

Revision date: 05.2015 Version: 1.1

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

Trade name/designation:	Acetic acid, BDH Aristar <sup>®</sup> Plus Acetic acid, BDH Aristar <sup>®</sup> Ultra
Product No.:	87003-239, 87003-241 87003-212
Other means of identification:	EU Index # 607-002-00-6

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: For laboratory use only. Not for drug, food, or household use.

### 1.3. Details of the supplier of the safety data sheet

Manufactured for	VWR International, LLC Radnor Corporate Center 100 Matsonford Road Radnor, PA 19087-8660	VWR International Co 2360 Argentia Road Mississauga, ON L5N 5Z7 CANADA
Telephone	610.386.1700	800.932.5000

### 1.4. Emergency Telephone number

CHEMTREC	800.424.9300
CANUTEC	613.996.6666

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

#### GHS Classification in accordance with 29 CFR 1910 (OSHA HCS) and WHMIS HPR

For the full text of the H-Statement(s) and P-Statement(s) mentioned in this Section, see Section 16.

Hazard classes and hazard categories	Hazard statements
Skin corrosion, category 1A	H314
Flammable liquid, category 3	H226

### 2.2. GHS Label elements, including precautionary statements

Pictograms:



Signal word: Danger

Hazard statements	
H314	Causes severe skin burns and eye damage.
H226	Flammable liquid and vapour.

Precautionary statements	
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor.
P501	Dispose of contents/containers in accordance with local, state and federal regulations.

#### 2.4. Hazards not otherwise classified (HNOC) or not covered by GHS or WHIMS

None known.

### SECTION 3: Composition / information on ingredients

#### 3.1. Hazard components

Chemical name	Formula	Molecular weight	CAS#	Weight%
Acetic acid	CH <sub>3</sub> COOH	60.05	64-19-7	≥99%
Water	H <sub>2</sub> O	18.02	7732-18-5	Balance

### SECTION 4: First aid measures

#### 4.1. General information

**In case of inhalation:** This chemical is a strong respiratory irritant. Take proper precautions to ensure your own safety before attempting rescue (e.g. wear appropriate protective equipment). Remove source of contamination or move victim to fresh air. Immediately obtain medical attention.

**In case of skin contact:** Avoid direct contact. Wear chemical protective clothing, if necessary. As quickly as possible, remove contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Immediately flush with lukewarm, gently flowing water for 15-20 minutes. If irritation persists, repeat flushing. Immediately obtain medical attention. Double bag, seal, label and leave contaminated clothing, shoes and leather goods at the scene for safe disposal.

**In case of eye contact:** Avoid direct contact. Wear chemical protective clothing, if necessary. Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 15-20 minutes, while holding the eyelid(s) open. If a contact lens is present, DO NOT delay irrigation or attempt to remove the lens until flushing is done. Take care not to rinse contaminated water into the unaffected eye or onto the face. Immediately obtain medical attention.

**In case of ingestion:** Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. If vomiting occurs naturally, have victim rinse mouth with water again. Immediately obtain medical attention.

#### 4.2. Most important symptoms and effects, both acute and delayed

Vapor is irritating to the respiratory tract. May cause lung injury—effects may be delayed. Concentrated solutions are CORROSIVE to eyes and skin. Causes permanent eye damage, including blindness, and skin burns, including tissue death and permanent scarring.

#### 4.3. Indication of any immediate medical attention and special treatment needed

Consult a doctor and/or the nearest Poison Control Centre for all exposures.

### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

Carbon dioxide, dry chemical powder, appropriate foam, water spray or fog. Special "alcohol resistant fire-fighting foams" are recommended for use with any polar flammable liquid that is completely soluble in water, like acetic acid. Foam manufacturers should be consulted for recommendations regarding types of foams and application rates.

#### 5.2. Special hazards arising from the substance or mixture

COMBUSTIBLE LIQUID. Can form explosive mixtures with air at, or above, 39 °C (103 °F). Vapor is heavier than air and may travel a considerable distance to a source of ignition and flash back to a leak or open container. NOTE: The fire properties of acetic acid depend upon the strength of the solution. In concentrated form, its properties approach those of glacial acetic acid (100%). The flammability of acetic acid is lowered significantly when mixed with water. During a fire, toxic carbon monoxide, carbon dioxide and other irritant gases and vapor, which may include unburned acid and toxic constituents, may be generated. Vapors from warm liquid can accumulate in confined spaces, resulting in a flammability and toxicity hazard. Closed containers may rupture violently when heated.

