



**Tel: 514-956-7503**  
**Fax: 514-956-7504**  
**Internet: www.megs.ca**  
**E-mail:**  
**support@megs.ca**

<b>Montreal</b>	St-Laurent	Tel : 514-956-7503	Fax : 514-956-7504
<b>Ottawa</b>	Nepean	Tel : 613-226-4228	Fax : 613-226-4229
<b>Quebec</b>	Quebec	Tel : 418-834-7447	Fax : 418-834-3774

## **ACETALDEHYDE- MATERIAL SAFETY DATA SHEET**

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### **24 Hour EMERGENCY CONTACT**

**U.S- CHEMTREC 1-800-424-9300**

**CANADA- CANUTEC 613-996-6666**

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## **1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

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### **Matheson Tri-Gas, Inc.**

*The telephone numbers listed below are emergency numbers, please contact your local branch for routine inquiries.*

#### **USA**

959 Route 46 East  
Parsippany, New Jersey  
07054-0624 USA  
**Phone: 973-257-1100**

#### **CANADA**

530 Watson Street  
Whitby, Ontario  
L1N 5R9 Canada  
**Phone: 905-668-3570**

**SUBSTANCE: ACETALDEHYDE**

**SYMBOL:** C<sub>2</sub>H<sub>4</sub>O

**TRADE NAMES/SYNONYMS:**

ACETIC ALDEHYDE; ETHYL ALDEHYDE; ETHANAL; RCRA U001; UN 1089; C2H4O; MAT00080; RTECS AB1925000

**CHEMICAL FAMILY:** aldehydes, aliphatic

**CREATION DATE:** Jan 24 1989

**REVISION DATE:** Mar 16 1999

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**2. COMPOSITION, INFORMATION ON INGREDIENTS**

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**COMPONENT:** ACETALDEHYDE

**CAS NUMBER:** 75-07-0

**EC NUMBER (EINECS):** 200-836-8

**EC INDEX NUMBER:** 605-003-00-6

**PERCENTAGE:** 100.0

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**3. HAZARDS IDENTIFICATION**

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**NFPA RATINGS (SCALE 0-4):** HEALTH=2 FIRE=4 REACTIVITY=2

**WHMIS CLASSIFICATION:** BD2

**EC CLASSIFICATION (ASSIGNED):**

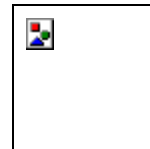
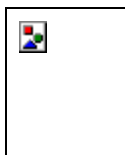
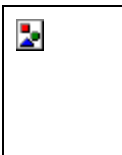
F+ Extremely Flammable

Xi Irritant

Carcinogen Category 3

R 12-36/37-40

EC Classification may be inconsistent with independently-researched data.



**EMERGENCY OVERVIEW:**

**Color:** colorless

**Physical Form:** liquid, gas

**Odor:** fruity odor

**Major Health Hazards:** respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, allergic reactions, suspect cancer hazard (in animals)

**Physical Hazards:** Flammable liquid and vapor. Vapor may cause flash fire. May polymerize. Containers may rupture or explode.

**POTENTIAL HEALTH EFFECTS:**

**INHALATION:**

**Short Term Exposure:** irritation, lack of sense of smell, nausea, vomiting, chest pain, difficulty breathing, headache, drowsiness, symptoms of drunkenness, lung congestion

**Long Term Exposure:** disorientation, cancer

**Skin Contact:**

**Short Term Exposure:** irritation (possibly severe), allergic reactions

**Long Term Exposure:** same as effects reported in short term exposure

**EYE CONTACT:**

**Short Term Exposure:** irritation (possibly severe), tearing, eye damage

**Long Term Exposure:** same as effects reported in short term exposure

**INGESTION:**

**Short Term Exposure:** nausea, vomiting, diarrhea, stomach pain, irregular heartbeat, headache, drowsiness, symptoms of drunkenness, lung congestion, coma

**Long Term Exposure:** disorientation

**CARCINOGEN STATUS:**

**OSHA:** N

**NTP:** Y

**IARC:** Y

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**4. FIRST AID MEASURES**

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**INHALATION:**

When safe to enter area, remove from exposure. Use a bag valve mask or similar device to perform artificial respiration (rescue breathing) if needed. Keep warm and at rest. Get medical attention immediately.

**SKIN CONTACT:**

Remove contaminated clothing, jewelry, and shoes immediately. Wash with soap or mild detergent and large amounts of water until no evidence of chemical remains (at least 15-20 minutes). Get medical attention, if needed.

**EYE CONTACT:**

Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains. Get medical attention immediately.

**INGESTION:**

Contact local poison control center or physician immediately. Never make an unconscious person vomit or drink fluids. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately.

