SAFETY DATA SHEET

Version 6.10
Revision Date 03/26/2026
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SECTION 1. IDENTIFICATION

1.1 Product identifiers

Product name : Diethyl ether

Product Number : 346136
Brand : SIGALD
Index-No. : 603-022-00-4
CAS-No. : 60-29-7

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

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone number

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Hazards for the product as supplied

Flammable liquids : Category 1

Acute toxicity (Oral) : Category 4

Specific target organ toxicity - single exposure : Category 3 (Central nervous system)

Long-term (chronic) : Category 3

aquatic hazard

Other hazards

May form explosive peroxides.
Repeated exposure may cause skin dryness or cracking.

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : H224 Extremely flammable liquid and vapour.
H302 Harmful if swallowed.
H336 May cause drowsiness or dizziness.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements :

Prevention:

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P240 Ground and bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting equipment.
P242 Use non-sparking tools.
P243 Take action to prevent static discharges.
P261 Avoid breathing mist or vapours.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage:

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

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

Disposal:

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

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

CAS-No. : 60-29-7

Components

Chemical name	CAS No./Unique ID	Concentration (% w/w)	Trade secret
Diethyl ether	60-29-7*	>= 80 - <= 100	TSC
butyl hydroxytoluene (BHT)	128-37-0*	>= 0.5 - <= 1.5	TSC

* Indicates that the identifier is a CAS No.
TSC- the actual concentration or concentration range is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

General advice : Show this safety data sheet to the doctor in attendance.

If inhaled : After inhalation: fresh air. Call in physician.

In case of skin contact : In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact : After eye contact: rinse out with plenty of water. Remove contact lenses.

If swallowed : After swallowing: immediately make victim drink water (two glasses at most).
Consult a physician.

Most important symptoms and effects, both acute and delayed : The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

Protection of first-aiders : For personal protection see section 8.

Notes to physician : No data available

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Carbon dioxide (CO2) Foam Dry powder
Unsuitable extinguishing media	:	For this substance/mixture no limitations of extinguishing agents are given.
Specific hazards during fire fighting	:	Combustible. Pay attention to flashback. Vapours are heavier than air and may spread along floors. Development of hazardous combustion gases or vapours possible in the event of fire. Forms explosive mixtures with air at ambient temperatures.
Hazardous combustion products	:	Carbon oxides
Specific extinguishing methods	:	No data available
Further information	:	Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.
Special protective equipment for fire-fighters	:	In the event of fire, wear self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions,	:	Advice for non-emergency personnel:

protective equipment and emergency procedures		Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert. Advice for emergency responders: For personal protection see section 8.
Environmental precautions	:	Do not let product enter drains. Risk of explosion.
Methods and materials for containment and cleaning up	:	Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

SECTION 7. HANDLING AND STORAGE

For precautions see section 2.2.

Advice on protection against fire and explosion	:	Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.
Advice on safe handling	:	Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.
Further information on storage conditions	:	Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.
Storage class	:	3, Flammable liquids
Recommended storage temperature	:	Recommended storage temperature see product label.
Further information on storage stability	:	Light sensitive. Heat sensitive. Air sensitive. Test for peroxide formation periodically and before distillation.
Packaging material	:	Suitable material: Mild Steel Drum

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Diethyl ether	60-29-7	TWA	400 ppm	ACGIH
		STEL	500 ppm	ACGIH
		TWA	400 ppm 1,200 mg/m3	OSHA Z-1
butyl hydroxytoluene (BHT)	128-37-0	TWA (Inhalable fraction and vapor)	2 mg/m3	ACGIH
		TWA	10 mg/m3	NIOSH REL

Engineering measures : No data available

Personal protective equipment

Respiratory protection : required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: : Filter type AX

