

Material Safety Data Sheet
According to OSHA and ANSI

Printing date 04/21/2011

Reviewed on 01/22/2007

1 Identification of the substance/mixture and of the company/undertaking**Product identifier****Product name:** Trifluoroacetic acid**Stock number:** A12198**CAS Number:**

76-05-1

EINECS Number:

200-929-3

Index number:

607-091-00-1

Relevant identified uses of the substance or mixture and uses advised against.**Sector of Use** SU24 Scientific research and development**Details of the supplier of the safety data sheet****Manufacturer/Supplier:**

Alfa Aesar, A Johnson Matthey Company

Johnson Matthey Catalog Company, Inc.

30 Bond Street

Ward Hill, MA 01835-8099

Emergency Phone: (978) 521-6300

CHEMTREC: (800) 424-9300

Web Site: www.alfa.com

Information Department: Health, Safety and Environmental Department**Emergency telephone number:**

During normal hours the Health, Safety and Environmental Department. After normal hours call Chemtrec at (800) 424-9300.

2 Hazards identification**Classification of the substance or mixture**

GHS05 Corrosion

H314 Causes severe skin burns and eye damage.

H318 Causes serious eye damage.



GHS07

H332 Harmful if inhaled.

H402 Harmful to aquatic life.

H412 Harmful to aquatic life with long lasting effects.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

C; Corrosive

R35: Causes severe burns.



Xn; Harmful

R20: Harmful by inhalation.

R52/53: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Label elements**Labelling according to EU guidelines:****Code letter and hazard designation of product:**

C Corrosive

Risk phrases:

20 Harmful by inhalation.

35 Causes severe burns.

52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Safety phrases:

9 Keep container in a well-ventilated place.

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- 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- 27/28 After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water.
- 45 In case of accident or if you feel unwell, seek medical advice immediately.
- 61 Avoid release to the environment. Refer to special instructions/Safety data sheets

Hazard description:**WHMIS classification****Classification system****HMIS ratings (scale 0-4)**

(Hazardous Materials Identification System)

| | |
|------------|---|
| HEALTH | 3 |
| FIRE | 1 |
| REACTIVITY | 1 |

Health (acute effects) = 3

Flammability = 1

Reactivity = 1

Other hazards**Results of PBT and vPvB assessment**

PBT: Not applicable.

vPvB: Not applicable.

3 Composition/information on ingredients**Chemical characterization: Substances****(CAS#) Description:**

Trifluoroacetic acid (CAS# 76-05-1): 100%

Identification number(s):

EINECS Number: 200-929-3

Index number: 607-091-00-1

4 First aid measures**Description of first aid measures****General information** Immediately remove any clothing soiled by the product.**After inhalation**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Seek immediate medical advice.

After skin contact

Immediately wash with water and soap and rinse thoroughly. Seek immediate medical advice.

After eye contact

Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing Seek immediate medical advice.**5 Firefighting measures****Extinguishing media****Suitable extinguishing agents**

Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

Special hazards arising from the substance or mixture

In case of fire, the following can be released:

Carbon monoxide and carbon dioxide

Hydrogen fluoride (HF)

Advice for firefighters**Protective equipment:**

Wear self-contained respirator.

Wear fully protective impervious suit.

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6 Accidental release measures**Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Environmental precautions:

Do not allow material to be released to the environment without proper governmental permits.

Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Reference to other sections

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage**Handling****Precautions for safe handling**

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Information about protection against explosions and fires: Keep ignition sources away.**Conditions for safe storage, including any incompatibilities****Storage****Requirements to be met by storerooms and receptacles:** No special requirements.**Information about storage in one common storage facility:**

Store away from water/moisture.

Store away from oxidizing agents.

Store away from strong bases.

Further information about storage conditions:

This product is hygroscopic.

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

Protect from humidity and water.

8 Exposure controls/personal protection**Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Control parameters**Components with limit values that require monitoring at the workplace:** Not required.**Additional information:** No data**Exposure controls****Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

Breathing equipment: Use suitable respirator when high concentrations are present.**Protection of hands:**

Impervious gloves

Check protective gloves prior to each use for their proper condition.

Material of gloves

The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.

Eye protection:

Safety glasses

Tightly sealed goggles

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Full face protection
Body protection: Protective work clothing.

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9 Physical and chemical properties

| Information on basic physical and chemical properties | |
|---|---|
| General Information | |
| Appearance: | |
| Form: | Liquid |
| Color: | Colorless |
| Odor: | Not determined |
| Odour threshold: | Not determined. |
| pH-value: | Not determined. |
| Change in condition | |
| Melting point/Melting range: | -15°C (5 °F) |
| Boiling point/Boiling range: | 72-73°C (162-163 °F) |
| Sublimation temperature / start: | Not determined |
| Flash point: | Not determined |
| Flammability (solid, gaseous) | Not applicable. |
| Ignition temperature: | Not determined |
| Decomposition temperature: | Not determined |
| Auto igniting: | Not determined. |
| Danger of explosion: | Product does not present an explosion hazard. |
| Explosion limits: | |
| Lower: | Not determined |
| Upper: | Not determined |
| Vapor pressure: | Not determined |
| Density at 20°C (68 °F): | 1.535 g/cm ³ (12.81 lbs/gal) |
| Relative density | Not determined. |
| Vapour density | Not determined. |
| Evaporation rate | Not determined. |
| Solubility in / Miscibility with | |
| Water: | Fully miscible |
| Segregation coefficient (n-octanol/water): | Not determined. |
| Viscosity: | |
| dynamic: | Not determined. |
| kinematic: | Not determined. |
| Other information | No further relevant information available. |

