





Tianjin Yuanlong Chemical Industry Co.,Ltd.

# Material Safety Data Sheet

## Glacial Acetic Acid

Section 1. Chemical Product and Company Identification		Page Number: 1	
Trade Name:	Glacial Acetic Acid	Product Serial #:	SB-1-01
Synonym:	Acetasol	CAS #:	64-19-7
Chemical Name:	Glacial Acetic Acid	UN #:	1792
Chemical Formula:	CH <sub>3</sub> COOH	Packaging Group:	II
Molecular Weight:	60.05	<b>EMERGENCY CALL</b> +86-22-23528561	
Chemical Family:	Acid		
Supplier Information:	Tianjin Yuanlong Chemical Industry Co., Ltd. Address: No.10 Hanbei Road, Hangu, Binhai New Area, Tianjin, China, 300480 Tel #: +86-22-23528561 Fax #: +86-22-23523959 Website: <a href="http://www.yuanlongchem.com">www.yuanlongchem.com</a>		

Section 2. Hazards Identification	
<b>2.1. Classification of the substance or mixture</b>	
<b>GHS-US classification</b>	
Flammable liquids Category3	H226
Skin corrosion/irritation Category 1B	H314
Serious eye damage /eye irritation Category 1	H318
Hazardous to the aquatic environment -Acute Hazard Category 3	H402
Full text of H statements : see section 16	
<b>2.2. Label elements</b>	
GHS-US labeling	
Hazard pictograms (GHS-US)	
 	
GHS02                      GHS05	
Signal word (GHS-US):	Danger
Hazard statements (GHS-US):	H226 -Flammable liquid and vapor H314 - Causes severe skin burns and eye damage H402 - Harmful to aquatic life
Precautionary statements (GHS-US):	P210 -Keep away from heat, sparks, open flames, hot surfaces. -No smoking P233 - Keep container tightly closed P240 - Ground/bond container and receiving equipment
<b>Continued to Next Page</b>	

P241 - Use explosion-proof electrical, ventilating, lighting equipment  
 P242 - Use only non- sparking tools  
 P243 - Take precautionary measures against static discharge  
 P260 - Do not breathe mist, vapors, spray  
 P264 - Wash exposed skin thoroughly after handling  
 P273 - Avoid release to the environment  
 P280 - Wear protective clothing, protective gloves, eye protection, face protection  
 P301 + P330 + P331 - IF SWALLOWED: rinse mouth.  
 Do NOT induce vomiting  
 P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower  
 P304 + P340 -IF INHALED: Remove victim to fresh air and keep at rest in a position 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  
 P310 - Immediately call a poison center or doctor/physician  
 P363 - Wash contaminated clothing before reuse  
 P370 + P378 - In case of fire: Use carbon dioxide (CO2), powder, alcohol -resistant foam to extinguish  
 P403 + P235 - Store in a well -ventilated place. Keep cool  
 P405 - Store locked up  
 P501 - Dispose of contents/container to comply with local, state and federal regulations

**2.3.Other hazards**

Other hazards not contributing to the classification: None

**2.4.Unknown acute toxicity (GHS US)**

Not applicable

**Section 3.Composition and Information on Ingredients**

Ingredients Name	CAS Number	TWA(mg/m <sup>3</sup> )	CEIL(mg/m <sup>3</sup> )	% By Weight or Volume
Acetic Acid	64-19-7			100

**Section 4. First Aid Measures**

4.1. Description of first aid measures  
 First-aid measures general  
 Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with labored breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital

**Continued to Next Page**

First-aid measures after inhalation	Remove the victim into fresh air. Immediately consult a doctor/medical service. Doctor: administration of corticoid spray.
First-aid measures after skin contact	Wash immediately with lots of water (15 minutes)/shower. Do not apply (chemical) neutralizing agents. Remove clothing while washing. Do not remove clothing if it sticks to the skin. Cover wounds with sterile bandage. Consult a doctor/medical service. If burned surface > 10%: take victim to hospital.
First-aid measures after eye contact	Rinse immediately with plenty of water for 15 minutes. Do not apply neutralizing agents. Take victim to an ophthalmologist.
First-aid measures after ingestion	Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Give milk to drink. Do not induce vomiting. Do not give activated charcoal. Immediately consult a doctor/medical service. Call Poison Information Centre ( <a href="http://www.big.be/antigif.htm">www.big.be/antigif.htm</a> ). Take the container/vomit to the doctor/hospital. Ingestion of large quantities: immediately to hospital. Do not give chemical antidote. Doctor: gastric lavage is not recommended.

