

Burdick & Jackson

Material Safety Data Sheet

Acetic Anhydride

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Acetic Anhydride.
OTHER/GENERIC NAMES: Acetic Anhydride, Cap A, Cap B
PRODUCT USE: Solvent
MANUFACTURER: Honeywell, Burdick & Jackson
1953 South Harvey Street
Muskegon, MI 49442

FOR MORE INFORMATION CALL:
(Monday-Friday, 8:00am-5:00pm Eastern Time)
1-800-368-0050

IN CASE OF EMERGENCY CALL:
(24 Hours/Day, 7 Days/Week)
1-800-707-4555 (Honeywell -Domestic)
602-365-4980 (Honeywell - International)
For Transportation Emergencies:
1-800-424-9300 (CHEMTREC - Domestic)
703-527-3887 (CHEMTREC - International)

2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>INGREDIENT NAME</u>	<u>CAS NUMBER</u>	<u>WEIGHT %</u>
Acetic Anhydride	108-24-7	100

Trace impurities and additional material names not listed above may also appear in Section 15 towards the end of the MSDS. These materials may be listed for local "Right-To-Know" compliance and for other reasons.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Corrosive, flammable liquid. Causes burns to all areas of contact. Harmful if swallowed or inhaled. Reacts violently with water.

POTENTIAL HEALTH HAZARDS

SKIN: Exposures to the skin will result in burns, which may not be immediately visible. If not promptly removed by first aid measures, skin will become reddened, then turn white and wrinkled. Prolonged contact may cause dermatitis.

EYES: Both liquid and vapor can cause irritation or corneal burns. The appearance of burns may be delayed. Untreated or severe exposures may cause permanent damage or blindness.

INHALATION: Mild exposure can irritate nose, throat, and respiratory tract. Severe exposure can cause nose and throat burns, lung inflammation and pulmonary edema (fluid in the lungs). Symptoms may include burning sensation, coughing, shortness of breath, headache, nausea and vomiting.

INGESTION: Can cause serious burns of the mouth, throat and stomach

DELAYED EFFECTS: No data is available.

Burdick & Jackson**MATERIAL SAFETY DATA SHEET****Acetic Anhydride**

Ingredients that are found on one of the OSHA designated carcinogen lists are listed below.

<u>INGREDIENT NAME</u>	<u>NTP STATUS</u>	<u>IARC STATUS</u>	<u>OSHA LIST</u>
No ingredients listed in this section.			

4. FIRST AID MEASURES

SKIN: Remove and isolate contaminated clothing and shoes. Immediately flush with water for at least 15 minutes. Get immediate medical attention. Launder contaminated clothing before reuse.

EYES: Irrigate eyes for at least 15 minutes with large amounts of water, keeping eyelids apart and away from the eyeballs during the irrigation. Get immediate medical attention.

INHALATION: Remove to fresh air. If breathing is difficult, give oxygen provided a qualified operator is available. If breathing has stopped, apply artificial respiration. Get immediate medical attention.

INGESTION: If patient is conscious, rinse mouth with water. Do not induce vomiting unless instructed to do so by medical personnel. Dilute stomach contents by giving 4-8 ounces of milk or water (do not exceed 15 ml/kg in a child). Do not give bicarbonate to neutralize. Get immediate medical attention.

ADVICE TO PHYSICIAN: Treat according to symptoms present.

5. FIRE FIGHTING MEASURES**FLAMMABLE PROPERTIES**

FLASH POINT:	121°F (49.5°C).
FLASH POINT METHOD:	TAG Closed Cup.
AUTOIGNITION TEMPERATURE:	600°F (316°C).
LOWER FLAMMABLE LIMIT (volume % in air):	2.7
UPPER FLAMMABLE LIMIT (volume % in air):	10.3
FLAME PROPAGATION RATE (solids):	Not applicable
OSHA FLAMMABILITY CLASS:	Class II Combustible Liquid.

EXTINGUISHING MEDIA:

Use carbon dioxide, dry chemical or alcohol foam. Use water spray to cool fire exposed containers. Use water with caution as acetic anhydride reacts with water.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

Above the flash point, vapor-air mixtures are explosive within the above noted limits. Closed containers to rupture when heated. Vapors can travel long distances to source of ignition and flash back. Product reacts violently with water producing heat.

SPECIAL FIRE FIGHTING PRECAUTIONS/INSTRUCTIONS:

Wear NIOSH approved self-contained positive pressure breathing apparatus and full protective clothing. Do not release runoff from fire control methods to sewers or waterways. Keep fire exposed containers cool with water spray. Product reacts with water. Avoid directing water into acetic anhydride containers.

Burdick & Jackson**MATERIAL SAFETY DATA SHEET**Acetic Anhydride

6. ACCIDENTAL RELEASE MEASURES

IN CASES OF SPILL OR OTHER RELEASE: (Always wear recommended personal protective equipment.)

Provide adequate ventilation and eliminate sources of ignition. Contain and recover liquid when possible.

