

## Section 1 – Chemical Product and Company Identification

<b>Product Name</b>	FK-5-1-12
<b>Chemical</b>	1,1,1,2,2,4,5,5,5,-Nonafluoro-4-(trifluoromethyl)-3-pentanone
<b>Name Synonym</b>	Dodecafluoro-2-methylpentan-3-one, Perfluoro(2-Methyl-3-Pentanone), NOVEC1230™
<b>Product Use</b>	Fire extinguishing agent
<b>Manufacturer</b>	Waysmos Fine Chemical
<b>Address</b>	388 Liangle Road, Laogang Town, Pudong New Area, Shanghai 201322, China
<b>Email</b>	sales@waysmos.com
<b>Telephone</b>	+60378321462

## Section 2 – Hazard Identification

<b>OSHA/HCS status</b>	This material is not classified as hazardous according to the OSHA Hazard Communication Standard (29 CFR 1910.1200)
<b>Classification of the substance or mixture</b>	Not classified
<b>GHS label elements</b>	Not applicable
<b>Hazard pictograms</b>	Not applicable
<b>Signal word</b>	Warning
<b>Hazard statements</b>	H317: May cause an allergic skin reaction H319: Causes serious eye irritation
<b>Precautionary statements</b>	P233: Keep container tightly closed in a cool/well-ventilated place P260: Do not breathe dust/fumes/gas/vapours/spray P273: Avoid release to the environment P280: Wear protective gloves/protective clothing/eye protection/face protection P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing.
<b>Other Hazard</b>	May decompose on contact with flames or extremely hot metal surfaces to produce toxic and corrosive products. In high concentrations, vapors may reduce oxygen available for breathing. Liquid contact with eyes or skin may cause mild irritation.

## Section 3 – Composition/Information on Ingredients

Ingredient name	CAS No.	%(weight)
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# Safety Data Sheet

1,1,1,2,2,4,5,5,5,-Nonafluoro-4-(trifluoromethyl)-3-pentanone	756-13-8	≥99.60
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## Section 4 – First Aid Measures

<b>Inhalation</b>	Remove to fresh air Oxygen or artificial respiration if needed If unconscious, place in recovery position and get medical attention immediately
<b>Skin</b>	Flush exposed skin with lukewarm water (not hot), or use other means to warm skin slowly Remove contaminated clothing and shoes Get medical attention if frostbitten by liquid or if irritation persists
<b>Eyes</b>	Immediately flush with large amounts of water for at least 15 minutes Get medical attention if irritation occurs
<b>Ingestion</b>	DO NOT induce vomiting unless instructed to do so by a physician. Get medical attention immediately if symptoms develop.
<b>Note to physician</b>	Immediate medical attention is not required When symptoms persist or in all cases of doubt seek medical advice

## Section 5 – Fire Fighting Measures

<b>Extinguishing media</b>	Product is a fire extinguishing media. Use media appropriate for surrounding material
<b>Special hazards arising from the substance or mixture</b>	Thermal decomposition may cause toxic products Containers may explode in heat of fire.
<b>Special protective equipment for firefighters</b>	Wear self-contained breathing apparatus with a full face-piece operated in positive pressure mode and chemical-protective clothing. Prevent fire extinguishing water from contaminating surface water or the ground water system

## Section 6 – Accidental Release Measures

<b>Personal precautions, protective equipment and emergency procedures</b>	Refer to SECTION 8 for personal protective equipment. Prevention of skin and eye contact. Ensure adequate ventilation. Remove all sources of ignition. Shut off supply if this can be done safely.
<b>Environmental precautions</b>	Do not discharge into drains/surface waters/groundwater
<b>Methods and material for containment and cleaning up</b>	Evacuate area. Keep upwind. Stop leak if without risk. Ventilate area especially low places remove open flames and heating elements. Disperse it with floor level forced air
<b>Reference to other SECTIONS</b>	See SECTION 7 for information on safe handling See SECTION 8 for information on personal protection equipment See SECTION 13 for information on disposal

## Section 7 – Handling and Storage

<b>Handling</b>	Do not puncture or incinerate container. 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
<b>Storage</b>	Keep container tightly closed and in a cool, well-ventilated place. Keep out of direct sunlight. Keep away from heat and ignition sources
<b>Packing material</b>	Steel drum

