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SDS No. Exempt, SR&D

MOEL's Public Notice No. 2023-9 (Standards for Classification and Labeling of Chemical Substances and Safety Data Sheets)

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

**Product Identifier** 

**Product Description:** Tetrahydrofuran

Cat No.: T427-1; T427-4; T427POP-200; T427RS-28; T427RS-115; T427RS-200; T427SK-4;

T427SS-28; T427SS-50; T427SS-115; T427SS-200; T427RS19; NC9756425

**Synonyms** THF CAS No 109-99-9 **Molecular Formula** C4 H8 O

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

**Recommended Use** Laboratory chemicals. No Information available Uses advised against

Details of the supplier of the safety data sheet

**Importer Supplier** Fisher Scientific Korea Fisher Scientific D5,D6, Incheon Airport Logistics Complex One Reagent Lane 150, Gonghangdong-Ro 296 Beon-Gil Jung-Gu, Incheon

Tel: +82-1661-9555 Fax: +82-2-2023-0603 Fair Lawn, NJ 07410 Tel: (201) 796-7100

Chem.KR@thermofisher.com E-mail address

**Emergency Telephone Number** 

Emergency telephone: Medical: +(82) 070-7686-0086 or + 1-703-741-5970

CHEMTREC: 080 822 1374 (Local), CHEMTREC: 1-800-424-9300 or + 1-703-527-3887

Korea: 00-308-13-2549 (24 hours a day, 7 days a week)

## **SECTION 2: HAZARDS IDENTIFICATION**

#### Classification of the substance or mixture

Physical hazards

Flammable liquids Category 2

**Health hazards** 

**Acute Oral Toxicity** Category 4 Category 2 Serious Eye Damage/Eye Irritation Category 2 Carcinogenicity Specific target organ toxicity - (single exposure) Category 3

**Environmental hazards** 

Based on available data, the classification criteria are not met

#### Label Elements



#### Signal Word

#### **Danger**

#### **Hazard Statements**

- H225 Highly flammable liquid and vapor
- H302 Harmful if swallowed
- H319 Causes serious eve irritation
- H335 May cause respiratory irritation
- H336 May cause drowsiness or dizziness
- H351 Suspected of causing cancer if inhaled

### **Precautionary Statements**

#### Prevention

- P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
- P233 Keep container tightly closed
- P241 Use explosion-proof electrical/ ventilating/ lighting equipment
- P280 Wear protective gloves/protective clothing/eye protection/face protection
- P240 Ground and bond container and receiving equipment
- P242 Use non-sparking tools
- P243 Take action to prevent static discharges
- P264 Wash hands and face thoroughly after handling
- P270 Do not eat, drink or smoke when using this product
- P261 Avoid breathing dust/fume/gas/mist/vapors/spray
- P271 Use only outdoors or in a well-ventilated area
- P201 Obtain special instructions before use
- P202 Do not handle until all safety precautions have been read and understood

#### Response

- P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell
- P330 Rinse mouth
- P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower
- P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction
- P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing
- P312 Call a POISON CENTER or doctor if you feel unwell
- P308 + P313 IF exposed or concerned: Get medical advice/attention
- P337 + P313 If eye irritation persists: Get medical advice/attention

#### Storage

- P403 + P235 Store in a well-ventilated place. Keep cool
- P403 + P233 Store in a well-ventilated place. Keep container tightly closed
- P405 Store locked up

### Disposal

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

### Other Hazards

May form explosive peroxides

Toxic to terrestrial vertebrates

This product does not contain any known or suspected endocrine disruptors

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NFPA

HealthFlammabilityInstabilityPhysical hazards231N/A

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

#### 3.1. Substances

Component	Common Name	CAS No	Index No	Weight %
Tetrahydrofuran	THF; butylene oxide;	109-99-9	KE-33454	99 - 100
	furanidine; oxolane			

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

**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. Get

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** Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if

symptoms occur.

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.

Most important symptoms and effects, both acute and delayed

Difficulty in breathing. Symptoms of overexposure may be headache, dizziness, tiredness,

nausea and vomiting. Causes central nervous system depression.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically. Symptoms may be delayed.

