

Revision Date 05-Nov-2015

Revision Number 3

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

1.1. Product identification

Product Description:	Triiron dodecacarbonyl
Cat No. :	209290000; 209290050; 209290250
CAS-No	17685-52-8
EC-No.	241-668-5
Molecular Formula	C12 Fe3 O12

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 Pharmaceuticalaan 3a
	2440 Geel, Belgium
E-mail address	begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

For information **US** call: 001-800-ACROS-01 / **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

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Physical hazards	
Flammable solids	Category 2 (H228)
Health hazards	
Acute oral toxicity	Category 4 (H302)
Acute dermal toxicity	Category 4 (H312)
Acute Inhalation Toxicity - Vapors	Category 4 (H332)
Specific target organ toxicity - (single exposure)	Category 2 (H371)

2.2. Label elements



Signal Word

Warning

Hazard Statements

- H228 Flammable solid
- H302 Harmful if swallowed
- H312 Harmful in contact with skin
- H332 Harmful if inhaled
- H371 May cause damage to organs

Precautionary Statements

- P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking
- P302 + P352 IF ON SKIN: Wash with plenty of soap and water
- P312 Call a POISON CENTER or doctor/ physician if you feel unwell
- P304 + P340 IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing
- P280 Wear protective gloves/ protective clothing/ eye protection/ face protection

2.3. Other hazards

No information available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Component	CAS-No	EC-No.	Weight %	CLP Classification - Regulation (EC) No 1272/2008
Methyl alcohol	67-56-1	200-659-6	5-10	Flam. Liq. 2 (H225) Acute Tox. 3 (H301) Acute Tox. 3 (H311) Acute Tox. 3 (H331) STOT SE 1 (H370)
Dimucarbonyldecacarbonyl-triangulo-triir on	17685-52-8	EEC No. 241-668-5	90-95	STOT SE 2 (H371) Acute Tox. 4 (H302) Acute Tox. 4 (H312) Acute Tox. 4 (H332) Flam. sol. 2 (H228)

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	Obtain medical attention. Wash off immediately with plenty of water for at least 15 minutes.
Ingestion	Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.
Inhalation	Move to fresh air. If breathing is difficult, give oxygen. Obtain medical attention.
Protection of First-aiders	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.
4.2. Most important symptoms and	effects, both acute and delayed
	None reasonably foreseeable.
4.3. Indication of any immediate me	edical attention and special treatment needed
Notes to Physician	Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Triiron dodecacarbonyl

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Extinguishing media which must not be used for safety reasons No information available.

5.2. Special hazards arising from the substance or mixture

Combustible material.

Hazardous Combustion Products

Heavy metal oxides.

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. Avoid dust formation.

6.2. Environmental precautions

Should not be released into the environment. Do not allow material to contaminate ground water system. Do not flush into surface water or sanitary sewer system. See Section 12 for additional ecological information.

6.3. Methods and material for containment and cleaning up

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Sweep up or vacuum up spillage and collect in suitable container for disposal. Keep in suitable, closed containers for disposal.

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. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Avoid dust formation.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool 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	European Union	The United Kingdom	France	Belgium	Spain
Methyl alcohol	TWA: 200 ppm 8 hr TWA: 260 mg/m³ 8 hr Skin	TWA; 266 mg/m ³ TWA	TWA / VME: 200 ppm (8 heures). restrictive limit TWA / VME: 260 mg/m ³ (8 heures). restrictive limit STEL / VLCT: 1000 ppm. STEL / VLCT: 1300 mg/m ³ . Peau	TWA: 266 mg/m ³ 8 uren	TWA / VLA-ED: 200 ppm (8 horas) TWA / VLA-ED: 266 mg/m ³ (8 horas) Piel
Dimucarbonyldeca carbonyl-triangulo-trii ron					TWA / VLA-ED: 1 mg/m ³ (8 horas)

Component	Italy	Germany	Portugal	The Netherlands	Finland
יד	TWA: 200 ppm 8 ore. Media Ponderata nel Tempo WA: 260 mg/m³ 8 ore. Media Ponderata nel Tempo Pelle	200 ppm TWA; 270 mg/m³ TWA Skin absorber	STEL: 250 ppm 15 minutos TWA: 200 ppm 8 horas TWA: 260 mg/m ³ 8 horas Pele	huid TWA: 133 mg/m³ 8 uren TWA: 100 ppm 8 uren	TWA: 200 ppm 8 tunteina TWA: 270 mg/m ³ 8 tunteina STEL: 250 ppm 15 minuutteina STEL: 330 mg/m ³ 15 minuutteina

