

# Material Safety Data Sheet

Acetic Anhydride, GR



## Section 1. Product and Company Identification

<b>Product name</b>	: Acetic Anhydride, GR
<b>Product code</b>	: AX0080
<b>Synonym</b>	: Ethanoic Anhydrite
<b>Material uses</b>	: Other non-specified industry: Analytical reagent.
<b>Manufacturer</b>	: EMD Chemicals Inc. P.O. Box 70 480 Democrat Road Gibbstown, NJ 08027 856-423-6300 Technical Service Monday - Friday: 8:00 - 5:00 PM
<b>Validation date</b>	: 7/10/2006.
<b>Print date</b>	:
<b>In case of emergency</b>	: 800-424-9300 CHEMTREC (USA) 613-996-6666 CANUTEC (Canada) 24 Hours/Day: 7 Days/Week

## Section 2. Hazards Identification

<b>Physical state</b>	: Liquid.
<b>Odor</b>	: Pungent.
<b>OSHA/HCS status</b>	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
<b>Emergency overview</b>	: DANGER!  CAUSES SEVERE EYE AND SKIN BURNS. HARMFUL IF INHALED OR SWALLOWED. CAUSES RESPIRATORY TRACT IRRITATION. CAUSES DAMAGE TO THE FOLLOWING ORGANS: LUNGS, RESPIRATORY TRACT, SKIN, EYE, LENS OR CORNEA. FLAMMABLE LIQUID AND VAPOR. VAPOR MAY CAUSE FLASH FIRE. Do not ingest. Do not get in eyes or on skin or clothing. Avoid breathing vapor or mist. Keep away from heat, sparks and flame. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling.
<b>Routes of entry</b>	: Dermal contact. Eye contact. Inhalation. Ingestion.
<b>Potential acute health effects</b>	
<b>Eyes</b>	: Severely corrosive to the eyes.
<b>Skin</b>	: Severely corrosive to the skin.
<b>Inhalation</b>	: Toxic by inhalation. Irritating to respiratory system.
<b>Ingestion</b>	: Toxic if swallowed. May cause burns to mouth, throat and stomach.
<b>Carcinogenic effects</b>	: No known significant effects or critical hazards.
<b>Mutagenic effects</b>	: No known significant effects or critical hazards.
<b>Teratogenicity / Reproductive toxicity</b>	: No known significant effects or critical hazards.
<b>Medical conditions aggravated by over-exposure</b>	: Repeated skin exposure can produce local skin destruction or dermatitis. Repeated or prolonged exposure to the substance can produce lung damage. Repeated or prolonged contact with spray or mist may produce chronic eye irritation and severe

skin irritation. Repeated or prolonged exposure to the substance can produce target organs damage.

See toxicological information (section 11)

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### Section 3. Composition/Information on Ingredients

United States

Name	CAS number	% by Weight
Acetic Anhydride	108-24-7	100

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### Section 4. First Aid Measures

<b>Eye contact</b>	: Get medical attention immediately. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Chemical burns must be treated promptly by a physician.
<b>Skin contact</b>	: Get medical attention immediately. Flush contaminated skin with plenty of water. Continue to rinse for at least 10 minutes. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing or wear gloves. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
<b>Inhalation</b>	: Get medical attention immediately. Move exposed person to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
<b>Ingestion</b>	: Get medical attention immediately. Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
<b>Protection of first-aiders</b>	: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing or wear gloves.

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### Section 5. Fire Fighting Measures

<b>Flammability of the product</b>	: Flammable liquid and vapor. Vapor may cause flash fire. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.
<b>Products of combustion</b>	: These products are carbon oxides (CO, CO <sub>2</sub> ).
<b>Extinguishing media</b>	
<b>Suitable</b>	: Use dry chemical, CO <sub>2</sub> , water spray (fog) or foam.
<b>Not suitable</b>	: Do not use water jet.
<b>Special exposure hazards</b>	: Not available.
<b>Special protective equipment for fire-fighters</b>	: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
<b>Special remarks on fire hazards</b>	: Vapor may travel a considerable distance to source of ignition and flash back.

