# Thermo Fisher SCIENTIFIC

# SAFETY DATA SHEET

Page 1 / 10 Revision Date 09-May-2024 Version 4

ALFAA36563

# Tin(IV) isopropoxide 10% w/v in isopropanol/toluene

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

产品说明: 异丙醇锡(IV)

Product Description: Tin(IV) isopropoxide 10% w/v in isopropanol/toluene

Cat No.: 36563

Molecular Formula Sn[OCH(CH3)2]4

Supplier Avocado Research Chemicals Ltd.

(Part of Thermo Fisher Scientific)

Shore Road, Heysham Lancashire, LA3 2XY, United Kingdom

Office Tel: +44 (0) 1524 850506 Office Fax: +44 (0) 1524 850608

Emergency Telephone Number For information US call: 001-800-227-6701 / Europe call: +32 14 57 52 11

Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99 **CHEMTREC** Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

E-mail address begel.sdsdesk@thermofisher.com

Recommended Use Laboratory chemicals.
Uses advised against No Information available

## **SECTION 2. HAZARD IDENTIFICATION**

Physical State Appearance Odor
Liquid No information available No information available

## **Emergency Overview**

Highly flammable liquid and vapor. May be fatal if swallowed and enters airways. Suspected of damaging fertility or the unborn child. May cause drowsiness and dizziness. Toxic to aquatic life. Harmful to aquatic life with long lasting effects. Causes severe skin burns and eye damage. May cause damage to organs through prolonged or repeated exposure. Moisture sensitive.

#### Classification of the substance or mixture

Flammable liquids.	Category 2
Aspiration Toxicity	Category 1
Skin Corrosion/Irritation	Category 1 B
Serious Eye Damage/Eye Irritation	Category 1
Reproductive Toxicity	Category 2
Specific target organ toxicity - (single exposure)	Category 3
Specific target organ toxicity - (repeated exposure)	Category 2
Acute aquatic toxicity	Category 2
Chronic aquatic toxicity	Category 3

#### **Label Elements**

#### Tin(IV) isopropoxide 10% w/v in isopropanol/toluene



#### Signal Word

**Danger** 

#### **Hazard Statements**

- H225 Highly flammable liquid and vapor
- H304 May be fatal if swallowed and enters airways
- H336 May cause drowsiness or dizziness
- H401 Toxic to aquatic life
- H412 Harmful to aquatic life with long lasting effects
- H314 Causes severe skin burns and eye damage
- H373 May cause damage to organs through prolonged or repeated exposure
- H361 Suspected of damaging fertility or the unborn child

#### **Precautionary Statements**

#### Prevention

- P242 Use non-sparking tools
- P201 Obtain special instructions before use
- P202 Do not handle until all safety precautions have been read and understood
- P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
- P240 Ground and bond container and receiving equipment
- P243 Take action to prevent static discharges
- P260 Do not breathe dust/fume/gas/mist/vapors/spray
- P264 Wash face, hands and any exposed skin thoroughly after handling
- P271 Use only outdoors or in a well-ventilated area
- P280 Wear protective gloves/protective clothing/eye protection/face protection

#### Response

- P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower
- P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing
- 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 or doctor
- P330 Rinse mouth
- P331 Do NOT induce vomiting
- P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish
- P362 + P364 Take off contaminated clothing and wash it before reuse

## Storage

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

## Disposal

P501 - Dispose of contents/ container to an approved waste disposal plant

#### **Physical and Chemical Hazards**

Vapors may cause flash fire or explosion. Highly flammable.

#### **Health Hazards**

Aspiration hazard if swallowed - can enter lungs and cause damage. Suspected of damaging fertility or the unborn child. May cause drowsiness or dizziness. Corrosive. Causes skin and eye burns. May cause damage to organs through prolonged or repeated exposure.

#### **Environmental hazards**

Toxic to aquatic life. Harmful to aquatic life with long lasting effects. Is not likely mobile in the environment due its low water solubility. Spillage unlikely to penetrate soil.

Toxic to terrestrial vertebrates. This product does not contain any known or suspected endocrine disruptors.

## **SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

	04011	Mainlet 0/
Component	CAS No	Weight %

Page 3 / 10 Revision Date 09-May-2024

## Tin(IV) isopropoxide 10% w/v in isopropanol/toluene

Toluene	108-88-3	45.00
Isopropyl alcohol	67-63-0	45.00
Tin(IV) isopropoxide	1184-61-8	10.00

#### **SECTION 4. FIRST AID MEASURES**

#### **General Advice**

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

#### Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

#### **Skin Contact**

Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Call a physician immediately.