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Dimucarbonyldeca			TWA: 1 mg/m ³ 8 horas		
carbonyl-triangulo-trii					
ron					
Component	Austria	Denmark	Switzerland	Poland	Norway
Methyl alcohol	Haut	TWA: 200 ppm 8 timer	Haut/Peau	STEL: 300 mg/m ³ 15	TWA: 100 ppm 8 timer
	MAK-KZW: 800 ppm 15 Minuten	TWA: 260 mg/m³ 8 timer Hud	STEL: 800 ppm 15 Minuten	minutach TWA: 100 mg/m³ 8	TWA: 130 mg/m ³ 8 timer STEL: 100 ppm 15
	MAK-KZW: 1040 mg/m ³	ниц	STEL: 1040 mg/m ³ 15	godzinach	minutter.
	15 Minuten		Minuten	gouzinach	STEL: 130 mg/m ³ 15
	MAK-TMW: 200 ppm 8		TWA: 200 ppm 8		minutter.
	Stunden		Stunden		Hud
	MAK-TMW: 260 mg/m ³		TWA: 260 mg/m ³ 8		
	8 Stunden		Stunden		
Dimucarbonyldeca			TWA: 1 mg/m ³ 8		
carbonyl-triangulo-trii			Stunden		
ron					
Component	Bulgaria	Croatia	Ireland	Cyprus	Czech Republic
Methyl alcohol	TWA: 200 ppm	kože	TWA: 200 ppm 8 hr.	Skin-potential for	TWA: 250 mg/m ³ 8
	TWA: 260.0 mg/m ³	TWA-GVI: 200 ppm 8	TWA: 260 mg/m ³ 8 hr.	cutaneous absorption	hodinách.
	Skin notation	satima.	STEL: 600 ppm 15 min	TWA: 200 ppm	Potential for cutaneous
		TWA-GVI: 260 mg/m ³ 8	STEL: 780 mg/m ³ 15	TWA: 260 mg/m ³	absorption
		satima.	min Skin		Ceiling: 1000 mg/m ³
			JKIII		
Component	Estonia	Gibraltar	Greece	Hungary	Iceland
Methyl alcohol	Nahk	Skin notation	skin - potential for	TWA: 260 mg/m ³ 8	TWA: 200 ppm 8
inoury aconor	TWA: 200 ppm 8	TWA: 200 ppm 8 hr	cutaneous absorption	órában. AK	klukkustundum.
	tundides.	TWA: 260 mg/m ³ 8 hr	STEL: 250 ppm	lehetséges borön	TWA: 260 mg/m ³ 8
	TWA: 260 mg/m ³ 8	Ũ	STEL: 325 mg/m ³	keresztüli felszívódás	klukkustundum.
	tundides.		TWA: 200 ppm		Skin notation
	STEL: 250 ppm 15		TWA: 260 mg/m ³		Ceiling: 400 ppm
	minutites.				Ceiling: 520 mg/m ³
	STEL: 350 mg/m ³ 15				
	minutites.				
Component	Latvia	Lithuania	Luxombourg	Malta	Romania
Methyl alcohol	skin - potential for	TWA: 200 ppm IPRD	Luxembourg Possibility of significant	possibility of significant	Skin notation
Metry aconor	cutaneous exposure	TWA: 260 mg/m ³ IPRD	uptake through the skin	uptake through the skin	TWA: 200 ppm 8 ore
	TWA: 200 ppm	Oda	TWA: 200 ppm 8	TWA: 200 ppm	TWA: 260 mg/m ³ 8 ore
	TWA: 260 mg/m ³	000	Stunden	TWA: 260 mg/m ³	
			TWA: 260 mg/m ³ 8		
			Stunden		
Component	Russia	Slovak Republic	Slovenia	Sweden	Turkey
Methyl alcohol	TWA: 5 mg/m ³ 1211	Potential for cutaneous	TWA: 200 ppm 8 urah	Indicative STLV: 250	Deri
	Skin notation	absorption	TWA: 260 mg/m ³ 8 urah	ppm 15 minuter	TWA: 200 ppm 8 saat
	STEL: 15 mg/m ³ 1211	TWA: 200 ppm	Koža	Indicative STLV: 350	TWA: 260 mg/m ³ 8 saat
		TWA: 260 mg/m ³		mg/m ³ 15 minuter	
				LLV: 200 ppm 8 timmar.	
				LLV: 250 mg/m ³ 8	
				timmar. Hud	
				nuu	
Dialogiaal limit					
Biological limit va	lues				
Biological limit va List source(s):	lues				
List source(s):		United Kingdom	France	Spain	Germany
List source(s):	lues European Union	United Kingdom	France Methanol: 15 mg/L urine	Spain Methanol: 15 mg/L urine	Germany Methanol: 30 mo/L urine
List source(s):		United Kingdom	Methanol: 15 mg/L urine	Spain Methanol: 15 mg/L urine end of shift	Methanol: 30 mg/L urine
List source(s):		United Kingdom		Methanol: 15 mg/L urine	Methanol: 30 mg/L urine (end of shift)
List source(s):		United Kingdom	Methanol: 15 mg/L urine	Methanol: 15 mg/L urine	Methanol: 30 mg/L urine
List source(s):		United Kingdom	Methanol: 15 mg/L urine	Methanol: 15 mg/L urine	Methanol: 30 mg/L urine (end of shift) Methanol: 30 mg/L urine
List source(s):			Methanol: 15 mg/L urine	Methanol: 15 mg/L urine	Methanol: 30 mg/L urine (end of shift) Methanol: 30 mg/L urine (end of several shifts for
List source(s):		United Kingdom Finland	Methanol: 15 mg/L urine	Methanol: 15 mg/L urine	Methanol: 30 mg/L urine (end of shift) Methanol: 30 mg/L urine (end of several shifts for