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### Section 6. Accidental Release Measures

<b>Personal precautions</b>	: Immediately contact emergency personnel. Eliminate all ignition sources. Keep
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- unnecessary personnel away. Use suitable protective equipment. Do not touch or walk through spilled material.
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
- Methods for cleaning up** : If emergency personnel are unavailable, contain spilled material. 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 sealable, 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.

## Section 7. Handling and Storage

- Handling** : Do not ingest. Do not get in eyes or on skin or clothing. Keep container closed. Use only with adequate ventilation. Avoid breathing vapor or mist. Keep away from heat, sparks and flame. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Wash thoroughly after handling.
- 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 Controls/Personal Protection

**Product name** **Exposure limits**

**United States**

Acetic Anhydride

**ACGIH TLV (United States, 1/2006). Notes: Substances for which the TLV is higher than the OSHA Permissible Exposure Limit (PEL) and/or the NIOSH Recommended Exposure Limit (REL). See CFR 58(124) :36338-33351, June 30, 1993, for revised OSHA PEL.**

TWA: 21 mg/m<sup>3</sup> 8 hour/hours. Form: All forms

TWA: 5 ppm 8 hour/hours. Form: All forms

**NIOSH REL (United States, 12/2001).**

CEIL: 20 mg/m<sup>3</sup> Form: All forms

CEIL: 5 ppm Form: All forms

**OSHA PEL (United States, 8/1997).**

TWA: 20 mg/m<sup>3</sup> 8 hour/hours. Form: All forms

TWA: 5 ppm 8 hour/hours. Form: All forms

**OSHA PEL 1989 (United States, 3/1989).**

CEIL: 20 mg/m<sup>3</sup> Form: All forms

CEIL: 5 ppm Form: All forms

**Consult local authorities for acceptable exposure limits.**

- Engineering measures** : Use only with adequate ventilation. If user operations generate dust, fumes, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

**Personal protection**

- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.  
Recommended: splash goggles , face shield
- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.  
Body: Recommended: safety apron
- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Recommended: neoprene

**Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

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## Section 9. Physical and Chemical Properties

**Physical state** : Liquid.  
**Flash point** : Closed cup: 48.85°C (119.9°F).  
**Auto-ignition temperature** : 314.85°C (598.7°F)  
**Flammable limits** : Lower: 2.9% Upper: 10.3%  
**Color** : Colorless.  
**Odor** : Pungent.  
**Molecular weight** : 102.1 g/mole  
**Molecular formula** : C4-H6-O3  
**Boiling/condensation point** : 140°C (284°F)  
**Melting/freezing point** : -72.77°C (-99°F)  
**Critical temperature** : 295.9°C (564.6°F)  
**Relative density** : 1.08 (Water = 1)  
**Vapor density** : 3.5 (Air = 1)  
**Odor threshold** : 0.14 ppm

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## Section 10. Stability and Reactivity

**Stability and reactivity** : The product is stable.  
**Incompatibility with various substances** : Reactive or incompatible with the following materials: oxidizing materials, alkalis and moisture.  
**Hazardous polymerization** : Will not occur.  
**Conditions of reactivity** : Flammable in the presence of the following materials or conditions: open flames, sparks and static discharge, heat and oxidizing materials. Vapor may travel a considerable distance to source of ignition and flash back.

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## Section 11. Toxicological Information

### Toxicity data

#### United States

Product/ingredient name	Test	Result	Route	Species
Acetic Anhydride	LD50	1780 mg/kg	Oral	Rat
	LC50	1000 ppm (4 hour/hours)	Inhalation	Rat

**Chronic effects on humans** : Causes damage to the following organs: lungs, upper respiratory tract, skin, eye, lens or cornea.

**Other toxic effects on humans** : Extremely hazardous in case of skin contact (corrosive), of eye contact (corrosive). Very hazardous in case of ingestion, of inhalation (lung irritant). Hazardous in case of inhalation (lung corrosive).

