

Safety Data Sheet

LCMS Grade Trifluoroacetic Acid

SECTION 1: Identification

1.1 Product identifier

Product name	LCMS Grade Trifluoroacetic Acid
Product number	11204
Brand	CovaChem, LLC.
Substance name	Trifluoroacetic acid
CAS no.	76-05-1
Index no.	607-091-00-1

1.2 Other means of identification

2,2,2-Trifluoroacetic acid; Acetic acid, trifluoro-

1.3 Recommended use of the chemical and restrictions on use

For use in the preparation of mobile phase solvents in liquid chromatography and mass spectrometry applications. Not intended for use in human diagnostics or for human consumption. A very strong halogenated derivative of acetic acid. It is used in acid catalyzed reactions, especially those where an ester is cleaved in peptide synthesis.

1.4 Supplier's details

Name	CovaChem, LLC.
Address	6260 East Riverside Blvd Suite 119 Loves Park, IL 61111 United States
Telephone	815-315-1271
Fax	815-315-1272
email	info@covachem.com

1.5 Emergency phone number(s)

PERS Professional Emergency Response Service
Company Code 11814
1-800-633-8253 (U.S. & Canada)
1-801-629-0667 (International)

SECTION 2: Hazard identification

General hazard statement

Toxic if inhaled.
Causes severe skin burns and eye damage.

2.1 Classification of the substance or mixture

- Acute toxicity, oral (chapter 3.1), Cat. 3
- Acute toxicity, oral (chapter 3.1), Cat. 5
- Acute toxicity, dermal (chapter 3.1), Cat. 4
- Skin corrosion/irritation (chapter 3.2), Cat. 1
- Sensitization, skin (chapter 3.4), Cat. 1
- Acute toxicity, inhalation (chapter 3.1), Cat. 3

Safety Data Sheet

LCMS Grade Trifluoroacetic Acid

- Hazardous to the aquatic environment - acute hazard (chapter 4.1), Cat. 3
- Skin corrosion/irritation (chapter 3.2), Cat. 1A
- Acute toxicity (chapter 3.1), Cat. 4

2.2 GHS label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H301	Toxic if swallowed
H312	Harmful in contact with skin
H314	Causes severe skin burns and eye damage
H331	Toxic if inhaled
H402	Harmful to aquatic life
H332	Harmful if inhaled

Precautionary statement(s)

P260	Do not breathe dust, fume, gas, mist, vapors or spray.
P264	Wash arms, hands and face thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER or physician.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340	IF INHALED: Remove person to fresh air and keep 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.
P312	Call a POISON CENTER/doctor if you feel unwell.
P321	Specific treatment (wash areas of possible contact with water).
P333+P313	If skin irritation or a rash occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P363	Wash contaminated clothing before reuse.
P403+P233	Store in a well ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents in accordance with local, state, federal and international regulations.

SECTION 3: Composition/information on ingredients

3.1 Substances

Substance name	Trifluoroacetic acid
CAS no.	76-05-1
Index no.	607-091-00-1
Formula	C ₂ HF ₃ O ₂
Molecular weight	114.02
Other names / synonyms	Acetic acid, 2,2,2-trifluoro-; trifluoroacetic acid 99 %; TRIFLUOROACETIC ACID; Perfluoroacetic acid; Acetic acid, trifluoro-; Trifluoroacetic acid

SECTION 4: First-aid measures

Safety Data Sheet

LCMS Grade Trifluoroacetic Acid

4.1 Description of necessary first-aid measures

General advice

*SKIN CONTACT:

IMMEDIATELY flood affected skin with water while removing and isolating all contaminated clothing. Gently wash all affected skin areas thoroughly with soap and water.

IMMEDIATELY call a hospital or poison control center even if no symptoms (such as redness or irritation) develop.

IMMEDIATELY transport the victim to a hospital for treatment after washing the affected areas.

*INHALATION:

IMMEDIATELY leave the contaminated area; take deep breaths of fresh air. If symptoms (such as wheezing, coughing, shortness of breath, or burning in the mouth, throat, or chest) develop, call a physician and be prepared to transport the victim to a hospital.

