



Compiled in accordance with the 10th revised edition (ST/SG/AC.10/30/Rev.10 2023) of the UN GHS system..

	Substance	<input type="checkbox"/>	Mixture	<input checked="" type="checkbox"/>
GHS hazard category				
Serious eye damage/eye irritation	Category 2A			
Skin sensitization	Category 1			
Respiratory sensitization	Category 1			

**2.2 GHS label elements**

Signal word	Danger.
Hazard statements	
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Precautionary statements	
Prevention	
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P264+P265	Wash face and hands thoroughly after handling.Do not touch eyes.
P271	Use only outdoors or with adequate ventilation.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
Response	
P302+P352	IF ON SKIN:Wash with plenty of water.
P304+P340	IF INHALED: remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes.Remove contact lenses, if present and easy to do.Continue rinsing.
P333+P317	If skin irritation or rash occurs: Get medical help.
P337+P317	If eyes irritation persists: Get medical help.
P342+P316	If experiencing respiratory symptoms: Get emergency medical help immediately.
P362+P364	Take off contaminated clothing and wash it before reuse.
Storage	
P410+P403	Protect from sunlight. Store in a well-ventilated place.
Disposal	
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

## Pictograms

**2.3 Other hazards which do not result in classification**

Handling and/or handling of this substance may generate dust that can cause mechanical irritation of the eyes, skin, nose and throat.

### ***SECTION 3: Composition/information on ingredients***

#### ***Substances/Mixtures***

Substances



Mixtures



Ingredient name	Identifiers	%	Classification Regulation (EC) No.1272/2008 [CLP]
Benzene-1,2,4-tricarboxylic acid 1,2-anhydride	CAS: 552-30-7 EC: 209-008-0 REACH #: 01-2119489422-34 Index : 607-097-00-4 RTECS #: DC2050000	<2.0	Skin Sens. 1, H317 Eye Dam. 1, H318 Resp. Sens. 1, H334 STOT SE 3, H335
Benzene-1,2,4-tricarboxylic acid	CAS: 528-44-9 EC: 208-432-3 RTECS #: DC1980000	<1.0	Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

### ***SECTION 4: First-aid measures***

#### ***4.1 Description of necessary first-aid measures***

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms.
Skin contact	Flush contaminated skin with plenty of water.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if symptoms.
Ingestion	Wash out mouth with water. Get medical attention if symptoms.

#### ***4.2 Most important symptoms/effects, acute and delayed***

##### Potential acute health effects

Inhalation	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.
Skin contact	No known significant effects or critical hazards.
Eye contact	Causes eye irritation.
Ingestion	No known significant effects or critical hazards.

##### Over-exposure signs/symptoms

Inhalation	Adverse symptoms may include the following: respiratory tract irritation, coughing.
Skin	No specific data.
Eye	Adverse symptoms may include the following: pain or irritation, watering, redness.
Ingestion	No specific data.

**4.3 Indication of immediate medical attention and special treatment needed, if necessary**

Notes to physician	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	No specific treatment.
Protection of first-aiders	No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

**SECTION 5: Fire-fighting measures****5.1 Suitable extinguishing media**

Suitable	Use foam, CO <sub>2</sub> or dry powder fire extinguishing agent.
Not suitable	Avoid using direct water to extinguish fires. Direct water may cause the splash of flammable liquids, and in severe cases, spread the fire.

**5.2 Specific hazards arising from the chemical**

Unusual fire/explosion hazards	No special danger.
Hazardous thermal decomposition products	In the event of a fire, harmful decomposition products may be produced, such as carbon monoxide, carbon dioxide, black smoke, aldehydes, and organic acids.

**5.3 Special protective actions for fire-fighters**

Firefighters should wear breathing masks ((conforming to MSHA/NIOSH requirements or equivalent)) and full protective clothing. Firefighters should put out the fire at a safe distance upwind.

Prevent firefighting water from polluting the surface and groundwater system..

**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

For non-emergency personnel	No action shall be taken involving any personal risk or without suitable training. Irrelevant and unprotected personnel enter. Do not touch or walk past the spilled material. Cut off all ignition sources. No flames, smoking or flames are allowed in the hazardous area. Avoid breathing dust. Provide adequate ventilation. Wear suitable respirators when there is insufficient ventilation. Wear suitable personal protective equipment.
For emergency responders	If you need to wear special clothing to deal with spills, please refer to section 8 for information on suitable and inappropriate materials. See the information in the section "Non-emergency responders".