#### 5.3. Special protective equipment for firefighters

Acetic acid and its decomposition products are hazardous to health. Do not enter without wearing specialized protective equipment suitable for the situation. Firefighter's normal protective clothing (Bunker Gear) will not provide adequate protection. Chemical resistant clothing (e.g. chemical splash suit) and positive pressure self-contained breathing apparatus (NIOSH approved or equivalent) may be necessary.

#### 5.4. Hazardous combustion products

Acetic acid vapors.

#### 5.5. Advice for firefighters

Evacuate area and fight fire from a safe distance or protected location. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products.

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

Restrict access to area until completion of clean-up. Ensure clean-up is conducted by trained personnel only. Wear adequate personal protective equipment. Ventilate area. Extinguish or remove all ignition sources.

#### 6.2. Environmental precautions

Notify government occupational health and safety and environmental authorities.

### 6.3. Methods and material for containment and cleaning up

Do not touch spilled material. Prevent material from entering sewers or confined spaces. Stop or reduce leak if safe to do so. Contain spill with earth, sand, or absorbent material that does not react with spilled material. Remove liquid by pumps or vacuum equipment. Place in suitable, covered, labeled containers.

SMALL SPILLS: Soak up spill with absorbent material which does not react with spilled chemical. Put material in suitable, covered, labeled containers. Flush area with water. Contaminated absorbent material may pose the same hazards as the spilled product.

LARGE SPILLS: Contact fire and emergency services and supplier for advice.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

This material is a CORROSIVE (to eyes, skin and some metals), COMBUSTIBLE LIQUID. Before handling it is important that engineering controls are operating and that protective equipment requirements and personal hygiene measures are being followed. People working with this chemical should be properly trained regarding its hazards and its safe use. Unprotected persons should avoid all contact with this chemical including contaminated equipment. Use the original container or the type of container recommended by the manufacturer. Inspect containers for damage or leaks before handling. Immediately report leaks, spills or failures of the engineering controls.

Avoid all ignition sources. Post "NO-SMOKING" signs. It is good practice to keep all areas where this material is handled clear of other materials which can burn (e.g. cardboard, sawdust). Use in the smallest possible amounts, in a well-ventilated area, separate from the storage area. Avoid generating vapors or mists. Prevent the release of vapors or mists into the air.

Do not use with incompatible materials such as strong oxidizing agents, strong alkalis or caustics, most common metals and others. See Section 10 for more information. Never return contaminated material to its original container. Label containers. Avoid damaging containers. Keep containers closed when not in use. Empty containers may contain hazardous residues.

Ground all drums, transfer vessels, hoses and piping. Ground clips must contact bare metal. Use corrosion-resistant transfer equipment when dispensing. Never add water to a corrosive. Always add corrosives to water. When mixing with water, stir small amounts in slowly. Use cold water to prevent excessive heat generation. Never perform any welding, cutting, soldering, drilling or other hot work on an empty vessel, containers or piping until all liquid and vapors have been cleared. Have suitable emergency equipment for fires, spills and leaks readily available. Practice good housekeeping. Maintain handling equipment. Comply with applicable regulations.

### 7.2. Conditions for safe storage, including any incompatibilities

Store in a cool, dry, well-ventilated area, out of direct sunlight and away from heat and ignition sources. Keep storage area clear of burnable materials (e.g. old rags, cardboard). Lighted cigarettes, matches, or any other ignition sources should not be allowed around indoor or outdoor storage areas. Store away from oxidizers and corrosives and other incompatible materials such as most common metals and others. See Section 10 for more information.

Inspect all incoming containers to make sure they are properly labeled and not damaged. Keep quantity stored as small as possible. Store in suitable, labeled containers (usually the shipping container). Keep containers tightly closed. No stacking of containers. Protect from damage. Keep empty containers in separate storage area. Empty containers may contain hazardous residues. Keep closed.

Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Keep storage area separate from work areas. Store away from work process and production areas, elevators, building and room exits or main aisles leading to exits. Post warning signs. Inspect periodically for damage or leaks.

Have appropriate fire extinguishers and spill clean-up equipment in or near storage area. Store away from heat and