Absorb with an inert, non-combustible material and place in an approved, labeled chemical waste container. Dike large spills with inert, non-combustible material and transfer into same container. Do not allow to enter into sewers or waterways.

Spills and releases may have to be reported to Federal and/or local authorities. See Section 15 regarding reporting requirements.

7. HANDLING AND STORAGE

NORMAL HANDLING: (Always wear recommended personal protective equipment.)

Use with adequate ventilation. Keep away from heat and sources of ignition. Containers should be bonded and grounded for transfers. Open containers slowly to allow excess pressure to vent. Avoid contact with skin, eyes, and clothing. Do not breathe vapor or mist. Do not eat, drink or smoke in the work area. Wash thoroughly after handling.

STORAGE RECOMMENDATIONS:Store in a cool, dry, well ventilated area away from sources of ignition. Keep containers out of direct sunlight, upright and tightly closed. Isolate from incompatible materials. Protect containers from physical damage. Empty containers may contain product residue and/or vapors. Label warnings apply to empty containers that have not been cleaned.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:

Provide general or local exhaust ventilation systems. Packaging and unloading areas and open processing equipment may require mechanical exhaust systems.

PERSONAL PROTECTIVE EQUIPMENT**SKIN PROTECTION:**

For routine product use, wear impervious jacket, trousers, boots and gloves. Inspect for signs of degradation before each use. Replace as needed.

EYE PROTECTION:

Chemical safety glasses or goggles. Use a full-face shield if contact with liquid is possible.

RESPIRATORY PROTECTION:

Not required for properly ventilated areas. If there is potential for inhalation of vapor or mist, use an appropriate NIOSH approved respirator. Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres. Some exposures may require a NIOSH approved self-contained breathing apparatus (SCBA) or air supplied respirator.

The respirator must be selected based on contamination levels and use conditions found in the workplace. Use conditions must not exceed the working limits of the respirator. The respirator must be approved by the National Institute for Occupational Safety and Health (NIOSH) and used in accordance with Occupational Safety and Health Administration (OSHA) 29 CFR 1910.134.

ADDITIONAL RECOMMENDATIONS:Emergency eyewash fountains and safety showers should be available in the vicinity of any potential exposure.

Burdick & Jackson

MATERIAL SAFETY DATA SHEET

Acetic Anhydride

EXPOSURE GUIDELINES

<u>INGREDIENT NAME</u>	<u>ACGIH TLV</u>	<u>OSHA Z-1 PEL</u>	<u>OTHER LIMIT</u>
Acetic Anhydride	5 ppm TWA (8-hr. exposure limit)	5 ppm (20 mg/m ³)	NIOSH Ceiling: 5 ppm (20 mg/m ³) NIOSH IDLH: 200 ppm.

OTHER EXPOSURE LIMITS FOR POTENTIAL DECOMPOSITION PRODUCTS:

None

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Clear, colorless.
PHYSICAL STATE:	Liquid.
MOLECULAR WEIGHT:	102.1
CHEMICAL FORMULA:	C ₄ H ₆ O ₃
ODOR:	Strong vinegar like odor.
SPECIFIC GRAVITY (water = 1.0):	1.083 @ 68°F (20°C).
SOLUBILITY IN WATER (weight %):	Complete.
pH:	Not determined.
BOILING POINT:	284°F (140°C) @ 760 mm Hg.
FREEZING POINT:	-99.6°F (-73.1°C).
VAPOR PRESSURE: @ 20°C	4 mm Hg @ 68°F (20°C).
VAPOR DENSITY (air = 1.0):	3.52
EVAPORATION RATE:	0.46
% VOLATILES:	100
FLASH POINT:	121°F (49.5°C).

COMPARED TO: Butyl Acetate = 1

(Flash point method and additional flammability data are found in Section 5.)

10. STABILITY AND REACTIVITY

NORMALLY STABLE? (CONDITIONS TO AVOID):

Stable under normal conditions of use and storage. Protect from water and moisture.

INCOMPATIBILITIES:

Water, aqueous alkalis, alcohols, glycols, hydrogen peroxide, perchloric acid, nitric acid and other strong oxidizing agents, amines, chromium trioxide, boric acid.

HAZARDOUS DECOMPOSITION PRODUCTS:

Carbon monoxide.

HAZARDOUS POLYMERIZATION:

Will not occur.

Burdick & Jackson**MATERIAL SAFETY DATA SHEET**

Acetic Anhydride

11. TOXICOLOGICAL INFORMATION**IMMEDIATE (ACUTE) EFFECTS:**Oral LD₅₀ (rat): 1780 mg/kg.Inhalation LC₀ (rat): 1000 ppm/4 hr, all animals survived.Inhalation LC₁₀₀ (rat): 2000 ppm/4 hr, all animals died.Skin LD₅₀ (rabbit): 4 ml/kg.

Skin Irritation (human): Severe burns and vesiculation from liquid splashes; primary skin irritation from concentrated vapor.

Eye Irritation (human): Corneal burns, corrosion, swelling, scarring, cataracts, iritis and structural damage to the iris, and temporary or permanent visual impairment.

