1) Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product Name: FK-5-1-12
Chemical name: 1,1,1,2,2,4,5,5,5-Nonafluoro-4-(Trifluoromethyl)-3-Pentanone
CAS-Number: 756-13-8
EC-Number: 436-710-6
Product type and uses: Fire protection, industrial use.

1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: Streaming and flooding fire protection, For industrial purposes only.
Uses advised against: Consumer use.

1.3. Details of the supplier of the safety data sheet

Supplier address: Cantaş Kimya Sanayi ve Ticaret A.Ş.
Supplier address: Demirciler OSB Mevkii, Gebze V(Kimya) İhtisas OSB, Fatma Börü Caddesi No:5/1 Dilovası/Kocaeli/Türkiye
Phone Number : 0 (212) 910 12 76
Fax Number : 0 (212) 219 30 61
E-mail address : info@cantaskimya.com
Contact Person : Elif Ekinci

1.4. Emergency telephone number

Cantaş Kimya : 0 (212) 910 12 60
National Poison Consultation Center Turkey: 114
Emergency Health Services Turkey: 112
Fire Brigade Turkey : 112

2) Hazards identification

2.1. Classification of the substance or mixture

Classification in accordance with (EC) Regulation 1272/2008
Aquatic Chronic 3; H412 Harmful to aquatic life with long lasting effects.

2.2.Label Elements

Label In Accordance with (EC) No. 1272/2008
Hazard pictogram: None.
Warning 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 hazardous or special waste collection point.

2.3.Other hazards

Thermal decomposition: Inhaling hazardous decomposing products can cause serious health damage.

Vapour undergoes indirect photolysis in the troposphere. Degradation products:

Hydrogen fluoride, Carbon dioxide, Trifluoroacetic acid.

Atmospheric lifetime: approx. 5 days.

Based on the available data, the product does not contain any PBT (Persistent, Bioaccumulative and Toxic substances) or vPvB (very Persistent and very Bioaccumulative substances) at concentrations exceeding 0.1%

Based on the available data, the product does not contain any endocrine disrupting at concentrations exceeding 0.1%

3) Composition/information on ingredients

3.1. Substances

In Accordance with **(**EC) No. 1272/2008

Product Name: FK-5-1-12

Chemical name: 1,1,1,2,2,4,5,5,5-Nonafluoro-4-(Trifluoromethyl)-3-Pentanone

CAS-Number: 756-13-8

EC-Number: 436-710-6

Hazard Classes & Category Codes In Accordance with CLP ((EC) No. 1272/2008): Aquatic Chronic 3; H412

3.2. Mixture

Nonapplicable.

4) First aid measures

4.1. Description of first aid measures

In case of 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.

Following skin contact: Thoroughly wash skin with soap and water. In case of skin irritation, consult a physician.

After eye contact: Immediately flush eyes with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Remove contact lenses, if present and easy to do. Continue rinsing. In case of troubles or persistent symptoms, consult an opthalmologist.

After swallowing: Rinse mouth with water. Seek medical attention.

4.2. Most important symptoms and effects, both acute and delayed

No data available.
See sections 2 and 11.

4.3.Indications for immediate medical attention and special treatment

Treat symptomatically.

5) Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media: The product is not flammable. Extinguish with foam, carbon dioxide, dry powder or water fog. Use suitable extinguishing media to surround the fire.

Unsuitable extinguishing media: Do not use water jet to extinguish the fire as it may spread the fire.

5.2. Special hazards arising from the substance or mixture

Special hazards: Containers may burst violently when heated due to excessive pressure inside the containers.
Harmful combustion products: Hydrogen fluoride, carbon monoxide and carbon dioxide.

5.3. Recommendations for firefighting teams:

Special protective equipment for firefighters:
Wear a self-contained breathing apparatus and chemical protective clothing.
Additional information:
Fire residuals and contaminated extinguishing water must be disposed of in accordance with the regulations of the local authorities. Use water spray jet to knock down vapors. Do not breathe fumes. Do not allow fire water to penetrate into surface or ground wat

6) Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Ventilate affected area. Do not breathe vapour/aerosol. Wear appropriate protective equipment. Keep unprotected people away.

6.2.Environmental precautions

Avoid release to the environment. Avoid discharge into drains or water sources or on the ground. Avoid spilling into the aquatic environment. Large Spills: If environmental pollution occurs (sewage, water resources, soil or air), notify the relevant authorities.

6.3.Methods and materials for preservation and cleaning

Absorb with liquid-binding material (e.g, sand, diatomaceous earth, acid- or universal binding agents) and place in closed containers for disposal.