**6.2 Environmental precautions**

Avoid spreading and running away of spillage, and avoid spillage from contacting and entering the soil, rivers, sewers and sewage pipes.

May be harmful to the environment if released in large quantities.

**6.3 Methods and materials for containment and cleaning up**

Small leak	Move the container away from the spill area. Use a vacuum cleaner to clean up or thoroughly clean up contaminants and place them in waste containers with designated labels.
Massive leaks	Move the container away from the spill area. Approach the spill from upwind. Prevent entry into sewers, waterways, basements or confined areas. Use a vacuum cleaner to clean up or thoroughly clean up contaminants and place them in waste containers with designated labels. Avoid raising dust and avoid spreading it by wind.

Note: For personal protective equipment, see section 8; for waste disposal, see section 13.

**SECTION 7: Handling and storage****7.1 Precautions for safe handling**

Protective measures	Put on appropriate personal protective equipment (see section 8). No ingestion. Avoid contact with eyes, skin and clothing. Avoid breathing dust. Avoid release to the environment. Prevent dust accumulation. Use only under adequate ventilation. Wear suitable respirators when there is insufficient ventilation. When transferring materials, the container and equipment should be grounded to release static electricity generated during material transportation.
Advice on general	Eating, drinking, and smoking should be prohibited in areas where this substance is handled, stored, and processed. Staff should wash their hands before eating, drinking and smoking. Before entering the eating area, remove contaminated clothing and protective equipment.

**7.2 Conditions for safe storage, including any incompatibilities**

Conditions for safe storage	Do not store above the following temperature: 30°C (86°F (Fahrenheit)). Store in accordance with local regulations. It should be stored separately from oxidizing substances and avoid mixed storage. Avoid direct sunlight, keep away from heat and fire sources, and store in a cool, dry and ventilated place.
Packaging Materials	It is recommended to use the packaging materials allocated by the supplier. It is not recommended to use other containers or packaging materials to prevent pollution.
Remarks	Avoid raising dust.

**SECTION 8: Exposure controls/personal protection****8.1 Control parameters**

Occupational exposure Limits:

Ingredient name	Benzene-1,2,4-tricarboxylic acid 1,2-anhydride (CAS. 552-30-7)			
Country / Region	Occupational exposure limit (8h)		Occupational exposure limit (short time)	
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
United States-NIOSH	0.005	0.04	—	—

South Korea	—	0.0005	—	0.002
Ireland	—	0.0005	—	0.002
Germany (AGS)	—	0.04	—	0.04
Denmark	—	0.04	—	0.04
Australia	0.005	0.039	—	—

Biological limits:

No data.

Monitoring method

EN 14042 Workplace Air A guide to procedures used to assess exposure to chemical or biological agents.

### **8.2 Appropriate engineering controls**

Use only under adequate ventilation.

If dust, smoke, gas, vapor or mist are generated during use, please use process isolation equipment, local ventilation systems or other engineering controls to ensure that the content of airborne pollutants in the working environment of workers is below the recommended or legal limit. The process control method used should also control the concentration of gas, steam or dust below the exposure limit value.

### **8.3 Individual protection measures, such as personal protective equipment(PPE)**

Eye/face protection

Wear safety glasses with side shields.

Skin protection

It is recommended to wear dust-proof clothing.

Respiratory protection

If the result of the risk assessment shows that it is necessary, please use a suitable breathing apparatus with a particulate filter that meets the standard. The choice of respirator must be based on known or expected exposure levels, product hazards, and safe working limits of the selected respirator.

Hand protection

If the result of the risk assessment shows that it is necessary, please always wear chemical-resistant and impermeable gloves that meet the standards when you come into contact with chemical products.

Hygiene measures

After exposure to chemicals, wash hands, forearms and face thoroughly before meals, before smoking, before going to the toilet, and after work. Use appropriate techniques to remove clothing that may have been contaminated. Contaminated clothing needs to be washed before reuse. Ensure that the eyewash station and safety shower room are close to the workplace.

**Remarks**

All chemical protective gloves are suitable for use to avoid contact with skin.  
The choice of gloves should be aimed at the physical protection of hands.

## **SECTION 9: Physical and chemical properties and safe characteristics**

Physical State

Solid flake particles.

Colour

Pale white or light yellow.

Odour

Odourless.

Odor threshold

No data.