Provide proper respiratory protection to rescuers entering an unknown atmosphere. Whenever possible, Self-Contained Breathing Apparatus (SCBA) should be used; if not available, use a level of protection greater than or equal to that advised under Respirator Recommendation.

*EYE CONTACT:

First check the victim for contact lenses and remove if present. Flush victim's eyes with water or normal saline solution for 20 to 30 minutes while simultaneously calling a hospital or poison control center.

Do not put any ointments, oils, or medication in the victim's eyes without specific instructions from a physician.

IMMEDIATELY transport the victim after flushing eyes to a hospital even if no symptoms (such as redness or irritation) develop.

*INGESTION:

DO NOT INDUCE VOMITING. Corrosive chemicals will destroy the membranes of the mouth, throat, and esophagus and, in addition, have a high risk of being aspirated into the victim's lungs during vomiting which increases the medical problems.

If the victim is conscious and not convulsing, give 1 or 2 glasses of water to dilute the chemical and IMMEDIATELY call a hospital or poison control center. IMMEDIATELY transport the victim to a hospital.

If the victim is convulsing or unconscious, do not give anything by mouth, ensure that the victim's airway is open and lay the victim on his/her side with the head lower than the body. DO NOT INDUCE VOMITING. Transport the victim IMMEDIATELY to a hospital.

*SYMPTOMS:

Symptoms resulting from exposure to this compound include severe irritation of skin, eyes, and mucous membranes; lacrimation, increased nasal discharge, cough, throat discomfort, erythema and blistering. Others symptoms usually associated only with ingestion include salivation, vomiting, burning sensation in mouth, bloody vomiting, diarrhea, nausea and pain. In severe poisoning shock may occur, followed by breathing difficulties and kidney damage [346]. It may cause severe burns [025]. Other symptoms include albuminuria and hematuria [031]. It can also cause local necrosis [151]. Signs of fatal poisoning are decreased pulse rate and respiration; drop in blood pressure, cyanosis and ultimately death [053].

Safety Data Sheet

LCMS Grade Trifluoroacetic Acid

If inhaled	IMMEDIATELY leave the contaminated area; take deep breaths of fresh air. If symptoms (such as wheezing, coughing, shortness of breath, or burning in the mouth, throat, or chest) develop, call a physician and be prepared to transport the victim to a hospital. Provide proper respiratory protection to rescuers entering an unknown atmosphere. Whenever possible, Self-Contained Breathing Apparatus (SCBA) should be used; if not available, use a level of protection greater than or equal to that advised under Respirator Recommendation.
In case of skin contact	IMMEDIATELY flood affected skin with water while removing and isolating all contaminated clothing. Gently wash all affected skin areas thoroughly with soap and water. IMMEDIATELY call a hospital or poison control center even if no symptoms (such as redness or irritation) develop. IMMEDIATELY transport the victim to a hospital for treatment after washing the affected areas.
In case of eye contact	First check the victim for contact lenses and remove if present. Flush victim's eyes with water or normal saline solution for 20 to 30 minutes while simultaneously calling a hospital or poison control center. Do not put any ointments, oils, or medication in the victim's eyes without specific instructions from a physician. IMMEDIATELY transport the victim after flushing eyes to a hospital even if no symptoms (such as redness or irritation) develop.
If swallowed	If the victim is convulsing or unconscious, do not give anything by mouth, ensure that the victim's airway is open and lay the victim on his/her side with the head lower than the body. DO NOT INDUCE VOMITING. Transport the victim IMMEDIATELY to a hospital.

