

# SAFETY DATA SHEET

According to UN GHS, Annex 4 - Guidance on the Preparation of SDS

Version 4

Product name Fire suppression clean agent Dukare 1230 (FK-5-1-12)

Issue date 16-Nov-2016

Revision date 3-Dec-2021

## 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### Product identifier

Product name Fire suppression clean agent Dukare 1230 (FK-5-1-12)  
Chemical name 1,1,1,2,2,4,5,5,5- Nonafluoro-4-(Trifluoromethyl)-3-Pentanone  
CAS No 756-13-8  
REACH registration number 01-2120426966-44-XXXX

### Other means of identification

Synonym Dodecafluoro-2-methyl-3-pentanone / Perfluoro(2-methyl-3-pentanone)

### Recommended use of the chemical and restrictions on use

Recommended use Extinguishing agents, cleaning agents, solvents, heat transfer/cooling liquid  
Uses advised against No information available

### Details of the supplier of the safety data sheet

Supplier Sinochem Lantian Trading Co., Ltd. / Sinochem Lantian Fluoro Materials Co., Ltd.  
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+86-571-88844390

## 2. HAZARDS IDENTIFICATION

### Classification of the substance or mixture

Hazardous to the aquatic environment, long-term (chronic) Category 3

### Label elements

Symbols/Pictograms None  
Signal word None  
Hazard statements H412 - Harmful to aquatic life with long lasting effects  
Precautionary statements P273 - Avoid release to the environment  
P501 - Dispose of contents/ container to an approved waste disposal plant

### Other hazards

No information available

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Description Substance

Chemical name	CAS No	Weight-%
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1,1,1,2,2,4,5,5,5- Nonafluoro-4-(Trifluoromethyl)-3-Pentanone	756-13-8	>= 99.90
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## 4. FIRST AID MEASURES

### Description of first aid measures

General advice	Do not get in eyes, on skin, or on clothing. Do not breathe dust/fume/gas/mist/vapors/spray. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).
Inhalation	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Vapors are heavier than air and can cause suffocation by reducing oxygen available for breathing. Administer oxygen if breathing is difficult. Get medical advice/attention if you feel unwell.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Wash contaminated clothing before reuse. If skin irritation persists, call a physician.
Eye contact	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Ingestion	Not an expected route of exposure. If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label. Never give anything by mouth to an unconscious person.

### Most important symptoms and effects, both acute and delayed

No information available.

### Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

## 5. FIRE-FIGHTING MEASURES

### Extinguishing media

Suitable extinguishing media The substance can be used as extinguishing agent. Wear suitable respiratory equipment to protect from harmful gases caused by thermal decomposition.

Unsuitable extinguishing media No information available.

### Specific hazards arising from the chemical

Thermal decomposition can lead to release of irritating and toxic gases and vapors, such as carbon monoxide, carbon dioxide, hydrogen fluoride.

### Protective equipment and precautions for firefighters

Evacuate personnel to safe areas. Move containers from fire area if you can do it without risk. Cool drums with water spray. Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Stay upwind. Ensure adequate ventilation, especially in confined areas.

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

Evacuate personnel to safe areas. Remove all sources of ignition. Ensure adequate ventilation, especially in confined areas. Avoid contact with eyes and skin. Do not breathe dust/fume/gas/mist/vapors/spray. Do not eat, drink or smoke when using this product. Wash thoroughly after handling.

### Environmental precautions

Local authorities should be advised if significant spillages cannot be contained. Prevent entry into waterways, sewers, basements or confined areas.

### Methods and material for containment and cleaning up

Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid release to the environment.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

Handle in accordance with good industrial hygiene and safety practice. Do not handle until all safety precautions have been read and understood. Keep away from heat, sparks, flame and other sources of ignition. Ensure adequate ventilation, especially in confined areas. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapors/spray. Do not eat, drink or smoke when using this product. Wash thoroughly after handling.

### Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat, sparks, flame and other sources of ignition. Keep locked up and out of reach of children. Keep away from food, drink and animal feeding stuffs. Store in accordance with local regulations.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

#### Exposure limits

No data applicable

### Appropriate engineering controls

Ensure adequate ventilation, especially in confined areas. Showers. Eyewash stations. Remove all sources of ignition.

### Individual protection measures, such as personal protective equipment

Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment.
Hand protection	Wear protective gloves.
Eye/face protection	Wear safety glasses with side shields (or goggles).
Skin and body protection	Wear suitable protective clothing.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

Appearance	Liquid
Color	Colorless
Odor	Faint odor
Odor threshold	Not determined
pH	Not determined
Melting point/freezing point	-108.0 °C
Boiling point / boiling range	49.2 °C
Flammability (solid, gas)	Not flammable
Flammability limit in air	Not determined
Flash point	Not determined
Autoignition temperature	Not determined
Decomposition temperature	Not determined
Kinematic viscosity	Not determined
Dynamic viscosity	Not determined
Solubility(ies)	Practically insoluble in water
Partition coefficient (LogPow)	Not determined
Vapor pressure	0.3260 bar (20 °C)
Density	1.60 g/mL
Relative density	Not determined
Vapor density	11.6
Evaporation rate	Not determined
Explosive properties	Not an explosive

**Oxidizing properties**

Not determined

**Other information**

No information available

**10. STABILITY AND REACTIVITY****Reactivity**

No information available.