Melting point/freezing point

No data.

Boiling point, initial boiling	No data.
Flammability (solid or gas)	Not flammable, but will burn if exposed to flame or high temperature for a long time.
Lower and upper explosion	No data.
Flash point	>350 (°C) (closed cup)
Auto-ignition temperature	>350(°C)
Decomposition temperature	>350(°C)
PH	Not applicable.
Kinematic viscosity	Not applicable.
Solubility (mg/L)	Partially soluble in the following materials: diethyl ether and acetone. Insoluble in the following materials: cold water, hot water, methanol and n-octanol.
Solubility in water (mg/L)	No data.
Partition coefficient n-octanol/water(log value)	No data.
Vapour pressure(kPa)	No data.
Evaporation rate	No data.
Relative density (water = 1)	1.2
Density (g/cm <sup>3</sup> )	1.2 (23°C)
Bulk density	600 to 750 kg/m <sup>3</sup>
Relative vapor density (air=1)	No data.
Particle characteristics	No data.

## ***SECTION 10: Stability and reactivity***

### **10.1 Reactivity**

No specific test data related to reactivity available for this product or its ingredients.

### **10.2 Chemical stability**

This product is stable.

It is stable under recommended storage and handling conditions (see section 7).

### **10.3 Possibility of hazardous reactions**

Under normal storage and use, hazardous chemical reactions will not occur.

### **10.4 Conditions to avoid**

Avoid generating dust and all sources of ignition (spark or flame) during handling.

Take precautions to prevent electrostatic discharge. To prevent fire or explosion, the container and equipment should be grounded when transferring materials to release static electricity generated during material transportation. Prevent dust accumulation.

### **10.5 Incompatible materials**

Reactive or incompatible with the following materials: oxidizing materials.

### **10.6 Hazardous decomposition products**

Under normal storage and use conditions, hazardous decomposition products will not be produced.

## SECTION 11: Toxicological information

### 11.1 Toxicological effects

#### Acute toxicity

Ingredient name	Result	Species	Dose	Exposure
Benzene-1,2,4-tricarboxylic acid 1,2-anhydride CAS 552-30-7	LC <sub>50</sub> Inhalation Dusts and mists	Rat - Male, Female	>2.33 mg/l	4 hours
	LD <sub>50</sub> Dermal	Rabbit	>2000 mg/kg	—
	LD <sub>50</sub> Oral	Rat - Female	>2030 mg/kg	—
	LD <sub>50</sub> Oral	Rat - Male	>3340 mg/kg	—
	LD <sub>50</sub> Oral	Rat - Male, Female	>2730 mg/kg	—
Benzene-1,2,4-tricarboxylic acid CAS 528-44-9	LC <sub>50</sub> Inhalation Dusts and mists	Rat	>3750 mg/m <sup>3</sup>	4 hours
	LD <sub>50</sub> Dermal	Rabbit	>2000 mg/kg	—
	LD <sub>50</sub> Oral	Rat - Male, Female	>2730 mg/kg	—

#### Skin corrosion/irritation

Ingredient name	Result	Species	Score	Exposure	Observation
Benzene-1,2,4-tricarboxylic acid 1,2-anhydride CAS 552-30-7	Skin - Oedema	Rabbit	0.39	4 hours 0.5 g	24 to 72 hours
	Skin - Erythema/Eschar	Rabbit	1	4 hours 0.5 g	24 to 72 hours
Benzene-1,2,4-tricarboxylic acid CAS 528-44-9	Skin - Mild irritant	Rabbit	—	4 hours 0.5 g	—

#### Serious eye damage/irritation

Ingredient name	Result	Species	Score	Exposure	Observation
Benzene-1,2,4-tricarboxylic acid 1,2-anhydride CAS 552-30-7	Eyes - Cornea opacity	Rabbit	4	0.1g	24 hours
	Eyes - Iris lesion	Rabbit	2	0.1g	24 hours
	Eyes - Redness of the conjunctivae	Rabbit	3	0.1g	24 hours
	Eyes - Oedema of the conjunctivae	Rabbit	4	0.1g	24 hours
Benzene-1,2,4-tricarboxylic acid CAS 528-44-9	Eyes - Irritant	Rabbit	—	—	—

