

# • SAFETY DATA SHEET

Version 6.19  
Revision Date 12/24/2025  
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## SECTION 1. IDENTIFICATION

### 1.1 Product identifiers

Product name : Arsenic Standard for ICP

Product Number : 01969  
Brand : Sigma-Aldrich

### 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

Corrosive to metals : Category 1  
Skin irritation : Category 2  
Serious eye damage : Category 1  
Carcinogenicity : Category 1A

#### Other hazards

None known.

## GHS label elements

Hazard pictograms



Signal word

: Danger

Hazard statements

: H290 May be corrosive to metals.  
H315 Causes skin irritation.  
H318 Causes serious eye damage.  
H350 May cause cancer.

Precautionary statements

**Prevention:**

P201 Obtain special instructions before use.  
P202 Do not handle until all safety precautions have been read and understood.  
P234 Keep only in original container.  
P264 Wash skin thoroughly after handling.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

**Response:**

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
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.  
P308 + P313 IF exposed or concerned: Get medical advice/ attention.  
P332 + P313 If skin irritation occurs: Get medical advice/ attention.  
P362 Take off contaminated clothing and wash before reuse.  
P390 Absorb spillage to prevent material damage.

**Storage:**

P405 Store locked up.  
P406 Store in corrosive resistant container with a resistant inner liner.

**Disposal:**

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

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## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture

: Mixture

CAS-No.

: Not Assigned

Sigma-Aldrich - 01969

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## Components

Chemical name	CAS No./Unique ID	Concentration (% w/w)	Trade secret
nitric acid	7697-37-2*	$\geq 3 - < 5$	-
Arsenic trioxide	1327-53-3*	$\geq 0.1 - < 1$	-

\* Indicates that the identifier is a CAS No.

Actual concentration 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. Call in physician.
- 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. Immediately call in ophthalmologist. 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

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## SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Unsuitable extinguishing media : For this substance/mixture no limitations of extinguishing agents are given.

Specific hazards during fire fighting : Not combustible.

Ambient fire may liberate hazardous vapours.

Hazardous combustion products : Nitrogen oxides (NOx)

Specific extinguishing methods : No data available

Further information : 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.

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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.  
Ensure adequate ventilation.  
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.

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.

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## SECTION 7. HANDLING AND STORAGE

For precautions see section 2.2.

- Advice on safe handling : Work under hood. Do not inhale substance/mixture.  
Avoid generation of vapours/aerosols.
- Conditions for safe storage : No metal containers.
- Further information on storage conditions : Tightly closed.  
Keep in a well-ventilated place.  
Keep locked up or in an area accessible only to qualified or authorised persons.
- Storage class : 6.1D, Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects
- Recommended storage temperature : Recommended storage temperature see product label.

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
nitric acid	7697-37-2	TWA	2 ppm	ACGIH
		STEL	4 ppm	ACGIH
		ST	4 ppm 10 mg/m <sup>3</sup>	NIOSH REL
		TWA	2 ppm 5 mg/m <sup>3</sup>	NIOSH REL
		TWA	2 ppm 5 mg/m <sup>3</sup>	OSHA Z-1
Arsenic trioxide	1327-53-3	TWA	0.01 mg/m <sup>3</sup> (Arsenic)	ACGIH
		PEL	0.01 mg/m <sup>3</sup> (Arsenic)	OSHA CARC
		C	0.002 mg/m <sup>3</sup> (Arsenic)	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 ABEK

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

Remarks : required

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 : 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 : No data available

Odor : No data available

Odor Threshold : No data available  
pH : 3.0

Melting point : No data available

Boiling point/boiling range : No data available

Flash point : Not applicable

Evaporation rate : No data available

Flammability (solid, gas) : No data available

Flammability (liquids) : No data available

Burning rate	: No data available
Upper explosion limit / Upper flammability limit	: No data available
Lower explosion limit / Lower flammability limit	: No data available
Vapor pressure	: No data available
Relative vapour density	: No data available
Relative density	: No data available
Density	: 1.010 g/cm <sup>3</sup>
Water solubility	: No data available
Partition coefficient: n- octanol/water	: No data available
Autoignition temperature	: No data available
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
Particle characteristics Particle size	: No data available

