

Material Safety Data Sheet

Acetaldehyde

SECTION 1.1 – PRODUCT IDENTIFICATION

ProductName : Acetaldehyde
Molecular Formula : CH_3CHO
Molecular Weight : 44.05 g/mole
CAS No. : 75-07-0

SECTION: 1.2 – COMPANY IDENTIFICATION

Company Name: Indenta Chemicals (India) Pvt. Ltd.

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SECTION 2: COMPOSITION / INFORMATION ON INGREDIENTS

Name	CAS #	% by Weight
Acetaldehyde	75-07-0	100

Toxicological Data on Ingredients: Acetaldehyde: ORAL (LD50): Acute: 661 mg/kg [Rat]. 900 mg/kg [Mouse]. DERMAL (LD50): Acute: 3540 mg/kg [Rabbit]. VAPOR (LC50): Acute: 13300 ppm 4 hours [Rat]. 23000 mg/m 4 hours [Mouse].

SECTION 3: HAZARD IDENTIFICATION

Potential Acute Health Effects: Hazardous in case of eye contact (irritant), of ingestion, of inhalation (lung irritant). Slightly hazardous in case of skin contact (irritant, permeator).

Potential Chronic Health Effects: Hazardous in case of skin contact (irritant). Slightly hazardous in case of skin contact (sensitizer). **CARCINOGENIC EFFECTS:** Classified 2B (Possible for human.) by IARC. **MUTAGENIC EFFECTS:** Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. **TERATOGENIC EFFECTS:** Classified POSSIBLE for human. **DEVELOPMENTAL TOXICITY:** Not available. The substance may be toxic to liver. Repeated or prolonged exposure to the substance can produce target organs damage.

SECTION 4: FIRST AID MEASURES

Eye Contact: Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Get medical attention.

Skin Contact: In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact: Not available.

Indenta Chemicals (India) Pvt. Ltd.

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Unit 2: Building No. 73, Gala No. 7, Indian Corporation Compound, Village Gundavli, Mankoli Naka, Bhiwandi, Thane - 421302

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion: Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

SECTION 5: FIRE AND EXPLOSION DATA

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 175°C (347°F) (ACGIH, 1996; Lewis, 1996; NFPA, 1994); 185 deg. C (ILO, 1998)

Flash Points:CLOSED CUP: -38°C (-36.4°F) (Buvardi (1996); Clayton and Clayton, 1993; Lewis, 1996); -38.89 deg. C (AmericanConference of Governmental Industrial Hygienests) OPEN CUP: -40°C (-40°F) (Lewis, 1997; ACGIH, 1996 (Cleveland)).

Flammable Limits:LOWER: 4% UPPER: 55% (Clayton; Patty's Industrial Hygiene and Toxicology); 57% (American Conference of GovernmentalIndustrial Hygiensts); 60% (National Fire Protection Association)

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances:Extremely flammable in presence of open flames and sparks, of heat. Non-flammable in presence of shocks.

Explosion Hazards in Presence of Various Substances:Risks of explosion of the product in presence of static discharge: Not available. Explosive in presence of heat, of acids, ofalkalis. Non-explosive in presence of shocks.

Fire Fighting Media and Instructions:Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam,water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards: When heated to decomposition it emits acrid smoke and fumes.

Special Remarks on Explosion Hazards:Hazardous or explosive polymerization may occur with acids, alkaline materials, heat, strong bases, trace metals. Formsexplosive peroxides on exposure to air, heat or sunlight.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Small Spill: Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill: Flammable liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

SECTION7: HANDLING AND STORAGE

Precautions: Keep locked up.. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Avoid contact with eyes. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, combustible materials, organic materials, metals, acids, alkalis.

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

SECTION 8: EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering Controls: Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection: Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves (impervious).

Personal Protection in Case of a Large Spill: Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: TWA: 25 (ppm) from ACGIH (TLV) [United States] TWA: 200 STEL: 150 (ppm) from OSHA (PEL) [United States] TWA: 360 STEL: 270 (mg/m³) from OSHA (PEL) [United States] Consult local authorities for acceptable exposure limits.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical state and appearance: Liquid. (Fuming liquid.)

Odor: Fruity. Pungent. (Strong.)

Taste: Leafy green

Molecular Weight: 44.05 g/mole

Color: Colorless.

pH (1% soln/water): Not available.

Boiling Point: 21°C (69.8°F)

Melting Point: -123.5°C (-190.3°F)

Critical Temperature: 188°C (370.4°F)

Specific Gravity: 0.78 (Water = 1)

Vapor Pressure: 101.3 kPa (@ 20°C)

Vapor Density: 1.52 (Air = 1)

Volatility: Not available.

Odor Threshold: 0.21 ppm

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether, acetone.

Solubility: Easily soluble in cold water, hot water. Soluble in diethyl ether, acetone. Miscible with benzene, gasoline, solvent naphtha, toluene, xylene, turpentine. Solubility in water: 1000 g/l @ 25 deg. C.