**4.2. Most important symptoms and effects, both acute and delayed**

Symptoms/injuries after inhalation	Irritation of the respiratory tract. Irritation of the nasal mucous membranes. Coughing. EXPOSURE TO HIGH CONCENTRATIONS: Corrosion of the upper respiratory tract. FOLLOWING SYMPTOMS MAY APPEAR LATER: Respiratory difficulties. Possible inflammation of the respiratory tract. Risk of pneumonia. Risk of lung edema.
Symptoms/injuries after skin contact	Caustic burns/corrosion of the skin.
Symptoms/injuries after eye contact	Corrosion of the eye tissue. Permanent eye damage.
Symptoms/injuries after ingestion	Risk of aspiration pneumonia. Burns to the gastric/intestinal mucosa. Possible esophageal perforation. Blood in vomit. Diarrhoea. Shock. Change in the blood composition. Change in urine composition. Decreased renal function.
Chronic symptoms	ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Red skin. May stain the skin. Slight irritation. Inflammation/damage of the eye tissue. Dry/sore throat. Possible inflammation of the respiratory tract. Affection/discolouration of the teeth. Gastrointestinal complaints.
4.3. Indication of any immediate medical attention and special treatment needed	
Chronic symptoms	Obtain medical assistance.

**4.3. Indication of any immediate medical attention and special treatment needed**

Chronic symptoms	Obtain medical assistance.
------------------	----------------------------

**Section 5. Fire and Explosion Data**

**5.1. Extinguishing media**

Auto-Ignition Temperature:	Water spray. Polyvalent foam. Alcohol-resistant foam. BC powder. Carbon dioxide.
Unsuitable extinguishing media	No unsuitable extinguishing media known.

**5.2. Special hazards arising from the substance or mixture**

**Continued to Next Page**

Fire hazard	DIRECT FIRE HAZARD. Flammable. Gas/vapor flammable with air within explosion limits. INDIRECT FIRE HAZARD. May be ignited by sparks. Reactions involving a fire hazard: see "Reactivity Hazard".
Explosion hazard	DIRECT EXPLOSION HAZARD. Gas/vapour explosive with air within explosion limits. INDIRECT EXPLOSION HAZARD. may be ignited by sparks. Reactions with explosion hazards: see "Reactivity Hazard".
Reactivity	On heating: release of corrosive/combustible gases/vapours (acetic acid vapours). Upon combustion: CO and CO2 are formed. Violent to explosive reaction with many compounds e.g.: with (strong) oxidizers: (increased) risk of fire/explosion. Reacts violently with (some) bases. Reacts with (some) metals: release of highly flammable gases/vapours (hydrogen).
<b>5.3. Advice for firefighters</b>	
Firefighting instructions	Cool tanks/drums with water spray/remove them into safety. Do not move the load if exposed to heat. Dilute toxic gases with water spray. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it.
Protection during firefighting	Do not enter fire area without proper protective equipment, including respiratory protection.

**Section 6. Accidental Release Measures**

**6.1. Personal precautions, protective equipment and emergency procedures**

**6.1.1. For non-emergency personnel**

Protective equipment	Gas-tight suit. Corrosion-proof suit. See "Material-Handling" to select protective clothing.
Emergency procedures	Keep upwind. Mark the danger area. Consider evacuation. Seal off low-lying areas. Close doors and windows of adjacent premises. Stop engines and no smoking. No naked flames or sparks. Spark- and explosion-proof appliances and lighting equipment. Keep containers closed. Wash contaminated clothes.

**6.1.2. For emergency responders**

Protective equipment	Equip cleanup crew with proper protection.
Emergency procedures	Stop leak if safe to do so. Ventilate area.

**6.2. Environmental precautions**

Prevent soil and water pollution. Prevent spreading in sewers.

**6.3. Methods and material for containment and cleaning up**

For containment	Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Dam up the liquid spill. Try to reduce evaporation. Measure the concentration of the explosive gas-air mixture. Dilute combustible/ toxic gases/vapours with water spray. Take account of toxic/corrosive precipitation water. Provide equipment/receptacles with earthing. Do not use compressed air for pumping over spills
-----------------	---

Methods for cleaning up	Take up liquid spill into inert absorbent material, e.g.: sand, earth, vermiculite or kieselguhr, powdered limestone. Scoop absorbed substance into closing containers. See "Materialhandling" for suitable container materials.
-------------------------	--

**Continued to Next Page**

Methods for cleaning up	Carefully collect the spill/leftovers. Damaged/cooled tanks must be emptied. Do not use compressed air for pumping over spills. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling
-------------------------	---

