



8210 N. Austin Avenue, Morton Grove, IL 60053-0519, U.S.A.  
 847-967-6000 800-323-8144  
 (Monday - Friday: 7:30 a.m. - 4:00 p.m. CST)

**Emergency Contact:**  
 INFOTRAC 800-535-5053 [U.S.A.]

Name: *N*-Trifluoroacetyl-L-prolyl chloride 0.1 M in Chloroform  
 Code: 440001, 440002

..... **MATERIAL SAFETY DATA SHEET** .....

**SECTION 1** ..... **PRODUCT IDENTIFICATION** .....

Name: *N*-Trifluoroacetyl-L-prolyl chloride 0.1 M in Chloroform  
 Code: 440001, 440002

**SECTION 2** ..... **COMPOSITION, INFORMATION ON INGREDIENTS** .....

*Synonyms* 0.1 M TPC in Chloroform; 0.1 M *N*-TFA-L-prolyl chloride in Chloroform  
 CAS #: 36724-68-2 *MF*: C<sub>7</sub>H<sub>7</sub>ClF<sub>3</sub>NO<sub>3</sub> TPC; *N*-TFA-L-prolyl chloride; (*S*)-1-(trifluoroacetyl)-2-pyrrolidinecarbonyl chloride; (*S*)-(-)-*N*-(Trifluoroacetyl)-prolyl chloride; *N*-Trifluoroacetyl-(*S*)-(-)-prolyl chloride; *N*-Trifluoroacetyl-(*S*)-prolyl chloride; Trifluoroacetyl-L-prolyl chloride  
 CAS #: 71890-93-2 *MF*: C<sub>7</sub>H<sub>7</sub>ClF<sub>3</sub>NO<sub>3</sub> *N*-TFA-D-prolyl chloride; (*R*)-1-(trifluoroacetyl)-2-pyrrolidinecarbonyl chloride; *N*-Trifluoroacetyl-(*R*)-prolyl chloride; Trifluoroacetyl-D-prolyl chloride  
 CAS #: 356-42-3 *MF*: CHCl<sub>3</sub> Trichloroform; Trichloromethane

<i>Ingredients</i>	<i>Concentration (%/wt)</i>
<i>N</i> -TFA-L-prolyl chloride (36724-68-2).....	NLT 95% L-isomer 5 %
<i>N</i> -TFA-D-prolyl chloride (71890-93-2).....	NMT 5% D-isomer 0.1 %
Chloroform (356-42-3) (inhibitor free).....	98.4 %

**SECTION 3** ..... **HAZARDS IDENTIFICATION** .....

*Precautionary Statements* See Sections 8 and 11 for further details.

Toxic. Causes drowsiness and dizziness.

..... **Emergency Overview** .....

NFPA Ratings (Scale 0-4); Health = 3; Fire = 1; Reactivity = 1; ~~W~~

Liquid: clear, colorless. Odor: sweet, fruity odor--ethereal odor  
 Toxic volatile liquid and vapor. Causes dizziness and drowsiness. **Readily absorbed through skin and lungs.** Relatively potent general anesthetic--central nervous system depressant. May produce hallucinations, distorted perceptions, and signs of drunkenness. May be harmful or fatal if swallowed or inhaled. Alcohol exposure or consumption can increase effects. Delayed effects possible. Keep cool.

Light sensitive--pH decreases upon prolonged exposure to light and air due to the formation of hydrochloric acid. Contact with moist air or water may produce HCl.

*The properties of this material have not been fully investigated. Use due caution in handling and use of this material.*

May cause irritation to skin, eyes, mucous membranes, and respiratory tract. May harm unborn and newborn. *Possible Cancer Hazard--based on animal data.*

*Emits toxic fumes under fire conditions*—potential chemical or thermal decomposition products: carbon monoxide, carbon dioxide, hydrochloric acid, chlorine, phosgene, hydrogen fluoride

*Standard chemical handling precautions:* Avoid ingestion or breathing mists. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling.