#### Inhalation

If not breathing, give artificial respiration. Remove from exposure, lie down. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician immediately. Risk of serious damage to the lungs (by aspiration).

## Ingestion

Do NOT induce vomiting. Clean mouth with water. Never give anything by mouth to an unconscious person. Call a physician immediately. Call a physician or poison control center immediately. If vomiting occurs naturally, have victim lean forward.

#### Most important symptoms and effects

Causes burns by all exposure routes. Difficulty in breathing. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

#### Self-Protection of the First Aider

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

#### **Notes to Physician**

Treat symptomatically. Symptoms may be delayed.

## **SECTION 5. FIRE-FIGHTING MEASURES**

#### Suitable Extinguishing Media

Carbon dioxide (CO<sub>2</sub>). Powder. Foam. Water may be ineffective. CO<sub>2</sub>, dry chemical, dry sand, alcohol-resistant foam. Water mist may be used to cool closed containers.

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

No information available.

#### **Specific Hazards Arising from the Chemical**

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes. Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

#### **Protective Equipment and Precautions 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**

Tin(IV) isopropoxide 10% w/v in isopropanol/toluene

#### **Personal Precautions**

Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Remove all sources of ignition. Take precautionary measures against static discharges.

#### **Environmental Precautions**

Do not flush into surface water or sanitary sewer system. Should not be released into the environment. Do not allow material to contaminate ground water system.

#### Methods for Containment and Clean Up

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

Refer to protective measures listed in Sections 8 and 13.

## **SECTION 7. HANDLING AND STORAGE**

#### Handling

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges.

#### Storage

Corrosives area. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame.

#### Specific Use(s)

Use in laboratories

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

## **Control Parameters**

Component	China	Taiwan	Thailand	Hong Kong
Toluene	TWA: 50 mg/m <sup>3</sup>	TWA: 100 ppm	Ceiling: 300 ppm	TWA: 50 ppm
	STEL: 100 mg/m <sup>3</sup>	TWA: 376 mg/m <sup>3</sup>	STEL: 500 ppm	TWA: 188 mg/m <sup>3</sup>
	Skin	_	TWA: 200 ppm	_
Isopropyl alcohol	TWA: 350 mg/m <sup>3</sup>	TWA: 400 ppm	TWA: 400 ppm	TWA: 400 ppm
	STEL: 700 mg/m <sup>3</sup>	TWA: 983 mg/m <sup>3</sup>		TWA: 983 mg/m <sup>3</sup>
	_	_		STEL: 500 ppm
				STEL: 1230 mg/m <sup>3</sup>

Component	ACGIH TLV	OSHA PEL	NIOSH	The United Kingdom	European Union
Toluene	TWA: 20 ppm	(Vacated) TWA: 100	IDLH: 500 ppm	STEL: 100 ppm 15 min	TWA: 50 ppm (8hr)
		ppm	TWA: 100 ppm	STEL: 384 mg/m <sup>3</sup> 15	TWA: 192 mg/m <sup>3</sup> (8hr)
		(Vacated) TWA: 375	TWA: 375 mg/m <sup>3</sup>	min	STEL: 100 ppm
		mg/m³	STEL: 150 ppm	TWA: 50 ppm 8 hr	(15min)
		Ceiling: 300 ppm	STEL: 560 mg/m <sup>3</sup>	TWA: 191 mg/m <sup>3</sup> 8 hr	STEL: 384 mg/m <sup>3</sup>
		(Vacated) STEL: 150		Skin	(15min)
		ppm			Skin
		(Vacated) STEL: 560			
		mg/m³			
		TWA: 200 ppm			
Isopropyl alcohol	TWA: 200 ppm	(Vacated) TWA: 400	IDLH: 2000 ppm	STEL: 500 ppm 15 min	
	STEL: 400 ppm	ppm	TWA: 400 ppm	STEL: 1250 mg/m <sup>3</sup> 15	
		(Vacated) TWA: 980	TWA: 980 mg/m <sup>3</sup>	min	
		mg/m³	STEL: 500 ppm	TWA: 400 ppm 8 hr	
		(Vacated) STEL: 500	STEL: 1225 mg/m <sup>3</sup>	TWA: 999 mg/m <sup>3</sup> 8 hr	
		ppm			
		(Vacated) STEL: 1225			
		mg/m³			
		TWA: 400 ppm			

Page 5 / 10 Revision Date 09-May-2024

#### Tin(IV) isopropoxide 10% w/v in isopropanol/toluene

	TW	A: 980 mg/m <sup>3</sup>			
--	----	--------------------------	--	--	--

#### Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH: NIOSH - National Institute for Occupational Safety and Health

#### **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 MDHS 91 Metals and metalloids in workplace air by X-ray fluorescence spectrometry MDHS 99 Metals in air by ICP-AES

#### **Exposure Controls**

#### **Engineering Measures**

Ensure that eyewash stations and safety showers are close to the workstation location. 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** Goggles (European standard - EN 166)

Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Nitrile rubber	See manufacturers	-	EN 374	(minimum requirement)
Viton (R)	recommendations			

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.