4.2 Most important symptoms/effects, acute and delayed

Depending on the intensity and duration of exposure, effects of exposure to this chemical may vary from mild irritation to severe destruction of tissue. Vapors of this compound may produce irritation of the eyes, nose, throat and lungs. Inhalation of concentrated vapors may cause serious damage to the lining membranes of the nose, throat and lungs. Other symptoms may include severe damage to the skin and severe eye damage which may result in loss of sight. Repeated or prolonged exposure may cause darkening of the skin, erosion of exposed front teeth, and chronic inflammation of the nose, throat and bronchi. Exposure to 50 ppm or more is intolerable to most persons and results in intense lacrimation and irritation of the eyes, nose and throat with pharyngeal edema and chronic bronchitis. Unacclimatized individuals experience extreme eye and nasal irritation at concentrations of 25 ppm. Conjunctivitis from concentrations below 10 ppm has been reported. Eye contact may result in permanent opacification of the cornea, severe iritis, small pupils fixed by posterior synechias, photophobia, hyperemia of the conjunctiva, inflammation and permanent corneal anesthesia. Ingestion of this compound may cause severe corrosion of the mouth and gastrointestinal tract with vomiting, hematemesis, diarrhea, circulatory collapse, uremia and death. Ingestion may also cause severe pain in the mouth, throat and abdomen; and to the formation of white plaques and ulcers on the mucous membranes. Hoarseness, rapid and shallow respiration, and low body temperature may develop. Ingestion of as little as 1.0 mL of this compound has caused perforation of the esophagus. It may later cause strictures of the esophagus and pylorus. The vapors are capable of producing bronchial constriction. Other results of ingestion include bloody vomiting, shock, hemolysis and hemoglobinuria followed by anuria. Bronchopneumonia and pulmonary edema may develop following acute overexposure. Chronic exposure may result in pharyngitis and catarrhal bronchitis [346]. Delayed breathing difficulties may occur. Skin contact may result in hyperkeratotic dermatitis. Other symptoms include coughing and chest pain. Contact with skin may cause second-degree burns after a few minutes of contact. It may also cause redness and skin sensitization.

Symptoms resulting from exposure to this compound include severe irritation of skin, eyes, and mucous membranes; lacrimation, increased nasal discharge, cough, throat discomfort, erythema and blistering. Others symptoms usually associated only with ingestion include salivation, vomiting, burning sensation in mouth, bloody vomiting, diarrhea, nausea and pain. In severe poisoning shock may occur, followed by breathing difficulties and kidney damage. It may cause severe burns [025]. Other symptoms include albuminuria and hematuria. It can also

Safety Data Sheet

LCMS Grade Trifluoroacetic Acid

cause local necrosis [151]. Signs of fatal poisoning are decreased pulse rate and respiration; drop in blood pressure, cyanosis and ultimately death.

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide, or other media appropriate for the affected area.

5.2 Specific hazards arising from the chemical

Data unavailable

5.3 Special protective actions for fire-fighters

Wear a self-contained breathing apparatus when appropriate.

Further information

Product is not flammable or combustible.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

ACUTE/CHRONIC HAZARDS:

This compound causes severe burns. It is corrosive to skin and tissues
It can also cause lacrimation.

*MINIMUM PROTECTIVE CLOTHING:

If Tyvek-type disposable protective clothing is not worn during handling of this chemical, wear disposable Tyvek-type sleeves taped to your gloves.

*RECOMMENDED GLOVE MATERIALS:

GlovES Expert System Recommended Gloves For Use With Neat (Undiluted) Chemical:

This chemical has not been tested for permeation by Radian Corporation; however, the GlovES expert system was used to extrapolate permeation test information from compounds in the same chemical class and the following recommendation(s) are provided. The GlovES system uses permeation data from literature sources; therefore, extra safety margins should be used with the recommended exposure times. If this chemical comes into contact with your glove, or if a tear, puncture or hole develops, remove them at once.

Suggested Glove Type Model Number Thickness Estimated Breakthrough

Neoprene Edmont 29-840 0.38 mm 360 min.

Nitrile Edmont 37-175 0.40 mm 360 min.

PVC Edmont PVC Unknown 360 min.

*RECOMMENDED RESPIRATOR:

When working with this chemical, wear a NIOSH-approved full face positive pressure supplied-air respirator or a self-contained breathing apparatus (SCBA).

