

# SAFETY DATA SHEET

Version 7.4  
Revision Date 03/26/2026  
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## SECTION 1. IDENTIFICATION

### 1.1 Product identifiers

Product name : Styrene, ReagentPlus®, contains 4-tert-butylcatechol as stabilizer, ≥99%

Product Number : S4972  
Brand : Sigma-Aldrich  
Index-No. : 601-026-00-0  
CAS-No. : 100-42-5

### 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

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## 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 3

Acute toxicity (Inhalation) : Category 4

Skin irritation : Category 2

Eye irritation : Category 2A

Reproductive toxicity : Category 2

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

Specific target organ toxicity - repeated exposure (Inhalation) : Category 1 (hearing organs)

Aspiration hazard : Category 1

Short-term (acute) aquatic hazard : Category 2

Long-term (chronic) aquatic hazard : Category 3

### Other hazards

None known.

### GHS label elements

Hazard pictograms : 

Signal word : Danger

Hazard statements : H226 Flammable liquid and vapour.  
H304 May be fatal if swallowed and enters airways.  
H315 Causes skin irritation.  
H319 Causes serious eye irritation.  
H332 Harmful if inhaled.  
H335 May cause respiratory irritation.  
H361 Suspected of damaging fertility or the unborn child.  
H372 Causes damage to organs (hearing organs) through prolonged or repeated exposure if inhaled.  
H401 Toxic to aquatic life.  
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**  
P201 Obtain special instructions before use.  
P202 Do not handle until all safety precautions have been read and understood.  
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/ face protection.

**Response:**

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.  
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.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P308 + P313 IF exposed or concerned: Get medical advice/ attention.  
P331 Do NOT induce vomiting.  
P332 + P313 If skin irritation occurs: Get medical advice/ attention.  
P337 + P313 If eye irritation persists: Get medical advice/ attention.  
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.

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

Substance / Mixture : Substance  
CAS-No. : 100-42-5

## Components

Chemical name	CAS No./Unique ID	Concentration (% w/w)	Trade secret
styrene	100-42-5*	>= 80 - <= 100	TSC

\* Indicates that the identifier is a CAS No.

TSC- the actual concentration or concentration range is withheld as a trade secret

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## SECTION 4. FIRST AID MEASURES

- General advice : Show this safety data sheet to the doctor in attendance.
- 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. Consult a physician.
- In case of eye contact : After eye contact: rinse out with plenty of water. Call in ophthalmologist. 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.
- Notes to physician : No data available

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## SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Carbon dioxide (CO<sub>2</sub>)  
Foam  
Dry powder
- Carbon dioxide (CO<sub>2</sub>)  
Foam  
Dry powder

Unsuitable extinguishing media	:	For this substance/mixture no limitations of extinguishing agents are given.
		For this substance/mixture no limitations of extinguishing agents are given.
Specific hazards during fire fighting	:	Container explosion may occur under fire conditions. Vapours may form explosive mixture with air.
		Combustible.
		Vapours are heavier than air and may spread along floors.
		Forms explosive mixtures with air at elevated temperatures.
		Development of hazardous combustion gases or vapours possible in the event of fire.
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.

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## 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.
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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

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 : 36 - 46 °F / 2 - 8 °C
- Further information on storage stability : Light sensitive.
- Packaging material : Suitable material: Amber Glass Bottle/Jar

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of	Control parameters /	Basis
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Sigma-Aldrich - S4972

Page 6 of 18

		exposure)	Permissible concentration	
styrene	100-42-5	TWA	50 ppm 215 mg/m <sup>3</sup>	NIOSH REL
		ST	100 ppm 425 mg/m <sup>3</sup>	NIOSH REL
		TWA	100 ppm	OSHA Z-2
		CEIL	200 ppm	OSHA Z-2
		Peak	600 ppm (5 mins. in any 3 hrs.)	OSHA Z-2
		TWA	10 ppm	ACGIH
		STEL	20 ppm	ACGIH

### Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
styrene	100-42-5	Mandelic acid plus phenylglyoxylic acid	Urine	End of shift (As soon as possible after exposure ceases)	150 mg/g creatinine	ACGIH BEI
		Styrene	Urine	End of shift (As soon as possible after exposure ceases)	20 µg/l	ACGIH BEI

**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 : Filter type ABEK  
Sigma-Aldrich - S4972

Page 7 of 18

type:

The entrepreneur 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 : 480 min  
Glove thickness : 0.7 mm  
Protective index : Full contact  
Manufacturer : Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Material : Nitrile rubber  
Break through time : 30 min  
Glove thickness : 0.4 mm  
Protective index : Splash contact  
Manufacturer : Camatril® (KCL 730 / Aldrich Z677442, Size M)

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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](http://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.