**NOTE TO PHYSICIAN:**

For inhalation, consider oxygen. For ingestion, consider gastric lavage and activated charcoal slurry.

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## 5. FIRE FIGHTING MEASURES

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### **FIRE AND EXPLOSION HAZARDS:**

Severe fire hazard. Vapor/air mixtures are explosive. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back.

### **EXTINGUISHING MEDIA:**

alcohol resistant foam, carbon dioxide, regular dry chemical, water

Large fires: Use alcohol-resistant foam or flood with fine water spray.

### **FIRE FIGHTING:**

Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck: Evacuation radius: 800 meters (1/2 mile). Water may be ineffective.

**FLASH POINT:** -38 F (-39 C) (CC)

**LOWER FLAMMABLE LIMIT:** 4.0%

**UPPER FLAMMABLE LIMIT:** 60%

**AUTOIGNITION:** 347 F (175 C)

**FLAMMABILITY CLASS (OSHA):** IA

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## 6. ACCIDENTAL RELEASE MEASURES

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### **AIR RELEASE:**

Reduce vapors with water spray. Stay upwind and keep out of low areas.

### **SOIL RELEASE:**

Dig holding area such as lagoon, pond or pit for containment. Dike for later disposal. Absorb with sand or other non-combustible material.

### **WATER RELEASE:**

Add a reducing agent. Absorb with activated carbon. Collect spilled material using mechanical equipment. Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Keep out of water supplies and sewers.

### **OCCUPATIONAL RELEASE:**

Avoid heat, flames, sparks and other sources of ignition. Remove sources of ignition. Stop leak if possible without personal risk. Reduce vapors with water spray. Small spills: Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Large spills: Dike for later disposal. Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas. Reportable Quantity (RQ): Notify Local

Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

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## 7. HANDLING AND STORAGE

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Store and handle in accordance with all current regulations and standards. Protect from physical damage. Refrigerate. Store under an inert atmosphere. Store and handle in a detached building. Store at controlled room temperature. Store in a well-ventilated area. Avoid heat, flames, sparks and other sources of ignition. Keep separated from incompatible substances. Store with flammable liquids. Subject to storage regulations: U.S. OSHA 29 CFR 1910.106. Grounding and bonding required. May form explosive peroxides. Avoid contact with light. Monitor inhibitor content. Do not evaporate or distill to dryness.

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## 8. EXPOSURE CONTROLS, PERSONAL PROTECTION

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### EXPOSURE LIMITS:

#### ACETALDEHYDE:

200 ppm (360 mg/m<sup>3</sup>) OSHA TWA

100 ppm (180 mg/m<sup>3</sup>) OSHA TWA (vacated by 58 FR 35338, June 30, 1993)

150 ppm (270 mg/m<sup>3</sup>) OSHA STEL (vacated by 58 FR 35338, June 30, 1993)

25 ppm (45 mg/m<sup>3</sup>) ACGIH ceiling

**VENTILATION:** Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

**EYE PROTECTION:** Wear splash resistant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

**CLOTHING:** Wear appropriate chemical resistant clothing.

**GLOVES:** Wear appropriate chemical resistant gloves.

**RESPIRATOR:** The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.

#### At any detectable concentration -

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.

#### Escape -

Any air-purifying respirator with a full facepiece and an organic vapor canister.

Any appropriate escape-type, self-contained breathing apparatus.

#### For Unknown Concentrations or Immediately Dangerous to Life or Health -

Any supplied-air respirator with full facepiece and operated in a pressure-demand or other

positive-pressure mode in combination with a separate escape supply.  
Any self-contained breathing apparatus with a full facepiece.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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**PHYSICAL STATE:** liquid

**APPEARANCE:** clear

**COLOR:** colorless

**PHYSICAL FORM:** liquid, gas

**ODOR:** fruity odor

**MOLECULAR WEIGHT:** 44.05

**MOLECULAR FORMULA:** C-H<sub>3</sub>-C-H-O

**BOILING POINT:** 70 F (21 C)

**FREEZING POINT:** -186 F (-121 C)

**DECOMPOSITION POINT:** >752 F (>400 C)

**VAPOR PRESSURE:** 750 mmHg @ 20 C

**VAPOR DENSITY (air=1):** 1.52

**SPECIFIC GRAVITY (water=1):** 0.7834

**WATER SOLUBILITY:** soluble

**PH:** Not available

**VOLATILITY:** 100%

**ODOR THRESHOLD:** 2.3 ppm

**EVAPORATION RATE:** 49.1 (butyl acetate=1)

**COEFFICIENT OF WATER/OIL DISTRIBUTION:** Not available

**SOLVENT SOLUBILITY:**

**Soluble:** alcohol, ether, acetone, benzene, gasolines, toluene, xylene, turpentine, naphtha

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## 10. STABILITY AND REACTIVITY

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**REACTIVITY:**

May polymerize. Avoid contact with light or storage and use above room temperature.