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Methyl alcohol					Methanol: 6 mg/L urine end of shift
Component	Gibraltar	Latvia	Slovak Republic	Luxembourg	Turkey
Methyl alcohol			Methanol: 30 mg/L urine end of exposure or work shift Methanol: 30 mg/L urine after all work shifts for long-term exposure		

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.

MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust MDHS 91 Metals and metalloids in workplace air by X-ray fluorescence spectrometry

MDHS 99 Metals in air by ICP-AES

Derived No Effect Level (DNEL) No information available

Route of exposu	re Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral				
Dermal				
Inhalation				

Predicted No Effect Concentration No information available. (PNEC)

8.2. Exposure controls

Engineering Measures

Ensure adequate ventilation, especially in confined areas.

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

Goggles (European standard - EN 166) **Eye Protection**

Hand Protection	Protectiv	ve gloves		
Glove material Natural rubber Nitrile rubber Neoprene PVC	Breakthrough time See manufacturers recommendations	Glove thickness -	EU standard EN 374	Glove comments (minimum requirement)
Skin and body prot	tection Long sle	eved clothing		

Skin and body protection

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

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	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: Particulates filter conforming to EN 143		
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:- Particle filtering: EN149:2001 When RPE is used a face piece Fit Test should be conducted		

Environmental exposure controls No information available.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance Physical State	Black Solid	
Odor Odor Threshold pH Melting Point/Range Softening Point Boiling Point/Range Flash Point Evaporation Rate Flammability (solid,gas) Explosion Limits	No information available No data available No information available 140 °C / 284 °F No data available No information available No information available Not applicable No information available No data available	Method - No information available Solid
Vapor Pressure Vapor Density Specific Gravity / Density Bulk Density Water Solubility Solubility in other solvents Partition Coefficient (n-octanol/wat		Solid
Component Methyl alcohol Autoignition Temperature Decomposition Temperature Viscosity Explosive Properties Oxidizing Properties	log Pow -0.74 No data available Not applicable No information available No information available	Solid
9.2. Other information	C12 Fe3 O12	
Molecular Formula	C12 Fe3 O12	

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

Molecular Weight

None known, based on information available

503.66

10.2. Chemical stability

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Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous Polymerization Hazardous Reactions	Hazardous polymerization does not occur. None under normal processing.	
10.4. Conditions to avoid	Incompatible products. Excess heat. Avoid dust formation.	
10.5. Incompatible materials	Acids. Strong bases. Halogens. Acid anhydrides. Acid chlorides. Reducing agents.	