### **SECTION 5: FIREFIGHTING MEASURES**

#### Extinguishing media

#### **Suitable Extinguishing Media**

Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers.

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

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

## 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. May form explosive peroxides.

#### **Hazardous Combustion Products**

Carbon monoxide (CO), Carbon dioxide (CO2), peroxides.

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#### Advice for fire-fighters

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**

#### Personal Precautions, Protective Equipment and Emergency Procedures

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

## **Environmental precautions**

Should not be released into the environment.

#### 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. Use spark-proof tools and explosion-proof equipment.

#### Reference to Other Sections

Refer to protective measures listed in Sections 8 and 13.

## **SECTION 7: HANDLING AND STORAGE**

#### Precautions for Safe Handling

Not suitable for concentration or distillation. May form explosive peroxides on prolonged storage. If peroxide formation is suspected, do not open or move container. Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Ensure adequate ventilation. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Take precautionary measures against static discharges.

## Conditions for Safe Storage, Including any Incompatibilities

Store under an inert atmosphere. Shelf life 12 months (Unopened) or Shelf life: 3 months after opening. Containers should be dated when opened. May form explosive peroxides on prolonged storage. Should crystals form in a peroxidizable liquid, peroxidation may have occurred and the product should be considered extremely dangerous. In this instance, the container should only be opened remotely by professionals. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame. Flammables area.

#### Specific End Uses

Use in laboratories.

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

## **Control Parameters**

Component	CAS No	Korea	ACGIH TLV	OSHA PEL
Tetrahydrofuran	109-99-9	STEL: 100 ppm	TWA: 50 ppm	(Vacated) TWA: 200 ppm
		TWA: 50 ppm	STEL: 100 ppm	(Vacated) TWA: 590 mg/m <sup>3</sup>
		Skin	Skin	(Vacated) STEL: 250 ppm
				(Vacated) STEL: 735 mg/m <sup>3</sup>
				TWA: 200 ppm
				TWA: 590 mg/m <sup>3</sup>

Component	CAS No	European Union	The United Kingdom	Germany
Tetrahydrofuran	n 109-99-9 TWA: 50 ppm (8h) STEL: 100 p		STEL: 100 ppm 15 min	0 ppm 15 min TWA: 50 ppm (8 Stunden)
		TWA: 150 mg/m <sup>3</sup> (8h)	STEL: 300 mg/m <sup>3</sup> 15 min	AGW - exposure factor 2

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	STEL: 100 ppm (15min)	TWA: 50 ppm 8 hr	TWA: 150 mg/m <sup>3</sup> (8
	STEL: 300 mg/m <sup>3</sup> (15min)	TWA: 150 mg/m <sup>3</sup> 8 hr	Stunden). AGW - exposure
	Skin	Skin	factor 2
			TWA: 50 ppm (8 Stunden).
			MAK
			TWA: 150 mg/m <sup>3</sup> (8
			Stunden). MAK
			Höhepunkt: 100 ppm
			Höhepunkt: 300 mg/m <sup>3</sup>
			Haut

**ACGIH - Biological Exposure Indices** 

Component	CAS No	ACGIH - Biological Exposure Indices
Tetrahydrofuran	109-99-9	2 mg/L
		Medium: urine
		Time: end of shift
		Determinant: Tetrahydrofuran

#### **Exposure Controls**

### **Engineering Measures**

Use explosion-proof electrical/ventilating/lighting equipment. Ensure that eyewash stations and safety showers are close to the workstation location. 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

**Eye Protection** Goggles

Hand Protection Protective gloves
Skin and body protection Long sleeved clothing

### 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.

**Personal protective equipment** Use only those certified by the Korea Occupational Safety and Health Administration.

**Respiratory Protection** When workers are facing concentrations above the exposure limit they must use

appropriate certified respirators

**Recommended Filter type:** Organic gases and vapours filter Type A Brown conforming to EN14387

To protect the wearer, respiratory protective equipment must be the correct fit and be used

and maintained properly

When RPE is used a face piece Fit Test should be conducted

<u>Hygiene Measures</u> Handle in accordance with good industrial hygiene and safety practice