**CONDITIONS TO AVOID:**

Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if

exposed to heat.

**INCOMPATIBILITIES:**

acids, combustible materials, amines, bases, halogens, oxidizing materials, halo carbons, cyanides, reducing agents, metal salts, metals

**HAZARDOUS DECOMPOSITION:**

Thermal decomposition products: oxides of carbon

**POLYMERIZATION:**

May polymerize. Avoid contact with heat, light, air, water or incompatible materials. Closed containers may rupture violently.

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**11. TOXICOLOGICAL INFORMATION**

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**ACETALDEHYDE:**

**IRRITATION DATA:**

50 ppm/15 minute(s) eyes-human; 500 mg open skin-rabbit mild; 40 mg eyes-rabbit severe

**TOXICITY DATA:**

13300 ppm/4 hour(s) inhalation-rat LC50; 3540 mg/kg skin-rabbit LD50; 661 mg/kg oral-rat LD50

**CARCINOGEN STATUS:**

NTP: Anticipated Human Carcinogen; IARC: Human Inadequate Evidence, Animal Sufficient Evidence, Group 2B; ACGIH: A3 -Animal Carcinogen

**LOCAL EFFECTS:**

Irritant: inhalation, skin, eye

**ACUTE TOXICITY LEVEL:**

Moderately Toxic: ingestion

Slightly Toxic: inhalation, dermal absorption

**TARGET ORGANS:**

immune system (sensitizer), central nervous system

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:**

kidney disorders, liver disorders, respiratory disorders, skin disorders and allergies

**TUMORIGENIC DATA:**

Available.

**MUTAGENIC DATA:**

Available.

**REPRODUCTIVE EFFECTS DATA:**

Available.

**ADDITIONAL DATA:**

May be excreted in breast milk. Alcohol may enhance the toxic effects.

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**12. ECOLOGICAL INFORMATION**

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**ECOTOXICITY DATA:**

**FISH TOXICITY:** 37200 ug/L 96 hour(s) LC50 (Mortality) Fathead minnow (Pimephales promelas)

**INVERTEBRATE TOXICITY:** 48250 ug/L 48 hour(s) EC50 (Immobilization) Water flea (Daphnia magna)

**ALGAL TOXICITY:** 82000 ug/L 48 year(s) (Population Growth) Cryptomonad (Chilomonas paramecium)

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**13. DISPOSAL CONSIDERATIONS**

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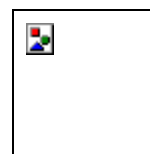
Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): U001.

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**14. TRANSPORT INFORMATION**

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**U.S. DOT 49 CFR 172.101. SHIPPING NAME-UN NUMBER; HAZARD CLASS; PACKING GROUP; LABEL:**  
Acetaldehyde-UN1089; 3; I; Flammable liquid



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**15. REGULATORY INFORMATION**

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**U.S. REGULATIONS:**

**TSCA Inventory Status:** Y

**TSCA 12(b) EXPORT NOTIFICATION:** Not listed.

**CERCLA SECTION 103 (40CFR302.4):** Y

**Acetaldehyde:** 1000 LBS RQ

**SARA SECTION 302 (40CFR355.30):** N

**SARA SECTION 304 (40CFR355.40):** N

**SARA SECTION 313 (40CFR372.65):** Y

**Acetaldehyde**

**SARA HAZARD CATEGORIES, SARA SECTIONS 311/312 (40CFR370.21):**

**Acute:** Y

**Chronic:** Y

**Fire:** Y

**Reactive:** Y

**Sudden Release:** N

**OSHA PROCESS SAFETY (29CFR1910.119):** Y

**Acetaldehyde:** 2500 LBS TQ

**STATE REGULATIONS:**

**California Proposition 65: Y**

Known to the state of California to cause the following:

**Acetaldehyde:** Cancer (Apr 01, 1988)

**EUROPEAN REGULATIONS:**

**EC NUMBER (EINECS):** 200-836-8

**EC RISK AND SAFETY PHRASES:**

R 12	Extremely flammable.
R 36/37	Irritating to eyes and respiratory system.
R 40	Possible risks of irreversible effects.
S 2	Keep out of reach of children.
S 16	Keep away from sources of ignition - No smoking.
S 33	Take precautionary measures against static discharges.
S 36/37	Wear suitable protective clothing and gloves.

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**16. OTHER INFORMATION**

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