## Section 8 – Exposure Controls/Personal Production

### 8.1 Control parameters

**Occupational exposure limit values** 150 ppm, 8 hr TWA

### 8.2 Exposure controls

**Appropriate 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

### Personal protective equipment

**Respiratory Protection** In case of inadequate ventilation wear respiratory protection

**Skin Protection** Wear protective gloves/clothing to prevent contact

**Eye Protection** Safety glasses/chemical splash goggles

**Environmental exposure controls** Do not empty into drains

## Section 9 – Physical and Chemical Properties

### 9.1 Information on basic physical and chemical properties

<b>Appearance</b>	Liquid
<b>Color</b>	colorless
<b>Odour</b>	Low odor
<b>pH</b>	Not available
<b>Melting point</b>	-108°C
<b>Boiling point</b>	49 °C
<b>Flash point</b>	Not available
<b>Evaporation rate</b>	> 1 (BUOAC = 1.0)
<b>Flammability (solid, gas)</b>	Not flammable
<b>Upper/lower flammability or explosive limits</b>	Not available
<b>Vapour pressure</b>	40.4 Kpa (25°C)
<b>Specific gravity (H<sub>2</sub>O=1)</b>	1.6 g/cm <sup>3</sup>
<b>Solubility(ies)</b>	Not available
<b>Partition coefficient: n-octanol/water</b>	log Kow = 2.11
<b>Auto-ignition temperature</b>	Not available
<b>Viscosity</b>	0.6 mPa.s (25°C)

## Section 10 – Stability and Reactivity

<b>Reactivity</b>	Stable under recommended storage and handling conditions (see SECTION 7, handling and storage)
<b>Chemical stability</b>	Stable under normal conditions of use
<b>Possibility of hazardous reactions</b>	No known hazardous reactions
<b>Conditions to avoid</b>	Keep away from heat and ignition sources. Protect from sunlight
<b>Incompatible materials</b>	Strong oxidizing materials, Strong acids and bases
<b>Hazardous decomposition products</b>	Thermal decomposition can lead to release of irritating or toxic gases/vapors: carbon oxides, hydrogen fluoride

## Section 11 – Toxicological Information

### 11.1 Information on toxicological effects

#### Acute Toxicity

Ingredient name	LD50 Oral(rat)	LD50 Dermal (rat)	LC50 Inhalation (rat)
1,1,1,2,2,4,5,5,5,-Nonafluoro-4-(trifluoromethyl)-3-pentanone	> 2,000 mg/kg	> 2,000 mg/kg	>1,227 mg/l/4h (>10% by volume)

<b>Skin corrosion/irritation</b>	No information available
<b>Serious eye damage/irritation</b>	No information available
<b>Respiratory or skin sensitization</b>	No information available
<b>Germ cell mutagenicity</b>	No information available
<b>Reproductive toxicity</b>	No information available
<b>STOT-single exposure</b>	No information available
<b>STOT-repeated exposure</b>	No information available
<b>Aspiration hazard</b>	No information available
<b>Carcinogenicity</b>	Not listed as a carcinogen by NTP, IARC, or OSHA

## Section 12 – Ecological Information

<b>Toxicity (Ecotoxicity Fish, LC<sub>50</sub>)</b>	>1200 mg/l (Zebra Fish, 96h)
<b>Degradability</b>	Atmospheric lifetime is approximately 0.014 years(5 days)
<b>Bioaccumulation/ Accumulation</b>	No data available
<b>Mobility in Environmental Media</b>	Not available
<b>Other adverse effects</b>	Ozone Depletion Potential (CFC 11 = 1.0): 0.00 Global Warming Potential (CO <sub>2</sub> = 1.0): 1.00

## Section 13 –Disposal Considerations

### Waste Disposal Method

Disposal must be made according to local and national regulations. Empty containers should be taken for local recycling, recovery or waste disposal.

**Section 14—Transport Information**

ITEM	LAND <input type="checkbox"/> EU: ADR/RID <input type="checkbox"/> US: DOT	SEA IMDG	AIR ICAO / IATA
UN-Number	General cargo	General cargo	General cargo
Packaging Group			

**Special precautions for user**                      None determined

**Section 15—Regulatory Information**

**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

**Listed in international inventories:**

Ingredient name	TSCA	DSL	NDSL	ELINCS	ENCs	CHINA	KECL	PICCS	AICS
1,1,1,2,2,4,5,5,5,-Nonafluoro-4-(trifluoromethyl)-3-pentanone	YES	YES	NDA	YES	YES	YES	YES	YES	YES

**15.2. Other regulations**

**US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302**

**Extremely Hazardous Substance (40 CFR 355, Appendix A)**

- not regulated.

**US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required**

- not regulated.

**Section 16 – Other Information**

In accordance with good practices of personal cleanliness and hygiene handle with the care and avoid unnecessary contact with this product.

This information is being supplied to you under OSHA Hazard Communication Standard 29 CFR 1910.1200 and is offered in good faith as typical values and not as a product specification. The information contained herein is based on the data available to us and is believed to be true and accurate.

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