

# MATERIAL SAFETY DATA SHEET

For R&D use only. Not for drug, household or other uses.

Click <http://www.lookchem.com/cas-431/431-89-0.html> for suppliers of this product.

## Composition/Information on Ingredient

**Cas:**  
431-89-0

**Code:**  
M

**RTECS:**

**Code:**  
X

**Name:**  
1,1,1,2,3,3,3,-HEPTAFLUOROPROPANE Environmental

**Other REC Limits:**  
NONE RECOMMENDED

**OSHA PEL:**  
C, 2 MG/M3

**Code:**  
M

**OSHA STEL:**

**Code:**

**ACGIH TLV:**  
C 2 MG/M3; 9293

**Code:**  
M

**ACGIHSTEL:**  
N/P

**Code:**

## Control Measures

**Respiratory Protection:**  
WEAR NIOSH/MSHA APPROV SELF-COTAINED BREATHING APPARATUS IN EMERGENCY SITUATIONS.CONSULT OSHA RESP PROTECTION INFO LOCATED @ 29CFR1910.134 & AMER NAT STD INSTITUTES PRACTICES OF RESP PROT Z88.2.

**Ventilation:**  
4 ENGINEERING CNTRL:NO INFO AVAIL.VENTIL:USE LOC VENTILATION TO MIN EXPO TO GAS.USE MECHANICAL VENTI FOR GENERAL AREA CONTROL.

**Protective Gloves:**  
USE LINED NEOPRENE GLOVES IF HNDLG LIQ.

**Eye Protection:**  
CHEM SPLASH GOGG WHEN HNDLG LIQ.

**Other Protective Equipment:**  
Equipment CLOTHING DESIGNED TO MINIMIZE SKIN CONTACT.

**Work Hygienic Practices:**  
WASH THOROUGHLY AFTER HNDLGL.WASH CONTAM CLOTH BEF REUSE.MAKE SURE PIPING IS EMPTY BEF DOING MAINTENANCE WORK.

**Supplemental Safety and Health:**  
THIS IS PART B OF 2-PART SYSTEM.SEE SAME NSN CAGE:0KDP7(SERIAL #CJDMG)FOR PART A. KEY1:HCC=G3.

## Health Hazards Data

**LD50LC50Mixture:**  
N/P

**Route Of Entry Inds - Inhalation:**  
YES

**Skin:**  
NO

**Ingestion:**  
NO 2

**Carcinogenicity Inds - NTP:**  
NO

**IARC:**  
NO

**OSHA:**  
NO

**Health Hazards Acute And Chronic:**  
EYE:DIRECT CONTACT W/LIQ OR COLD GAS CAN CAUSE CHILLING OR POSSIBLY FROSTBITE OF EXPO TISSUES. SKIN:DIRECT CONTACT W/LIQ OR COLD GAS CAN CAUSE CHILLING OR POSSIBLY FROSTBITE OF EXPO TISSUES. INGEST:NO T EXPECTED TO BE HAZ IN NORMAL INDUSTRIAL USE.INHAL:INHAL OF HI CONC CAN BE HARMFUL OR FATAL DUE TO OXY DEPREVATION &/OR HEART IRREGULARITIES (ARRHYTHMIAS).MISUSE OF PROD BY DELIBERATELY INHAL HI CONC OF THIS GAS COULD CAUSE DEATH W/O WARNING.

**Explanation Of Carcinogenicity:**  
PER MSDS:CARCINOGENICITY:NTP/IARC/OSHA/ACGIH/OTHGER:NO.

**Signs And Symptions Of Overexposure:**  
SYMPTOMS SIMILAR TO OXY DEPRIVATION(HEAD,NAU,DIZZ OR LOSS OF CONSCIOUSNESS)MAY RESULT FRM OVEREXPO BY INHAL.HEART IRREGULARITIES SUCH AS IRREG PULSE OR HEART PALPITATIONS MAY INDICATE CARDIAC SENS.COL D,WHITE OR DISCOLORED SKIN OR IN SEVERECASES BLISTERING,CAN BE A SIGN OF FROSTBITE CAUSED BY COLD LIQUID OR GASES.

**Medical Cond Aggravated By Exposure:**  
PERSONS W/PRE-EXIST CARDIAC,RESP,CNS DISORDERS MAY BE MORE SUSCEPT TO EFFECTS OF OVEREXP.USE OF EPINEPHRINE OR SIMILAR CMPDS CAN INCR SUSCEPTIB TO HEART IRREG CAUSED BY EXCE EXPO TO THESE TYPE CMPDS.

**First Aid:**  
EYE:FLUSH W/WATER.GET MED ATTN.SKIN:FLUSH W/WATER;IF FROSTBITE OCCURS GET MED ATTN.INGEST: NO INFOR AVAILABLE.INHAL:REMOVE PERSON TO FRESH AIR;IF NOT BREATHING GIVE ARTIFICIAL RESP.IF BREATHING IS DIF FICULT GIVE OXY.GET MED ATTN.ANTIDOTES:NO INFO AVAILABLE. NOTES TO DR &/OR PROTECTION FOR 1ST AIDERS:THE USE OF EPINEPHRINE OR SIMILAR CMPDS CAN INCR SUSCEPTIBILITY TO HEART IRREGULARITIES CAUSED BY E XCESSIVE EXPO TO THESE TYPES OF CMPDS.

