



# Fisher Scientific

Part of Thermo Fisher Scientific

## Material Safety Data Sheet

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Revision Number 1

### 1. PRODUCT AND COMPANY IDENTIFICATION

<b>Product Name</b>	<b>Acetic anhydride</b>
<b>Cat No. :</b>	<b>A10-1; A10-100; A10-4; A10-500; A10-500LC; A10-RS50; A10-SS200</b>
<b>Synonyms</b>	Acetyl oxide, Acetic acid anhydride, Acetic oxide, Ethanoic anhydride
<b>Recommended Use</b>	Laboratory chemicals
<b>Company</b> Fisher Scientific One Reagent Lane Fair Lawn, NJ 07410 Tel: (201) 796-7100	<b>Emergency Telephone Number</b> CHEMTREC®, Inside the USA: 800-424-9300 CHEMTREC®, Outside the USA: 001-703-527-3887

### 2. HAZARDS IDENTIFICATION

#### DANGER!

#### Emergency Overview

Flammable liquid and vapor. May be fatal if inhaled. Exposure through inhalation may result in delayed pulmonary edema, which may be fatal. Harmful if swallowed. Causes severe eye and skin burns. Lachrymator (substance which increases the flow of tears). Reacts violently with water.

**Appearance** Colorless

**Physical State** Liquid

**Odor** pungent

**Target Organs** Eyes, Skin, Respiratory system, Kidney

#### Potential Health Effects

#### Acute Effects

#### Principle Routes of Exposure

<b>Eyes</b>	Risk of serious damage to eyes.
<b>Skin</b>	Causes burns. May be harmful in contact with skin.
<b>Inhalation</b>	May be fatal if inhaled. Exposure through inhalation may result in delayed pulmonary edema, which may be fatal. Causes burns.
<b>Ingestion</b>	Causes burns. Harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

#### **Chronic Effects**

Inhaled corrosive substances can lead to a toxic edema of the lungs.. Chronic exposure to corrosive fumes/gases may cause erosion of the teeth followed by jaw necrosis. Bronchial irritation with chronic cough and frequent attacks of pneumonia are common. Gastrointestinal disturbances may also be seen.

See Section 11 for additional Toxicological information.

**Aggravated Medical Conditions**      Respiratory disorders.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Haz/Non-haz**

Component	CAS-No	Weight %
Acetic anhydride	108-24-7	>95

### 4. FIRST AID MEASURES

<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.
<b>Inhalation</b>	Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Immediate medical attention is required.
<b>Ingestion</b>	Do not induce vomiting. Call a physician or Poison Control Center immediately.
<b>Notes to Physician</b>	Treat symptomatically.

### 5. FIRE-FIGHTING MEASURES

<b>Flash Point</b>	49°C / 120.2°F
<b>Method -</b>	Closed cup
<b>Autoignition Temperature</b>	316°C / 600.8°F
<b>Explosion Limits</b>	
<b>Upper</b>	10.3%
<b>Lower</b>	2.9%
<b>Suitable Extinguishing Media</b>	Carbon dioxide (CO <sub>2</sub> ). Dry chemical. chemical foam. Flooding quantities of water. Cool closed containers exposed to fire with water spray.
<b>Unsuitable Extinguishing Media</b>	No information available.
<b>Hazardous Combustion Products</b>	No information available.
<b>Sensitivity to mechanical impact</b>	No information available.
<b>Sensitivity to static discharge</b>	No information available.

**Specific Hazards Arising from the Chemical**

Corrosive Material. Flammable. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Thermal decomposition can lead to release of irritating gases and vapors.

**Protective Equipment and Precautions for Firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

**NFPA**                      **Health 3**                      **Flammability 2**                      **Instability 1**                      **Physical hazards W**

## 6. ACCIDENTAL RELEASE MEASURES

<b>Personal Precautions</b>	Use personal protective equipment. Ensure adequate ventilation. Evacuate personnel to safe areas. Remove all sources of ignition. Take precautionary measures against static discharges. Do not touch or walk through spilled material.. Avoid contact with skin, eyes and inhalation of vapors..
<b>Environmental Precautions</b>	Prevent product from entering drains. Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system.
<b>Methods for Containment and Clean Up</b>	Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Do not expose spill to water. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