*OTHER: Not available

*STORAGE PRECAUTIONS:

You should store this chemical under refrigerated temperatures, and keep it away from oxidizing materials.

*SPILLS AND LEAKAGE:

Safety Data Sheet

LCMS Grade Trifluoroacetic Acid

If you should spill this chemical, use absorbent paper to pick up all liquid spill material. Seal the absorbent paper, as well as any of your clothing which may be contaminated, in a vapor-tight plastic bag for eventual disposal. Wash any surfaces you may have contaminated with a soap and water solution. Do not reenter the contaminated area until the Safety Officer (or other responsible person) has verified that the area has been properly cleaned.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

If you should spill this chemical, use absorbent paper to pick up all liquid spill material. Seal the absorbent paper, as well as any of your clothing which may be contaminated, in a vapor-tight plastic bag for eventual disposal. Wash any surfaces you may have contaminated with a soap and water solution. Do not reenter the contaminated area until the Safety Officer (or other responsible person) has verified that the area has been properly cleaned.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist.

7.2 Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

SECTION 8: Exposure controls/personal protection

8.2 Appropriate engineering controls

Use product in a well ventilated location, such as in a fume hood.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Pictograms



Eye/face protection

Use a face shield (minimum 8 inches) and government tested and approved safety goggles, such as NIOSH (US) or EN 166 (EU).

Skin protection

MINIMUM PROTECTIVE CLOTHING: If Tyvek-type disposable protective clothing is not worn during handling of this chemical, wear disposable Tyvek-type sleeves taped to your gloves. *RECOMMENDED GLOVE MATERIALS: GlovES Expert System Recommended Gloves For Use With Neat (Undiluted) Chemical: This chemical has not been tested for permeation by Radian Corporation; however, the GlovES expert system was used to extrapolate permeation test information from compounds in the same chemical class and the following recommendation(s) are provided. The GlovES system uses permeation data from literature sources; therefore, extra safety margins should be used with the recommended exposure times. If this chemical comes into contact with your glove, or if a tear, puncture or hole develops, remove them at once. Suggested Glove Type Model Number Thickness Estimated Breakthrough Neoprene Edmont 29-840 0.38 mm 360 min. Nitrile Edmont 37-175 0.40 mm 360 min. PVC Edmont PVC Unknown 360 min.

Body protection

Safety Data Sheet

LCMS Grade Trifluoroacetic Acid

Complete chemical protective suit is recommended. The personal protective equipment should be selected based upon the concentration and amount of chemical at work station.

Respiratory protection

RECOMMENDED RESPIRATOR: When working with this chemical, wear a NIOSH-approved full face positive pressure supplied-air respirator or a self-contained breathing apparatus (SCBA). [651]

Thermal hazards

Product is flammable. Keep away from fire and ignition sources.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance/form (physical state, color, etc.)	Liquid
Odor	Faint Vinegar Odor
Odor threshold	pungent
pH	1.0 at 1 g/L at 20 C
Melting point/freezing point	-15.2
Initial boiling point and boiling range	73
Flash point	> 100 C
Evaporation rate	Data unavailable
Flammability (solid, gas)	Data unavailable
Upper/lower flammability limits	
Vapor pressure	97.5 mm Hg @ 20 C; 107 mm Hg @ 25 C
Vapor density	Data unavailable
Relative density	1.53
Solubility(ies)	Soluble in water
Partition coefficient: n-octanol/water	Log Pow = -2.10
Auto-ignition temperature	
Decomposition temperature	
Viscosity	Data unavailable
Explosive properties	
Oxidizing properties	

SECTION 10: Stability and reactivity

10.2 Chemical stability

The chemical is stable under normal storage conditions.

10.3 Possibility of hazardous reactions

Data unavailable.

10.4 Conditions to avoid

Avoid excessive heat exposure and proximity to sparks or open flames.

10.5 Incompatible materials

Oxidizing agents, Strong bases, metals, peroxides, metals, carbonates, phosphates, amines and alcohols.