*Target organs:* central nervous system, cardiovascular, blood, kidneys, liver, heart, GI, reproductive system

See Sections 4, 5, 6, 8, 9, and 10.

*Other Hazard Information*

**This compound has not fully been tested for toxicological, irritation, or similar tendencies.**

Primary Route(s) of Entry: Inhalation, Ingestion, Eye, Skin--*Readily absorbed through skin and lungs.*

*Abbreviations:* NA—not applicable; NE—not established; U—unknown/not available; NL—not listed; N—no; Y—yes.; NDA—No data available.



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**Corrosive hydrochloric acid** (strong acid) may be formed when TPC reacts with the water in the skin, eyes, and mucous membranes. Chloroform may also contain small amounts of hydrochloric acid. Hydrochloric acid is destructive to skin, eye, and mucous membrane tissues. TPC in chloroform may immediately dehydrate tissues upon contact.

- Eye: Can cause moderate to severe irritation with burning, itching, tearing, and redness.
  - Skin: Can cause mild to severe irritation with itchiness and possible dryness, cracking and dermatitis from loss of natural skin oils. **Readily absorbed through skin** with systemic effects similar to inhalation and ingestion. Can be harmful or fatal.
  - Inhalation: Can cause respiratory tract irritation. Can be harmful or fatal. Inhalation of high concentrations may cause central nervous system (CNS) effects characterized by headache, nausea, vomiting, excitement, drowsiness, dizziness, confusion, hallucinations, distorted perceptions, loss of muscle coordination, unconsciousness, and coma. Prolonged exposure may cause heart, liver, and kidney damage. Delayed effects possible.
  - Ingestion: Can be harmful or fatal. Can cause severe gastrointestinal irritation with severe burning in mouth and throat, pain in chest, nausea, vomiting, and diarrhea. May cause nervous system depression as described under inhalation. Chronic, or repeated exposure in low concentrations to chloroform may cause heart, liver, and kidney damage characterized by irregular heart beat, liver enlargement. Chloroform may pass through the placenta or be excreted in breast milk and may cause harm to the unborn or newborn. The mean lethal dose in humans is about 1 ounce.
  - Acute: See above route. Use adrenergic agents such as epinephrine or pseudoepinephrine might enhance irregular heartbeat effect.
  - Chronic: See above route. Chloroform may cause cancer--dependant on level and duration of exposure.
  - Symptoms: See specific route above. Chloroform toxicity may be increased by exposure to alcohol, steroids, and ketones.  
*Pre-existing conditions that may be aggravated:* pregnancy, alcoholism, liver, heart, kidney, nerves, GI tract, Use adrenergic agents such as epinephrine or pseudoepinephrine
- See Section 11 for additional toxicological data.

**SECTION 4 ..... FIRST AID MEASURES .....**

- Eye contact: Immediately flush eyes with copious amounts of water or eyewash solution for at least 15 minutes; lift eyelids occasionally. If irritation persists, consult physician.
- Skin contact: Immediately remove contaminated clothing and shoes, then wash skin with soap and copious amounts of water. If irritation persists, consult physician.
- Inhalation: Remove to fresh air. If not breathing, give artificial respiration and keep person warm and at rest. If breathing is difficult, give oxygen; consult physician.
- Ingestion: Wash out mouth with water provided person is conscious; give large amounts of water or milk (2-4 cups). DO NOT induce vomiting without first consulting physician. If vomiting occurs, keep head lower than hips to help prevent aspiration. Maintain airway and respiration. Treat symptomatically and supportively.  
*Wash contaminated clothing before reuse. Discard contaminated footwear.*
- Physician note: Symptomatic and supportive care. Chloroform causes cardiac sensitization to endogenous catecholamines that may lead to heart arrhythmias. DO NOT use adrenergic agents such as epinephrine or pseudoepinephrine. Effects may be delayed. Treatment based on physician judgment in response to reactions of the patient.

**SECTION 5 ..... FIRE FIGHTING MEASURES .....**

Flash Point: None	Method: tcc	Autoignition: NE
OSHA Flammability Class: NA		Explosion Limits: upper: NE
NFPA: See Section 3 <b>Hazards Identification</b> <i>Emergency Overview</i> above.		lower: NE

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*Extinguishing Media*

Water spray, carbon dioxide, dry chemical powder, or appropriate foam.

