

# **SAFETY DATA SHEET**

Version 6.13 Revision Date 05/06/2025 Print Date 05/07/2025

#### **SECTION 1. IDENTIFICATION**

#### 1.1 Product identifiers

Product name : tert-Butyl methyl ether

Product Number : 179787 Brand : SIGALD

Index-No. : 603-181-00-X CAS-No. : 1634-04-4

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

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption

(40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The

product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by

MilliporeSigma.

## 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)

Flammable liquids : Category 2

Skin irritation : Category 2

SIGALD - 179787

Page 1 of 17



#### Other hazards

None known.

#### **GHS label elements**

Hazard pictograms





Signal Word : Danger

Hazard Statements : H225 Highly flammable liquid and vapor.

H315 Causes skin irritation.

Precautionary Statements : **Prevention:** 

P210 Keep away from heat/ sparks/ open flames/ hot

surfaces. No smoking.

P233 Keep container tightly closed.

P240 Ground/bond container and receiving equipment.

P241 Use explosion-proof electrical/ ventilating/

lighting/ equipment.

P242 Use only non-sparking tools.

P243 Take precautionary measures against static

discharge.

P264 Wash skin thoroughly after handling.

P280 Wear protective gloves/ eye protection/ face

protection.

Response:

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

water/ shower.

P332 + P313 If skin irritation occurs: Get medical

advice/ attention.

P362 Take off contaminated clothing and wash before

reuse.

P370 + P378 In case of fire: Use dry sand, dry chemical

or alcohol-resistant foam to extinguish.

Storage:

P403 + P235 Store in a well-ventilated place. Keep cool.

Disposal:

P501 Dispose of contents/ container to an approved

waste disposal plant.

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

Substance / Mixture : Substance

SIGALD - 179787

Page 2 of 17

## Components

Chemical name	CAS No./Unique ID	Concentration (% w/w)	Trade secret
tert-butyl methyl ether	1634-04-4*	>= 90 - <= 100	-

<sup>\*</sup> Indicates that the identifier is a CAS No. Actual concentration is withheld as a trade secret

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

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

attendance.

If inhaled : After inhalation: fresh air.

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: caution if victim vomits. Risk of

aspiration! Keep airways free.

Pulmonary failure possible after aspiration of vomit.

Call a physician immediately.

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.

No data available Notes to physician

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

SIGALD - 179787 Page 3 of 17 Vapors 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

: Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

#### **SECTION 6. ACCIDENTAL RELEASE MEASURES**

Personal precautions, protective equipment and emergency procedures : Advice for non-emergency personnel: Do not breathe vapors, 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.

SIGALD - 179787

Page 4 of 17



#### **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.

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.

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
tert-butyl methyl ether	1634-04-4	TWA	50 ppm	ACGIH

**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.

SIGALD - 179787



Hand protection

Material : Nitrile rubber
Break through time : 120 min
Glove thickness : 0.4 mm

Protective index : Splash contact

Manufacturer : Camatril® (KCL 730 / Aldrich Z677442, 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 : Immediately change contaminated clothing. Apply

preventive skin protection. Wash hands and face

after working with substance.

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

Appearance : liquid

Color : colorless

Odor : characteristic

Odor Threshold : 0.053 ppm

pH : No data available

Melting point : -163.5 °F / -108.6 °C

(1,013 hPa) Decomposition: no

Boiling point/boiling range : 131 - 133 °F / 55 - 56 °C

Method: lit.

Flash point :  $-18 \, ^{\circ}\text{F} / -28 \, ^{\circ}\text{C}$ 

SIGALD - 179787

MILLIPORE

(1,013 hPa)

Method: closed cup

Evaporation rate : No data available

Flammability (solid, gas) : No data available

Flammability (liquids) : No data available

Burning rate : No data available

Self-ignition : 860 °F / 460 °C

101.3 kPa

Method: DIN 51794

Upper explosion limit / Upper flammability limit

: Upper explosion limit

8.5 %(V)

Lower explosion limit / Lower flammability limit : 1.6 %(V)

Vapor pressure : 330 hPa (77 °F / 25 °C)

Decomposition: no

Method: OECD Test Guideline 104

GLP: yes

Relative vapor density : No data available

Relative density : 0.74 (68 °F / 20 °C)

Density : 0.74 g/cm3 (77 °F / 25 °C)

Method: lit.

Solubility(ies)

Water solubility : 42 g/l (68 °F / 20 °C)

pH: 7

Method: OECD Test Guideline 105

Partition coefficient: n-

octanol/water

: log Pow: 1.06 (68 °F / 20 °C)

pH: 7

Method: OECD Test Guideline 107 Bioaccumulation is not expected.

Autoignition temperature : 860 °F / 460 °C

Method: DIN 51794

Decomposition temperature

: Distillable in an undecomposed state at normal

pressure.

