SAMSUNG-BP CHEMICALS

Material Safety Data Sheet (MSDS)

Effective Date : 03/10/2002

Section 1. Chemical Product and Company Identification

Product Name	Acetic Acid
Formula	C2H4O2
Synonym	Glacial Acetic Acid, Ethylic Acid, Methanecarboxylic Acid, Pyroligneus Acid
Company	Samsung-BP Chemicals Co.,Ltd
Identification	2-2 Sangnam Ri, Chungyang Myun, Ulju Gun, Ulsan, Korea, 689-860 Tel) 82-52-279-1191

Section 2. Composition Information on Ingredients

Component	Cas NO	Amount
Acetic Acid	64-19-7	100%

Section 3. Hazards Identification

Physical State	Liquid (Clear)
Color	Colorless
Emergency Overview	Danger ! Corrosive Cause eye damage Cause skin bruns Cause severe respiratory tract irritation. Cause severe irritation or burns of the mouth, throat and esophagus. Do not get in eyes, on skin or clothing. Do not breathe vapor or mist. Do not breathe vapor or mist. Do not ingest. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling.
Potential Health Effects	
Eye	Corrosive. Will Cause serious damage to the eyes.
Skin	Corrosive. Cause skin burns. Skin inflammation is characterized by itching, scaling, reddening or occasionally blisting.

Inhalation	Causes severe respiratory tract irritation, chemical pneumonities, pulmonary edema.
Ingestion	Corrosive. Cause severe irritation or burns of the mouth, throat and esophagus. Ingestion may cause gastrointestinal irritation and diarrhea.

See Toxicological Information (Section 11)

Section 4. First Aid Measures

Eye Contact	In case of contact, immediately flush eyes with plenty of water for at least 15 minutee. Get medical attention immediately.
Skin Contact	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Contaminated leather, particularly footwear, must be discarded. Note that contaminated clothing may be a fire hazard. Wash clothing before reuse. Get medical attention immediately.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Ingestion	Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attentaion immediately.

Section5. Fire Fighting Measures

Flammability of the Product	Combustible
Autoignition Temperature	427 ℃ (800.6 F)
Flash Points	Closed Cup : 39 ℃ (102 F)
Flammable Limits	Lower 〉 4% (Volume) at 59 ℃ Upper 〈 16 % (Volume) at 92℃
Products of Combustion	These products are carbon oxides (CO, CO2)
Unusual Fire / Explosion	Combustible materials should be stored away from extreme heat and away from strong oxidizing agents.
Hazards	Container explosion may occur under fire conditions or when heated. Vapors may form explosive mixtures with air. Vapors may accumulate in low or confined areas, travel considerable

distance to source of ignition and flash back.

Fire Fighting Media and Instructions

Small Fire : Use dry chemical powder.
Large Fire : Use alcohol foam, water sprayor fog.
Cool containing vessels with jet in order to prevent pressure build-up, autoignition or explosion.

Do not fight fire when it reaches material.
Withdraw from fire and let it burn.
Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire.
Apply water from a safe distance to cool container and protect surrounding area.

Protective Clothing (Fire)

Fire fighters should wear positive pressure self-contained breathing apparatu (SCBA) and full turnout gear.
Firefighter's protective clothing will provide limited protection.

Section 6. Accidental Release Measures

Large Spill and Leak

Immediately contact emergency personnel. Eliminate all ingnition sources.
Approach release from upwind. Keep unnecessary personnel away.
Use suitable protective equipment (Section 8).
Follow all fire fighting procedures (Section 5).
Do not touch or walk through spolled material.
Absorb with dry earth, sand or other non-combustible material.
Prevent entry into sewers, basements or confined area dike if needed.

If emergency personnel are unavailable, contain spilled material.
Stop leak if without risk.
For small spills add absorbent (soil may be used in the absence of other suitable materials) and use a non-sparking or explosion proof means to transfer material to a sealed, appropriate container for disposal.
For large spills dike spilled material or otherwise contain material to ensure runoff does not reach a waterway.
Place spilled material in an appropriate container for disposal.
Minimize contact of spilled material with soils to prevent runoff to surface waterway. See Secton 13 for Waste Disposal Informantion.

Section 7. Handling and Storage

Handling

Keep away from heat, sparks and flame.
Do not get in eyes, on skin or on clothing.
Keep container closed. Do not breathe vapor or mist.
Use only with adequate ventilation.
To avoid fire or explosion, dissipate static electricity during tranfer by grounding and bonding containers and equipment before transfering material

Use explosion-proof electrical (ventilational, lighting and material handling) equipment.

Storage

Store in a segregated and approved area.
Keep container in a cool, well-ventilated area.
Keep container tightly clsoed and sealed until ready for use.
Avoid all possible sources of ignition (spark or flame).

Section 8. Exposure Controls and Personal Protection

Engineering Controls

Provide exhaust ventilation or other engineering controls to keep the airbome concentrations fo vapor below their respective threshold limit value.