*Special Fire Fighting Procedures*

Self-contained breathing apparatus (SCBA) and protective clothing to prevent inhalation and contact with skin and eyes should be worn in fighting large fires involving chemicals.

*Standard Fire and Explosion Hazards*

Avoid inhalation of material or combustion by-products.  
 Use any means suitable for extinguishing surrounding fire.

*Unusual Fire and Explosion Hazards*

Slight fire hazard when exposed to high heat, otherwise practically non-flammable.  
 Toxic volatile liquid and vapor. Causes dizziness and drowsiness. **Readily absorbed through skin and lungs.**  
 Relatively potent general anesthetic--central nervous system depressant. May produce hallucinations, distorted perceptions, and signs of drunkenness.  
 May decompose on contact with water to produce small amounts of hydrochloric acid, that in contact with metals may form flammable or explosive hydrogen gas.  
 Containers may build pressure or rupture when heated.  
 Water spray may be used to cool fire-exposed containers.  
 Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas.  
 Emits toxic fumes under fire conditions.

*Hazardous Combustion or Decomposition Products*

carbon monoxide, carbon dioxide, hydrochloric acid, chlorine, phosgene, hydrogen fluoride

**SECTION 6 ..... ACCIDENTAL RELEASE MEASURES .....**

Eliminate all ignition sources/slight fire hazard due to possible formation of small amounts of hydrochloric acid upon contact with moist air or water, that in contact with metals may form flammable or explosive hydrogen gas.  
 Use spark proof tools.  
 Evacuate unnecessary people from area. Isolate spilled material.  
 Ventilate area.  
 Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas.  
 Vapors can cause dizziness, drowsiness, hallucinations, and distorted perceptions.  
 Wear NIOSH/MSHA approved respirator for organic/acid gas, dust, and mists to prevent inhalation of mists.  
 Wear protective clothing to prevent contact with skin and eyes (lab coat, gloves, and safety glasses). **Material is readily absorbed through the skin and lungs.**  
 Contain and recover material when possible.  
 Use chemically compatible spill pillows, or similar adsorbent material.  
 Sweep up, seal in appropriate hazardous waste container, and hold for proper waste disposal.  
 Avoid raising contaminated dust.  
 Wash spill site after material pickup is complete.  
 Standard chemical precautions: Keep out of water supplies and sewers.

**SECTION 7 ..... HANDLING AND STORAGE.....**

*General Handling Measures*

See Section 8 Below.

*General Storage Measures*

Store tightly closed in a cool, dry place with adequate ventilation, in a storage area suitable for halogenated solvents.

*Special Storage Instructions*

Empty containers retain product residue, (liquid/vapor), and can be dangerous.

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**Special Handling Instructions**

Use appropriate precautions for handling toxic, volatile halogenated organic liquids.  
 Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas.  
 Light and moisture sensitive--prolonged exposure decreases pH due to the formation of hydrochloric acid.  
 Wash thoroughly after handling. Avoid breathing vapors and mists.  
 Immediately remove contaminated clothing since chloroform is **readily absorbed through skin and lungs**.

**SECTION 8 ..... EXPOSURE CONTROLS, PERSONAL PROTECTION.....**

Airborne Exposure Limits		TWA (8H)/VPEL		STEL		Ceiling Limit		Ceiling (skin)	
		ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
N-TFA-L-prolyl chloride 36724-68-2	OSHA PEL	NE	NE	NE	NE	NE	NE	NE	NE
	ACGIH - TLV	NE	NE	NE	NE	NE	NE	NE	NE
N-TFA-D-prolyl chloride 71890-93-2	OSHA PEL/VPEL	NE	NE	NE	NE	NE	NE	NE	NE
	ACGIH - TLV	NE	NE	NE	NE	NE	NE	NE	NE
Chloroform 356-42-3	OSHA PEL/VPEL	2	9.78	NE	NE	50	240	NE	NE
	ACGIH - TLV	10	49	NE	NE	NE	NE	NE	NE
Hydrochloric Acid* 7647-01-0	OSHA PEL	NE	NE	NE	NE	5	7	NE	NE
	ACGIH - TLV	NE	NE	5	7.5	5	7.5	NE	NE

\*Hydrochloric acid may be formed on contact with water, moist air, or prolonged exposure to light.