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid

Color : colourless, to, yellow

Odor : sweet

Odor Threshold : No data available  
pH : No data available

Melting point/ range : -23.8 °F / -31.0 °C

Boiling point/boiling range : 293 °F / 145 °C (1,013 hPa)

Flash point : 89.6 °F / 32.0 °C  
(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 : 914.0 °F / 490.0 °C

Upper explosion limit /  
Upper flammability limit : 8.9 %(V)

Lower explosion limit /  
Lower flammability limit : 1.1 %(V)

Vapor pressure : 6.67 hPa (68 °F / 20 °C)

Relative vapour density : 3.6

Relative density : 0.9 - 0.91 (68 °F / 20 °C)

Density : 0.906 g/cm<sup>3</sup> (68 °F / 20 °C)

Sigma-Aldrich - S4972

Page 9 of 18

Solubility(ies)	
Water solubility	: 0.32 g/l (77 °F / 25 °C)
Partition coefficient: n-octanol/water	: log Pow: 2.96 (77 °F / 25 °C) Method: OECD Test Guideline 107 Bioaccumulation is not expected.
Autoignition temperature	: 914 °F / 490 °C (1,013 hPa)
Decomposition temperature	: No data available
Viscosity, dynamic	: No data available
Viscosity, kinematic	: No data available
Flow time	: No data available
Explosive properties	: Not classified as explosive.
Oxidizing properties	: none
Molecular weight	: 104.15 g/mol
Particle characteristics	
Particle size	: No data available

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## 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) .
Contains the following stabiliser(s):	: 4-tert-butylpyrocatechol (<=0.005 %)
Possibility of hazardous reactions	: Exothermic reaction with: chlorosulfonic acid Oxidizing agents Chlorine with Iron Violent polymerisation may be caused by: aluminium chloride sodium Risk of explosion with: Strong acids polymerisation initiators Peroxides

Oxygen  
with  
Heat

- Conditions to avoid : Heating.
- Incompatible materials : No data available
- Hazardous decomposition products : In the event of fire: see section 5

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## SECTION 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

Oral: No data available  
LD50 Oral - Rat - male - 5,000 mg/kg  
Remarks: (ECHA)  
Symptoms: Irritation of mucous membranes

Inhalation: No data available

LC50 Inhalation - Rat - 4 h - 11.8 mg/l - vapour

Remarks: (ECHA)  
Symptoms: Possible damages:, mucosal irritations  
Acute toxicity estimate Dermal - 2,500 mg/kg  
(Calculation method)  
LD50 Dermal - Rat - male and female - > 2,000 mg/kg  
(OECD Test Guideline 402)

#### Skin corrosion/irritation

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

#### Serious eye damage/eye irritation

Remarks: Causes serious eye irritation.  
Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

#### Respiratory or skin sensitization

Maximisation Test - Guinea pig  
Result: negative  
(OECD Test Guideline 406)

#### Germ cell mutagenicity

Laboratory experiments have shown mutagenic effects.  
Test Type: sister chromatid exchange assay  
Test system: Human lymphocytes  
Metabolic activation: without metabolic activation  
Method: OECD Test Guideline 479  
Result: positive  
Test Type: Ames test  
Test system: Salmonella typhimurium  
Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471  
Result: negative  
Test Type: Chromosome aberration test in vitro  
Test system: Human lymphocytes  
Metabolic activation: without metabolic activation  
Method: OECD Test Guideline 473  
Result: positive

Test Type: Micronucleus test  
Species: Mouse  
Cell type: Red blood cells (erythrocytes)  
Application Route: inhalation (vapour)  
Method: OECD Test Guideline 474  
Result: negative

Test Type: unscheduled DNA synthesis assay  
Species: Mouse  
Cell type: Liver cells  
Application Route: inhalation (vapour)  
Method: OECD Test Guideline 486  
Result: negative

### **Carcinogenicity**

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

IARC: 2A - Group 2A: Probably carcinogenic to humans (styrene)

NTP: RAHC - Reasonably anticipated to be a human carcinogen (styrene)

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**

Suspected of damaging the unborn child.