Environmental exposure controls No information available

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

Information on basic physical and chemical properties

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Appearance (Physical State, Color, Colorless Liquid

etc.) Odor

Petroleum distillates

**Odor Threshold** 

No data available

рH

7-8

20% aq. solution

Melting Point/Range Softening Point Boiling Point/Range -108.4 °C / -163.1 °F No data available 66 °C / 150.8 °F

Flash Point

-21 °C / -5.8 °F

**Method** - No information available

**Evaporation Rate** 

> 1

(Butyl Acetate = 1.0) Liquid

(Air = 1.0)

Flammability (solid,gas) Explosion Limits

Not applicable **Lower** 1.5 vol%

**Upper** 1.5 vol%

Vapor Pressure

170 mbar @ 20 °C

Vapor Density
Specific Gravity / Density

2.5

0.880

ole Liquid

Bulk Density Water Solubility Not applicable Miscible

Solubility in other solvents

No information available

Partition Coefficient (n-octanol/water)

Component	CAS No	log Pow	
Tetrahydrofuran	109-99-9	0.45	

Autoignition Temperature

**Decomposition Temperature** 

**Viscosity** 

215 °C / 419 °F No data available

0.456 mPas @ 20°C Dynamic

Explosive Properties
Oxidizing Properties

No information available

Vapors may form explosive mixtures with air

Molecular FormulaC4 H8 OMolecular Weight72.11

## **SECTION 10: STABILITY AND REACTIVITY**

Reactivity

Yes. May form explosive peroxides.

**Chemical Stability** 

Stable under recommended storage conditions. Reacts with air to form peroxides. May form

explosive peroxides on prolonged storage. Hygroscopic.

Possibility of Hazardous Reactions

Hazardous Polymerization Hazardous Reactions

Hazardous polymerization may occur. None under normal processing.

**Conditions to Avoid** 

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

sources of ignition. Exposure to moist air or water.

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**Incompatible Materials** 

Strong oxidizing agents. Acids.

## **Hazardous Decomposition Products**

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

### **SECTION 11: TOXICOLOGICAL INFORMATION**

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

#### **Product Information**

Information on expected route of exposure

Inhalation Irritating to respiratory system. May be harmful if inhaled. INHALATION MAY CAUSE

CENTRAL NERVOUS SYSTEM EFFECTS.

Ingestion Harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and

diarrhea.

**Eyes** Irritating to eyes.

**Skin** May be harmful in contact with skin. May cause irritation.

Information on Health Hazards

(a) acute toxicity;

Oral Category 4

DermalBased on available data, the classification criteria are not metInhalationBased on available data, the classification criteria are not met

Component	CAS No	LD50 Oral	LD50 Dermal	LC50 Inhalation
Tetrahydrofuran	109-99-9	1650 mg/kg ( Rat )	> 2000 mg/kg (Rabbit)	180 mg/L (Rat) 1 h
				53.9 mg/L (Rat) 4 h

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

(c) serious eye damage/irritation; Category 2

(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

	Component	CAS No	Test method	Test species	Study result
ſ	Tetrahydrofuran	109-99-9	Local Lymph Node	mouse	non-sensitising
١			Assay		
١			OECD Test Guideline		
١			429		

(e) germ cell mutagenicity; Based on available data, the classification criteria are not met

Component	CAS No	Test method	Test species	Study result
Tetrahydrofuran	109-99-9	OECD Test Guideline 476 Gene cell mutation	in vivo Mammalian	negative
			in vitro Mammalian	negative

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(f) carcinogenicity; Category 2

Component	CAS No	Test method	Test species / Duration	Study result
Tetrahydrofuran	109-99-9	No data available	No data available	No data available

#### Limited evidence of a carcinogenic effect

Component	CAS No	IARC	NTP	ACGIH	OSHA	UK
Tetrahydrofuran	109-99-9	Group 2B	Not listed	A3	X	Not listed

ACGIH: (American Conference of A1 - Known Human Carcinogen Governmental Industrial Hygienists) A2 - Suspected Human Carcinogen

A3 - Animal Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)

(g) reproductive toxicity; Based on available data, the classification criteria are not met

Component	CAS No	Test method	Test species / Duration	Study result
Tetrahydrofuran	109-99-9	OECD Test Guideline	Rat	NOAEL = 3,000 ppm
		416	2 Generation	

(h) STOT-single exposure: Category 3

Results / Target organs Respiratory system, Central nervous system (CNS).