**Chloroform Exposure Notations**

**Acute**

1,000-2,000 ppm may cause dizziness, headache, fatigue, salivation, and nausea;  
 4,000 ppm may cause vomiting, serious disorientation, and a fainting feeling;  
 14,000-16,000 ppm may cause anesthesia and rapid loss of consciousness;  
 More than 20,000 ppm may cause respiratory failure, cardiac arrhythmias, and death.

**Chronic**

Repeated exposure to 77-237 ppm has caused lassitude, dullness, urinary frequency, and gastrointestinal disturbances.  
 17 of 68 workers exposed to 10-200 ppm for 1-4 years exhibited hepatomegaly and increased susceptibility to viral hepatitis.

**Special/Other Control Measures**

Odor threshold: 85 ppm (chloroform); 1-5 ppm (hydrochloric acid)

**Personal Protective Equipment (PPE)**

OSHA/ANSI approved chemical safety eyewear or goggles  
 Compatible chemical-resistant gloves: **PVC and rubber are not suitable** for PPE  
 Wear NIOSH/MSHA approved respirator for organic/acid gas, dust, and mists to prevent inhalation.  
 Protective Clothing (e.g., lab coat)

**Other Standard Safety Equipment and Engineering Preventive Measures**

Safety shower and eye wash  
 Mechanical exhaust required. Hood recommended. Use adequate general and/or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.  
 Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas.



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**General Precautions and Handling Measures**

Avoid ingestion, inhalation and contact with eyes, skin, and clothing.  
 Avoid prolonged or repeated exposure. Wash thoroughly after handling.  
 Wash contaminated clothing before reuse. Discard contaminated footwear.  
**Chloroform is readily absorbed through skin and lungs.**

**SECTION 9 ..... PHYSICAL AND CHEMICAL PROPERTIES .....**

**Chemical Family:** Halogenated amino acid derivative in halogenated organic solvent      **Use:** Derivatization Enantiomeric Purity Reagent for GC

**Appearance, Odor, and Other Properties**

<b>Appearance:</b>	clear, colorless liquid	<b>Odor:</b>	sweet, fruity odor--ethereal
<b>Freeze/MP:</b>	-63.5°C (-83°F) (CHCl <sub>3</sub> )	<b>Water Reactive:</b>	no
<b>bp (1atm):</b>	61-62°C (141-143°F) (CHCl <sub>3</sub> )	<b>Water Solubility:</b>	slightly
<b>FW:</b>	229.59 (TPC)	<b>Specific Gravity (H<sub>2</sub>O = 1.0):</b>	1.508
	229.59 (N-TFA-D-prolyl Cl)	<b>VP (mmHg):</b>	160mm @ 20°C (CHCl <sub>3</sub> )
	119.38 (chloroform)	<b>Vapor Density (air=1):</b>	4.12 (CHCl <sub>3</sub> )
<b>% Volatiles:</b>	98%	<b>Evap. Rate (BuAc = 1.0):</b>	11.6 (CHCl <sub>3</sub> )
<b>pH:</b>	NE	<b>Refractive Index (n<sub>D</sub><sup>20</sup>):</b>	1.4476 (CHCl <sub>3</sub> )
<b>Critical Temp:</b>	263.2°C (506°F) (CHCl <sub>3</sub> )	<b>Henry's Law Const:</b>	3.6x10 <sup>-13</sup> atm·m <sup>3</sup> /mol at 24°C (CHCl <sub>3</sub> )
<b>Critical Press:</b>	54 atm (CHCl <sub>3</sub> )	<b>Octanol Water Dist. Coeff. (LK<sub>OW</sub>):</b>	1.97 (CHCl <sub>3</sub> )
<b>Soluble in Organic Solvents:</b>	NE		

**SECTION 10 ..... STABILITY AND REACTIVITY .....**

**Stability**

Stable if stored tightly sealed and refrigerated--protected from light, air, and heat.

