

SAFETY DATA SHEET

Version 6.13 Revision Date 07/23/2025 Print Date 07/24/2025

SECTION 1. IDENTIFICATION

1.1 Product identifiers

Product name : Dibutylamine

Product Number : 34490

Brand : Sigma-Aldrich Index-No. : 612-049-00-0 CAS-No. : 111-92-2

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 3

Acute toxicity (Oral) : Category 3

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Acute toxicity (Inhalation)

: Category 2

Acute toxicity (Dermal) : Category 3

Skin corrosion : Sub-category 1B

Serious eye damage : Category 1

Short-term (acute) aquatic hazard

: Category 2

Other hazards

None known.

GHS label elements

Hazard pictograms







Signal Word : Danger

Hazard Statements : H226 Flammable liquid and vapour.

H301 + H311 Toxic if swallowed or in contact with skin.

H314 Causes severe skin burns and eye damage.

H330 Fatal if inhaled. H401 Toxic to aquatic life.

Supplemental Hazard

Statements

: Corrosive to the respiratory tract.

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.

P260 Do not breathe 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 and face protection.

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P284 Wear respiratory protection.

Response:

P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.

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/ shower.

P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor. P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor. P361 + P364 Take off immediately all contaminated clothing and wash it before reuse.

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

Components

Chemical name	CAS No./Unique ID	Concentration (% w/w)	Trade secret
di-n-butylamine	111-92-2*	>= 80 - <= 100	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 : First aiders need to protect themselves.

Show this safety data sheet to the doctor in

attendance.

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If inhaled : After inhalation: fresh air. Immediately call in

physician.

If breathing stops: immediately apply artificial

respiration, if necessary also oxygen.

In case of skin contact : In case of skin contact: Take off immediately all

contaminated clothing. Rinse skin with water/ shower.

Call a physician immediately.

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

Immediately call in ophthalmologist.

Remove contact lenses.

If swallowed: give water to drink (two glasses at

most). Seek medical advice immediately. In

exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and

consult a doctor as quickly as possible.

Do not attempt to neutralise.

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.

Vapours are heavier than air and may spread along

floors.

Forms explosive mixtures with air at elevated

temperatures.

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Development of hazardous combustion gases or vapours possible in the event of fire.

Hazardous combustion

products

: Carbon oxides

Nitrogen oxides (NOx)

Specific extinguishing

methods

: No data available

Further information : Remove container from danger zone and cool with

water.

Suppress (knock down) gases/vapours/mists with a

water spray jet.

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 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 carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected

area.

SECTION 7. HANDLING AND STORAGE

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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. Keep locked up or in an area accessible only to

qualified or authorised persons.

Storage class : 3, Flammable liquids

Recommended storage

temperature

: Recommended storage temperature see product label.

Further information on storage stability

: Store under inert gas.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
di-n-butylamine	111-92-2	CEIL	5 ppm	US WEEL

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 A (acc. to DIN 3181) for vapours of organic

compounds

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.

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Hand protection

Material : Nitrile rubber
Break through time : 480 min
Glove thickness : 0.4 mm
Protective index : Full contact

Manufacturer : Camatril® (KCL 730 / Aldrich Z677442, Size M)

Material : Chloroprene
Break through time : 30 min
Glove thickness : 0.65 mm
Protective index : Splash contact

Manufacturer : KCL 720 Camapren®

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).

Tightly fitting safety goggles

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 : clear, liquid

Color : colourless

Odor : ammoniacal

Odor Threshold : 1.59 ppm

pH : 11.1 (68 °F / 20 °C)

Concentration: 1 g/l

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MILLIPORE

Melting point/ range : -80 °F / -62 °C

Method: lit.

Boiling point/boiling range : 318 °F / 159 °C

Method: lit.

Flash point : $104.9 \, ^{\circ}\text{F} / 40.5 \, ^{\circ}\text{C}$

(1,013.25 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 : $491 \, ^{\circ}\text{F} / 255 \, ^{\circ}\text{C}$

1,013.25 hPa GLP: yes

Upper explosion limit / Upper flammability limit

: Upper explosion limit

6.8 %(V)

Lower explosion limit / Lower flammability limit : Lower explosion limit

0.6 %(V)

Vapor pressure : 2.26 hPa (68.5 °F / 20.3 °C)

Relative vapour density : 4.46

(Air = 1.0)

Relative density : No data available

Density : 0.767 g/mL (77 °F / 25 °C)

Method: lit.

Solubility(ies)

Water solubility : 3.8 g/l miscible (68 °F / 20 °C)

pH: 12

Method: OECD Test Guideline 105

GLP: yes

Partition coefficient: n-

octanol/water

: log Pow: 2.1 (73 °F / 23 °C)

pH: 12

Method: OECD Test Guideline 107

GLP: yes

Bioaccumulation is not expected.

Autoignition temperature : No data available

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Decomposition temperature

: No data available

Viscosity

Viscosity, dynamic : 0.64 mPa.s (104 °F / 40 °C)

0.85 mPa.s (68 °F / 20 °C)

Viscosity, kinematic : No data available

Flow time : No data available

Explosive properties : Not classified as explosive.

