

SAFETY DATA SHEET

Creation Date 24-November-2009

Revision Date 30-January-2018

Revision Number 4

1. Identification

Product Name 0.1% Trifluoroacetic acid in Acetonitrile

Cat No. : HB9813-4; LS121-1; LS121-4; LS121-212; LS121-500; NC9811516; NC0395568

Synonyms 0.1% TFA in Acetonitrile (Optima LC/MS; HPLC)

Recommended Use Laboratory chemicals.

Uses advised against Food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company

Importer/Distributor
Fisher Scientific
112 Colonnade Road,
Ottawa, ON K2E 7L6,
Canada
Tel: 1-800-234-7437

Manufacturer
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number

CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification

WHMIS 2015 Classification Classified as hazardous under the Hazardous Products Regulations (SOR/2015-17)

Flammable liquids	Category 2
Acute oral toxicity	Category 4
Acute dermal toxicity	Category 4
Acute Inhalation Toxicity	Category 4
Serious Eye Damage/Eye Irritation	Category 2

Label Elements

Signal Word

Danger

Hazard Statements

Highly flammable liquid and vapor
Harmful if swallowed, in contact with skin or if inhaled
Causes serious eye irritation

**Precautionary Statements****Prevention**

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

Keep container tightly closed

Ground/bond container and receiving equipment

Use only non-sparking tools

Take precautionary measures against static discharges

Avoid breathing dust/fume/gas/mist/vapors/spray

Wash face, hands and any exposed skin thoroughly after handling

Do not eat, drink or smoke when using this product

Use only outdoors or in a well-ventilated area

Wear protective gloves/protective clothing/eye protection/face protection

Response

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower

IF INHALED: Remove person to fresh air and keep comfortable for breathing

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

Call a POISON CENTER/ doctor if you feel unwell

Rinse mouth

Wash contaminated clothing before reuse

In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish

Storage

Store in a well-ventilated place. Keep cool

Disposal

Dispose of contents/container to an approved waste disposal plant

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Acetonitrile	75-05-8	99.9
Trifluoroacetic acid	76-05-1	0.1

4. First-aid measures

Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation

Move to fresh air. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required. If not breathing, give artificial respiration.

Ingestion

Do not induce vomiting. Call a physician or Poison Control Center immediately.

Most important symptoms/effects

Breathing difficulties. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Metabolism may release cyanide, which may result in headache, dizziness, weakness, collapse, unconsciousness, and

Notes to Physician possible death
Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Cool closed containers exposed to fire with water spray.
Unsuitable Extinguishing Media	Water may be ineffective, Do not use a solid water stream as it may scatter and spread fire
Flash Point	6 °C / 42.8 °F
Method -	No information available
Autoignition Temperature	524 °C / 975.2 °F
Explosion Limits	
Upper	16.00 vol %
Lower	4.4 vol %
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical

Flammable. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated.

Hazardous Combustion Products

Hydrogen cyanide (hydrocyanic acid) Nitrogen oxides (NOx) Carbon monoxide (CO) Carbon dioxide (CO₂)

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. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
2	3	0	N/A

6. Accidental release measures

Personal Precautions	Remove all sources of ignition. Take precautionary measures against static discharges. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Use personal protective equipment. Do not get in eyes, on skin, or on clothing.
Environmental Precautions	Should not be released into the environment. See Section 12 for additional ecological information.
Methods for Containment and Clean Up	Remove all sources of ignition. Take precautionary measures against static discharges. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Use spark-proof tools and explosion-proof equipment.

7. Handling and storage

Handling	Use only under a chemical fume hood. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. Use explosion-proof equipment. Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Do not breathe vapors or spray mist. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.
Storage	Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Flammables area.

8. Exposure controls / personal protection

Exposure Guidelines

Component	Alberta	British Columbia	Ontario TWAEV	Quebec	ACGIH TLV	OSHA PEL	NIOSH IDLH
Acetonitrile	TWA: 20 ppm TWA: 34 mg/m ³	TWA: 20 ppm Skin	TWA: 20 ppm Skin	TWA: 40 ppm TWA: 67 mg/m ³ STEL: 60 ppm STEL: 101 mg/m ³ Ceiling: 10 ppm Ceiling: 11 mg/m ³ Skin	TWA: 20 ppm Skin	(Vacated) TWA: 40 ppm (Vacated) TWA: 70 mg/m ³ (Vacated) TWA: 5 mg/m ³ (Vacated) STEL: 60 ppm (Vacated) STEL: 105 mg/m ³ TWA: 40 ppm TWA: 70 mg/m ³	IDLH: 137 ppm IDLH: 25 mg/m ³ TWA: 20 ppm TWA: 34 mg/m ³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures

Use only under a chemical fume hood. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment**Eye Protection**

Goggles

Hand Protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

Glove material	Breakthrough time	Glove thickness	Glove comments
Butyl rubber	> 480 minutes	0.35 mm	As tested under EN374-3 Determination of Resistance to Permeation by Chemicals

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. 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.