## 7. HANDLING AND STORAGE

<b>Handling</b>	Use only under a chemical fume hood. Wear personal protective equipment. Keep away from open flames, hot surfaces and sources of ignition. Do not breathe vapors or spray mist. Do not get in eyes, on skin, or on clothing. Do not ingest. Use spark-proof tools and explosion-proof equipment.. Reacts violently with water.
<b>Storage</b>	Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Corrosives area. Flammables area. Keep away from water.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<b>Engineering Measures</b>	Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting/equipment.
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### Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Acetic anhydride	TWA: 5 ppm	(Vacated) Ceiling: 5 ppm (Vacated) Ceiling: 20 mg/m <sup>3</sup> TWA: 5 ppm TWA: 20 mg/m <sup>3</sup>	IDLH: 200 ppm Ceiling: 5 ppm Ceiling: 20 mg/m <sup>3</sup>

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Acetic anhydride	TWA: 5 ppm TWA: 21 mg/m <sup>3</sup>	TWA: 5 ppm TWA: 20 mg/m <sup>3</sup>	TWA: 5 ppm CEV: 5 ppm CEV: 21 mg/m <sup>3</sup>

### Personal Protective Equipment

#### Eye/face Protection

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 and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

#### Respiratory Protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical State</b>	Liquid
<b>Appearance</b>	Colorless
<b>Odor</b>	pungent
<b>Odor Threshold</b>	No information available.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>pH</b>	3
<b>Vapor Pressure</b>	5 mbar @ 20 °C
<b>Vapor Density</b>	3.5
<b>Viscosity</b>	0.91 mPa.s at 20 °C
<b>Boiling Point/Range</b>	140°C / 284°F@ 760 mmHg
<b>Melting Point/Range</b>	-73.1°C / -99.6°F
<b>Decomposition temperature</b>	No information available.
<b>Flash Point</b>	49°C / 120.2°F
<b>Method -</b>	Closed cup
<b>Evaporation Rate</b>	0.46
<b>Specific Gravity</b>	1.087
<b>Solubility</b>	No information available.
<b>log Pow</b>	No data available
<b>Molecular Weight</b>	102.09
<b>Molecular Formula</b>	C4 H6 O3

## 10. STABILITY AND REACTIVITY

<b>Stability</b>	Stable under recommended storage conditions. Moisture sensitive. Reacts violently with water.
<b>Conditions to Avoid</b>	Keep away from open flames, hot surfaces and sources of ignition. Incompatible products. Exposure to moist air or water.
<b>Incompatible Materials</b>	Acids, Bases, Strong oxidizing agents, Alcohols, Amines, Ammonia, Peroxides, Metals, Reducing agents
<b>Hazardous Decomposition Products</b>	Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> )
<b>Hazardous Polymerization</b>	Hazardous polymerization does not occur.
<b>Hazardous Reactions</b>	None under normal processing

## 11. TOXICOLOGICAL INFORMATION

### Acute Toxicity

#### Product Information

#### Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Acetic anhydride	630 mg/kg ( Rat )	4000 mg/kg ( Rabbit )	LC100: 1.67 mg/L/6h (Rat) LC50: 400 ppm/6h (Rat)

**Irritation** Causes burns by all exposure routes

**Toxicologically Synergistic Products** No information available.

### Chronic Toxicity

**Carcinogenicity** There are no known carcinogenic chemicals in this product

**Sensitization** No information available.

<b>Mutagenic Effects</b>	Not mutagenic in AMES Test
<b>Reproductive Effects</b>	No information available.
<b>Developmental Effects</b>	No information available.
<b>Teratogenicity</b>	No information available.
<b>Other Adverse Effects</b>	See actual entry in RTECS for complete information.
<b>Endocrine Disruptor Information</b>	No information available

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity

Reacts with water so no ecotoxicity data for the substance is available. Do not empty into drains. Large amounts will affect pH and harm aquatic organisms.