In case of spills of large quantities: Stop leak if safe to do so. Dam spills. Cover spilled material with extinguishing powder or pulverized limestone and collect mechanically. Collect in closed containers for disposal. Cleaning with water/cleaning agent.

6.4. References to other sections

Get information about safe use from chapter 7.

Get information about personal protective equipment from chapter 8.

Get information about liquidation from chapter 13.

7) Handling and storage

7.1. Precautions for safe handling

Usage precautions Read and follow the manufacturer's recommendations. Do not breathe vapour/aerosol.Wear protective clothing as shown in Section 8 of this Safety Data Sheet. Keep away from food, drink and animal feed. Do not handle unless all precautionary statements have been read and understood. Do not handle broken packages without protective equipment.

Advice on general occupational hygiene

If skin becomes dirty, wash immediately. Remove contaminated clothing and wash before reuse. Wash contaminated clothing before reuse. Do not eat, drink or smoke while using this product. Wash your hands at the end of each shift and before eating, smoking and going to the toilet. Change work clothes every day before leaving the workplace.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storerooms and containers:

Keep container tightly closed in a cool, well-ventilated place. Protect from heat and direct sunlight. Store in a dry place.

Hints on joint storage: Do not store together with: Strong bases, amines, alcohols.

7.3. Specific end use(s)

See section 1.2.

8) Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits:
Manufacturer information: TWA: 150 ppm

8.2. Exposure controls

General protective and sanitary measures: Provide eyewash and safety shower. Do not take contaminated clothing out of the workplace. Wash contaminated clothing before reuse. Clean equipment and work area daily. Good personal hygiene procedures should be followed. Wash your hands at the end of each shift and before eating, smoking and going to the toilet. Do not eat, drink or smoke during use. Preventive industrial medical examinations should be carried out. Warn cleaning personnel about the hazardous properties of the product.
Personal protective equipment:

Respiratory Protection:
If the risk assessment indicates the possibility of inhaling pollution in the air, respiratory protection complying with an approved standard should be used. All respiratory protective equipment
Make sure that it is suitable for its intended use and is 'CE' marked. respirator
Make sure it is securely seated and replace the filter regularly. Gas filters and combined filter cartridges must comply with TS/EN 14387 Standard. Full face masks with replaceable filter cartridges must comply with TS/EN 136 Standard. Half or quarter face mask respirators with replaceable filter cartridges must comply with the TS/EN 140 Standard.

Eye/Face protection
If the risk assessment indicates the possibility of contact with eyes, eye protection complying with an approved standard should be used. Personal protective equipment used for eye and face protection must comply with TS/EN 166 Standard. Unless your risk assessment indicates that a higher level of protection is required, the following protection methods should be used: Tightly fitting safety glasses.

Skin Protection:
If the risk assessment shows that contamination of the skin is possible, an approved standard
Suitable shoes and additional protective clothing compatible with the chemical

Hand protection:
If the risk assessment indicates that skin contact is possible, contact with an approved standard compatible, chemically resistant, waterproof gloves should be used. The most suitable gloves, gloves to the glove distributor/manufacturer who can provide information on the penetration time of the material should be selected in consultation. Gloves to protect hands against chemicals TS/EN 374
It must comply with the standard. According to the data specified by the glove manufacturer, check that the gloves maintain their protective properties throughout use, and if any deterioration is detected, replace the gloves as soon as possible. It is recommended to change gloves frequently.

Thermal risks:
There is no application.

Environmental exposure controls:
Containers should be kept tightly closed when not in use.
See Chapter 7 and Chapter 13.

Appropriate engineering controls:
Provide adequate ventilation. Check the effectiveness of ventilation or other control measures and/or to determine the necessity of use of respiratory protective devices, personal, workplace environmental or biological monitoring may be required. To minimize employee exposure as the main way; process protection methods, local exhaust ventilation and other technical

Apply controls. Exposure to workers can be adequately controlled by technical control measures. If it cannot be controlled, personal protective equipment should be used. Control measures should be carried out regularly. Ensure that it is inspected and maintained properly. To minimize exposure Ensure operators are trained.

9) Physical and chemical properties

9.1. Information on basic physical and chemical properties

Property	Value
(a) Physical state	Liquefied Gas
(b) Colour	Clear, colorless
(c) Odour	Weak odour
(d) Melting point/freezing point	-108 °C
(e) Boiling point or initial boiling point and boiling range	49 °C
(f) Flammability	Information not available
(g) Lower and upper explosion limit ([7])	Information not available
(h) Flash point	Information not available
(i) Auto-ignition temperature	Information not available
(j) Decomposition temperature	Information not available
(k) pH	Information not available
(l) 1) Viscosity	at 25 °C: 0.6 mPa*s
(l) 2) Kinematic viscosity	Information not available
(m) Solubility	Information not available
(n) Partition coefficient n-octanol/water (log value)	Information not available
(o) Vapour pressure	at 20 °C: 328 hPa
(p) Density and/or relative density	at 20 °C: 1.6 g/mL
(q) Relative vapour density	(Air =1) 11.6
(r) Evaporation rate	Information not available

9.2. Other Information

Property	Value
Molecular Weight	316.04 g/mol
Volatile organic compounds (VOC):	100 % by weight = 1600 g/L

9.2.1. Information with regard to physical hazard classes

No physical hazards known.

