

Acetic anhydride

Company Information

Sunchem Co.,Ltd.

Add: A-11F, 186 Yangtzi Middle Road, Yangzhou, China.

Tel:+86 514 87851548

Fax:+86 514 87872867

Email: info@sunchemgroup.com

Product Identification

【Product Name】

Acetic anhydride

【Synonyms】

Acetic acid anhydride

Acetyl oxide

Ethanoic anhydride

【CAS】

108-24-7

【Formula】

C₄H₆O₃

【Molecular Weight】

102.09

【EINECS】

203-564-8

【RTECS】

AK1925000

【RTECS Class】

Primary Irritant

【Merck】

13,57

【Beilstein/Gmelin】

385737

【Beilstein Reference】

4-02-00-00386

【EC Index Number】

607-008-00-9

【EC Class】

Flammable; Harmful; Corrosive

Physical and Chemical Properties

【Appearance】

Clear, colorless liquid with a strong, pungent, sour vinegar-like odor, lachrymator.

【Solubility in water】

Slowly soluble

【Melting Point】

-73

【Boiling Point】

139.9

【Vapor Pressure】

4 (20 C)

【Density】

1.08 g/cm³ (20 C)

【Heat Of Vaporization】

52.0 kJ/mol

【Heat Of Combustion】

-1805 kJ/mol

【Usage】

In manufacture of acetyl compound, cellulose acetates, acetylizer and solvent in examining

wool fat, glycerol, fatty and volatile oils, resins, detection of rosin, in organic synthesis, such as dehydrating agent in nitrations, sulfonations and other reactions where removal of water is necessary.

【Vapor Density】

3.52

【Saturation Concentration】

3950 (0.4%); 5260 ppm (0.53%) at 20 C (calculated)

【Odor threshold】

0.56 mg/m³

【Refractive Index】

1.3904 (20 C)

First Aid Measures

【Ingestion】

Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

【Inhalation】

Get medical aid immediately. Remove from exposure to fresh air immediately. If breathing is difficult, give oxygen. DO NOT use mouth-to-mouth respiration. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

【Skin】

Get medical aid. Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Discard contaminated clothing in a manner which limits further exposure. If water-reactive products are embedded in the skin, no water should be applied. The embedded products should be covered with a light oil.

【Eyes】

Get medical aid immediately. Do NOT allow victim to rub or keep eyes closed. Extensive irrigation is required (at least 30 minutes).

Handling and Storage

【Storage】

Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Separate from incompatibles. Containers should be bonded and grounded for transfers to avoid static

sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment, including explosion proof ventilation. Keep away from water. This material is corrosive to steel, galvanized iron, copper and copper alloys. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

【Handling】

Remove contaminated clothing and wash before reuse. Do not allow water to get into the container because of violent reaction. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Do not breathe dust, vapor, mist, or gas. Do not get in eyes, on skin, or on clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Avoid contact with heat, sparks and flame. Use with adequate ventilation. Discard contaminated shoes. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Keep from contact with moist air and steam.

Hazards Identification

【Inhalation】

Harmful if inhaled. Causes severe irritation of upper respiratory tract with coughing, burns, breathing difficulty, and possible coma. Causes chemical burns to the respiratory tract. May cause lung damage. Aspiration may lead to pulmonary edema. Vapors may cause dizziness or suffocation. May cause systemic effects. May cause burning sensation in the chest.

【Skin】

Contact with skin causes irritation and possible burns, especially if the skin is wet or moist. Prolonged skin contact may be painless with reddening of the skin followed by a white appearance of the skin. Skin burns may be delayed. May cause cyanosis of the extremities. May cause skin rash (in milder cases), and cold and clammy skin with cyanosis or pale color.

【Eyes】

Eye damage may be delayed. Contact with liquid is corrosive to the eyes and causes severe burns. When substances become wet or come in contact with moisture of the mucous membranes, it becomes an irritant. May cause chemical conjunctivitis and corneal damage.

【Ingestion】

May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns. May cause perforation of the digestive tract. May be harmful if swallowed. Ingestion of large amounts may cause CNS depression. May cause systemic effects.

【Hazards】

Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Sealed containers may rupture when heated. Vapors can flow along surfaces to distant ignition source and flash back. A violent exothermic reaction occurs with water. Sufficient heat may be

produced to ignite combustible materials. Sensitive to static discharge.

【EC Risk Phrase】

R 10 20/22 34

【EC Safety Phrase】

S 26 36/37/39 45

【UN (DOT)】

1715

Exposure Controls/Personal Protection

【Personal Protection】

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact. Rubber and neoprene are recommended materials for personal protective equipment.

【Respirators】

If the exposure limit is exceeded and engineering controls are not feasible, a full facepiece respirator with organic vapor cartridge may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. **WARNING:** Air purifying respirators do not protect workers in oxygen-deficient atmospheres.

【Exposure Effects】

Effects may be delayed. Prolonged skin contact may be painless and cause redness and subsequently a white appearance of the skin accompanied by wrinkling. Skin burns may be delayed. Persons with pre-existing skin disorders or eye problems, or impaired respiratory function may be more susceptible to the effects of the substance.

【Exposure limit(s)】

TLV: 5 ppm; 21 mg/m³ (as TWA) (ACGIH 1993-1994). OSHA PEL: TWA 5 ppm (20 mg/m³) NIOSH REL: C 5 ppm (20 mg/m³) NIOSH IDLH: 200 ppm

【Poison Class】

3

Fire Fighting Measures

【Flash Point】

49

【Autoignition】

330

【Fire Fighting】

Wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Water Reactive. Material will react with water and may release a flammable and/or toxic gas. Use water spray to keep fire-exposed containers cool. Wear appropriate protective clothing to prevent contact with skin and eyes. Wear a self-contained breathing apparatus (SCBA) to prevent contact with thermal decomposition products. Containers may explode in the heat of a fire. May ignite or explode on contact with steam or moist air. Extinguishing media: Use dry sand or earth to smother fire. If water is the only media available, use in flooding amounts. **DO NOT USE WATER! Do NOT use straight streams of water.**

【Upper exp. limit】

10.3

【Lower exp. limit】

2.7

【Fire Potential】

Moderately flammable.

Accidental Release Measures

【Small spills/leaks】

Absorb spill with inert material, (e.g., dry sand or earth), then place into a chemical waste container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, using the appropriate protective equipment. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation. Do not expose spill to water. Spill may be neutralized with lime. Cover with material such as dry soda ash or calcium carbonate and place into a closed container for disposal. A vapor suppressing foam may be used to reduce vapors.

Stability and Reactivity Back to Contents

【Stability】

Stable under normal shipping and handling conditions. Combines vigorously or explosively with water.

【Incompatibilities】

Water, steam, mineral acids, oxidizing materials, alcohols, or amines may cause violent reaction. Contact with strong caustics will cause violent reaction and spattering. Corrosive to copper,

brass, bronze, and iron.

【Decomposition】

Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.

【Combustion Products】

Irritating vapors are generated when heated.

Transport Information

【UN Number】

1715

【Hazard Class】

8

【Packing Group】

II

【HS Code】

2915 24 00