<b>Persistence and Degradability</b>	Readily biodegradable.
<b>Bioaccumulation/ Accumulation</b>	No information available
<b>Mobility</b>	No information available

Component	log Pow
Acetic anhydride	-0.27

## 13. DISPOSAL CONSIDERATIONS

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification

## 14. TRANSPORT INFORMATION

### DOT

<b>UN-No</b>	UN1715
<b>Proper Shipping Name</b>	ACETIC ANHYDRIDE
<b>Hazard Class</b>	8
<b>Subsidiary Hazard Class</b>	3
<b>Packing Group</b>	II

### TDG

<b>UN-No</b>	UN1715
<b>Proper Shipping Name</b>	ACETIC ANHYDRIDE
<b>Hazard Class</b>	8
<b>Subsidiary Hazard Class</b>	3
<b>Packing Group</b>	II

### IATA

<b>UN-No</b>	1715
<b>Proper Shipping Name</b>	ACETIC ANHYDRIDE
<b>Hazard Class</b>	8

**14. TRANSPORT INFORMATION**

Subsidiary Hazard Class 3  
 Packing Group II

**IMDG/IMO**

UN-No 1715  
 Proper Shipping Name ACETIC ANHYDRIDE  
 Hazard Class 8  
 Subsidiary Hazard Class 3  
 Packing Group II

**15. REGULATORY INFORMATION**

**International Inventories**

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	CHINA	KECL
Acetic anhydride	X	X	-	203-564-8	-		X	X	X	X	X

**Legend:**

- X - Listed
- E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
- F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
- N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
- P - Indicates a commenced PMN substance
- R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
- S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
- T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
- XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).
- Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
- Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

**U.S. Federal Regulations**

TSCA 12(b) Not applicable

SARA 313  
 Not applicable

**SARA 311/312 Hazardous Categorization**

Acute Health Hazard Yes  
 Chronic Health Hazard Yes  
 Fire Hazard Yes  
 Sudden Release of Pressure Hazard No  
 Reactive Hazard Yes

**Clean Water Act**

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Acetic anhydride	X	5000 lb	-	-

**Clean Air Act**

Not applicable

**OSHA Occupational Safety and Health Administration**

Not applicable

**CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Acetic anhydride	5000 lb	-

**California Proposition 65**

This product does not contain any Proposition 65 chemicals.

**State Right-to-Know**

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Acetic anhydride	X	X	X	-	X

**U.S. Department of Transportation**

Reportable Quantity (RQ): N  
 DOT Marine Pollutant N  
 DOT Severe Marine Pollutant N

**U.S. Department of Homeland Security**

This product does not contain any DHS chemicals.

**Other International Regulations**

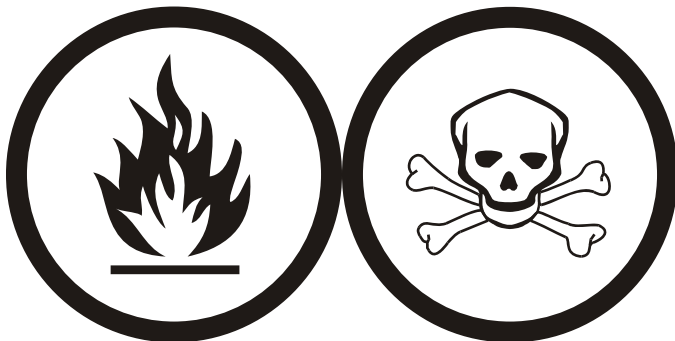
**Mexico - Grade** No information available

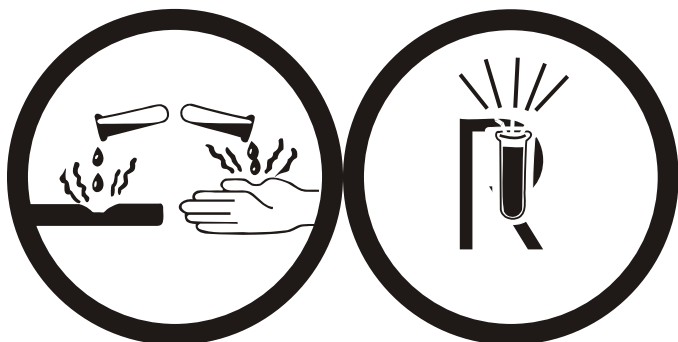
**Canada**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

**WHMIS Hazard Class**

- B3 Combustible liquid
- D1A Very toxic materials
- E Corrosive material
- F Dangerously reactive material





## 16. OTHER INFORMATION

<b>Prepared By</b>	Regulatory Affairs Thermo Fisher Scientific Email: EMSDS.RA@thermofisher.com
<b>Creation Date</b>	21-Mar-2011
<b>Print Date</b>	06-Aug-2013
<b>Revision Summary</b>	Update to Format, (M)SDS sections updated, 5, 8, 11, 12, 15.

### Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

**End of MSDS**