### **Specific target organ toxicity - single exposure**

Inhalation - May cause respiratory irritation. - Nose

### **Specific target organ toxicity - repeated exposure**

Inhalation - Causes damage to organs through prolonged or repeated exposure.  
- hearing organs

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

### **Aspiration hazard**

Aspiration may cause pulmonary oedema and pneumonitis.

## **11.2 Additional Information**

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

Endocrine system. -

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## SECTION 12. ECOLOGICAL INFORMATION

### Ecotoxicity

#### Components:

#### styrene:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 10 mg/l End point: mortality Exposure time: 96 h Test Type: flow-through test Analytical monitoring: yes Method: OECD Test Guideline 203 GLP: yes
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 4.7 mg/l End point: Immobilization Exposure time: 48 h Test Type: flow-through test Analytical monitoring: yes Method: OECD Test Guideline 202 GLP: yes
Toxicity to algae/aquatic plants	:	ErC50 (Pseudokirchneriella subcapitata (green algae)): 4.9 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes Method: US-EPA GLP: yes
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 1.01 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): ca. 500 mg/l Exposure time: 30 min Test Type: static test Method: OECD Test Guideline 209

#### Ecotoxicology Assessment

Chronic aquatic toxicity : Harmful to aquatic life with long lasting effects.

## Persistence and degradability

### Components:

#### styrene:

Biodegradability : aerobic  
Inoculum: activated sludge, non-adapted  
Concentration: 91 mg/l  
Result: Readily biodegradable.  
Biodegradation: 70.9 %  
Exposure time: 28 d  
GLP: yes  
Remarks: (ECHA)

## Bioaccumulative potential

### Components:

#### styrene:

Partition coefficient: n- : log Pow: 2.96 (77 °F / 25 °C)  
octanol/water : 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).

## Endocrine disrupting properties

No data available

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## 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.

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## SECTION 14. TRANSPORT INFORMATION

### International Regulations

#### IATA-DGR

UN/ID No. : UN 2055  
Proper shipping name : Styrene monomer, stabilized  
Class : 3  
Packing group : III  
Labels : Class 3 - Flammable liquids  
Packing instruction (cargo aircraft) : 366  
Packing instruction (passenger aircraft) : 355

#### IMDG-Code

UN number : UN 2055  
Proper shipping name : STYRENE MONOMER, STABILIZED  
  
Class : 3  
Packing group : III  
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 2055  
Proper shipping name : Styrene monomer, stabilized  
  
Class : 3  
  
Packing group : III  
Labels : Class 3 - Flammable liquids  
ERG Code : 128P  
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.

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## SECTION 15. REGULATORY INFORMATION

### CERCLA Reportable Quantity

Components	CAS-No.	Component	Calculated product
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		RQ (lbs)	RQ (lbs)
styrene	100-42-5	1000	1000

**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** : The following components are subject to reporting levels established by SARA Title III, Section 313:  
  
styrene                      100-42-5                      >= 90 - <= 100 %

**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):

styrene                      100-42-5                      >= 90 - <= 100 %

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).

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

styrene                      100-42-5                      >= 90 - <= 100 %

**Clean Water Act**

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

styrene                      100-42-5                      >= 90 - <= 100 %

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

styrene                      100-42-5                      >= 90 - <= 100 %

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**

styrene                      100-42-5

**Pennsylvania Right To Know**

styrene                      100-42-5

**Maine Chemicals of High Concern**

styrene                      100-42-5

**Vermont Chemicals of High Concern**

styrene                      100-42-5

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## Washington Chemicals of High Concern

styrene

100-42-5

### California Prop. 65

WARNING: This product can expose you to chemicals including styrene, which is/are known to the State of California to cause cancer. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov). **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.

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## SECTION 16. OTHER INFORMATION

### Full text of other abbreviations

ACGIH	: USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	: ACGIH - Biological Exposure Indices (BEI)
NIOSH REL	: USA. NIOSH Recommended Exposure Limits
OSHA Z-2	: USA. Occupational Exposure Limits (OSHA) - Table Z-2
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
NIOSH REL / ST	: STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday
OSHA Z-2 / TWA	: 8-hour time weighted average
OSHA Z-2 / CEIL	: Acceptable ceiling concentration
OSHA Z-2 / Peak	: Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift

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 -

Sigma-Aldrich - S4972

Page 17 of 18

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](http://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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