10.6 Hazardous decomposition products

Carbon oxides, Hydrogen fluoride

SECTION 11: Toxicological information

Information on toxicological effects

Safety Data Sheet

LCMS Grade Trifluoroacetic Acid

Acute toxicity

Trifluoroacetic acid
Data unavailable
LC50 Inhalation - Rat - 5,000 ppm (4 hours)
LC50 Intravenous - Mouse - 1,200 mg/kg
LDLo Interperitoneal - Mouse - 150 mg/kg
LDLo Oral - Rat - 500 mg/kg

Skin corrosion/irritation

Data unavailable

Serious eye damage/irritation

Data unavailable

Respiratory or skin sensitization

Data unavailable

Germ cell mutagenicity

Data unavailable.

Carcinogenicity

IARC: Not identified as possible, probable or confirmed human carcinogen.
OSHA: Not identified as possible, probable or confirmed human carcinogen.
NTP: Not identified as possible, probable or confirmed human carcinogen.
ACGIH: Not identified as possible, probable or confirmed human carcinogen.

Reproductive toxicity

Data unavailable.

STOT-single exposure

Data unavailable.

STOT-repeated exposure

Data unavailable.

Aspiration hazard

Data unavailable.

SECTION 12: Ecological information

Toxicity

Toxicity to Fish: LC50, > 1,000 mg/L at 96 h (Danio rerio, ie. Zebra Fish)
55 mg/L at 24 h (Daphnia magna, ie. Water flea)

Persistence and degradability

Not Readily biodegradable

Bioaccumulative potential

Log Pow < 4, therefore bioaccumulation is not expected

Mobility in soil

Data unavailable

Results of PBT and vPvB assessment

Data unavailable

SECTION 13: Disposal considerations

Safety Data Sheet

LCMS Grade Trifluoroacetic Acid

Disposal of the product

Generation of waste should be kept to a minimum when possible. Any waste generated should be recycled when possible. Please dispose any unused or used materials in accordance with applicable national, regional and local laws and regulations.

Disposal of contaminated packaging

Dispose of as unused product.

Waste treatment

This product should be disposed of by a licensed waste management professional. Disposal through incineration with afterburner scrubbing is recommended.

Sewage disposal

Product should not enter the sewer.

SECTION 14: Transport information

DOT (US)

UN Number: 2699

Class: 8

Packing Group: I

Proper Shipping Name: Trifluoroacetic Acid

Reportable quantity (RQ): 5,000 lbs

Marine pollutant: No

Poison inhalation hazard: No

IMDG

UN Number: 2699

Class: 8

Packing Group: I

EMS Number: F-A, S-B

Proper Shipping Name: TRIFLUOROACETIC ACID

IATA

UN Number: 2699

Class: 8

Packing Group: I

Proper Shipping Name: Trifluoroacetic acid

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

SARA 302 Components

No component in this product is subject to the reporting requirements of SARA, Title III, Section 302

SARA 311/312 Hazards

Chronic health hazard

SARA 313 Components

No component in this product is subject to the reporting requirements of SARA, Title III, Section 313

New Jersey Right To Know Components

Common name: Trifluoroacetic acid

CAS number: 76-05-1

Pennsylvania Right To Know Components

Common name: Trifluoroacetic acid

Safety Data Sheet

LCMS Grade Trifluoroacetic Acid

CAS number: 76-05-1

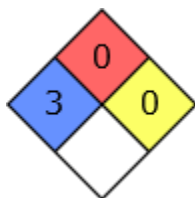
Massachusetts Right To Know Components

Not listed as a Massachusetts Right to Know Component

HMIS Rating

Trifluoroacetic acid	
HEALTH	3
FLAMMABILITY	0
PHYSICAL HAZARD	0
PERSONAL PROTECTION	

NFPA Rating



SECTION 16: Other information

16.1 Further information/disclaimer

The information represented in this Safety Data Sheet is believed to be correct and is based on the current state of our knowledge. This document or any other document does not represent or suggest any type of warranty or guarantee of the product properties or characteristics of this material. CovaChem, LLC and its affiliates shall not be held liable for any damages that result from contact with the above product or handling this product or any others.