**Incompatibilities**

Acids, Acetone, and Strong oxidizers  
 Alkalies and caustics (ammonium hydroxide, sodium methoxide, potassium hydroxide, etc.)  
 Aluminium, magnesium  
 Dinitrogen tetroxide, Disilane, Fluorine, Triisopropylphosphine  
 Light sensitive--pH decreases upon prolonged exposure to light and air due to the formation of HCl.  
 Water or moist air--May decompose on contact to produce small amounts of hydrochloric acid, that in contact with metals may form flammable or explosive hydrogen gas.  
 Will attack some forms of plastic, rubber, and coatings

**Precautions**

Avoid incompatibilities.  
 Protect from heat, flames, sparks, and ignition sources.  
 Refrigerate. Protect from light.  
 Keep out of water supplies and sewers.

**Hazardous Combustion or Decomposition Products**

carbon monoxide, carbon dioxide, hydrochloric acid, chlorine, phosgene, hydrogen fluoride

**Hazardous Polymerization**

None

**SECTION 11 ..... TOXICOLOGICAL INFORMATION.....**

*To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.*

Abbreviations: NA—not applicable; NE—not established; U—unknown/not available; NL—not listed; N—no; Y—yes.; NDA-No data available.



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RTECS #

CAS #

not assigned	N-TFA-L-prolyl chloride	36724-68-2
not assigned	N-TFA-D-prolyl chloride	71890-93-2
FS9100000	Chloroform	356-42-3
MW4025000	Hydrogen Chloride	7647-01-0

Only selected Registry of Toxic Effects of Chemical Substances data (RTECS) is presented here.  
 See actual entry in RTECS for complete information.

**Irritation Data**

	eye	skin
N-TFA-L-prolyl chloride	NDA	NDA
N-TFA-D-prolyl chloride	NDA	NDA
Chloroform	eye rbt 148 mg; eye rbt 20 mg/24H mod	skn rbt 10 mg/24H open mld; skn rbt 500 mg/24H mld
Hydrogen Chloride	eye rbt 5 mg/30S rinse mld	NDA

**Toxicity Data**

	oral	inhalation	dermal
N-TFA-L-prolyl Cl	NDA	NDA	NDA
N-TFA-D-prolyl Cl	NDA	NDA	NDA
Chloroform	orl man LDLo 2,514 mg/kg; unr man LDLo 546 mg/kg; orl rat LD50 695 mg/kg	ihl man LCLo 25,000 ppm/5m; ihl rat LC50 47,702 mg/m <sup>3</sup> /4H	skn rbt LD50:>20 gm/kg; scu mus LD50:704 mg/kg
Hydrogen Chloride	orl man LDLo 2857ug/kg orl rbt 900 mg/kg	ihl hmn LCLo 1300ppm/30M ihl hmn LCLo 3000ppm/5M unr man LDLo 81mg/kg ihl rat LC50 3124ppm/1H	NDA

**Carcinogenicity**

	OSHA	IARC	NTP	ACGIH	NIOSH	Notes
N-TFA-L-prolyl Cl	NL	NL	NL	NL	NL	None
N-TFA-D-prolyl Cl	NL	NL	NL	NL	NL	None
Chloroform	Y	Y	Y	Y	Y	may cause cancer based on animal studies; possible cancer hazard; ACGIH-A3-Animal Carcinogen; California-carcinogen; initial date 10/01/1987; NIOSH--occupational carcinogen; NTP-Suspect carcinogen; OSHA--Possible select carcinogen; IARC--Group 2B carcinogen
Hydrogen Chloride	NL	NL	NL	NL	NL	IARC Group 3--Not classifiable as a carcinogen

NL = Not Listed as a carcinogen;

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Lab studies indicate that chloroform causes cancer in animals and may cause cancer in humans. The risk depends on level and duration of exposure.