9.2.2. Other safety characteristics

Information not available.

10) Stability and reactivity

10.1. Reactivity

For more detailed information, please refer to other sections of this part.

10.2. Chemical stability

Stable under normal temperature, conditions and recommended use. Stable under the prescribed storage conditions.

10.3. Possibility of hazardous reactions

There are no known potentially hazardous reactions with proper and specified storage and handling.

10.4. Conditions to avoid

Protect from heat and direct sunlight..

10.5. Incompatible materials

Strong bases, amines, alcohols.

10.6. Hazardous decomposition products

Hydrogen fluoride, carbon monoxide and carbon dioxide.

Thermal decomposition: No data available

11) Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

a) Acute toxicity
Not classified.
Mixture does not meet the criteria for classification in accordance with Regulation (EC) No 1272/2008
Application not available.

b) Skin corrosion/irritation;
Not classified.
Mixture does not meet the criteria for classification in accordance with Regulation (EC) No 1272/2008
Application not available.

c) Serious eye damage/irritation
Not classified.
Mixture does not meet the criteria for classification in accordance with Regulation (EC) No 1272/2008
Application not available.

d) Respiratory or skin sensitisation
Not classified.
Mixture does not meet the criteria for classification in accordance with Regulation (EC) No 1272/2008
Application not available.

e) Germ cell mutagenicity
Not classified.
Mixture does not meet the criteria for classification in accordance with Regulation (EC) No 1272/2008
Application not available.

f) Carcinogenicity
Not classified.
Mixture does not meet the criteria for classification in accordance with Regulation (EC) No 1272/2008
Application not available.

IARC carcinogenicity: None of the components have been listed or exempted.

g) Reproductive toxicity
Not classified.
Mixture does not meet the criteria for classification in accordance with Regulation (EC) No 1272/2008
Application not available.

h) Single Target Organ Toxicity-Single Exposure
Not classified.
Mixture does not meet the criteria for classification in accordance with Regulation (EC) No 1272/2008
Application not available.

i) Single Target Organ Toxicity- Repeated Exposure
Not classified.
Mixture does not meet the criteria for classification in accordance with Regulation (EC) No 1272/2008
Application not available.

j) Aspiration hazard.
Not classified.
Mixture does not meet the criteria for classification in accordance with Regulation (EC) No 1272/2008
Application not available.

11.2) Other toxicologic information

No further information available.

12) Ecological information

12.1. Toxicity
Harmful to aquatic life with long lasting effects.

12.2. Persistence and degradability
Vapour undergoes indirect photolysis in the troposhere. Degradation products: Hydrogen fluoride, Carbon dioxide, Trifluoroacetic acid.
Atmospheric lifetime: 3 - 5 days.

12.3. Bioaccumulative potential
There is no application for the product.

12.4. Mobility in soil

There is no application for the product.

12.5. Results of PBT and vPvB assessment

Based on the available data the product does not contain %0,1 or more PBT and vPvB components.

12.6. Endocrine disrupting properties

Based on the available data the product does not contain substances listed in the Endocrine disruptor assessment list

12.7. Other adverse effects

Do not allow to enter into ground-water, surface water or drains.

13) Disposal considerations

13.1. Waste treatment methods

General information

Waste generation should be minimized or avoided wherever possible. Where possible, reuse or recycle products. This material and its container must be disposed of safely. Disposal of this product, process solutions, residues and by-products must always comply with environmental protection requirements, waste disposal legislation and local authority requirements. When handling waste, the safety measures implemented for handling the product should be taken into account. When handling emptied containers, care should be taken to thoroughly clean and wash them. Empty containers or product residues that may remain in their layers can be potentially hazardous.

Waste processing methods:

Do not empty into drains. We dispose of leftover and non-recyclable products in a licensed waste disposal facility.

Dispose of it with the help of a disposal organization. Waste, residues, empty containers, discarded work clothes and contaminated cleaning materials should be collected in appropriate containers and labeled according to their contents. Waste packaging should be collected for reuse or recycling. When recycling is not feasible, only incineration or burial should be used.