#### Specific effects

**Carcinogenic effects** : No known significant effects or critical hazards.

**Mutagenic effects** : No known significant effects or critical hazards.

**Teratogenicity / Reproductive toxicity** : No known significant effects or critical hazards.

#### Sensitization

**Ingestion** : May cause burns to mouth, throat and stomach.

**Inhalation** : Irritating to respiratory system.

**Eyes** : Severely corrosive to the eyes.

**Skin** : Severely corrosive to the skin.

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## Section 12. Ecological Information

- Environmental precautions** : No known significant effects or critical hazards.
- Products of degradation** : These products are carbon oxides (CO, CO<sub>2</sub>) and water.
- Toxicity of the products of biodegradation** : The products of degradation are less toxic than the product itself.

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## Section 13. Disposal Considerations

**Waste disposal** : The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.


**Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.**

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

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## Section 14. Transport Information

Regulatory information	UN number	Proper shipping name	Class	PG*	Label	Additional information
DOT Classification	UN1715	ACETIC ANHYDRIDE	8	II		<b>Reportable quantity</b> 5000 lbs. (2268 kg)

PG\* : Packing group

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## Section 15. Regulatory Information

### United States

- HCS Classification** : Combustible liquid  
Toxic material  
Corrosive material  
Target organ effects
- U.S. Federal regulations** : TSCA 8(b) inventory: Listed

SARA 302/304/311/312 extremely hazardous substances: No products were found.  
SARA 302/304 emergency planning and notification: No products were found.  
SARA 302/304/311/312 hazardous chemicals: Acetic Anhydride  
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Acetic Anhydride : Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard  
Clean Water Act (CWA) 307: No products were found.  
Clean Water Act (CWA) 311: Acetic Anhydride  
Clean Air Act (CAA) 112 accidental release prevention: No products were found.  
Clean Air Act (CAA) 112 regulated flammable substances: No products were found.  
Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

- State regulations** : Pennsylvania RTK: Acetic Anhydride : (environmental hazard, generic environmental hazard)  
Massachusetts RTK: Acetic Anhydride  
New Jersey: Acetic Anhydride

### Canada

- WHMIS (Canada)** : Class B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F).

Class D-1A: Material causing immediate and serious toxic effects (Very toxic).

Class E: Corrosive material

**CEPA DSL/CEPA NDSL** : CEPA DSL: Acetic Anhydride

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

#### EU regulations

**Hazard** :  
symbol/symbols



#### Risk phrases

: R10- Flammable.  
R20/22- Harmful by inhalation and if swallowed.  
R34- Causes burns.

#### Safety phrases

: S1/2- Keep locked up and out of the reach of children.  
S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
S36/37/39- Wear suitable protective clothing, gloves and eye/face protection.  
S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

#### International regulations

##### International lists

: Australia (NICNAS): Acetic Anhydride  
  
China: Acetic Anhydride  
  
Germany water class: Acetic Anhydride  
  
Japan (METI): Acetic Anhydride  
  
Korea (TCCL): Acetic Anhydride  
  
Philippines (RA6969): Acetic Anhydride

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## Section 16. Other Information

#### Label requirements

: DANGER!

CAUSES SEVERE EYE AND SKIN BURNS.  
HARMFUL IF INHALED OR SWALLOWED.  
CAUSES RESPIRATORY TRACT IRRITATION.  
CAUSES DAMAGE TO THE FOLLOWING ORGANS: LUNGS, RESPIRATORY TRACT, SKIN, EYE, LENS OR CORNEA.  
FLAMMABLE LIQUID AND VAPOR.  
VAPOR MAY CAUSE FLASH FIRE.

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

**Health** 2 **Flammability**  
3 1 **Instability**  
**Special**

#### Notice to reader

The statements contained herein are based upon technical data that EMD Chemicals Inc. believes to be reliable, are offered for information purposes only and as a guide to the appropriate precautionary and emergency handling of the material by a properly trained person having the necessary technical skills. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use, storage and disposal of these materials and the safety and health of employees and customers and the protection of the environment. EMD CHEMICALS INC. MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE, WITH RESPECT TO THE INFORMATION HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS.

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