*Teratogenicity and Reproductive Effects*

Lab studies reported in RTECS indicate that chloroform may cause adverse fetal effects, newborn harm, and reproductive effects. RTECS also reports laboratory studies that indicate that hydrochloride acid may cause adverse fetal effects.

*Neurotoxicity*

No data available.

*Mutagenicity*

RTECS reports mutation data on chloroform and hydrogen chloride.

*Miscellaneous*

No data available.

*Acute and Chronic Effects*

See specific route responses in Section 3 **Hazards Identification** above.

**SECTION 12** ..... **ECOLOGICAL INFORMATION**.....

*Environmental Fate*

*N*-TFA-L-prolyl chloride and *N*-TFA-D-prolyl chloride: No data available.

Chloroform: When released into the soil, this material is expected to leach into groundwater where it will reside for long periods of time. Releases to water and land will quickly evaporate. When released into the water, this material is expected to have a half-life between 1-10 days. This material has a log octanol-water partition coefficient of less than 3.0. This material is not expected to significantly bioaccumulate. When released into the air it may be transported long distances and will moderately photodegrade with a half-life of a few months. When released into the air, this material may be removed from the atmosphere to a moderate extent by wet deposition.

Hydrochloric Acid: Rapidly hydrolyzes when exposed to water. Will exhibit extensive evaporation from soil surfaces. Upon transport through the soil, hydrochloric acid will dissolve some of the soil materials (especially those with carbonate bases) and the acid will neutralize to some degree.

*Environmental Toxicity*

Chloroform: It will not be expected to bioconcentrate into the food chain but contamination of food is likely due to its use as an extractant and its presence in drinking water. It is not expected to be toxic to aquatic life. The LC50/96-hour values for fish are over 100 mg/L.

*N*-TFA-L-prolyl chloride, *N*-TFA-D-prolyl chloride and Hydrochloric Acid: No data available.

*Ecotoxicity Data*

Chloroform:

- Fish toxicity: 66,800 ug/L 96H LC50 (Mortality) Rainbow trout, donaldson trout (*Oncorhynchus mykiss*)
- Invertebrate toxicity: 32,000 ug/L 96H NOEC (Mortality) Pink shrimp (*Penaeus duorarum*)
- Algal toxicity: >3,200,000 ug/L 48H (Population Growth) Cryptomonad (*Chilomonas paramecium*)
- Other toxicity: 270 ug/L 7H EC50 (Teratogenesis) Spring peeper (*Hylacrucifer*)

*N*-TFA-L-prolyl chloride, *N*-TFA-D-prolyl chloride and Hydrochloric Acid: No data available.

*Fate and Transport*

Chloroform: Bioconcentration: 690 Ci/mol 6H BCF (Residue) Green algae (*Selenastrum capricornutum*) 13.9 Ci/mol

*N*-TFA-L-prolyl chloride, *N*-TFA-D-prolyl chloride and Hydrochloric Acid: No data available.

*Standard Chemical Precautions*

Keep out of air, water, and soil

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**SECTION 13 ..... DISPOSAL CONSIDERATIONS.....**

*That which cannot be recovered or recycled, should be disposed of in accordance with all applicable Federal, State, and local environmental regulations.*

RCRA waste code(s): D022

RCRA Hazard Class (40CFR 261): Toxic--chloroform

**SECTION 14 ..... TRANSPORT INFORMATION.....**

*Ship in accordance with all applicable local, State, Federal, and International transportation regulations. The following is a summary only. Check regulations for complete information:*

U. S. Department of Transportation (49CFR171.101)  
 Shipping Name: Chloroform  
 Hazard Class or Division: 6.1, Subsidiary Class: none  
 ID Number: UN1888  
 Packing Group: III  
 Labeling: Toxic or Poison