d) pH	2.4 (1 M solution)
e) Melting point/freezing point	100% (w/w): 16.66-16.75°C (62.0-62.2°F)
f) Boiling point/boiling range	100% (w/w): 117.9°C (244.2°F)
g) Flash point	100% w/w: 39 °C (103 °F) to 43 °C (109.4 °F); 85% w/w: 50 °C (122 °F) (closed cup values)
h) Evaporation rate	0.97 (n-butyl acetate = 1)
i) Flammability (solid, gas)	2 - Must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur.
j) Upper/lower flammability/explosive limits	Lower: 100% w/w: 4%; 5.3-5.4% Upper: 100% w/w: 16%; 19.9%
k) Vapor pressure (Partial pressure at 20 °C)	100% (w/w): 1.52 kPa (11.4 mm Hg)
l) Vapor density	2.07 (air = 1)
m) Relative density (at 20 °C)	100% (w/w): 1.05 g/cm <sup>3</sup>
n) Solubilities	Soluble in all proportions in water, ethanol, acetone, benzene, diethyl ether, carbon tetrachloride, and glycerol.
o) Partition coefficient (n-Octanol/Water)	Log P(oct) = -0.17
p) Auto-ignition temperature	100% w/w: 426 °C (799 °F); 463 °C (867 °F); 516 °C (961 °F)
q) Decomposition temperature	No information available.
r) Viscosity (at 20 °C)	100% w/w: 1.22 mPa.s (1.22 centipoises); 90% w/w: 2.39 mPa.s (2.39 centipoises)
s) Explosive properties	No information available.
t) Oxidizing properties	No information available.

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

See Section 10.5 for incompatible materials.

### 10.2. Chemical stability

Normally stable.

### 10.3. Possibility of hazardous reactions

Hazardous polymerization does not occur.

### 10.4. Conditions to avoid

Temperatures above 39 deg C, open flames, sparks, electrostatic discharge, heat and other ignition sources.

### 10.5. Incompatible materials

STRONG OXIDIZING AGENTS (e.g. chromic acid, hydrogen peroxide, nitric acid, perchloric acid, potassium permanganate, sodium peroxide) or BROMINE PENTAFLUORIDE, CHLORINE TRIFLUORIDE - react violently, with risk of fire and explosion.

PHOSPHORUS TRICHLORIDE - explosion may occur due to the possible formation of spontaneously flammable phosphine.

p-XYLENE - during production of terephthalic acid, in which p-xylene is oxidized in the presence of acetic acid, detonating mixtures may be produced.

STRONG ALKALIS or CAUSTICS (e.g. sodium or potassium hydroxide) or BASES – may react violently.

PHOSPHORUS ISOCYANATE - react violently.

POTASSIUM tert-BUTOXIDE - ignition occurs after 3 minutes.

AMMONIUM NITRATE - may ignite when warmed.

MOST COMMON METALS (except aluminum) - may give off flammable hydrogen gas.

AMMONIUM THIOSULFATE - releases toxic sulfur dioxide under ambient conditions.

ACETALDEHYDE - polymerization occurs, with evolution of heat.

2-AMINOETHANOL, CHLOROSULFONIC ACID, ETHYLENE DIAMINE, ETHYLENEIMINE, OLEUM - mixing in a closed container caused the temperature and pressure to rise.

## 10.6. Hazardous decomposition products

During a fire, toxic carbon monoxide, carbon dioxide and other irritant gases and vapor, which may include unburned acid and toxic constituents, may be generated.

## SECTION 11: Toxicology

### 11.1. Information on toxicological effects

#### Acute toxicity

**Oral LD50:** 3310 mg/kg (rat); 4960 mg/kg (mouse)

**Inhalation LC50:** 11,000 mg/m<sup>3</sup>/4H (rat); 5620 ppm/1H (mouse)

**Dermal LD50:** 1060 µL/kg (rabbit)

**Other information on acute toxicity:** RTECS# AF1225000

**Skin corrosion/irritation:** Acetic acid solutions greater than 10% are corrosive. Corrosive materials are capable of producing severe burns, blisters, ulcers and permanent scarring, depending on the concentration and the duration of contact. Less concentrated solutions can cause mild to severe irritation.

**Serious eye damage/eye irritation:** Acetic acid (solutions greater than 10%) can cause serious eye damage. It is capable of producing severe eye burns, and permanent injury, including blindness, depending on the concentration and the duration of contact.

**Respiratory or skin sensitization:** Acetic acid readily forms high vapor concentrations at normal temperatures. Accidental inhalation of high concentrations can cause nose and throat irritation, shortness of breath, cough, wheezing, and reversible lung injury. A condition called Reactive Airways Dysfunction (RADS), which is an increased responsiveness or sensitivity of the airways (similar to asthma), may develop following a severe inhalation exposure.

**Germ cell mutagenicity:** No information available.

**Carcinogenicity:** Acetic acid is not known to be a carcinogen.

**Reproductive toxicity:** No information available.

**Specific target organ toxicity-single exposure:** No information available.

**Specific target organ toxicity-repeated exposure:** No information available.

**Aspiration hazard:** No information available.

**Additional information:** Repeated inhalation may cause pulmonary edema, bronchopneumonia, or chemical pneumonitis. Prolonged or repeated exposure may cause dermatitis, erosion of teeth, conjunctivitis and cumulative systemic injury. To the best of our knowledge, the chronic toxicity of this substance has not been fully investigated.