Viscosity

Viscosity, dynamic : 0.36 mPa.s (68 °F / 20 °C)

SIGALD - 179787

Page 7 of 17

: 0.409 mm2/s (104 °F / 40 °C) Viscosity, kinematic

Method: OECD Test Guideline 114

GLP: yes

0.464 mm2/s (68 °F / 20 °C) Method: OECD Test Guideline 114

GLP: yes

Flow time : No data available

Explosive properties : Not classified as explosive.

Oxidizing properties : none

Surface tension : 72.5 mN/m, 1.07 g/l, 70.7 °F / 21.5 °C, Surface

tension, GLP: yes

Molecular weight : 88.15 g/mol

Particle characteristics

Particle size : No data available

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

Reactivity : Vapors may form explosive mixture with air.

: The product is chemically stable under standard Chemical stability

ambient conditions (room temperature) .

Possibility of hazardous

reactions

: Violent reactions possible with:

Oxidizing agents Strong acids halogens Strong bases

rubber

various plastics

Conditions to avoid : Heat, flames and sparks.

Warming.

: No data available Incompatible materials

products

Hazardous decomposition : In the event of fire: see section 5

SIGALD - 179787

#### **SECTION 11. TOXICOLOGICAL INFORMATION**

# 11.1 Information on toxicological effects

## **Acute toxicity**

LD50 Oral - Rat - male and female - > 2,000 mg/kg

(OECD Test Guideline 401)

Symptoms: Nausea, Vomiting, Pulmonary failure possible after aspiration of vomit.,

Aspiration may cause pulmonary edema and pneumonitis.

LC50 Inhalation - Rat - male and female - 4 h - 85 mg/l - vapor

(OECD Test Guideline 403)

Symptoms: Possible damages:, mucosal irritations LD50 Dermal - Rat - male and female - > 2,000 mg/kg

(OECD Test Guideline 402)

# Skin corrosion/irritation

Skin - Rabbit

Result: Skin irritation - 4 h (OECD Test Guideline 404)

Remarks: Drying-out effect resulting in rough and chapped skin.

# Serious eye damage/eye irritation

Eyes - Rabbit

Result: No eye irritation (OECD Test Guideline 405)

## Respiratory or skin sensitization

Maximization Test - Guinea pig

Result: negative

(OECD Test Guideline 406)

## Germ cell mutagenicity

Test Type: In vitro mammalian cell gene mutation test

Test system: Chinese hamster lung cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476

Result: negative Test Type: Ames test

Test system: Salmonella typhimurium

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Test Type: Mutagenicity (mammal cell test): micronucleus.

Test system: mouse lymphoma cells

Metabolic activation: without metabolic activation

Method: OECD Test Guideline 473

Result: negative

Test Type: unscheduled DNA synthesis assay

Species: Mouse Cell type: Liver cells

Application Route: inhalation (vapor) Method: OECD Test Guideline 486

SIGALD - 179787

Millipore Sigma Result: negative

Test Type: Micronucleus test

Species: Mouse

Cell type: Bone marrow

Application Route: inhalation (vapor)

Method: US-EPA Result: negative

Test Type: Mutagenicity (mammal cell test): chromosome aberration.

Species: Rat

Cell type: Bone marrow

Application Route: inhalation (vapor)

Method: US-EPA Result: negative

Test Type: Transgenic rodent somatic cell gene mutation assay

Species: Rat

Cell type: Bone marrow

Application Route: inhalation (vapor) Method: OECD Test Guideline 488

Result: negative

# Carcinogenicity

IARC: No ingredient 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 ingredient 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

No data available

# 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 - 90 d - NOAEL (No observed adverse

effect level) - 3,000 mg/kg Remarks: Subchronic toxicity

RTECS: KN5250000

Nausea, Vomiting, Dizziness, Central nervous system depression, Aspiration or inhalation may cause chemical pneumonitis., MTBE (methyl-tert-butyl ether) is reported to metabolize to tert-butyl alcohol and formaldehyde by microsomal demethylation, MTBE (methyl-tert-butyl ether) should be considered a "potential human carcinogen" due to an increase in

SIGALD - 179787 Page 10 of 17



leydig interstitial cell tumors of testes in male rats and an increase in lymphomas, leukemias, and uterine sarcomas in female rats., In another unpublished study MTBE was shown to be carcinogenic due to "increased incidence of a rare type of kidney tumor" in male rats and an "increase in the incidence of hepatocellular adenomas" in female mice. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Systemic effects:

After absorption of large quantities:

somnolence
Dizziness
agitation, spasms
CNS disorders
narcosis
Unconsciousness

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

## **SECTION 12. ECOLOGICAL INFORMATION**

## **Ecotoxicity**

## **Components:**

## tert-butyl methyl ether:

Toxicity to fish : LC50 (Menidia beryllina): 574 mg/l

End point: mortality Exposure time: 96 h Test Type: semi-static test Analytical monitoring: yes