Oxidizing properties : none

Surface tension : 50.6 mN/m, 1.005 g/l, 68 °F / 20 °C, OECD Test

Guideline 115, GLP: yes

Molecular weight : 129.24 g/mol

Particle characteristics

Particle size : No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity : Vapour/air-mixtures are explosive at intense warming.

Chemical stability : The product is chemically stable under standard

ambient conditions (room temperature) .

Possibility of hazardous

reactions

: Caution! In contact with nitrites, nitrates, nitrous acid

possible liberation of nitrosamines!

Exothermic reaction with:

acids

anhydrides

Strong oxidizing agents

Violent reactions possible with:

Alcohols glycol ether Ketones Aldehydes Esters Nitriles phenols

Conditions to avoid : Heating.

Incompatible materials : nonferrous metals

Light metals

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Copper Copper alloys

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

products

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

Acute toxicity estimate Oral - 220 mg/kg

(Expert judgement)

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Acute toxicity estimate Inhalation - 1.2 mg/l - vapour

(Expert judgement)

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Acute toxicity estimate Dermal - 300 mg/kg

(Expert judgement)

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

No data available

Skin corrosion/irritation

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Serious eye damage/eye irritation

Eyes - Rabbit Result: Corrosive

(OECD Test Guideline 405)

Remarks: Causes serious eye damage.

Respiratory or skin sensitization

Buehler Test - Guinea pig

Result: Does not cause skin sensitisation.

(US-EPA)

Germ cell mutagenicity

Test Type: In vitro mammalian cell gene mutation test

Test system: Mouse lymphoma test

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476

Result: negative

Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal

analysis)

Species: Mouse

Cell type: Bone marrow Application Route: Oral

Method: OECD Test Guideline 475

Result: negative

Carcinogenicity

No component of this product present at levels greater than or equal to 0.1% is IARC: Sigma-Aldrich - 34490 Page 10 of 17



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

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

11.2 Additional Information

RTECS: HR7780000

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

di-n-butylamine:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 5.5

mg/l

End point: mortality Exposure time: 96 h Test Type: static test Analytical monitoring: yes Remarks: (in soft water)

(ECHA)

LC50 (Oncorhynchus mykiss (rainbow trout)): 37 mg/l

End point: mortality Exposure time: 96 h Test Type: static test Analytical monitoring: yes Remarks: (in hard water)

(ECHA)

Toxicity to daphnia and

other aquatic invertebrates

: LC50 (Ceriodaphnia dubia (water flea)): 8.4 mg/l

End point: mortality Exposure time: 48 h

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Millipore Sigma Test Type: semi-static test Analytical monitoring: yes

Method: US-EPA

GLP: yes

Toxicity to algae/aquatic

plants

: EC50 (Desmodesmus subspicatus (green algae)):

16.91 mg/l

Exposure time: 72 h Test Type: static test

Method: OECD Test Guideline 201

Toxicity to daphnia and

other aquatic

invertebrates (Chronic

toxicity)

: NOEC (Daphnia magna (Water flea)): 4.2 mg/l

Exposure time: 21 d

Method: OECD Test Guideline 211

GLP: yes

Remarks: (in analogy to similar products)
The value is given in analogy to the following

substances: diethylamine

LC50 (Daphnia magna (Water flea)): 5.7 mg/l

Exposure time: 21 d

Method: OECD Test Guideline 211

GLP: yes

Remarks: (in analogy to similar products)
The value is given in analogy to the following

substances: diethylamine

Toxicity to : EC50

microorganisms

: EC50 (Pseudomonas putida): 196 mg/l Exposure time: 17 h

Remarks: (IUCLID)

Persistence and degradability

Components:

di-n-butylamine:

Biodegradability : aerobic

Inoculum: activated sludge Concentration: 100 mg/l Result: Readily biodegradable.

Biodegradation: 95 % Exposure time: 28 d

Method: OECD Test Guideline 301C

Bioaccumulative potential

Components:

di-n-butylamine:

Partition coefficient: n- : log Pow: 2.1 (73 °F / 23 °C)

octanol/water pH: 12

Method: OECD Test Guideline 107

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GLP: yes

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).

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 2248

Proper shipping name : Di-n-butylamine

Class : 8 Subsidiary risk : 3 Packing group : II

Labels : Class 8 - Corrosive substances, Class 3 - Flammable

liquids

Packing instruction (cargo: 855

aircraft)

Packing instruction

(passenger aircraft)

: 851

IMDG-Code

UN number : UN 2248

Proper shipping name : DI-n-BUTYLAMINE

Class : 8
Subsidiary risk : 3
Packing group : II
Labels : 8 (3)

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EmS Code : F-E, S-C Marine pollutant : no

Transport in bulk according to IMO instruments

Not applicable for product as supplied.

National Regulations

49 CFR Road

UN/ID/NA number : UN 2248

Proper shipping name : Di-n-butylamine

Class : 8 Subsidiary risk : 3 Packing group : II

Labels : Class 8 - Corrosive substances, Class 3 - Flammable

liquids

ERG Code : 132 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

This material does not contain any components with a CERCLA RQ.

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 : Fire Hazard

Hazards 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).

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This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

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

di-n-butylamine 111-92-2

Pennsylvania Right To Know

di-n-butylamine 111-92-2

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:

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

US WEEL : USA. Workplace Environmental Exposure Levels

(WEEL)

US WEEL / CEIL : Ceiling

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 -

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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.

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