
Material safety data sheet for FK-5-1-12

Section 1: Identification of the material and supplier

Product name	FK-5-1-12
Recommended use	Fire extinguishing agent
Supplier identification	Adkinns Inc. 5063 Commercial Circle, Concord, 94520 CA, USA Tel: +1 (650) 457 4580 www.adkinns.com

Section 2: Hazards identification

Emergency overview	Misuses or intentional inhalation abuse can cause suffocation or death. Direct eye or skin contact with the liquid or cold gas can cause chilling or possibly frostbite on exposed tissues.
Acute Health Effects	Eyes Direct eye contact may cause severe burns or frostbite
	Skin Direct skin contact may cause severe burns or frostbite
	Inhalation Acts as an asphyxiant
	Ingestion Not considered a route of exposure
Chronic Health Effects	Not known.
Medical conditions aggravated by overexposure	Pre-existing disorders like cardiac, respiratory or central nervous system disorders may be susceptible to the effects of overexposure.

Section 3: Composition/information on ingredients

Chemical characterization	CAS-Number	EC-Number
C ₆ F ₁₂ O 1,1,1,2,2,4,5,5,5-Nonafluoro-4-(Trifluoromethyl)-3-Pentanone ≥ 99%	756-13-8	436-710-6

Section 4: First aid measures

Inhalation	Move victim to fresh air; if necessary, provide artificial respiration or oxygen. Put victim at rest and keep warm. In the event of persistent symptoms, seek medical treatment.
Skin contact	Thoroughly wash skin with soap and water. In case of skin irritation, consult a physician.
Eye contact	Immediately flush eyes with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Check and remove any contact lenses. Immediately seek medical attention.
Ingestion	No information available

Section 5: Firefighting measures

Extinguishing media	All conventional media are suitable
Products of combustion	High temperature in a fire condition may generate hazardous decomposition products: Hydrogen fluoride, carbon monoxide, and carbon dioxide
Advice for firefighters	Wear a self-contained breathing apparatus and chemical protective clothing.

Section 6: Accidental release measures

Personal precautions	Ventilate affected area. Do not breathe vapor/aerosol. Wear appropriate protective equipment and keep unprotected people away
Environmental precautions	Do not allow penetration into soil, waterbodies or drains. Notify appropriate authorities if necessary
Methods and material for containment and cleaning	Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents) and place in closed containers for disposal.

Section 7: Handling and storage

Handling	High-pressure gas. Do not puncture or incinerate cylinder. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide or drop. Use a suitable hand truck for cylinder movement. Never allow any unprotected part of the body to touch uninsulated pipes or vessels that contain cryogenic liquids. Prevent entrapment of liquid in closed systems or piping without pressure relief devices. Some materials may become brittle at low temperatures and will easily fracture.
Storage	Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over.

Section 8: Exposure controls/personal protection

Engineering controls	Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.	
Acute Health Effects	Eyes	Tightly sealed goggles according to EN 166
	Skin	Wear suitable protective clothing
	Inhalation	Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator
	Hands	Wear protective gloves according to EN 374. Observe glove manufacturer's instructions concerning penetrability and breakthrough time.

Section 9: Physical and chemical properties

Physical state	Liquid
Molecular weight	316.04 g/mol
Color	Colorless
Odor	Weak
Flash point (PMCC) (°C/°F)	Not applicable
Solubility in water	Insoluble
Boiling point	49 °C
Melting/freezing point	-108 °C
Density at 20 °C	1.6 g/mL
Vapor density	11.6
Vapor pressure at 20 °C	328 hPa
Viscosity at 25 °C	0.6 mPa.s

Section 10: Stability and reactivity

Reactivity	No dangerous reactions with proper and specified storage and handling
Chemical stability	Stable under recommended storage conditions.
Conditions to avoid	Protect from heat and direct sunlight
Incompatible materials	Strong bases, amines, alcohols.
Hazardous decomposition products	Hydrogen fluoride, carbon monoxide and carbon dioxide

Section 11: Toxicology

Acute toxicity (oral)	Lack of data
Acute toxicity (dermal)	Lack of data
Acute toxicity (inhalative)	Lack of data
Skin corrosion/irritation	Lack of data
Eye damage/irritation	Lack of data
Sensitization to the respiratory tract	Lack of data
Skin sensitization	Lack of data
Geno toxicity	Lack of data
Carcinogenicity	Lack of data
Reproductive toxicity	Lack of data
Aspiration hazard	Lack of data

Section 12: Ecological information

Aquatic Toxicity	Harmful to aquatic life with long lasting effects
Persistence and degradability	Vapor undergoes indirect photolysis in the troposphere. Degradation products: Hydrogen fluoride, Carbon dioxide, Trifluoroacetic acid

Section 13: Disposal consideration

Waste disposal	Products removed from the cylinder must be disposed of in accordance with appropriate Federal, State, and local regulations. Do not dispose of locally. Do not dispose of the product in the domestic waste or at any waste collection places.
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Section 14: Transport Information

Emergency action code	UN	1044
	Class	2.2
	Hazard label	Compressed non flammable gas
	Packing Group	Not applicable
	EMS	F-C, S-V
	Flashpoint	-NIL- Non Flammable
	Marine Pollutant	No harm to the environment is expected from this preparation

Section 15: Regulatory information

Risk phrases	R52/53 - Harmful to aquatic organisms. May cause long-term adverse effects in the aquatic environment
Safety phrases	S61 – Avoid release to the environment
Disclosable ingredients	1,1,1,2,2,4,5,5,5-Nonafluoro-4-(Trifluoromethyl)-3-Pentanone

Section 16: Other information

NFPA	Health	3
	Flammability	0
	Reactivity	1
	Special Hazards	None
HMIS	Health	0
	Flammability	0
	Reactivity	1
	Protection	X

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and believe. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release. It 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.