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## SECTION 10. STABILITY AND REACTIVITY

Reactivity	: No data available
Chemical stability	: The product is chemically stable under standard ambient conditions (room temperature) .
Possibility of hazardous reactions	: Violent reactions possible with: The generally known reaction partners of water.
Conditions to avoid	: no information available

Incompatible materials : Bases  
Amines  
Alkali metals  
Copper  
Aluminum  
  
Metals

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

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## SECTION 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Mixture

##### Acute toxicity

Oral: No data available

Acute toxicity estimate Oral - > 5,000 mg/kg  
(Calculation method)

Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

Acute toxicity estimate Inhalation - 4 h - 66.25 mg/l - vapour(Calculation method)

Symptoms: Possible symptoms:, mucosal irritations

Dermal: No data available

##### Skin corrosion/irritation

Remarks: Mixture causes skin irritation.

##### Serious eye damage/eye irritation

Remarks: Mixture causes serious eye damage.

##### Respiratory or skin sensitization

No data available

##### Germ cell mutagenicity

No data available

##### Carcinogenicity

IARC: 1 - Group 1: Carcinogenic to humans (Arsenic trioxide)

NTP: Known - Known to be human carcinogen (Arsenic trioxide)

OSHA: OSHA specifically regulated carcinogen (Arsenic trioxide)

##### 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**

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

Liver - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

**Components****nitric acid****Acute toxicity**

Oral: No data available

Acute toxicity estimate Inhalation - 4 h - 2.65 mg/l - vapour  
(Expert judgement)

Dermal: No data available

**Skin corrosion/irritation**

Skin - Rabbit

Result: Causes severe burns.

Remarks: (IUCLID)

Remarks: Causes poorly healing wounds.

**Serious eye damage/eye irritation**

Eyes - Rabbit

Result: Causes burns.

Remarks: (IUCLID)

Remarks: Causes serious eye damage.

**Respiratory or skin sensitization**

No data available

**Germ cell mutagenicity**

Test Type: Ames test

Test system: Salmonella typhimurium

Result: negative

**Carcinogenicity**

No data available

**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

## **Arsenic trioxide**

### **Acute toxicity**

LD50 Oral - Rat - 14.6 mg/kg

Remarks: (IUCLID)

Inhalation: No data available

Dermal: No data available

No data available

### **Skin corrosion/irritation**

Remarks: Causes skin burns.

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

### **Serious eye damage/eye irritation**

Remarks: Causes serious eye damage.

### **Respiratory or skin sensitization**

Maximisation Test - Guinea pig

Result: negative

(OECD Test Guideline 406)

Remarks: (in analogy to similar products)

### **Germ cell mutagenicity**

Test Type: Ames test

Test system: Escherichia coli

Result: negative

Remarks: (ECHA)

The value is given in analogy to the following substances: sodium arsenite

### **Carcinogenicity**

May cause cancer. Positive evidence from human epidemiological studies.

### **Reproductive toxicity**

No data available

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

No data available

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

Causes damage to organs through prolonged or repeated exposure.

- Respiratory system, Cardio-vascular system, Gastrointestinal tract

### **Aspiration hazard**

No data available

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## **SECTION 12. ECOLOGICAL INFORMATION**

### **Ecotoxicity**

#### **Components:**

##### **nitric acid:**

Toxicity to fish : Remarks: No data available

**Arsenic trioxide:**

- Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 12.6 mg/l  
End point: mortality  
Exposure time: 96 h  
Test Type: flow-through test  
Analytical monitoring: yes  
Method: US-EPA  
Remarks: The value is given in analogy to the following substances:  
The value is given in analogy to the following substances: Disodium arsenate heptahydrate
- Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 1.5 mg/l  
End point: mortality  
Exposure time: 48 h  
Test Type: static test  
Analytical monitoring: yes  
Remarks: (ECHA)  
The value is given in analogy to the following substances:  
The value is given in analogy to the following substances: sodium arsenite
- Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 3.8 mg/l  
End point: mortality  
Exposure time: 28 d  
Test Type: flow-through test  
Analytical monitoring: yes  
Remarks: (ECHA)  
The value is given in analogy to the following substances:  
The value is given in analogy to the following substances: Disodium arsenate heptahydrate
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : LOEC (Daphnia magna (Water flea)): 10 mg/l  
End point: mortality  
Exposure time: 21 d  
Remarks: (ECOTOX Database)
- NOEC (Daphnia magna (Water flea)): 1.85 mg/l  
Exposure time: 21 d  
Remarks: (ECOTOX Database)
- Toxicity to microorganisms : EC50 (activated sludge): 6.1 mg/l  
Exposure time: 60 h  
Test Type: static test  
Remarks: (ECHA)

## Ecotoxicology Assessment

Acute aquatic toxicity : Very toxic to aquatic life.

Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

## Persistence and degradability

### Components:

#### **nitric acid:**

Biodegradability : Remarks: The methods for determining the biological degradability are not applicable to inorganic substances.

#### **Arsenic trioxide:**

Biodegradability : Remarks: The methods for determining the biological degradability are not applicable to inorganic substances.

## Bioaccumulative potential

### Components:

#### **nitric acid:**

Partition coefficient: n-octanol/water : log Pow: -2.3  
Method: OECD Test Guideline 107  
Remarks: Bioaccumulation is not expected.

#### **Arsenic trioxide:**

Bioaccumulation : Species: Lepomis cyanellus  
Bioconcentration factor (BCF): 236

Partition coefficient: n-octanol/water : Remarks: Not applicable for inorganic substances

## 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:**

### **nitric acid:**

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 : May be harmful to aquatic organisms due to the shift of the pH.

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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 3264  
Proper shipping name : Corrosive liquid, acidic, inorganic, n.o.s.  
(nitric acid, 4%)  
Class : 8  
Packing group : III  
Labels : Class 8 - Corrosive substances  
Packing instruction (cargo aircraft) : 856  
Packing instruction (passenger aircraft) : 852

#### **IMDG-Code**

UN number : UN 3264  
Proper shipping name : CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.  
(nitric acid)  
Class : 8  
Packing group : III  
Labels : 8  
EmS Code : F-A, S-B  
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 3264

Proper shipping name : Corrosive liquid, acidic, inorganic, n.o.s.  
(nitric acid, 4%)  
Class : 8  
Packing group : III  
Labels : Class 8 - Corrosive substances  
ERG Code : 154  
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)
Arsenic trioxide	1327-53-3	1	1000

**SARA 304 Extremely Hazardous Substances Reportable Quantity**

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Arsenic trioxide	1327-53-3	1	1000

**SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**

Components	CAS-No.	Component TPQ (lbs)
nitric acid	7697-37-2	1000

**SARA 311/312 Hazards** : Chronic Health Hazard

**SARA 313** : The following components are subject to reporting levels established by SARA Title III, Section 313:

nitric acid            7697-37-2            >= 1 - < 5 %  
Arsenic trioxide    1327-53-3            >= 0.1 - < 1 %

**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).

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 SOCM I Intermediate or Final VOC's (40 CFR 60.489).

## Clean Water Act

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

nitric acid	7697-37-2	>= 1 - < 5 %
Arsenic trioxide	1327-53-3	>= 0.1 - < 1 %

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

nitric acid	7697-37-2	>= 1 - < 5 %
Arsenic trioxide	1327-53-3	>= 0.1 - < 1 %

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

nitric acid	7697-37-2
Arsenic trioxide	1327-53-3

### Pennsylvania Right To Know

nitric acid	7697-37-2
Arsenic trioxide	1327-53-3

### Maine Chemicals of High Concern

Product does not contain any listed chemicals

### Vermont Chemicals of High Concern

Arsenic trioxide	1327-53-3
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### Washington Chemicals of High Concern

Arsenic trioxide	1327-53-3
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### California Prop. 65

WARNING: This product can expose you to chemicals including Arsenic trioxide, which is/are known to the State of California to cause cancer and birth defects or other reproductive harm. 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:

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)
NIOSH REL	: USA. NIOSH Recommended Exposure Limits
OSHA CARC	: OSHA Specifically Regulated Chemicals/Carcinogens

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
NIOSH REL / ST	:	STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday
NIOSH REL / C	:	Ceiling value not be exceeded at any time.
OSHA CARC / PEL	:	Permissible exposure limit (PEL)
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

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