#### Respiratory or skin sensitization

Ingredient name	Route of exposure	Species	Result
Benzene-1,2,4-tricarboxylic acid 1,2-anhydride CAS 552-30-7	Respiratory skin	Man	Sensitising
		Guinea pig	Sensitising
Benzene-1,2,4-tricarboxylic acid CAS 528-44-9	Respiratory skin	Rat Mammal - species unspecified	Not sensitizing Not sensitizing

#### Germ cell mutagenicity

Ingredient name	Test	Experiment	Result
	OECD 471 Bacterial Reverse Mutation	Experiment: In vitro Subject: Bacteria Metabolic activation:	Negative



Benzene-1,2,4-tricarboxylic acid 1,2-anhydride CAS 552-30-7		Without & with	
	OECD 473 In vitro Mammalian Chromosomal Aberration Test	Experiment: In vitro Subject: Mammalian-Animal Cell: Germ Metabolic activation: Without & with	Negative
Benzene-1,2,4-tricarboxylic acid CAS 528-44-9	OECD 476 In vitro Mammalian Cell Gene Mutation Test	Experiment: In vitro Subject: Mammalian-Animal Cell: Germ Metabolic activation: Without & with	Negative
	OECD 471 Bacterial Reverse Mutation	Experiment: In vitro Subject: Bacteria Metabolic activation: Without & with	Negative
	OECD 476 In vitro Mammalian Cell Gene Mutation Test	Experiment: In vitro Subject: Mammalian-Animal Cell: Germ	Negative
	OECD 473 In vitro Mammalian Chromosomal Aberration Test	Experiment: In vitro Subject: Mammalian-Animal Cell: Germ	Negative

Carcinogenicity

No data.

Reproductive toxicity

Ingredient name	Maternal toxicity	Fertility	Developmental toxin	Species	Dose	Exposure
Benzene-1,2,4-tricarboxylic acid 1,2-anhydride CAS 552-30-7	—	Negative	—	Rat	Inhalation: 500 µg/m <sup>3</sup> (NOAEC)	6 hours per day
	—	Negative	—	Guinea pig	Inhalation: 500 µg/m <sup>3</sup> (NOAEC)	6 hours per day
Benzene-1,2,4-tricarboxylic acid CAS 528-44-9	—	—	Negative	Rat - Female	Inhalation: 0.5 µg/m <sup>3</sup> (NOEL)	6 hours per day

STOT-single exposure

Ingredient name	Category	Route of exposure	Target organs
Benzene-1,2,4-tricarboxylic acid 1,2-anhydride CAS 552-30-7	Category 3	—	Respiratory tract irritation
Benzene-1,2,4-tricarboxylic acid CAS 528-44-9	Category 3	—	Respiratory tract irritation

STOT-repeated exposure No data.

Aspiration hazard

No data.

**11.2 Information on likely routes of exposure**

No data.

Potential acute health effects

Eye contact Causes eye irritation.

Inhalation Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.

Skin contact No known significant effects or critical hazards.

Ingestion No known significant effects or critical hazards.

**11.3 Symptoms related to the physical, chemical and toxicological characteristics**

Eye contact Adverse symptoms may include the following: pain or irritation, watering, redness.

Inhalation Adverse symptoms may include the following: respiratory tract irritation, coughing.

Skin contact No specific data.

Ingestion No specific data.

**11.4 Delayed and immediate effects and also chronic effects from short and long term exposure**

Short term exposure

Potential immediate effects Not available.

Potential delayed effects Not available.

Long term exposure

Potential immediate effects Not available.

Potential delayed effects Not available.

Potential chronic health effects

Ingredient name	Result	Species	Dose	Exposure
Benzene-1,2,4-tricarboxylic acid 1,2-anhydride CAS 552-30-7	Sub-chronic NOAEL Oral	Rat - Male,Female	10000 mg/kg/day ( Highest tested dose )	—
	Sub-acute LOAEC Inhalation Dusts and mists	Rat - Male,Female	0.2 mg/m <sup>3</sup>	6 hours /day; 5 days per week
Benzene-1,2,4-tricarboxylic acid CAS 528-44-9	Sub-acute NOEL Oral	Rat - Male,Female	300 mg/kg/day	4 weeks; 5 days per week
	Sub-acute LOAEC Inhalation Dusts and mists	Rat - Male,Female	300 µg/m <sup>3</sup> ( Highest tested dose )	6 hours /day; 5 days per week

General Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.

Carcinogenicity No known significant effects or critical hazards.

Mutagenicity No known significant effects or critical hazards.

Reproductive toxicity No known significant effects or critical hazards.