The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Hand protection

Material	:	Viton®
Break through time	:	30 min
Glove thickness	:	0.7 mm
Protective index	:	Splash contact
Manufacturer	:	Vitoject® (KCL 890 / Aldrich Z677698, Size M)
Remarks	:	This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Eye protection	:	Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses
Skin and body protection	:	Flame retardant antistatic protective clothing.
Hygiene measures	:	Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid (68 °F / 20 °C, 1,013 hPa)
Color	:	colourless
Odor	:	sweet, ether-like
Odor Threshold	:	No data available
pH	:	No data available
Melting point/ range	:	-177 °F / -116 °C Method: lit.
Boiling point/boiling range	:	94.3 °F / 34.6 °C Method: lit.
Flash point	:	-40 °F / -40 °C
Evaporation rate	:	No data available
Flammability (solid, gas)	:	No data available
Flammability (liquids)	:	No data available
Burning rate	:	No data available
Self-ignition	:	347 °F / 175 °C ca. 1,013.25 hPa
Upper explosion limit / Upper flammability limit	:	Upper explosion limit 36 %(V)
Lower explosion limit / Lower flammability limit	:	Lower explosion limit 1.7 %(V)

Vapor pressure	:	189 hPa (32 °F / 0 °C) 389 hPa (50 °F / 10 °C) 563 hPa (68 °F / 20 °C) 863 hPa (86 °F / 30 °C) 1,228 hPa (104 °F / 40 °C) 2,311 hPa (140 °F / 60 °C)
Relative vapour density	:	2.56 (Air = 1.0)
Relative density	:	No data available
Density	:	0.706 g/mL (77 °F / 25 °C) Method: lit.
Solubility(ies) Water solubility	:	65 g/l completely soluble (68 °F / 20 °C) pH: 7
Partition coefficient: n-octanol/water	:	log Pow: 1.1 Bioaccumulation is not expected.
Autoignition temperature	:	356 °F / 180 °C Auto-flammability
Decomposition temperature	:	No data available
Viscosity Viscosity, dynamic	:	0.195 mPa.s (104 °F / 40 °C)
Viscosity, kinematic	:	No data available
Flow time	:	No data available
Explosive properties	:	Not classified as explosive.
Oxidizing properties	:	none
Molecular weight	:	74.12 g/mol
Particle characteristics Particle size	:	No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Formation of peroxides possible. Vapours may form explosive mixture with air.
Chemical stability	:	The product is chemically stable under standard ambient conditions (room temperature) .
Contains the following stabiliser(s):	:	butyl hydroxytoluene (BHT) (<=11 %)
Possibility of hazardous reactions	:	Risk of ignition or formation of inflammable gases or vapours with: chromyl chloride Peroxides Risk of explosion with: azides halogens halogen-halogen compounds nonmetallic oxyhalides Strong oxidizing agents chromium(VI) oxide halogen oxides peroxi compounds perchloric acid perchlorates Nitric acid nitrating acid Oxygen Ozone turpentine oils and/or turpentine substitutes nitrates metallic chlorides salts of oxyhalogenic acids nitrogen oxides nonmetallic oxides chromosulfuric acid chlorates hydrogen peroxide permanganic acid sulfuric acid with Nitric acid sulfur Risk of explosion during distillation. Exothermic reaction with: acid halides
Conditions to avoid	:	Light. Heat Air Warming.

Moisture.

Incompatible materials	:	No data available
Hazardous decomposition products	:	Peroxides
	:	In the event of fire: see section 5

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
Acute toxicity estimate Oral - 1,224 mg/kg
(Calculation method)
LD50 Oral - Rat - 1,211 mg/kg (Diethyl ether)
Remarks: (RTECS)
Symptoms: Risk of aspiration upon vomiting., Aspiration may cause pulmonary oedema and pneumonitis.
LC50 Inhalation - Mouse - 4 h - 97.5 mg/l - vapour
(Diethyl ether)
Remarks: (RTECS)
Symptoms: mucosal irritations
Acute toxicity estimate Dermal - > 5,000 mg/kg
(Calculation method)
LD50 Dermal - Rabbit - male - > 20,000 mg/kg (Diethyl ether)
(OECD Test Guideline 402)
Remarks: (ECHA)