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

Test method OECD Test No. 407 Rat / 28 days **Test species / Duration** 

Study result NOAEL = 1,000 mg/l

Route of exposure Oral

**Target Organs** None known.

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

### **Other Adverse Effects**

Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Causes central nervous system depression.

### **Endocrine Disruptor Information**

	Component	CAS No	EU - Endocrine Disrupters Candidate	EU - Endocrine Disruptors - Evaluated	Japan - Endocrine Disruptor Information
			List	Substances	•
Ι	Tetrahydrofuran	109-99-9	Group III Chemical	Not applicable	Not applicable

## **SECTION 12: ECOLOGICAL INFORMATION**

**Ecotoxicity effects** Do not empty into drains.

Component	CAS No	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Tetrahydrofuran	109-99-9	2160 mg/l LC50 = 96 h Pimephales promelas Leuciscus idus: LC50: 2820	EC50 48 h 3485 mg/l EC50: >10000 mg/L/24h	No data available	No data available
		mg/L/48h			

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Persistence and degradability

**Persistence** 

Product is biodegradable

Persistence is unlikely, based on information available.

Degradation in sewage treatment plant

Contains no substances known to be hazardous to the environment or not degradable in

waste water treatment plants.

Bioaccumulative potential Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Tetrahydrofuran	0.45	No data available

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

surfaces Will likely be mobile in the environment due to its volatility. Disperses rapidly in

air.

**Ozone Depletion Potential** 

Component	CAS No	Ozone Depletion Potential
Tetrahydrofuran	109-99-9	Not listed

Other adverse effects No information available

## **SECTION 13: DISPOSAL CONSIDERATIONS**

Waste treatment methods

Waste from Residues/Unused

**Products** 

Waste is classified as hazardous. Dispose in accordance with the Wastes Control Act

(폐기물관리법).

**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.

## **SECTION 14: TRANSPORT INFORMATION**

Road and Rail Transport

UN2056 **UN-No** 

**Proper Shipping Name TETRAHYDROFURAN** 

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

**IATA** 

**UN-No** UN2056

**TETRAHYDROFURAN Proper Shipping Name** 

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

IMDG/IMO

**UN-No** UN2056

**Proper Shipping Name TETRAHYDROFURAN** 

**Hazard Class Packing Group** 

**Marine Pollutant** No hazards identified

**Special Precautions for User** No special precautions required

# **SECTION 15: REGULATORY INFORMATION**

**EINECS** 

203-726-8

IECSC

Seveso III Directive

(2012/18/EC) -

DSL

NDSL | PICCS | ENCS |

Rotterdam

Convention (PIC)

ISHL

**Basel Convention** 

(Hazardous Waste)

AICS

Safety, health and environmental regulations/legislation specific for the substance or mixture