**11.5 Numerical measures of toxicity (such as acute toxicity estimates)**

Acute toxicity estimate

Ingredient name	Oral mg/kg	Dermal mg/kg	Inhalation (gases) ( ppm )	Inhalatio(vapours) ( mg/l )	Inhalation(dusts and mists) ( mg/l )
Benzene-1,2,4-tricarboxylic acid 1,2-anhydride CAS 552-30-7	2030	N/A	N/A	N/A	N/A
Benzene-1,2,4-tricarboxylic					

acid CAS 528-44-9	2730	N/A	N/A	N/A	N/A
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## ***SECTION 12: Ecological information***

### ***12.1 Toxicity***

Ingredient name	Result	Species	Exposure
Benzene-1,2,4-tricarboxylic acid 1,2-anhydride CAS 552-30-7	Acute EC <sub>50</sub> > 739 mg/l Fresh water	Algae	96 hours
	Acute EC <sub>50</sub> > 792 mg/l Fresh water	Daphnia	48 hours
	Acute LC <sub>50</sub> > 957 mg/l Fresh water	Fish	96 hours
Benzene-1,2,4-tricarboxylic acid CAS 528-44-9	Acute EC <sub>0</sub> > 792 mg/l Fresh water	Daphnia	48 hours
	Acute LC <sub>0</sub> > 1000 mg/l Fresh water	Fish	96 hours
	Acute NOEC > 739 mg/l Fresh water	Algae	96 hours

### ***12.2 Persistence and degradability***

Ingredient name	Test	Result	Dose	Inoculum
Benzene-1,2,4-tricarboxylic acid 1,2-anhydride CAS 552-30-7	OECD 301B	77.4%-28 days	—	—
	Ready Biodegradability-CO <sub>2</sub>			
	Evolution Test			
Benzene-1,2,4-tricarboxylic acid CAS 528-44-9	OECD 301B	> 60%-7 days	—	—
	Ready Biodegradability-CO <sub>2</sub>			
	Evolution Test			

Ingredient name	Aquatic half-life	Photolysis	Biodegradability
Benzene-1,2,4-tricarboxylic acid 1,2-anhydride CAS 552-30-7	—	—	Readily
Benzene-1,2,4-tricarboxylic acid CAS 528-44-9	—	—	Readily

### ***12.3 Bioaccumulative potential***

Ingredient name	LogP <sub>ow</sub>	BCF	Potential
Benzene-1,2,4-tricarboxylic acid 1,2-anhydride CAS 552-30-7	0.06	—	low
Benzene-1,2,4-tricarboxylic acid CAS 528-44-9	0.95	3.2	low

### ***12.4 Mobility in soil***

Soil/water partition coefficient (K<sub>oc</sub>)      No data.

### ***12.5 Results of PBT and vPvB assessment***

PBT      Not applicable.

vPvB      Not applicable.

### ***12.6 Other adverse effects***

No known significant effects or critical hazards.

## ***SECTION 13: Disposal considerations***

### ***13.1 Disposal methods***

Waste chemicals

The generation of waste should be avoided or reduced as much as possible. The disposal of products, solutions and by-products shall comply with environmental protection.

Dispose of surplus and non-renewable products through a licensed waste disposal contractor. Waste should not be discharged into the sewer without disposal, unless it fully complies with the requirements of the competent authority in all jurisdictions.

Requirements of waste disposal regulations and relevant local regulations.

Contaminated packaging

Should be recycled. Only when recycling is not feasible, should incineration or landfill be considered. Use safe methods to dispose of this product and its container.

Empty containers or linings may retain some product residues.

Avoid spreading and running away of spillage, and avoid spillage from contacting and entering the soil, rivers, sewers and sewage pipes.

### ***13.2 Disposal considerations***

Please refer to the "Disposal methods" section.

### ***13.3 Other information***

As far as the supplier currently knows, this product is not considered hazardous waste.

## ***SECTION 14: Transport information***

	UN	IMDG	IATA
<b><i>UN number</i></b>	Not regulated.	Not regulated.	Not regulated.
<b><i>UN proper shipping name</i></b>	—	—	—
<b><i>Transport hazard class(es)</i></b>	—	—	—
<b><i>Packing group, if applicable</i></b>	—	—	—
<b><i>Environmental hazards</i></b>	No	No	No
<b><i>Additional information</i></b>	—	—	—

***Special precautions for user*** Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

### ***Transport in bulk according to IMO instruments***

Not available.