**SECTION 15 ..... REGULATORY INFORMATION .....**

*Reviews, Standards, and Regulations*

..... N-TFA-L-prolyl . N-TFA-D-prolyl . Chloroform..... Hydrogen			
..... Chloride ..... Chloride..... Chloride**			
CAS number .....	36724-68-2.....	71890-93-2 .....	356-42-3.....7647-01-0
TSCA:.....	NL* .....	NL* .....	Y.....Y
*This compound is sold strictly for FDA or research and development use.			
**Under EPA Hydrochloric acid, aq/Hydrogen chloride, gas may be regulated differently.			
EINECS:.....	NL.....	NL.....	Y.....Y
Number.....	NA.....	NA.....	206-604-2..... 231-595-7
CERCLA [Section 103 (40 CFR 302.4)]: .....	NL.....	NL.....	Y.....
RQ (lbs).....	NA.....	NA.....	10.....5,000
RCRA Waste Code.....	NA.....	NA.....	U044 [pure only].....NA
OSHA Process Safety [29 CFR 1910.119]:.....	NL.....	NL.....	NL.....Y/NL
TQ (lbs).....	NA.....	NA.....	NA.....5,000/NA
Clean Air Act			
[Section 112r (40 CFR 68)]: .....	NL.....	NL.....	Y.....Y
TQ (lbs).....	NA.....	NA.....	20,000 ..... 15,000/5,000
Contains Ozone Depleters (Class I or Class II).....	N.....	N.....	N.....N
SARA Title III Notification [40 CFR 302.4]:			
Section 302/304 (EHS) Ingredient			
[40 CFR 355.3].....	NL.....	NL.....	Y.....NL/Y
TPQ (lbs).....	NA.....	NA.....	10,000 ..... NA/500
RQ (lbs).....	NA.....	NA.....	10,000 ..... NA/500
Section 313 Ingredient [40 CFR 372.65].....	NL.....	NL.....	Y.....NL/Y
State Lists: .....	NL.....	NL.....	Y.....NL
States.....	NA.....	NA.....	CA, FL, MA.....NA
			MN, NJ, PA .....
On CA 65 Significant Risk Level .....	NA.....	NA.....	Y.....NA
<b>WARNING: This product contains a chemical(s) known to the State of California to cause cancer. (Chloroform)</b>			

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**Emergency Contact:**  
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Name: N-Trifluoroacetyl-L-prolyl chloride 0.1 M in Chloroform  
 Code: 440001, 440002

..... **MATERIAL SAFETY DATA SHEET** .....

**Hazard Classes**

Sara	Acute	Chronic	Fire	Pressure	Reactivity
Title III	Y	Y	N	N	N
	Health	Flammability	Reactivity	Special Hazards	
NFPA	2	1	1	light sensitive, W	
HMIS	2	1	1	None	

**Risk Phrases:**

**Caution: The properties of this material have not been fully investigated.**

- R22..... Harmful if swallowed
- R36/37/38..... Irritating (severely) to eyes, respiratory system, and skin
- R40..... Possible risk of irreversible effects
- R48/20/22..... Harmful: Danger of serious damage to health by prolonged exposure through inhalation and if swallowed
- R64..... Vapors cause drowsiness and dizziness

**Safety Phrases:**

- S02..... Keep out of reach of children
- S23/24/25..... Do not breath vapors. Avoid contact with skin and eyes
- S26/28..... In case of contact with eyes or skin, rinse immediately with plenty of water and seek medical advice
- S27..... Take off immediately all contaminated clothing
- S36/37/39..... Wear suitable protective clothing, gloves, and eye/face protection
- S44..... If you feel unwell, seek medical advice immediately (show the label where possible)

**SECTION 16 ..... OTHER INFORMATION .....**

**Miscellaneous**

The health and toxicological hazards of this compound have not been fully investigated; therefore, this substance must be handled only by, or under close supervision of those qualified in the handling and use of potentially hazardous substances.

**This MSDS was revised as follows:**

This is a new MSDS format. Consider all sections to contain new information.

**Disclaimer**

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Approved of by: MBF

***This is the last page of this MSDS.***

Reviewed and re-approved of with minor changes to the footer abbreviations, format and update the HMIS code.  
 by: Jon Pilli

08/05/2008