Skin and body protection	Long sleeved clothing
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 <b>Recommended Filter type:</b> low boiling organic solvent Type AX Brown conforming to EN371 or Organic gases and vapours filter Type A Brown conforming to EN14387
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  When RPE is used a face piece Fit Test should be conducted
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.
Environmental exposure controls	Prevent product from entering drains. Do not allow material to contaminate ground water system.

Page 6/10 Revision Date 09-May-2024

Tin(IV) isopropoxide 10% w/v in isopropanol/toluene

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

Liquid

Vapors may form explosive mixtures with air

**Appearance** 

**Physical State** Liquid

Odor No information available **Odor Threshold** No data available No information available Ha

**Melting Point/Range** No data available **Softening Point** No data available **Boiling Point/Range** No information available

Flash Point No information available Method - No information available

**Evaporation Rate** No data available

Flammability (solid,gas) Not applicable

**Explosion Limits** No data available

23 hPa @ 20 °C **Vapor Pressure** 

**Vapor Density** No data available (Air = 1.0)Specific Gravity / Density No data available

**Bulk Density** Not applicable

Liquid **Water Solubility** Immiscible

Solubility in other solvents No information available

Partition Coefficient (n-octanol/water)

Component log Pow Toluene 2.73 Isopropyl alcohol 0.05

**Autoignition Temperature** No data available No data available **Decomposition Temperature** Viscosity No data available

**Explosive Properties** 

**Oxidizing Properties** No information available

Sn[OCH(CH3)2]4 **Molecular Formula** 

**Molecular Weight** 355.06

## **SECTION 10. STABILITY AND REACTIVITY**

Stability Moisture sensitive.

**Hazardous Reactions** None under normal processing. No information available. **Hazardous Polymerization** 

**Conditions to Avoid** Keep away from open flames, hot surfaces and sources of ignition.

Materials to avoid Strong bases.

Hazardous Decomposition Products Carbon monoxide (CO). Carbon dioxide (CO2). Tin oxides.

## **SECTION 11. TOXICOLOGICAL INFORMATION**

**Product Information** 

(a) acute toxicity;

Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Toluene	> 5000 mg/kg (Rat)	LD50 = 12000 mg/kg ( Rabbit )	26700 ppm (Rat) 1 h

Page 7/10 Revision Date 09-May-2024

## Tin(IV) isopropoxide 10% w/v in isopropanol/toluene

Isopropyl alcohol	5045 mg/kg (Rat)	12800 mg/kg (Rat)	72.6 mg/L (Rat) 4 h
	3600 mg/kg ( Mouse )		

(b) skin corrosion/irritation; Category 1 B

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;

Respiratory No data available Skin No data available

(e) germ cell mutagenicity; No data available

No data available (f) carcinogenicity;

There are no known carcinogenic chemicals in this product

Category 2 (g) reproductive toxicity;

Category 3 (h) STOT-single exposure;

Central nervous system (CNS) Results / Target organs

(i) STOT-repeated exposure; Category 2

**Target Organs** Neuropsychological effects, Eyes, Ears.

(j) aspiration hazard; Category 1

delayed

Symptoms / effects,both acute and Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

#### **SECTION 12. ECOLOGICAL INFORMATION**

**Ecotoxicity effects** The product contains following substances which are hazardous for the environment.

Contains a substance which is:. Toxic to aquatic organisms. May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water system.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Toluene	5-7 mg/L LC50 96 h 15-19 mg/L LC50 96 h 28 mg/L LC50 96 h	(Daphnia magna) EC50: 5.46 - 9.83 mg/L, 48h Static (Daphnia	` subcapitata)	EC50 = 19.7 mg/L 30 min
	12 mg/L LC50 96 h	magna)	EC50: > 433 mg/L, 96h (Pseudokirchneriella subcapitata)	
Isopropyl alcohol	flow-through	h 9714 mg/L EC50 = 24 h	EC50: > 1000 mg/L, 72h (Desmodesmus subspicatus) EC50: > 1000 mg/L, 96h (Desmodesmus subspicatus)	Photobacterium phosphoreum 5 min

Page 8 / 10 Revision Date 09-May-2024

#### Tin(IV) isopropoxide 10% w/v in isopropanol/toluene

96h static (Pimephales promelas) LC50: = 10000000 µg/L, 96h (Daphnia)		
96n (Daphnia)		