## SECTION 12: Ecological information

- 12.1. Ecotoxicity:** Shrimp: LC50 = 100-300 mg/L/48H (aerated water); Bluegill sunfish (*Lepomis macrochirus*): LC50 = 75 mg/L/96H; Mosquito fish (*Gambusia affinis*): LC50 = 251 mg/L/96H
- 12.2. Persistence and degradability:** Persistent. The predicted ultimate degradation half-life for acetic acid is 8.67 days.
- 12.3. Bioaccumulative potential:** Acetic acid shows no potential for biological accumulation or food chain contamination.
- 12.4. Mobility in soil:** Acetic acid is not expected to adsorb to suspended solids and sediment.
- 12.5. Results of PBT and vPvB assessment:** Acetic acid is not PBT / vPvB.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Review federal, provincial and local government requirements prior to disposal. Disposal by controlled incineration or secure landfill may be acceptable.

## SECTION 14: Transport information

### Land Transport DOT (U.S.)

UN Number	UN2789
Proper Shipping Name	ACETIC ACID, GLACIAL, with more than 80 percent acid, by mass
Class(es)	8 (3)
Hazard Label(s)	Corrosive & Flamm. liquid
Packing Group	II
Environmental Hazard(s)	--

### Sea Transport IMDG

UN Number	UN2789
Proper Shipping Name	ACETIC ACID, GLACIAL, more than 80% acid, by mass
Class(es)	8 (3)
Hazard Label(s)	Corrosive & Flamm. liquid
EMS- No.	F-E, S-C
Packing Group	II
Environmental Hazard(s)	--
Segregation Group	Category A

### Air Transport IATA

UN Number	UN2789
Proper Shipping Name	<b>Acetic acid, glacial</b>
Class(es)	8 (3)
Hazard Label(s)	Corrosive & Flamm. liquid
Packing Group	II



## SECTION 15: Regulatory information

**OSHA Hazards:** CAS# 64-19-7 meets criteria for hazardous material, as defined by 29 CFR 1910.1200.

**SARA 302 Extremely Hazardous Substances:** This material contains Acetic acid (CAS# 64-19-7), which is not subject to the reporting requirements.

**SARA 313 (TRI reporting):** This material contains Acetic acid (CAS# 64-19-7), which is not subject to the reporting requirements of Section 313 of SARA Title III.

**SARA 311/312 Hazardous Chemicals:** This material contains Acetic acid (CAS# 64-19-7).

**Massachusetts Right-To-Know Substance List:** CAS# 64-19-7 is listed, 100 lbs RQ.

**Pennsylvania Right-To-Know Hazardous Substances:** CAS# 64-19-7 is listed, E (environmental hazard).

**New Jersey Worker and Community Right-To-Know Components:** CAS# 64-19-7 is listed, RTK# 0004.

**California Proposition 65:** CAS# 64-19-7 is not subject to this act. CAS# 7732-18-5 is not subject to this act.

### Inventory Status:

Canada DSL/NDSL Inventory List: CAS# 64-19-7 is listed. CAS# 7732-18-5 is listed.

US TSCA Inventory List: CAS# 64-19-7 is listed. CAS# 7732-18-5 is listed.

EINECS, ELINCS or NLP: CAS# 64-19-7 is listed, EC# 200-580-7. CAS# 7732-18-5 is listed, EC# 231-791-2.

## SECTION 16: Other information

### Full text of H-Statement(s) and P-Statement(s)

H314	Causes severe skin burns and eye damage.
H226	Flammable liquid and vapour.
P210	Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking.
P233	Keep container tightly closed.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof equipment.
P242	Use non-sparking tools.
P243	Take action to prevent static discharges.
P260	Do not breathe fumes/gas/mist/vapours/spray.
P264	Wash thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor.
P363	Wash contaminated clothing before reuse.
P370+P378	In case of fire: Use dry chemical, carbon dioxide, or alcohol-resistant foam for extinction. Use water spray ONLY to cool fire-exposed containers or disperse vapours if they have not ignited.
P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/containers in accordance with local, state and federal regulations.

**Canadian Carcinogenicity hazard class:** Not applicable.  
**PHNOC hazard class:** Not applicable.  
**HHNOC hazard class:** Not applicable.  
**Biohazardous Infectious Materials hazard class:** Not applicable.

**NFPA Rating:**

Health: 3  
Flammability: 2  
Reactivity: 0  
Special Hazard: Not applicable



**DISCLAIMER**

The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. VWR International and its Affiliates shall not be held liable for any damage resulting from handling.