## ***SECTION 15: Regulatory information***

### ***15.1 Inventory information***

<b><i>All substances of this material</i></b>											
AICS	IECSC	ENCS	NZloc	PICCS	TCSI	NCI	KECL	EINECS	TSCA	DSL	INSQ
List	List	List	List	List	List	List	List	List	List	List	List

【AICS】	Australian Inventory of Chemical Substances.
【IECSC】	The Inventory of Existing Chemical Substance in China.
【ENCS】	Japan Inventory of Existing and Notified Substances.
【NZloc】	New Zealand Inventory.
【PICCS】	Philippine Inventory of Chemicals and Chemical Substances.
【TCSI】	Taiwan Chemical Substance Inventory of china.
【NCI】	Vietnam National Chemical Inventory.
【KECL】	Korean Existing Chemicals List.
【EINECS】	European Inventory of Existing commercial Chemical Substances.
【TSCA】	Toxic Substances Control Act Inventory in U.S.A.
【DSL】	Domestic Substances List in Canada.
【INSQ】	National Inventory of Chemical Substances in Mexico.

### 15.2 International regulations

<i>All substances of this material</i>					
A	B	C	D	E	
Not listed.	Not listed.	Not listed.	Not listed.	Not listed.	

- 【A】 Chemical Weapon Convention List Schedules I, II & III Chemicals  
 【B】 Montreal Protocol (Annexes A, B, C, E)  
 【C】 Stockholm Convention on Persistent Organic Pollutants  
 【D】 Rotterdam Convention on Prior Inform Consent (PIC)  
 【E】 UNECE Aarhus Protocol on POPs and Heavy Metals

## **SECTION 16: Other information**

### 16.1 Revision information

Reasons for Issue	Sections 2, 9, and 15 have been revised.
Issue date	02/25/2024.
Last issue date	05/28/2021.
Version	4.8.

### 16.2 Reference

- 【1】 IPCS:The International Chemical Safety Cards (ICSC) ,website: <http://www.ilo.org/dyn/icsc/showcard.home>.  
 【2】 IARC, website: <http://www.iarc.fr/>.  
 【3】 OECD: The Global Portal to Information on Chemical Substances, website: <http://www.echemportal.org/echemportal/index?page>.  
 【4】 CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>.  
 【5】 NLM:ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>.  
 【6】 EPA: Integrated Risk Information System, website: <http://cfpub.epa.gov/iris/>.  
 【7】 U.S. Department of Transportation:ERG, website: <http://www.phmsa.dot.gov/hazmat/library/erg>.  
 【8】 Germany GESTIS-database on hazard substance, website: <http://gestis-en.itrust.de/>.

**16.3 Abbreviations and acronyms**

CAS-Chemical Abstracts Service	UN-The United Nations
PC-STEL- Short term exposure limit	PC-TWA - Time Weighted Average
DNEL - Derived No Effect Level	IARC - International Agency for Research on Cancer
RPE - Respiratory Protective Equipment	PNEC –Predicted No Effect Concentration
LC <sub>50</sub> - Lethal Concentration 50%	LD <sub>50</sub> - Lethal Dose 50%
NOEC -No Observed Effect Concentration	EC <sub>50</sub> - Effective Concentration 50%
PBT - Persistent, Bioaccumulative, Toxic	POW - Partition coefficient Octanol:Water
BCF - Bioconcentration factor (BCF)	vPvB - very Persistent, very Bioaccumulative
CMR - Carcinogens, mutagens or substances toxic to reproduction	IMDG-International Maritime Dangerous Goods
ICAO/IATA-International Civil Aviation Organization/International Air Transportation Association	NFPA-National Fire Protection Association
ACGIH-American Conference of Governmental Industrial Hygienists	OECD-Organization for Economic Co-operation and Development

**Disclaimer**

This Safety Data Sheet (SDS) was prepared according to the 10th revised edition of the United Nations GHS system (ST/SG/AC.10/30/Rev.10 2023). The data comes from international authoritative databases and data submitted by companies. Other information is based on the company's current knowledge that you have mastered. We try our best to ensure the accuracy of all the information in it, but due to the diversity of information sources and the limitations of the company's knowledge, this document is only for users' reference. The user of the safety data sheet should make a judgment on the rationality of the relevant information according to the purpose of use. We are not responsible for any damages caused by the operation, storage, use or disposal of this product.