SECTION 10: STABILITY AND REACTIVITY

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ignition sources (flames, sparks), incompatible materials

Incompatibility with various substances: Highly reactive with metals, acids, alkalis. Reactive with oxidizing agents, combustible materials, organic materials.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Reacts with oxidizing materials, halogens, amines, strong alkalies (bases), and acids, cobalt acetate, phenols, ketones, ammonia, hydrogen cyanide, hydrogen sulfide, hydrogen peroxide, mercury (II) salts (chlorate or perchlorate), acid anhydrides, alcohols, iodine, isocyanates, phosphorus, phosphorus isocyanate, tris(2-chlorobutyl)amine. It can slowly polymerize to paraldehyde. Polymerization may occur in presence of acid traces causing exothermic reaction, increased vessel pressure, fire, and explosion. Impure material polymerizes readily in presence of traces of metals (iron) or acids. Acetaldehyde is polymerized violently by concentrated sulfuric acid. Acetaldehyde can dissolve rubber.

Special Remarks on Corrosivity: Not available.

Polymerization: Not available.

SECTION 11: TOXICOLOGICAL INFORMATION

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.

Toxicity to Animals: WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 661 mg/kg [Rat.]. Acute dermal toxicity (LD50): 3540 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 23000 mg/m³ 4 hours [Mouse].

Chronic Effects on Humans: CARCINOGENIC EFFECTS: Classified 2B (Possible for human.) by IARC. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Classified POSSIBLE for human. May cause damage to the following organs: liver.

Other Toxic Effects on Humans: Hazardous in case of ingestion, of inhalation (lung irritant). Slightly hazardous in case of skin contact (irritant, permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: May cause adverse reproductive effects and birth defects(teratogenic) based on animal test data May affect genetic material (mutagenic). May cause cancer based on animal test data.

Special Remarks on other Toxic Effects on Humans: Acute Potential Health Effects: Skin: Causes mild skin irritation. It can be absorbed through intact skin. Eyes: Causes severe eye irritation. Eye splashes produce painful but superficial corneal injuries which heal rapidly. Inhalation: It causes upper respiratory tract and mucous membrane irritation. It decreases the amount of pulmonary macrophages. It may cause bronchitis. It may cause pulmonary edema, often the cause of delayed death. It may affect respiration (dyspnea) and respiratory arrest and death may occur. It may affect behavior/central nervous and cause central nervous system depression. Irritation usually prevents voluntary exposure to airborne concentrations high enough to cause CNS depression, although this effect has occurred in experimental animals. It may also affect the peripheral nervous system and cardiovascular system (hypotension or hypertension, tachycardia, bradycardia), kidneys (albuminuria) Chronic Potential Health Effects: Skin: Prolonged direct skin contact causes erythema and burns. Repeated exposure may cause dermatitis secondary to primary irritation or sensitization. Ingestion: Symptoms of chronic Acetaldehyde exposure may resemble those of chronic alcoholism. Acetaldehyde is the a metabolite of ethanol in humans and has been implicated as the active agent damaging the liver in ethanol-induced liver disease.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity: Not available.

BOD and COD: Not available.

Products of Biodegradation: Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

SECTION 13: DISPOSAL CONSIDERATION

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

SECTION 14: TRANSPORT INFORMATION

DOT Classification: CLASS 3: Flammable liquid.

Identification: : Acetaldehyde UNNA: 1089 PG: I

Special Provisions for Transport: Marine Pollutant**SECTION 15: OTHER REGULATORY INFORMATION**

Federal and State Regulations: California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Acetaldehyde California prop. 65 (no significant risk level): Acetaldehyde: 0.09 mg/day (value) California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Acetaldehyde Connecticut hazardous material survey.: Acetaldehyde Illinois toxic substances disclosure to employee act: Acetaldehyde Illinois chemical safety act: Acetaldehyde New York release reporting list: Acetaldehyde Rhode Island RTK hazardous substances: Acetaldehyde Pennsylvania RTK: Acetaldehyde Minnesota: Acetaldehyde Massachusetts RTK: Acetaldehyde Massachusetts spill list: Acetaldehyde New Jersey: Acetaldehyde New Jersey spill list: Acetaldehyde New Jersey toxic catastrophe prevention act: Acetaldehyde Louisiana spill reporting: Acetaldehyde California Director's List of Hazardous Substances: Acetaldehyde TSCA 8(b) inventory: Acetaldehyde SARA 313 toxic chemical notification and release reporting: Acetaldehyde CERCLA: Hazardous substances.: Acetaldehyde: 1000 lbs. (453.6 kg)

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). **EINECS:** This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada): CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC): R12- Extremely flammable. R36/37/38- Irritating to eyes, respiratory system and skin. R40- Possible risks of irreversible effects. S16- Keep away from sources of ignition - No smoking. S33- Take precautionary measures against static discharges. S36/37/39- Wear suitable protective clothing, gloves and eye/face protection.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 4

Reactivity: 0

Personal Protection: j

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 4

Reactivity: 2

Specific hazard:

Protective Equipment: Gloves (impervious). Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

SECTION 16: ADDITIONAL INFORMATION

This information is provided for documentation purposes only.

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