Method: OECD Test Guideline 203

Toxicity to daphnia and

other aquatic invertebrates

: EC50 (Americamysis bahia (Mysid)): 187 mg/l

End point: Swimming behavior

Exposure time: 96 h

Test Type: flow-through test Analytical monitoring: yes

Method: US-EPA OPPTS 850.1035

GLP: yes

Toxicity to algae/aquatic

plants

: IC50 (Pseudokirchneriella subcapitata (green algae)):

491 mg/l

Exposure time: 96 h Test Type: static test Analytical monitoring: yes

GLP: yes

SIGALD - 179787 Page 11 of 17



Toxicity to fish (Chronic toxicity)

NOEC (Pimephales promelas (fathead minnow)): 299

mg/l

End point: Growth inhibition

Exposure time: 31 d

Test Type: flow-through test Analytical monitoring: yes

GLP: yes

Remarks: (ECHA)

NOEC (Pimephales promelas (fathead minnow)): 450

mg/l

End point: mortality Exposure time: 31 d

Test Type: flow-through test Analytical monitoring: yes

GLP: yes

Remarks: (ECHA)

Toxicity to daphnia and

other aquatic

invertebrates (Chronic

toxicity)

: NOEC (Daphnia magna (Water flea)): 51 mg/l

Exposure time: 21 d

Test Type: flow-through test Analytical monitoring: yes Method: OPPTS 850.1300

GLP: yes

Toxicity to microorganisms

: EC10 (Pseudomonas putida): 710 mg/l

End point: Growth rate

Exposure time: 18 h Test Type: static test

GLP: yes

Remarks: (ECHA)

## Persistence and degradability

# **Components:**

## tert-butyl methyl ether:

Biodegradability : aerobic

Inoculum: activated sludge Concentration: 2 mg/l

Result: Not readily biodegradable.

Biodegradation: 0 % Exposure time: 28 d

Method: OECD Test Guideline 301D

GLP: yes

# **Bioaccumulative potential**

#### **Components:**

## tert-butyl methyl ether:

SIGALD - 179787

Bioaccumulation : Species: Cyprinus carpio (Carp)

Bioconcentration factor (BCF): 1.5

Exposure time: 28 d

Temperature: 77 °F / 25 °C

Partition coefficient: n-

octanol/water

: log Pow: 1.06 (68 °F / 20 °C)

pH: 7

Method: OECD Test Guideline 107

Remarks: Bioaccumulation is not expected.

# 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:**

# tert-butyl methyl ether:

Results of PBT and vPvB assessment

Substance is not persistent, bioaccumulative, and toxic (PBT). Substance is not very persistent and very

bioaccumulative (vPvB).

: Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex

XIII.

#### **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 2398

SIGALD - 179787

Page 13 of 17



Proper shipping name : Methyl tert-butyl ether

Class : 3 Packing group : II

Labels : Class 3 - Flammable liquids

Packing instruction (cargo: 364

aircraft)

Packing instruction : 353

(passenger aircraft)

IMDG-Code

UN number : UN 2398

Proper shipping name : METHYL tert-BUTYL ETHER

Class : 3
Packing group : II
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 regulation**

#### 49 CFR Road

UN/ID/NA number : UN 2398

Proper shipping name : Methyl tert-butyl ether

Class : 3 Packing group : II

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)
tert-butyl methyl ether	1634-04-4	1000	1000

## **SARA 304 Extremely Hazardous Substances Reportable Quantity**

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

SIGALD - 179787

Page 14 of 17



# SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

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

SARA 311/312 : Fire Hazard

**Hazards** Acute Health Hazard

**SARA 313** : The following components are subject to reporting

levels established by SARA Title III, Section 313:

tert-butyl 1634-04-4 >= 90 - <= 100 %

methyl ether

#### 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). The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 112 (40 CFR 61):

tert-butyl methyl 1634-04-4 >= 90 - <= 100 %

ether

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489).

#### **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** 

tert-butyl methyl ether 1634-04-4

Pennsylvania Right To Know

tert-butyl methyl ether 1634-04-4

**Maine Chemicals of High Concern** 

tert-butyl methyl ether 1634-04-4

**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 ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

SIGALD - 179787

Page 15 of 17

#### **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)

ACGIH / 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 Harmonized 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 Organization; ISHL - Industrial Safety and Health Law (Japan); ISO -International Organisation for Standardization; 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 - Organization for Economic Co-operation and Development; - 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--Decomposition Temperature; SARA Superfund Amendments 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 SIGALD - 179787

Page 16 of 17



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Revision Date : 05/06/2025

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SIGALD - 179787 Page 17 of 17