**Spill Release Procedures:**  
EVACUATE AREA,VENTILATE.DONT ENTER AREAS WHERE HI CONC MAY EXIST(ESPECIALLY CONFINED OR POORLY VENTILATED AREAS) W/O APPROPRIATE PROTECTIVE EQPMT INCLUDING SELF-CONTAINED BREATHING APPARATUS.

**Neutralizing Agent:**  
N/P

**Waste Disposal Methods:**  
NON-CONTAM PROD IS RECLAIMABLE.CONTACT GREAT LAKES CHEM CORP FOR INFO.OTHERWISE DISPO OF WASTE IN APPROVED CHEM INCINERATOR EQUIPPED W/SCRUBBER AS ALLOWED BY CURRENT LOCAL,STATE/PROVINCE,FED/CANADIAN LAWS/REGULATIONS. 3

**Handling And Storage Precautions:**  
USE SAME TYPE OF PRECAUT AS WOULD BE USED IN HNDLG ANY CRYOGENIC GAS.PROTECT CNTNR FRM DMG.HNDL IN WELL VENTI AREA.WHEN MATL USED AS FIREFIGHTING AGENT IN FIXED OR PORTABLE EXTINGUISHING SYST,FOLLOW M FG INSTRUCT FOR OPERATION/INSPECTION/MAINTENANCE/REPAIR OF SYST.(SEE OTHER INFO)

**Other Precautions:**  
DIRECT EYE/SKIN CONTACT W/LIQ OR COLD GAS CAN CAUSE CHILLING OR POSSIBLY FROSTBITE OF EXPO TISSUES.MAY CUASE CENTRAL NERV SYST EFFECTS.INHAL OF HIGH CONC CAN BE HARMFUL OR FATAL DUE TO OXY DEPRIVATION &/OR HEART IRREGULARITIES.

## Fire and Explosion Hazard Information

**Flash Point Method:**  
N/A

**Flash Point:**

**Flash Point Text:**  
NONFLAMMABLE GAS

**Autoignition Temp:**

**Autoignition Temp Text:**  
N/AVAI

**Lower Limits:**  
N/P

**Upper Limits:**  
N/P

**Extinguishing Media:**  
ALL CONVENTIONAL MEDIA ARE SUITABLE.

**Fire Fighting Procedures:**  
KEEP CYLINDERS COOL WITH H2O SPRAY APPLIED FROM SAFE DISTANCE. USE A SELF-CONTAINED BREATHING APPARATUS IF CONTAINERS RUPTURE OR RELEASE UNDER FIRE CONDITIONS. DO NOT ALLOW REENTRY TO AREAS WHERE MATL WAS RELEASED WITHOUT FIRST VENTILATINGTO REMOVE PRODUCTS OF COMBUSTION/DECOMPOSITION.

**Unusual Fire/Explosion Hazard:**  
ALTHOUGH CNTNRS ARE PROVIDED W/PRESSURE & TEMP RELIEF DEVICES CNTNR CAN RUPTURE IF EXPO TO LOCALIZED HEAT.THERM DECOMP WILL GEN TOX/CORRO GASES.DECOMP BY ELEV TEMPS(FIRE COND,GLOWING METAL SURF)MAY G EN HAZ DECOMP PROD COMMON TO OTHER CFC,HCFC,HBFC,INCLUDE HYDROGEN FLUORIDE, CARBON MONOXIDE,CO2 & OTHERS.

## Physical/Chemical Properties

**HCC:**  
G3

**NRC/State LIC No:**  
N/P

**Net Prop WT For Ammo:**

**Boiling Point:**  
=-16.3C, 2.5F

**B.P. Text:**

**Melt/Freeze Pt:**  
=-131.C, -203.8F

**M.P/F.P Text:**

**Decomp Temp:**

**Decomp Text:**  
N/P

**Vapor Pres:**  
58.8 PSIA@70F

**Vapor Density:**  
6.04

**Volatile Org Content %:**

**Spec Gravity:**  
1.46 H2O=1

**VOC Pounds/Gallon:**

**PH:** NOT AVAILABLE

**VOC Grams/Liter:**

**Viscosity:**  
NOT AVAILABLE 5

**Evaporation Rate & Reference:**  
NOT AVAILABLE

**Solubility in Water:**  
260 MG/L

**Appearance and Odor:**  
COLORLESS, ODORLESS GAS

**Percent Volatiles by Volume:**  
N/AVAI

**Corrosion Rate:**  
N/P

## Reactivity Data

**Stability Indicator:**  
YES

**Stability Condition To Avoid:**  
NONE

**Materials To Avoid:**  
POWDERED METALS(EX AL,MG,ZN)STRONG ALKALIS,OXIDIZERS OR REDUCING AGENTS ARE NOT COMPATIBLE W/THIS MOST OTHER HALOGENATED ORGANIC CMPDS.

**Hazardous Decomposition Products:**  
THERMAL DECOMPO MAY PRODUCE THE FOLLOWING:HYDROGEN FLUORIDE,CARBON MONOXIDE,CARBON DIOXIDE.

**Hazardous Polymerization Indicator:**  
NO

**Conditions To Avoid Polymerization:**  
NONE

## Toxicological Information

**Information:**N/P

## MSDS Transport Information

**Information:**N/P

## Regulatory Information

**Sara Title III Information:** N/P

**Federal Regulatory Information:** N/P

**State Regulatory Information:** N/P

## Other Information

**Other Information:**N/P