To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

Recommended Filter type: low boiling organic solvent Type AX Brown conforming to EN371

Environmental exposure controls

No information available.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing before re-use. Wash hands before breaks and at the end of workday.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Clear
Odor	pungent
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-50 °C / -58 °F
Boiling Point/Range	82 °C / 179.6 °F @ 760 mmHg
Flash Point	6 °C / 42.8 °F
Evaporation Rate	5.79 (Butyl Acetate = 1.0)
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	16.00 vol %
Lower	4.4 vol %
Vapor Pressure	No information available
Vapor Density	1.42 (Air = 1.0)
Specific Gravity	0.7810
Solubility	Miscible with water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	524 °C / 975.2 °F
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C2 H3 N
Molecular Weight	41.05

10. Stability and reactivity

Reactive Hazard	None known, based on information available
Stability	Stable under normal conditions.
Conditions to Avoid	Incompatible products. Heat, flames and sparks. Keep away from open flames, hot surfaces and sources of ignition.
Incompatible Materials	Strong oxidizing agents, Strong acids, Reducing agents
Hazardous Decomposition Products	Hydrogen cyanide (hydrocyanic acid), Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide (CO ₂)
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Oral LD50	Category 4. ATE = 300 - 2000 mg/kg.
Dermal LD50	Category 4. ATE = 1000 - 2000 mg/kg.
Vapor LC50	Category 4. ATE = 10 - 20 mg/l.

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Acetonitrile	ATE = 617 mg/kg 450-787 mg/kg (Rat) 2460 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	ATE = 3587 ppm 7551 ppm (Rat) 8 h
Trifluoroacetic acid	200-400 mg/kg (rat)	Not listed	10 mg/L/2h (rat)

Toxicologically Synergistic No information available

Products

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation	Irritating to eyes
Sensitization	No information available
Carcinogenicity	The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Acetonitrile	75-05-8	Not listed	Not listed	Not listed	Not listed	Not listed
Trifluoroacetic acid	76-05-1	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects, both acute and delayed Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting; Metabolism may release cyanide, which may result in headache, dizziness, weakness, collapse, unconsciousness, and possible death

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Do not empty into drains. .

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Acetonitrile	Not listed	LC50: = 1650 mg/L, 96h static (Poecilia reticulata) LC50: 1600 - 1690 mg/L, 96h flow-through (Pimephales promelas) LC50: = 1000 mg/L, 96h static (Pimephales promelas) LC50: = 1850 mg/L, 96h static (Lepomis macrochirus)	EC50 = 28000 mg/L 48 h EC50 = 73 mg/L 24 h EC50 = 7500 mg/L 15 h	EC50: = 5838 mg/L, 18h (Daphnia pulex)
Trifluoroacetic acid	Not listed	Zebrafish: LC50: >1000 mg/L/96h	Not listed	daphnia: EC50: 55 mg/L/24h

Persistence and Degradability Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its volatility.

Component	log Pow
Acetonitrile	-0.34
Trifluoroacetic acid	-2.1

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.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Acetonitrile - 75-05-8	U003	-

14. Transport information

DOT

UN-No UN1648
 Proper Shipping Name ACETONITRILE SOLUTION
 Hazard Class 3
 Packing Group II

TDG

UN-No UN1648
 Proper Shipping Name ACETONITRILE SOLUTION
 Hazard Class 3
 Packing Group II

IATA

UN-No UN1648
 Proper Shipping Name ACETONITRILE SOLUTION
 Hazard Class 3
 Packing Group II

IMDG/IMO

UN-No UN1648
 Proper Shipping Name ACETONITRILE SOLUTION
 Hazard Class 3
 Packing Group II

15. Regulatory information

All of the components in the product are on the following Inventory lists: X = listed

International Inventories

Component	DSL	NDSL	TSCA	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Acetonitrile	X	-	X	200-835-2	-		X	X	X	X	X
Trifluoroacetic acid	X	-	X	200-929-3	-		X	X	X	X	KE-3423 3 X

Canada

SDS in compliance with provisions of information as set out in Canadian Standard - Part 4, Schedule 1 and 2 of the Hazardous Products Regulations (HPR) and meets the requirements of the HPR (Paragraph 13(1)(a) of the Hazardous Products Act (HPA)).

Component	Canada - National Pollutant Release Inventory (NPRI)	Canadian Environmental Protection Agency (CEPA) - List of Toxic Substances	Canada's Chemicals Management Plan (CEPA)
Acetonitrile	Part 1, Group A Substance		

Legend NPRI - National Pollutant Release Inventory

16. Other information

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Revision Summary This document has been updated to comply with the requirements of WHMIS 2015 to align

with the Globally Harmonised System (GHS) for the Classification and Labelling of Chemicals.

Disclaimer

The information provided in 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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text

End of SDS