</sup> (8			
		Stunden). MAK			
		Höhepunkt: 200 ppm			
		Höhepunkt: 960 mg/m <sup>3</sup>			

Component	Austria	Denmark	Switzerland	Poland	Norway
n-Butyl acetate	MAK-KZW: 100 ppm 15	TWA: 150 ppm 8 timer	STEL: 200 ppm 15	STEL: 950 mg/m <sup>3</sup> 15	
	Minuten	TWA: 710 mg/m <sup>3</sup> 8 timer	Minuten	minutach	
	MAK-KZW: 480 mg/m <sup>3</sup>		STEL: 960 mg/m <sup>3</sup> 15	TWA: 200 mg/m <sup>3</sup> 8	
	15 Minuten		Minuten	godzinach	
	MAK-TMW: 100 ppm 8		TWA: 100 ppm 8	_	
	Stunden		Stunden		
	MAK-TMW: 480 mg/m <sup>3</sup>		TWA: 480 mg/m <sup>3</sup> 8		
	8 Stunden Ceiling:		Stunden		
	100 ppm Ceiling:				
	480 mg/m <sup>3</sup>				

Component	Bulgaria	Croatia	Ireland	Cyprus	Czech Republic
n-Butyl acetate	TWA: 710 mg/m <sup>3</sup>	TWA-GVI: 150 ppm 8	TWA: 150 ppm 8 hr.		TWA: 950 mg/m <sup>3</sup> 8

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STEL : 950 mg/m <sup>3</sup>	satima. TWA-GVI: 724 mg/m³ 8 satima. STEL-KGVI: 200 ppm 15 minutama. STEL- KGVI: 966 mg/m³ 15 minutama.	TWA: 710 mg/m <sup>3</sup> 8 hr. STEL: 200 ppm 15 min STEL: 950 mg/m <sup>3</sup> 15 min	hodinách. Ceiling: 1200 mg/m³
	io minutama.		

Component	Estonia	Gibraltar	Greece	Hungary	Iceland
n-Butyl acetate			STEL: 200 ppm STEL: 950 mg/m³ TWA: 150 ppm TWA: 710 mg/m³	STEL: 950 mg/m³ 15 percekben. CK TWA: 950 mg/m³ 8 órában. AK	TWA: 150 ppm 8 klukkustundum. TWA: 700 mg/m³ 8 klukkustundum. Ceiling: 300 ppm Ceiling: 1400 mg/m³

Component	Latvia	Lithuania	Luxembourg	Malta	Romania
n-Butyl acetate	TWA: 200 mg/m³				TWA: 150 ppm 8 ore TWA: 715 mg/m³ 8 ore STEL: 200 ppm 15 minute STEL: 950 mg/m³ 15 minute

Component	Russia	Slovak Republic	Slovenia	Sweden	Turkey
n-Butyl acetate	TWA: 50 mg/m³ STEL: 200 mg/m³ vapor	Ceiling: 700 mg/m³ TWA: 100 ppm TWA: 480 mg/m³	TWA: 100 ppm 8 urah TWA: 480 mg/m³ 8 urah STEL: 100 ppm 15 minutah STEL: 480 mg/m³ 15 minutah	STV: 150 ppm 15 minuter STV: 700 mg/m³ 15 minuter LLV: 100 ppm 8 timmar. LLV: 500 mg/m³ 8 timmar.	

## **Biological limit values**

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

#### 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

Route of exposure	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral				
Dermal Inhalation	960 mg/m³	960 mg/m <sup>3</sup>	480 mg/m <sup>3</sup>	480 mg/m³

**Predicted No Effect Concentration** See values below. (PNEC)

Fresh water 0.18 mg/l Fresh water sediment 0.981 mg/kg 0.018 mg/l Marine water Marine water sediment 0.0981 mg/kg Water Intermittent 0.36 mg/l 35.6 mg/l Microorganisms in sewage

treatment

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Soil (Agriculture) 0.0903 mg/kg

#### 8.2. Exposure controls

#### **Engineering Measures**

Ensure adequate ventilation, especially in confined areas. 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** Safety glasses with side-shields (European standard - EN 166)

Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Butyl rubber	< 125 minutes	0.63 mm	Level 4	Permeation rate 83 μg/cm2/min
Nitrile rubber	< 78 minutes	0.38 mm	Level 3	Permeation rate 135 µg/cm2/min
			EN 374	As tested under EN374-3 Determination of
				Resistance to Permeation by Chemicals

Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure

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 compatability, 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.

**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: Organic gases and vapours filter Type A Brown conforming to

EN14387

Small scale/Laboratory use Maintain adequate ventilation. 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

**Environmental exposure controls** Prevent product from entering drains.

## **SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

#### 9.1. Information on basic physical and chemical properties

AppearanceColorlessPhysical StateLiquid

 Odor
 sweet

 Odor Threshold
 7 - 20 ppm

 pH
 6.2 @ 20°C

 Melting Point/Range
 -90 °C / -130 °F

 Softening Point
 No data available

 Boiling Point/Range
 126 °C / 258.8 °F

Flash Point 27 °C / 80.6 °F Method - No information available

**Evaporation Rate** 1.0 (ether = 1)

Flammability (solid,gas) Not applicable Liquid

Explosion Limits Lower 1.2

(Air = 1.0)

Liquid

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Upper 7.5

Vapor Pressure No data available

Vapor Density

Specific Gravity / Density 0.881 @ 20C

Bulk Density
Not applicable
Water Solubility
Insoluble

Water Solubility Insoluble
Solubility in other solvents No information available

Partition Coefficient (n-octanol/water)

Componentlog Pown-Butyl acetate2.3

Autoignition Temperature

415 °C / 779 °F

Decomposition Temperature

No data available

**Viscosity** 0.69 - 0.73 mPas @ 20°C

**Explosive Properties** Not explosive (no chemical groups associated with explosive

properties) explosive air/vapour mixtures possible (based on the chemical structure of the substance and oxidation states of the constituent elements)

Oxidizing Properties Not oxidising

9.2. Other information

Molecular FormulaC6H12O2Molecular Weight116.16Refractive index1.393

## **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 Reactions

Hazardous polymerization does not occur.