Ensure that eyewash stations and safety showers are proximal to the work-staion location.

Personal Protection

Eyes

Do not get in eyes. Chemical splash goggles. Wear face shield.

Skin and Body

Do not get on skin or clothing.
Wear clothing and footwear that cannot be penetrated by chemicals or oil.

Respiratory

Use only with adequate ventilation. Avoid breathing vapor or mist.
If operating conditions cause high vapor concentrations or TLV is exceeded, use supplied-air respirator.

Hands

Wear gloves that cannot be penetrated by chemicals or oil.

Chemical name	Exposure Limits
Actetic Acid	TWA : 10 ppm, 25 mg/m3, STEL : 15 ppm, 37 mg/m3 (KOSHA)
	10 ppm (25 mg/m3) OSHA TWA 10 ppm ACGIH TWA 15 ppm ACGH STEL
	10 ppm (25 mg/m3) NIOSH TWA 15 ppm (37 mg/m3) NIOSH STEL

Section 9. Physical and Chemical Properties

Physical state	Liquid. (Clear)
pH	Not available
Boiling/Condensation Point	118 ℃ (244 F)
Melting/Freezing Point	17 ℃ (63 F)
Molecular Weight	60.05

Specific Gravity	1.0492 (Water = 1)
Vapor Pressure	15.7 mmHg (at 25 ℃)
Vapor Density	2.07 (Air =1)
Odor Threshold	Not available
Evaporation Rate	0.97
Viscosity	Dynamic : 1.22 cP at 20 ℃
Solubility	Easily soluble in cold water
odor	Vinegar (Strong)
Color	Colorness

Section 10. Stability and Reactivity

Stability and Reactivity	Stable under recommended storage and handling conditions (See section 7)
Conditions to avoid	Keep away from heat, sparks and flame.
Incompatibility with Various Substances	Reactive with oxidizing agents, reducing agents, metal, acid.
Hazardous Decomposition Products	Carbon Oxides (CO, CO2)

Hazardous Polymerization will occur.

Section 11. Toxicological Information

Acute toxicity	Acute oral toxicity (LD50) : 3,310 mg/kg (Rat) Skin toxicity (LD50) : 1,060 ul/kg (Rabbit) Inhalation(1 hour) toxicity (LC50) : 5,620 ppm (Mouse)
Chronic toxicity	Carcinogenic Effects : Classified None. By NIOSH [Acetic Acid] No component of this product at levels greater than 0.1% is identified as a carcinogen by ACGIH or the International Agency for Research on Cancer (IARC). No component of this product at levels greater than 0.1% is identified as a carcinogen by the U.S. National Toxicology Program (NTP) or the U.S. Occupational Safety and Health Act (OSHA). No component of this product at levels greater than 0.1% is classified by

established regulatory regulatory criteria as a mutagen.

No component of this product at levels greater than 0.1% is classified by established regulatory criteria as a reproductive toxin.

No component of this product at levels greater than 0.1% is classified by established regulatory criteria as teratogenic or embryotoxic.

other information

Very hazardous in case of skin contact (corrosive, irritant), of eye contact (corrosive, irritant), of ingestion (corrosive, irritant), of inhalation (lung corrosive, lung iritant).

Section 12. Ecological Information

Ecotoxicity

251 mg/L 96 hours LC50 Gambusia affinis

95 mg/L 24 hours EC50 Daphnia magna

Section 13. Disposal Considerations

Waste Information

Avoid contact of spilled material and runoff with soil and surface waterway. Consult an environmental professional to determine if local or national regulations would classify spilled or contaminated material as hazardous waste.

Use only apporoved transporters, recycles, treatment, storage or disposal facilities. Comply with all federal, state and local laws pertaining to waste management. Empty containers may contain harmful, flammable / combustible or explosive residue or vapors. Do not cut, grind, drill, weld, reuse or dispose of containers unless adequate precautions are taken against these hazards.

Section 14. Transport Information

Proper Shipping Name Acetic Acid, Glacial

ID Number UN 2789

Hazard Class 8

Packing Group II

Section 15. Regulatory Information

CERCLA 103(40CFR302.4)	Acetic Acid : 5,000 LBS RQ
SARA 302(40CFR355.30)	No
SARA 304(40CFR355.40)	No
SARA 313(40CFR372.65)	No
SARA 311/312(40CFR370.21)	Acute : Yes Chronic : No Fire Hazard : Yes Reactive Hazard : No Sudden Release of Pressure Hazard : No
OSHA (29CFR1910.119)	No

Section 16. Other Information

Label Requirement

Danger ! Corrosive
Causes Eye Damage
Causes skin burns
Causes severe respiratory tract irritation
Causes severe irritation or burns of the mouth, throat and esophagus.

History

Date of issue	03/10/2002
Version	1
Prepared	Product Stewardship