Skin corrosion/irritation
Skin - Rabbit (Diethyl ether)
Result: No skin irritation - 4 h
(OECD Test Guideline 404)
Remarks: Dermatitis

Serious eye damage/eye irritation
Eyes - Rabbit (Diethyl ether)
Result: No eye irritation
(OECD Test Guideline 405)

Respiratory or skin sensitization
Local lymph node assay (LLNA) - Mouse (Diethyl ether)
Result: negative
(OECD Test Guideline 429)

Germ cell mutagenicity
Test Type: Mouse
Test system: Embryo
Remarks: DNA inhibition
Test Type: Micronucleus test
(Diethyl ether)
Test system: Human lymphocytes
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 487

Result: negative
Test Type: In vitro mammalian cell gene mutation test
(Diethyl ether)
Test system: Mouse lymphoma test
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
Test Type: Ames test
(Diethyl ether)
Test system: Escherichia coli/Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
(Diethyl ether)
Test Type: Micronucleus test
Species: Mouse
Cell type: Red blood cells (erythrocytes)
Application Route: Intraperitoneal
Method: OECD Test Guideline 474
Result: negative

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
Oral - May cause drowsiness or dizziness. - Central nervous system (Diethyl ether)

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

Repeated dose toxicity - Rat - male and female - Oral - 13 Weeks - No observed adverse effect level - 500 mg/kg - Lowest observed adverse effect level - 2,000 mg/kg
Remarks: (ECHA)
(Diethyl ether)
RTECS: KI5775000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
Inhalation may provoke the following symptoms: (Diethyl ether)
Cough, chest pain, Difficulty in breathing, Dizziness, Drowsiness, Contact with eyes can cause:, Redness, Provokes tears., Blurred vision, Prolonged or repeated exposure to skin causes defatting and dermatitis. (Diethyl ether)

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. (Diethyl ether)

Narcotic!
(Diethyl ether)
After absorption:
(Diethyl ether)
Salivation
ataxia (impaired locomotor coordination)
inebriation
Unconsciousness
Coma
(Diethyl ether)
Other dangerous properties can not be excluded.
(Diethyl ether)
Handle in accordance with good industrial hygiene and safety practice.
(Diethyl ether)

Liver - Ingestion may provoke the following symptoms:, Irregularities - Based on Human Evidence

Liver - Ingestion may provoke the following symptoms:, Irregularities - Based on Human Evidence
(Diethyl ether)

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Diethyl ether:

Toxicity to fish	:	LC50 (Lepomis macrochirus (Bluegill sunfish)): > 10,000 mg/l Exposure time: 96 h Remarks: (IUCLID)
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 1,380 mg/l Exposure time: 48 h Remarks: (IUCLID)
Toxicity to algae/aquatic plants	:	ErC50 (Desmodesmus subspicatus (green algae)): > 100 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 201 GLP: yes NOEC (Desmodesmus subspicatus (green algae)): 100 mg/l End point: Growth inhibition

Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 201
GLP: yes

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): > 100 mg/l
End point: reproduction rate
Exposure time: 21 d
Test Type: semi-static test
Analytical monitoring: yes
Method: OECD Test Guideline 211
GLP: yes

Toxicity to microorganisms : EC50 (activated sludge): 21,000 mg/l
Exposure time: 3 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 209
GLP: yes

NOEC (activated sludge): 42 mg/l
Exposure time: 3 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 209
GLP: yes

butyl hydroxytoluene (BHT):

Toxicity to fish : LC50 (Danio rerio (zebra fish)): > 0.57 mg/l
End point: mortality
Exposure time: 96 h
Test Type: semi-static test
Analytical monitoring: yes
Method: Directive 67/548/EEC, Annex V, C.1.
GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.48 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae/aquatic plants : ErC50 (Desmodesmus subspicatus (green algae)): > 0.4 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Method: Regulation (EC) No. 440/2008, Annex, C.3