10 Stability and reactivity

Reactivity
Chemical stability
Thermal decomposition / conditions to be avoided:
 Decomposition will not occur if used and stored according to specifications.
Possibility of hazardous reactions No dangerous reactions known
Incompatible materials:
 Water/moisture
 Oxidizing agents
 Bases
Hazardous decomposition products:
 Carbon monoxide and carbon dioxide
 Hydrogen fluoride

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11 Toxicological information**Information on toxicological effects****Acute toxicity:**

| LD/LC50 values that are relevant for classification: | | |
|--|------|---------------------|
| Inhalative | LC50 | 13500 mg/m3 (mouse) |
| | | 10000 mg/m3 (rat) |

Primary irritant effect:**on the skin:**

Strong corrosive effect on skin and mucous membranes.
Irritant to skin and mucous membranes.

on the eye:

Strong corrosive effect.
Irritating effect.

Sensitization: No sensitizing effects known.

Other information (about experimental toxicology):

Reproductive effects have been observed on tests with laboratory animals.

Subacute to chronic toxicity:**Subacute to chronic toxicity:**

The Registry of Toxic Effects of Chemical Substances (RTECS) reports the following effects in laboratory animals:

Sense Organs and Special Senses (Eye) - conjunctive irritation.

Behavioral - somnolence (general depressed activity).

Behavioral - changes in motor activity (specific assay).

Kidney, Ureter, Bladder - proteinuria.

Blood - changes in leukocyte (WBC) count.

Nutritional and Gross Metabolic - weight loss or decreased weight gain.

Liver - other changes.

Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - multiple enzyme effects.

Biochemical - Metabolism (Intermediary) - other proteins.

Reproductive - Specific Developmental Abnormalities - hepatobiliary system.

Reproductive - Effects on Newborn - growth statistics (e.g.%, reduced weight gain).

Lungs, Thorax, or Respiration - dyspnea.

Subacute to chronic toxicity:

Corrosive materials are acutely destructive to the respiratory tract, eyes, skin and digestive tract. Eye contact may result in permanent damage and complete vision loss. Inhalation may result in respiratory effects such as inflammation, edema, and chemical pneumonitis. May cause coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. Ingestion may cause damage to the mouth, throat and esophagus. May cause skin burns or irritation depending on the severity of the exposure.

Additional toxicological information:

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach.

No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

12 Ecological information**Toxicity**

Aquatic toxicity: No further relevant information available.

Persistence and degradability No further relevant information available.

Behavior in environmental systems:

Bioaccumulative potential No further relevant information available.

Mobility in soil No further relevant information available.

Ecotoxicological effects:

Remark: Harmful to aquatic organisms

Additional ecological information:**General notes:**

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Do not allow material to be released to the environment without proper governmental permits.

Harmful to aquatic organisms

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Results of PBT and vPvB assessment

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PBT: Not applicable.

vPvB: Not applicable.

Other adverse effects No further relevant information available.

13 Disposal considerations

Waste treatment methods

Recommendation Consult state, local or national regulations to ensure proper disposal.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

DOT regulations:



Hazard class: 8
Identification number: UN2699
Packing group: I
Proper shipping name (technical name): TRIFLUOROACETIC ACID
Label: 8

Land transport ADR/RID (cross-border)



ADR/RID class: 8 (C3) Corrosive substances
Danger code (Kemler): 88
UN-Number: 2699
Packaging group: I
UN proper shipping name: 2699 TRIFLUOROACETIC ACID

Maritime transport IMDG:



IMDG Class: 8
UN Number: 2699
Label: 8
Packaging group: I
Marine pollutant: No
Segregation groups: Acids
Proper shipping name: TRIFLUOROACETIC ACID

Air transport ICAO-TI and IATA-DGR:



ICAO/IATA Class: 8
UN/ID Number: 2699
Label: 8
Packaging group: I
Proper shipping name: TRIFLUOROACETIC ACID

UN "Model Regulation": UN2699, TRIFLUOROACETIC ACID, 8, I

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Special precautions for user Warning: Corrosive substances
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

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15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

Product related hazard informations:

Hazard symbols:

C Corrosive

Risk phrases:

20 Harmful by inhalation.

35 Causes severe burns.

52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Safety phrases:

9 Keep container in a well-ventilated place.

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

27/28 After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water.

45 In case of accident or if you feel unwell, seek medical advice immediately.

61 Avoid release to the environment. Refer to special instructions/Safety data sheets

National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

All components of this product are listed on the Canadian Domestic Substances List (DSL).

Information about limitation of use: For use only by technically qualified individuals.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing MSDS: Health, Safety and Environmental Department.

Contact:

Zachariah C. Holt

Global EHS Manager

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

HMIS: Hazardous Materials Identification System (USA)

WHMIS: Workplace Hazardous Materials Information System (Canada)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

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