**6.4. Reference to other sections**

No additional information available

**Section 7. Handling and Storage**

**7.1. Precautions for safe handling**

Precautions for safe handling	Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Keep the substance free from contamination. Use corrosionproof equipment. Handle uncleaned empty containers as full ones. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Do not use compressed air for pumping over. Use spark-/explosionproof appliances and lighting system. Take precautions against electrostatic charges. Keep away from naked flames/heat. Keep away from ignition sources/sparks. Observe very strict hygiene - avoid contact. Keep container tightly closed. Measure the concentration in the air regularly. Work under local exhaust/ventilation. Exhaust gas must be neutralised.
Hygiene measures	Do not eat, drink or smoke when using this product. Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

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

Incompatible products	Strong bases. Oxidizing agent. metals.
Incompatible materials	Direct sunlight. Heat sources. Sources of ignition.
Storage temperature	> 17 °C
Heat-ignition	KEEP SUBSTANCE AWAY FROM: heat sources. ignition sources.
Prohibitions on mixed storage	KEEP SUBSTANCE AWAY FROM: combustible materials. oxidizing agents. (strong) bases. metals. alcohols. amines. water/moisture.
Storage area	Store in a dry area. Ventilation at floor level. Keep out of direct sunlight. Fireproof storeroom. Keep locked up. Protect against frost. Provide for a tub to collect spills. Provide the tank with earthing. Detached building. Store only in a limited quantity. Meet the legal requirements.
Special rules on packaging	SPECIAL REQUIREMENTS: closing. dry. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
Packaging materials	SUITABLE MATERIAL: aluminium. glass. MATERIAL TO AVOID: steel. iron. zinc. lead. copper. bronze.

**Section 8. Exposure Controls/Personal Protection**

**8.1. Control parameters**

<b>ACGIH</b>	ACGIH TWA (ppm)	10 ppm (Acetic acid; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)
<b>ACGIH</b>	ACGIH STEL (ppm)	15 ppm (Acetic acid; USA; Short time value; TLV -Adopted Value)

**Continued to Next Page**

OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	25 mg/m <sup>3</sup>
OSHA	OSHA PEL (TWA) (ppm)	10 ppm
IDLH	US IDLH (ppm)	50 ppm
NIOSH	NIOSH REL (TWA) (mg/m <sup>3</sup> )	25 mg/m <sup>3</sup>
NIOSH	NIOSH REL (TWA) (ppm)	10 ppm
NIOSH	NIOSH REL (STEL) (mg/m <sup>3</sup> )	37 mg/m <sup>3</sup>
NIOSH	NIOSH REL (STEL) (ppm)	15 ppm

**8.2. Exposure controls**

Appropriate engineering controls	Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Material should be handled in a laboratory hood whenever possible.
Personal protective equipment	Protective goggles. Gloves. Protective clothing. Face shield. Gas mask with filter type E.
Materials for protective clothing	GIVE EXCELLENT RESISTANCE: butyl rubber. polyethylene/ ethylenevinylalcohol. viton. GIVE GOOD RESISTANCE: neoprene. GIVE LESS RESISTANCE: natural rubber. PVC. GIVE POOR RESISTANCE: polyethylene. PVA.
Hand protection	Gloves.
Eye protection	Safety glasses.
Skin and body protection	Head/neck protection. Corrosion-proof clothing.
Respiratory protection	Wear gas mask with filter type A if conc. in air > exposure limit. High vapour/gas concentration: self-contained respirator.
Thermal hazard protection	None necessary.

**Section 9. Physical and Chemical Properties**

**9.1. Information on basic physical and chemical properties**

<b>Physical state</b>	Liquid
<b>Appearance</b>	Liquid.
<b>Color</b>	Colourless
<b>Odor</b>	Irritating/pungent odour Vinegar odour
<b>Odor threshold</b>	1 ppm 2.5 mg/m
<b>pH</b>	2.4 (6 %)
<b>pH solution</b>	6 %
<b>Melting point</b>	17 °C
<b>Freezing point</b>	No data available
<b>Boiling point</b>	118 °C
<b>Critical temperature</b>	322 °C
<b>Critical pressure</b>	45300 hPa
<b>Flash point</b>	43 °C
<b>Relative evaporation rate (butyl acetate=1)</b>	0.97