10.6. Hazardous decomposition products

Heavy metal oxides.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Product Information

(a) acute toxicity;

Oral	Category 4
	ATE = 366 mg/kg
Dermal	Category 4
	ATE = 589 mg/kg
Inhalation	Category 4
	ATE = 5.9 mg/L

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Methyl alcohol	Calc. ATE 60 mg/kg		Calc. ATE 0.6 mg/L (vapours)
	LD50 > 1187 – 2769 mg/kg (Rat	LD50 = 17100 mg/kg (Rabbit)	or 0.5 mg/L (mists)
)		LC50 = 128.2 mg/L (Rat) 4 h

(b) skin corrosion/irritation;	No data available

(c) serious eye damage/irritation;	No data available
(d) respiratory or skin sensitization;	

(d) respiratory or skin sensitization;	
Respiratory	No data available
Skin	No data available

(e) germ cell mutagenicity; No data available

(f) carcinogenicity; No data available

There are no known carcinogenic chemicals in this product

- (g) reproductive toxicity; No data available(h) STOT-single exposure; Category 2
- (h) STOT-single exposure; Catego
- (i) STOT-repeated exposure; No data available

Target Organs	Gastrointestinal tract (GI), Eyes, Respiratory system, Liver, Skin, Central nervous system (CNS), Optic nerve.
(j) aspiration hazard;	Not applicable Solid
Other Adverse Effects	The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information

Symptoms / effects,both acute and No information available delayed

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity Ecotoxicity effects

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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
Methyl alcohol	Pimephales promelas: LC50 > 10000 mg/L 96h	EC50 > 10000 mg/L 24h		EC50 = 39000 mg/L 25 min EC50 = 40000 mg/L 15 min EC50 = 43000 mg/L 5 min

 12.2. Persistence and degradability
 The product includes heavy metals. Prevent release into the environment. Special pretreatment required

 Persistence
 Insoluble in water, May persist.

 Degradability
 Not relevant for inorganic substances.

 Degradation in sewage treatment plant
 Contains substances known to be hazardous to the environment or not degradable in water

12.3. Bioaccumulative potential Ma

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

Component	log Pow	Bioconcentration factor (BCF)	
Methyl alcohol	-0.74	10 (fish)	

<u>12.4. Mobility in soil</u>	Spillage unlikely to penetrate soil The product is insoluble and sinks in water Is not likely mobile in the environment due its low water solubility.			
<u>12.5. Results of PBT and vPvB</u> assessment	No data available for assessment.			
<u>12.6. Other adverse effects</u> 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	Waste is classified as hazardous. Dispose of in accordance with the European Directives
Products	on waste and hazardous waste. Dispose of in accordance with local regulations.

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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

<u>14.1. UN number</u> 14.2. UN proper shipping name 14.3. Transport hazard class(es) 14.4. Packing group	UN3178 FLAMMABLE SOLID, INORGANIC, N.O.S 4.1 II
ADR	
<u>14.1. UN number</u> <u>14.2. UN proper shipping name</u> <u>14.3. Transport hazard class(es)</u> 14.4. Packing group	UN3178 FLAMMABLE SOLID, INORGANIC, N.O.S 4.1 II
IATA	
<u>14.1. UN number</u> <u>14.2. UN proper shipping name</u> <u>14.3. Transport hazard class(es)</u> <u>14.4. Packing group</u>	UN3178 FLAMMABLE SOLID, INORGANIC, N.O.S 4.1 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	Not applicable, packaged goods

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
Methyl alcohol	200-659-6	-		Х	Х	-	Х	Х	Х	Х	Х
Dimucarbonyldecacarbonyl	241-668-5	-		-	-	-	-	-	-	-	-
-triangulo-triiron											

Component	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Methyl alcohol	500 tonne	5000 tonne

National Regulations

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С	omponent	Germany - Water Classification (VwVwS)	Germany - TA-Luft Class
Me	ethyl alcohol	WGK 1	

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

Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment.

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

H228 - Flammable solid

H302 - Harmful if swallowed

H312 - Harmful in contact with skin

H332 - Harmful if inhaled

H371 - May cause damage to organs

H225 - Highly flammable liquid and vapor

H370 - Causes damage to organs

H301 - Toxic if swallowed

H311 - Toxic in contact with skin

H331 - Toxic if inhaled

Legend

CAS - Chemical Abstracts Service	TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory of Existing Commercial Chemical	I 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	ENCS - Japanese Existing and New Chemical Substances
IECSC - Chinese Inventory of Existing Chemical Substances	AICS - Australian Inventory of 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
DNEL - Derived No Effect Level	PNEC - Predicted No Effect Concentration
RPE - Respiratory Protective Equipment	LD50 - Lethal Dose 50%

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

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.

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

EC50 - Effective Concentration 50%

POW - Partition coefficient Octanol:Water

vPvB - very Persistent, very Bioaccumulative

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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