**Chemical stability**

Stable under recommended storage conditions.

**Possibility of hazardous reactions**

Hazardous polymerization does not occur.

**Conditions to avoid**

No information available.

**Incompatible materials**

None known based on information supplied.

**Hazardous decomposition products**

Carbon monoxide, carbon dioxide, hydrogen fluoride.

**11. TOXICOLOGICAL INFORMATION****Acute toxicity**

Chemical name	Route	Species	Value
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(Trifluoromethyl)-3-Pentanone	Oral	Rat	LD50 > 5000 mg/kg
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(Trifluoromethyl)-3-Pentanone	Dermal	Rat	LD50 > 2000 mg/kg
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(Trifluoromethyl)-3-Pentanone	Inhalation	Rat (4 hours)	LC50 > 5000 mg/m <sup>3</sup>

**Skin corrosion/irritation**

Chemical name	Species	Value
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(Trifluoromethyl)-3-Pentanone	Rabbit	Non-irritating to the skin.

**Serious eye damage/eye irritation**

Chemical name	Species	Value
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(Trifluoromethyl)-3-Pentanone	Rabbit	No eye irritation

**Sensitization**

Chemical name	Species	Value
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(Trifluoromethyl)-3-Pentanone	Guinea pig	No sensitization responses were observed.

**Germ cell mutagenicity** (Mammalian Chromosome Aberration Test & Mammalian Cell Gene Mutation Test)

Chemical name	Route	Value (to somatic cell)
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(Trifluoromethyl)-3-Pentanone	In Vitro	Not mutagenic

**Carcinogenicity**

No information available.

**Reproductive toxicity**

No information available.

**STOT - single exposure**

No information available.

**STOT - repeated exposure (28-Day (Subacute) Inhalation Toxicity Study)**

Chemical name	Route	Target organ	Species	Test result	Exposure duration
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(Trifluoromethyl)-3-Pentanone	Inhalation	liver   kidney and/or bladder   heart   endocrine system   hematopoietic system   muscles   nervous system   respiratory system   vascular system	Rat	NOAEL 3000000 mg/m <sup>3</sup> (6h/d, 5d/w)	28 days

**Aspiration hazard**

No information available.

**12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

Chemical name	Algae/aquatic plants EC50	Fish LC50	Crustacea EC50
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(Trifluoromethyl)-3-Pentanone (CAS: 756-13-8)	10.6 mg/L 96h Pseudokirchneriella subcapitata	> 1070 mg/L 96h Pimephales promelas	> 1080 mg/L 48h Daphnia magna

**Persistence and degradability**

Not readily biodegradable.

**Bioaccumulation**

BCF = 1.2 - 4.8

**Mobility**

No information available.

**Other adverse effects**

No information available.

**13. DISPOSAL CONSIDERATIONS**

**Waste treatment methods**

Waste from residues/unused products	Disposal should be in accordance with applicable regional, national and local laws and regulations.
Contaminated packaging	Disposal should be in accordance with applicable regional, national and local laws and regulations.
EU waste code (product as sold)	07 01 03* Organic halogenated solvents, washing liquids and other mother liquors 14 06 02* Other halogenated solvents and solvent mixtures

**14. TRANSPORT INFORMATION**

<b>UN number</b>	Not regulated
<b>UN proper shipping name</b>	Not regulated
<b>Hazard class</b>	Not regulated
<b>Packing group</b>	Not regulated
<b>Environmental hazards</b>	Non-marine pollutant
<b>Special precautions</b>	No information available
<b>Transport in bulk according to Annex II of MARPOL and the IBC Code</b>	Not applicable

## 15. REGULATORY INFORMATION

### International inventories

Component	AICS	DSL/NDSL	EINECS/ELINCS	ENCS	IECSC	KECL	PICCS	TSCA
1,1,1,2,2,4,5,5-Nonafluoro-4-(Trifluoro methyl)-3-Pentanone (>= 99)	X	X	X	X	X	X	-	X

"-" Not Listed

"X" Listed

## 16. OTHER INFORMATION

### Revision note

Issue date	16-Nov-2016
Revision date	19-Oct-2019
Revision note	Add REACH information
Revision date	07-May-2021
Revision note	Add EU waste code (product as sold)
Revision date	24-Sept-2021
Revision note	Revise "Product name", add "Chemical name"
Revision date	3-Dec-2021
Revision note	Add toxicological information(Germ cell mutagenicity & STOT-repeated exposure)

### Key or legend to abbreviations and acronyms used in the safety data sheet

**TWA** - TWA (Time Weighted Average)

**STEL** - STEL (Short Term Exposure Limit)

**Ceiling** - Maximum limit value

**TSCA** - Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**IECSC** - Chinese Inventory of Existing Chemical Substances

**EINECS/ELINCS** - European INventory of Existing Commercial chemical Substances/European List of Notified Chemical Substances

**ENCS** - Japanese Existing and New Chemical Substances

**KECL** - Korea Existing Chemicals List

**NZIoC** - New Zealand Inventory of Chemicals

**PICCS** - The Philippine Inventory of Chemicals and Chemical Substances

**AICS** - The Australian Inventory of Chemical Substances

### Disclaimer

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

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