*Continued to Next Page*

Relative evaporation rate (ether=1)	11
Flammability (solid, gas)	No data available
Vapor pressure	16 hPa (20 °C)
Vapor pressure at 50 °C	75 hPa (50 °C)
Relative vapor density at 20 °C	2.1
Relative density	1.0
Relative density of saturated gas/air mixture	1.0
Specific gravity / density	1049 kg/m <sup>3</sup>
Molecular mass	60.05 g/mol
Solubility	Soluble in water. Soluble in ethanol. Soluble in ether. Soluble in acetone. Soluble in tetrachloromethane. Soluble in glycerol. Soluble in dimethyl sulfoxide. Water: Complete Ethanol: Complete Ether: Complete Acetone: Complete
Log Pow	-0.17 (Experimental value; 25 °C)
Auto-ignition temperature	485 °C
Decomposition temperature	No data available
Viscosity, kinematic	1.168 cSt
Viscosity, dynamic	0.0012 Pa.s (20 °C)
Explosion limits	4 - 19 vol % 100 - 430 g/m <sup>3</sup>
Explosive properties	No data available
Oxidizing properties	No data available

**9.2. Other information**

Specific conductivity	600000 pS/m
VOC content	100 %
Other properties	Gas/vapour heavier than air at 20°C. Clear. Hygroscopic. Volatile. Substance has acid reaction.

**Section 10. Stability and Reactivity Data****10.1. Reactivity**

On heating: release of corrosive/combustible gases/vapours (acetic acid vapours). Upon combustion: CO and CO<sub>2</sub> are formed. Violent to explosive reaction with many compounds e.g.: with (strong) oxidizers: (increased) risk of fire/explosion. Reacts violently with (some) bases. Reacts with (some) metals: release of highly flammable gases/vapours (hydrogen).

**10.2. Chemical stability**

Hygroscopic.

**10.3. Possibility of hazardous reactions**

Reacts violently with (some) bases: release of heat.

**10.4. Conditions to avoid**

Extremely high or low temperatures. Incompatible materials.

**Continued to Next Page**

**10.5. Incompatible materials**

May react violently with alkalis. May react with bases, copper, silver, mercury, magnesium, zinc and their alloys.

**10.6. Hazardous decomposition products**

Carbon dioxide. Carbon monoxide.

**Section 11. Toxicological Information**

**11.1. Information on toxicological effects**

Likely routes of exposure	Inhalation; Skin and eye contact
Acute toxicity	Not classified
Acetic Acid (64-19-7)	
LD50 oral rat	3310 mg/kg body weight (Rat; Other; Read-across)
ATE US (oral)	3310.000 mg/kg body weight
Skin corrosion/irritation	Causes severe skin burns and eye damage. pH: 2.4 (6 %)
Serious eye damage/irritation	Causes serious eye damage. pH: 2.4 (6 %)
Respiratory or skin sensitization	Not classified
Germ cell mutagenicity	Not classified
Carcinogenicity	Not classified (Based on available data, the classification criteria are not met)
Reproductive toxicity	Not classified
Specific target organ toxicity (single exposure)	Not classified
Specific target organ toxicity (repeated exposure)	Not classified
Aspiration hazard	Not classified
Symptoms/injuries after inhalation	Irritation of the respiratory tract. Irritation of the nasal mucous membranes. Coughing. EXPOSURE TO HIGH CONCENTRATIONS: Corrosion of the upper respiratory tract. FOLLOWING SYMPTOMS MAY APPEAR LATER: Respiratory difficulties. Possible inflammation of the respiratory tract. Risk of pneumonia. Risk of lung edema.
Symptoms/injuries after skin contact	Caustic burns/corrosion of the skin.
Symptoms/injuries after eye contact	Corrosion of the eye tissue. Permanent eye damage.
Symptoms/injuries after ingestion	Risk of aspiration pneumonia. Burns to the gastric/intestinal mucosa. Possible esophageal perforation. Blood in vomit. Diarrhoea. Shock. Change in the blood composition. Change in urine composition. Decreased renal function.
Chronic symptoms	ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Red skin. May stain the skin. Slight irritation. Inflammation/damage of the eye tissue. Dry/sore throat. Possible inflammation of the respiratory tract. Affection/discolouration of the teeth. Gastrointestinal complaints.



**Section 12. Ecological Information****12.1. Toxicity****Ecology - general**

Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008.

**Ecology - air**

Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009). Not included in the list of substances which may contribute to the greenhouse effect (Regulation (EC) No 842/2006). TA-Luft Klasse 5.2.5/II.

**Ecology - water**

Slightly harmful to fishes (LC50(96h) >100 mg/l). Slightly harmful to invertebrates (Daphnia) (EC50 (48h) > 100 mg/l). Not harmful to algae (EC50 (72h) >1000 mg/l). pH shift. Inhibition of activated sludge.