Persistence and Degradability

Product contains heavy metals. Discharge into the environment must be avoided. Special

pre-treatment is necessary

**Persistence** Immiscible with water, May persist.

Component	Degradability				
Toluene	86% (20d)				
108-88-3 ( 45.00 )					

Degradation in sewage treatment plant

Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

**Bioaccumulative Potential** May have some potential to bioaccumulate; Product has a high potential to bioconcentrate

	Component	log Pow	Bioconcentration factor (BCF)
	Toluene	2.73	90
Ī	Isopropyl alcohol	0.05	No data available

Spillage unlikely to penetrate soil Is not likely mobile in the environment due its low water Mobility in soil

solubility

**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**

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.

Other Information Do not flush to sewer. Waste codes should be assigned by the user based on the

> application for which the product was used. Can be landfilled or incinerated, when in compliance with local regulations. Do not empty into drains. Large amounts will affect pH

and harm aquatic organisms.

#### **SECTION 14. TRANSPORT INFORMATION**

## **Road and Rail Transport**

**UN-No** UN1993

**Proper Shipping Name** Flammable liquid, n.o.s.

**Technical Shipping Name** (Tin(IV) isopropoxide 10%, isopropanol/toluene)

**Hazard Class** 3 **Packing Group** Ш

IMDG/IMO

UN1993

**UN-No Proper Shipping Name** Flammable liquid, n.o.s.

**Technical Shipping Name** (Tin(IV) isopropoxide 10%, isopropanol/toluene) **Hazard Class** 

Page 9 / 10 Revision Date 09-May-2024

#### Tin(IV) isopropoxide 10% w/v in isopropanol/toluene

Packing Group

<u>IATA</u>

UN-No UN1993

**Proper Shipping Name** Flammable liquid, n.o.s.

**Technical Shipping Name** (Tin(IV) isopropoxide 10%, isopropanol/toluene)

Hazard Class 3
Packing Group ||

Special Precautions for User No special precautions required

## **SECTION 15. REGULATORY INFORMATION**

#### International Inventories

X = listed, China (IECSC), Europe (EINECS/ELINCS/NLP), U.S.A. (TSCA), Canada (DSL/NDSL), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), Korea (KECL).

Component	The Inventory of Hazardous Chemicals (2015 Edition)	goods GB	TCSI	IECSC	EINECS	TSCA	DSL	PICCS	ENCS	ISHL	AICS	KECL
Toluene	X	Х	Χ	Χ	203-625-9	Х	Χ	Χ	Χ	Х	Χ	KE-33936
Isopropyl alcohol	Х	X	Х	Х	200-661-7	Х	Χ	Х	Χ	Х	Χ	KE-29363
Tin(IV) isopropoxide	-	-	X	-	-	-	-	-	-		-	-

#### **National Regulations**

## **SECTION 16. OTHER INFORMATION**

Prepared By Health, Safety and Environmental Department

Revision Date 09-May-2024

**Revision Summary** New emergency telephone response service provider.

**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. Chemical incident response training.

## Legend

CAS - Chemical Abstracts Service

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

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

Substances List

PICCS - Philippines Inventory of Chemicals and Chemical Substances
IECSC - Chinese Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
NZIOC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit TWA - Time Weighted Average

ACGIH - American Conference of Governmental Industrial Hygienists IARC - International Agency for Research on Cancer

Page 10 / 10 Revision Date 09-May-2024

## Tin(IV) isopropoxide 10% w/v in isopropanol/toluene

**DNEL** - Derived No Effect Level

RPE - Respiratory Protective Equipment

LC50 - Lethal Concentration 50%

**NOEC** - No Observed Effect Concentration **PBT** - Persistent, Bioaccumulative, Toxic

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road

**OECD** - Organisation for Economic Co-operation and Development

**BCF** - Bioconcentration factor

IMO/IMDG - International Maritime Organization/International Maritime

Dangerous Goods Code MARPOL - International Convention for the Prevention of Pollution from

Ships
ATE - Acute Toxicity Estimate
VOC - (Volatile Organic Compound)

PNEC - Predicted No Effect Concentration

POW - Partition coefficient Octanol:Water

vPvB - very Persistent, very Bioaccumulative

EC50 - Effective Concentration 50%

LD50 - Lethal Dose 50%

## Key literature references and sources for data

https://echa.europa.eu/information-on-chemicals

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Physical hazards
Health Hazards
Calculation method
Environmental hazards
Cn basis of test data
Calculation method

#### **Disclaimer**

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

**End of Safety Data Sheet**