DELAYED (SUBCHRONIC AND CHRONIC) EFFECTS:Subacute Inhalation Toxicity (rat): TC_{Lo} for intermittent 2-week exposures = 40 ppm/6 hr/day (167.2 mg/m³/day); effects included lacrimation, dyspnea, and death.**OTHER DATA:**

Mutagenicity:

In Vitro - No evidence of mutagenicity in Ames test (bacteria), with and without activation.

In Vivo - Not mutagenic. Rats exposed via inhalation for 13 weeks at doses up to 20 ppm were without effects on bone marrow (micronucleus assay).

12. ECOLOGICAL INFORMATION

Harmful to aquatic life in low concentrations.

Lethal, 24 hr. (brook trout): 50 ppm.

Lethal, 24 hr. (minnow): 114 ppm.

96-Hr TLm ((Bluegill): 75 ppm

96-Hr EC₅₀ (Daphnia): 55 mg/L

Octanol/Water Partition coefficient: 0.27 (calculated).

When released into the soil, acetic anhydride is expected to leach into groundwater, react and form acetic acid. It is not expected to significantly bioaccumulate or affect the food chain.

13. DISPOSAL CONSIDERATIONS**RCRA**

Is the unused product a RCRA hazardous waste if discarded? Yes

If yes, the RCRA ID number (USEPA Hazardous Waste Code) is: D001 Ignitable.

OTHER DISPOSAL CONSIDERATIONS:

Whatever cannot be saved for recovery or recycling should be handled as a hazardous waste and sent to a RCRA approved waste facility. Dispose of container and unused contents in accordance with federal, state and local requirements.

The information offered here is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.

Burdick & Jackson**MATERIAL SAFETY DATA SHEET**

Acetic Anhydride

14. TRANSPORT INFORMATION**Proper DOT Shipping Description:** Acetic Anhydride, 8, UN 1715, II, (3).**Reportable Quantity (RQ):** 5000 lbs (2270 kg).**Label(s) Required:** Primary - Class 8, Corrosive.
Subsidiary – Class 3, Flammable.**Emergency Response Guidebook (2000 Edition):** Guide No. 137.

For additional information on shipping regulations affecting this material, contact the information number found in Section 1.

15. REGULATORY INFORMATION**TOXIC SUBSTANCES CONTROL ACT (TSCA)****TSCA INVENTORY STATUS:** On the TSCA Inventory.**OTHER TSCA ISSUES:** None.**SARA TITLE III/CERCLA**

"Reportable Quantities" (RQs) and/or "Threshold Planning Quantities" (TPQs) exist for the following ingredients.

<u>INGREDIENT NAME</u>	<u>SARA/CERCLA RQ (lb)</u>	<u>SARA EHS TPQ (lb)</u>
Acetic Anhydride	5000	None

Spills or releases resulting in the loss of any ingredient at or above its RQ requires immediate notification to the National Response Center [(800) 424-8802] and to your Local Emergency Planning Committee.**SECTION 311 HAZARD CLASS:** Immediate. Fire. Reactive.**SARA 313 TOXIC CHEMICALS:**

The following ingredients are SARA 313 "Toxic Chemicals". CAS numbers and weight percents are found in Section 2.

<u>INGREDIENT NAME</u>	<u>COMMENT</u>
No ingredients listed in this section.	

STATE RIGHT-TO-KNOW

In addition to the ingredients found in Section 2, the following are listed for state right-to-know purposes.

<u>INGREDIENT NAME</u>	<u>WEIGHT %</u>	<u>COMMENT</u>
No ingredients listed in this section.		

ADDITIONAL REGULATORY INFORMATION:

Acetic Anhydride is a Drug Enforcement Administration (DEA) Listed Precursor and Essential Chemical [List 2].

21 CFR 1310.04(f). Reporting threshold is 250 gallons (1,023 kilograms) for imports and exports, 250 gallons for domestic sales.

Burdick & Jackson

MATERIAL SAFETY DATA SHEET

Acetic Anhydride

WHMIS CLASSIFICATION (CANADA):

Not determined.

FOREIGN INVENTORY STATUS:

Acetic Anhydride is listed on the following inventories:

- Australian.
- Canadian DSL.
- Chinese.
- EINECS.
- Japanese (ENCS).
- Korean.
- Philippine (PICCS).

16. OTHER INFORMATION

CURRENT ISSUE DATE: August 19, 2002.

PREVIOUS ISSUE DATE: July 9, 2002.

CHANGES TO MSDS FROM PREVIOUS ISSUE DATE ARE DUE TO THE FOLLOWING:

Amended or modified the following:

- Potential Health Hazards (Ingestion), Section 3.
- First Aid Measures, Section 4.
- Exposure Guidelines (corrected OSHA PEL), Section 8.
- Toxicological Information, Section 11.
- Ecological Information, Section 12.

OTHER INFORMATION: **NFPA Classification**

Health: 3
Flammability: 2
Reactivity: 1
Special: ~~W~~ Use no Water.