**12.2. Persistence and degradability****Acetic Acid (64-19-7)**

Persistence and degradability	Readily biodegradable in water. Biodegradable in the soil. Highly mobile in soil. Biochemical oxygen demand (BOD)
Biochemical oxygen demand (BOD)	0.6 - 0.74 g O <sub>2</sub> /g substance
Chemical oxygen demand (COD)	1.03 g O <sub>2</sub> /g substance
ThOD	1.07 g O <sub>2</sub> /g substance

**12.3. Bioaccumulative potential****Acetic Acid (64-19-7)**

BCF fish 1	3.16 (BCF; Pisces)
Log Pow	-0.17 (Experimental value; 25 °C)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

**12.4. Mobility in soil****Acetic Acid (64-19-7)**

Surface tension	0.028 N/m (20 °C)
Log Koc	log Koc, 0.06; QSAR
Ecology - soil	May be harmful to plant growth, blooming and fruit formation.

**12.5. Other adverse effects**

No additional information available

**Section 13. Disposal Considerations****13.1. Waste treatment methods**

Waste disposal recommendations	Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Recycle by distillation. Remove for physico-chemical/biological treatment. Remove to an authorized waste incinerator for solvents with energy recovery.
--------------------------------	---

*Continued to Next Page*

Additional information

Do not discharge into drains or the environment. May be discharged to wastewater treatment installation.  
 LWCA (the Netherlands): KGA category 06. Hazardous waste according to Directive 2008/98/EC.

**Section 14. Transport Information**

**Department of Transportation (DOT)**

In accordance with DOT UN2789 Acetic acid, glacial (with more than 80 percent acid, by mass), 8, II  
 Transport document description  
 UN-No.(DOT) UN2789  
 Proper Shipping Name (DOT) Acetic acid, glacial  
 with more than 80 percent acid, by mass  
 Transport hazard class(es) (DOT) 8 - Class 8 - Corrosive material 49 CFR 173.136  
 Packing group (DOT) II - Medium Danger  
 Hazard labels (DOT)

8 - Corrosive  
 3 - Flammable liquid



DOT Packaging Non Bulk (49 CFR 173.xxx) 202  
 DOT Packaging Bulk (49 CFR 173.xxx) 243  
 DOT Special Provisions (49 CFR 172.102) A3 - For combination packaging, if glass inner packaging (including ampoules) are used, they must be packed with absorbent material in tightly closed metal receptacles before packing in outer packaging  
 A6 -For combination packaging, if plastic inner packaging are used, they must be packed in tightly closed metal receptacles before packing in outer package  
 A7 - Steel packaging must be corrosion-resistant or have protection against corrosion  
 A10 - When aluminum or aluminum alloy construction materials are used, they must be resistant to corrosion  
 B2 - MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks are not authorized  
 IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized T7 - 4 178.274(d)(2) Normal..... 178.275(d)(3)  
 TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and


**Continued to Next Page**

**Section 15. Regulatory Information**


<b>Other Regulations:</b>	OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).	
<b>Other Classifications:</b>	WHMIS (Canada) CLASS	D-2A: Material causing other toxic effects (VERY TOXIC).
	DSCL (EEC)	R36/38- Irritating to eyes and skin.R40- Possible risks of irreversibleeffects.R60- May impair fertility.R63- Possible risk of harm to the unborn child.

Continued to Next Page





**Sodium Benzoate**

<b>HMIS (U.S.A.):</b>	Health Hazard	2	<b>National Fire Protection Association (U.S.A.)</b>	Health		Flammability
	Fire Hazard	1				Reactivity
	Reactivity	0				Specific hazard
	Personal Protection	E				

<b>WHMIS (Canada)(Pictograms):</b>	
------------------------------------	---

<b>DSCL (Europe)(Pictograms):</b>	
-----------------------------------	---

<b>ADR (Europe)(Pictograms):</b>	
----------------------------------	---

<b>Protective Equipment:</b>		Gloves.
		Lab coat.
		Dust respirator. Be sure to use an approved /certified respirator or equivalent.
		Splash goggles.

**Section 16. Other Information**

<b>Prepared By</b>	Shuyan Li 2021-1-1
--------------------	--------------------

**Notice to Reader**

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Tianjin BRG Products Co., Ltd., assumes no responsibility for the completeness or accuracy of the information contained herein.

Tianjin Yuanlong Chemical Industry Co., Ltd.

Address: No.10 Hanbei Road, Hangu, Binhai New Area, Tianjin, China, 300480

Tel #: +86-22-23528561 Fax #: +86-22-23523959

Website: [www.yuanlongchem.com](http://www.yuanlongchem.com)