10.4. Conditions to avoid

None under normal processing.

Incompatible products. Excess heat. Keep away from open flames, hot surfaces and

sources of ignition.

10.5. Incompatible materials

Strong oxidizing agents. Strong acids. Strong bases.

10.6. Hazardous decomposition products

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>).

## **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		
n-Butyl acetate	LD50 = 10768 mg/kg (Rat)	LD50 > 17600 mg/kg ( Rabbit )	LC50 = 390 ppm (Rat) 4 h		

(b) skin corrosion/irritation; Based on available data, the classification criteria are not met

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(c) serious eye damage/irritation; Based on available data, the classification criteria are not met

(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

(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

Central nervous system (CNS). Results / Target organs

(i) STOT-repeated exposure; Based on available data, the classification criteria are not met

**Target Organs** None known.

Based on available data, the classification criteria are not met (j) aspiration hazard;

Symptoms / effects, both acute and Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

delayed

## **SECTION 12: ECOLOGICAL INFORMATION**

#### 12.1. Toxicity

Contains no substances known to be hazardous to the environment or that are not **Ecotoxicity effects** 

degradable in waste water treatment plants.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
n-Butyl acetate	Lepomis macrochirus: LC50: 100 mg/L/96H Pimephales promelas: LC50:17-19 mg/L/96h	EC50: = 72.8 mg/L, 24h (Daphnia magna)	EC50: = 674.7 mg/L, 72h (Desmodesmus subspicatus)	EC50 = 70.0 mg/L 5 min EC50 = 82.2 mg/L 15 min EC50 = 959 mg/L 18 h EC50 = 98.9 mg/L 30 min

12.2. Persistence and degradability Readily biodegradable

Persistence is unlikely, based on information available. **Persistence** 

Degradation in sewage Contains no substances known to be hazardous to the environment or not degradable in treatment plant

waste water treatment plants.

12.3. Bioaccumulative potential Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)			
n-Butyl acetate	2.3	No data available			

12.4. Mobility in soil The product contains volatile organic compounds (VOC) which will evaporate easily from all

surfaces. Spillage unlikely to penetrate soil. Will likely be mobile in the environment due to

its volatility. Highly mobile in soils

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** This product does not contain any known or suspected endocrine disruptors

**Persistent Organic Pollutant** This product does not contain any known or suspected substance

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**Ozone Depletion Potential** 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

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

## **SECTION 14: TRANSPORT INFORMATION**

## IMDG/IMO

14.1. UN number UN1123

14.2. UN proper shipping name **BUTYL ACETATES** 

14.3. Transport hazard class(es) 14.4. Packing group Ш

**ADR** 

14.1. UN number UN1123

14.2. UN proper shipping name **BUTYL ACETATES** 

14.3. Transport hazard class(es) 3 14.4. Packing group Ш

IATA

14.1. UN number UN1123

14.2. UN proper shipping name **BUTYL ACETATES** 

14.3. Transport hazard class(es) 3 14.4. Packing group Ш

14.5. Environmental hazards No hazards identified

14.6. Special precautions for user No special precautions required

14.7. Transport in bulk according to Not applicable, packaged goods

Annex II of MARPOL73/78 and the

**IBC Code** 

## **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	IECSC	AICS	KECL
n-Butyl acetate	204-658-1	-		Х	X	-	X	X	X	X	Х

## **National Regulations**

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Germany - Water Classification (VwVwS) Germany - TA-Luft Class Component n-Butyl acetate WGK 1

Component	France - INRS (Tables of occupational diseases)
n-Butyl acetate	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

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

#### 15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

## SECTION 16: OTHER INFORMATION

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

H226 - Flammable liquid and vapor

H336 - May cause drowsiness or dizziness

EUH066 - Repeated exposure may cause skin dryness or cracking

Legend

Substances List

**CAS** - Chemical Abstracts Service

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

**ENCS** - Japanese Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances

IARC - International Agency for Research on Cancer

NZIoC - New Zealand Inventory of Chemicals

PNEC - Predicted No Effect Concentration

POW - Partition coefficient Octanol:Water

vPvB - very Persistent, very Bioaccumulative

EC50 - Effective Concentration 50%

EINECS/ELINCS - European Inventory of Existing Commercial Chemical DSL/NDSL - Canadian Domestic Substances List/Non-Domestic

Substances/EU List of Notified Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances IECSC - Chinese Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

WEL - Workplace Exposure Limit

ACGIH - American Conference of Governmental Industrial Hygienists

**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

ICAO/IATA - International Civil Aviation Organization/International Air

**Transport Association** 

MARPOL - International Convention for the Prevention of Pollution from

Ships

ATE - Acute Toxicity Estimate

TWA - Time Weighted Average

LD50 - Lethal Dose 50%

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 hvaiene.

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. Chemical incident response training.

**Creation Date** Oct-2013 **Next Revision Date** Oct-2023

**Revision Summary** SDS section 1 updated and update of Format.

## This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

#### Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the

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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

# **End of Safety Data Sheet**