KECL

KE-33454

**TSCA** 

Seveso III Directive

(2012/18/EC) -

CAS No

109-99-9

CAS No

Legend: X - Listed '-' - Not Listed

#### **International Inventories**

Component

Tetrahydrofuran

Component

		Qualifying Quantities for Major Accident Notification	Qualifying Qu for Safety F Requirem	Report	(	(
Tetrahydrofuran	109-99-9	Not applicable	Not applic	able	Not applicable	Not applicable
Component	CAS No	CAS No OECD HPV Persistent Organic Pollutant			Ozone Depletion Potential	
Tetrahydrofuran	109-99-9	) Li	sted	Not applicable		Not applicable
Korean National Regulation	<u>ns</u>					
Component	CAS No	Evaluation	gistration and of Chemical s (K-REACH)	Authorised Chemicals		Existing Substances Subject to Registration
Tetrahydrofuran	109-99-9	Annex 1	- KE-33454	No	ot applicable	Not applicable
Component	CAS No		Control Act - chemicals	Chemical Control Act - Prohibited Chemicals		Chemical Control Act - Use Restricted Chemicals
Tetrahydrofuran	109-99-9	Not a	Not applicable		ot applicable	Not applicable
Component	CAS No	Accident Chemi	Control Act - Precaution cals (% in tures)	Accid Chem limits	cal Control Act - ent Precaution icals - Quantity Storage (% in mixtures)	Chemical Control Act - Accident Precaution Chemicals - Quantity limits Manufacture/Use (% in mixtures)
Tetrahydrofuran	109-99-9	Not a	Not applicable		ot applicable	Not applicable
Component	CAS No	Waste C	ontrol Law		of Environment - CMR risk	Ministry of Environment Critically Controlled Substance
Tetrahydrofuran	109-99-9	Not a	oplicable	No	ot applicable	Not applicable
Component	CAS No	Subjec	rmful Agents t to Work	_	A - Prohibited ubstances	ISHA - Substances requiring permission
Tetrahydrofuran	109-99-9		nt Monitoring sted	No	ot applicable	Not applicable
	1 .55 50 6					
Component	subject to control Requiring Health			ISHA - Permissible Exposure Limits		
Tetrahydrofuran	109-99-9	) Li	sted		Listed	Not applicable
Component	CAS No		Subject to afety Reports		Threshold Limit TLVs) Chemicals	ISHA - Special management materials

(minimum quantity)

#### Tetrahydrofuran

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Tetrahydrofuran	109-99-9	5000 kg	STEL: 100 ppm TWA: 50 ppm	Not applicable
			Skin	

### National Fire Association - Dangerous Substances Minimum quantity requiring a permit

Component	CAS No	Class 1 - Oxidising solids	Class 2 - Flammable solid	Class 3 - Spontaneously Combustible Substances and Dangerous Substances When Wet	Class 4 - Flammable liquids	Class 5 - Self-reactive substances	Class 6 - Oxidising liquids
Tetrahydrofuran	109-99-9	Not applicable	Not applicable	Not applicable	2. Group 1 Petroleum (Soluble) 400 L	Not applicable	Not applicable

#### **Control Parameters**

Component	CAS No	Korea	ACGIH - Biological Exposure Indices
Tetrahydrofuran	109-99-9	STEL: 100 ppm	2 mg/L
		TWA: 50 ppm	Medium: urine
		Skin	Time: end of shift
			Determinant: Tetrahydrofuran

#### **US Management Information**

**OSHA** - Occupational Safety and Health Administration

Not applicable

Component	CAS No	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Tetrahydrofuran	109-99-9	Not applicable	Not applicable

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355)

Component	CAS No	CERCLA Extremely Hazardous Substances RQs	Hazardous Substances RQs	SARA 313 - Threshold Values %
Tetrahydrofuran	109-99-9	Not applicable	1000 lb	Not applicable

#### GHS Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

#### Danger.

H225 - Highly flammable liquid and vapor. H302 - Harmful if swallowed. H319 - Causes serious eye irritation. H335 - May cause respiratory irritation. H336 - May cause drowsiness or dizziness. H351 - Suspected of causing cancer. EUH019 - May form explosive peroxides.

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P280 - Wear protective gloves/protective clothing/eye protection/face protection. P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting. 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. P312 - Call a POISON CENTER or doctor if you feel unwell.

## **SECTION 16: OTHER INFORMATION**

Legend

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CAS - Chemical Abstracts Service

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

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

AICS - Australian Inventory of Chemical Substances

Inventory

Substances List

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

RPE - Respiratory Protective Equipment LC50 - Lethal Concentration 50% POW - Partition coefficient Octanol:Water TWA - Time Weighted Average IARC - International Agency for Research on Cancer

NZIoC - New Zealand Inventory of Chemicals

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50%

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 VOC - (Volatile Organic Compound)

#### Key literature references and sources for data

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

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. Chemical incident response training.

**Creation Date** 11-Jun-2009 **Revision Date** 06-Jun-2024

**Revision Number** 

**Revision Summary** SDS sections updated, 7, 10.

# MOEL's Public Notice No. 2023-9 (Standards for Classification and Labeling of Chemical **Substances and Safety Data Sheets)**

#### 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**