GLP: yes

Toxicity to fish (Chronic toxicity)	:	NOEC (Oryzias latipes): 0.053 mg/l Exposure time: 30 d Method: OECD Test Guideline 210 GLP: yes
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	EC50 (Daphnia magna (Water flea)): 0.096 mg/l End point: reproduction rate Exposure time: 21 d Method: OECD Test Guideline 211 GLP: yes
Toxicity to microorganisms	:	EC50 (activated sludge): > 10,000 mg/l Exposure time: 3 h Test Type: static test Method: OECD Test Guideline 209 GLP: yes

Ecotoxicology Assessment

Acute aquatic toxicity	:	no acute aquatic toxicity
Chronic aquatic toxicity	:	Very toxic to aquatic life with long lasting effects.

Persistence and degradability

Components:

Diethyl ether:

Biodegradability	:	Remarks: Not readily biodegradable.

Bioaccumulative potential

Components:

Diethyl ether:

Bioaccumulation	:	Remarks: No bioaccumulation is to be expected (log Pow <= 4).
Partition coefficient: n-octanol/water	:	log Pow: 1.1 Remarks: Bioaccumulation is not expected.

butyl hydroxytoluene (BHT):

Partition coefficient: n-octanol/water	:	log Pow: 5.1 GLP: yes Remarks: Potential bioaccumulation (ECHA)

Mobility in soil

No data available

Other adverse effects

Product:

Ozone-Depletion Potential	:	Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Components:

Diethyl ether:

Results of PBT and vPvB assessment	:	Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

butyl hydroxytoluene (BHT):

Results of PBT and vPvB assessment	:	Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.
Additional ecological information	:	Discharge into the environment must be avoided.

Endocrine disrupting properties

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR

UN/ID No.	:	UN 1155
Proper shipping name	:	Diethyl ether
Class	:	3
Packing group	:	I
Labels	:	Class 3 - Flammable liquids
Packing instruction (cargo aircraft)	:	361

Packing instruction (passenger aircraft)	:	351

IMDG-Code

UN number	:	UN 1155
Proper shipping name	:	DIETHYL ETHER
Class	:	3
Packing group	:	I
Labels	:	3
EmS Code	:	F-E, S-D
Marine pollutant	:	no

Transport in bulk according to IMO instruments

Not applicable for product as supplied.

National Regulations

49 CFR

UN/ID/NA number	:	UN 1155
Proper shipping name	:	Diethyl ether
Class	:	3
Packing group	:	I
Labels	:	Class 3 - Flammable liquids
ERG Code	:	127
Marine pollutant	:	no
Poison Inhalation Hazard	:	No

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Diethyl ether	60-29-7	100	101
Diethyl ether	60-29-7	100	100 (F003)

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards	:	Fire Hazard Acute Health Hazard Chronic Health Hazard

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Air Act

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).
The following chemical(s) are listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F):

Diethyl ether	60-29-7	>= 90 - <= 100 %

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489):

Diethyl ether	60-29-7	>= 90 - <= 100 %

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.
This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.
This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307
This product does not contain any priority pollutants related to the U.S. Clean Water Act

US State Regulations

Massachusetts Right To Know

Diethyl ether	60-29-7
butyl hydroxytoluene (BHT)	128-37-0

Pennsylvania Right To Know

Diethyl ether	60-29-7

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

The components of this product are reported in the following inventories:

US TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
NIOSH REL	:	USA. NIOSH Recommended Exposure Limits
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
ACGIH / TWA	:	8-hour, time-weighted average
ACGIH / STEL	:	Short-term exposure limit
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
OSHA Z-1 / TWA	:	8-hour time weighted average

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonised System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Revision Date : 03/26/2026

US / EN