14) Transport information

This product is outside the scope of international transport regulations for harmful substances and mixtures (IMDG, IATA, ADR/RID).

14.1 UN number

ADR/RID, IMDG, IATA-DGR: Not applicable

14.2 UN proper shipping name

ADR/RID, IMDG, IATA-DGR: Not restricted

14.3 Transport hazard class(es)

ADR/RID, IMDG, IATA-DGR: Not applicable

14.4. Packaging group

ADR/RID, IMDG, IATA-DGR: Not applicable.

14.5. Environmental damages

Environmentally harmful/marine pollutant: No.

14.6. Special precautions for the user

No dangerous good in sense of these transport regulations.

14.7.Public transport according to MARPOL 73/78 annex II and IBC code

Not applicable.

15) Regulatory information

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

REACH (Registration, Evaluation, Authorisation, and Restriction of Chemicals) Regulation (EC) No. 1907/2006

CLP (Classification, Labelling, and Packaging) Regulation (EC) No. 1272/2008

Seveso Directive (Directive 2012/18/EU)

Waste Framework Directive (Directive 2008/98/EC)

Regulation on Persistent Organic Pollutants (Regulation (EU) 2019/1021)

Biocidal Products Regulation (EU) No 528/2012

EC Commission Directive (EU) 2000/39/EC dated 8 June 2000.

Regulation (EU) on fluorinated greenhouse gases (Regulation (EU) 517/2014)

Adhere to the national sanitary and occupational safety regulations when using this product.

National regulations - Great Britain

Hazchem-Code: No data available

National regulations - EC member states

Volatile organic compounds (VOC): 100 % by weight = 1600 g/L

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

16) Other information

16.1 Revisions

Not applicable

16.2 Abbreviations and Acronyms

REACH: Registration, Evaluation, Authorisation, and Restriction of Chemicals,

CLP: Directive No. 1272/2008 "Classification, Labeling and Packaging of Substance and Mixtures" published in the EU,

SDS: Safety Data Sheet

CAS: Chemical Abstracts Service (followed by a number specific to the chemical)

EC: European Commission (followed by a number specific to the chemical)

H-statements: Hazard Statements

P-statements: Precautionary Statements

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods code

IATA: International Air Transport Association Dangerous Goods Regulations

PPE: Personal Protective Equipment

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

ADN: European Agreement on the international transport of dangerous goods by waterways.

RID: European Agreement on the international transport of dangerous goods by rail.

ICAO-TI: International Civil Aviation Organization - Technical Instructions, Technical instructions for the international transportation of dangerous goods by air.

CAS number: Chemical Theory Service registration numbers are single descriptive numbers used for chemical compounds, polymers, biological sequences, mixtures and alloys.

DNEL: Derived chemical exposure level to which humans should not be exposed (Derived No-Effect Level)

EC number: The number given by the European Commission according to the structural characteristics of the substance,

EC50: The concentration at which the effect is observed in 50% of the test organisms; Effect concentration

LC50: The concentration at which death is observed in 50% of the test organisms; Deadly concentration. (Lethal Concentration)

LD50: The dose at which death is observed in 50% of the test organisms; Lethal dose. (Lethal Dose)

LOEC: Lowest Observed Effect Concentration

LOAEC: Lowest Observed Adverse Effect Concentration

LOEL: Lowest Observed Effect Level

LOAEL: Lowest Observed Adverse Effect Level

MARPOL 73/78: International Convention for the Prevention of Pollution of the Seas from Ships, signed in 1973 and amended in 1978

Contract. (Derived from the English term Marine Pollution.)

NIOSH: US National Institute for Occupational Safety and Health

NOEC: No Observed Effect Concentration

NOAEC: Concentration where no adverse effects are observed (No Observed Adverse Effect Concentration)

NOEL: No Observed Effect Level

NOAEL: Level where no adverse effects are observed (No Observed Adverse Effect Level)

PBT: Persistent, Bioaccumulate and Toxic

vPvB: Very persistent and very bioaccumulative (Very Persistent, Bioaccumulate and Toxic)

PNEC: Predicted No-Effect Concentration.

SED: Systemic exposure dose, the amount of the component expected to pass into the bloodstream in mg/kg body weight/day (Systemic exposure dose).

STEL: Time-weighted average exposure limit value determined based on 15 minutes of exposure, unless another period is specified. Short Term Exposure Limit

TWA: Time-weighted average, a limit value that is accepted to not adversely affect the health of employees, determined on the basis of 8 hours a day and 40 hours a week.

16.3 Relevant hazard statements and/or precautionary statements (If not stated above)

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 hazardous or special waste collection point.

16.4 Other Information

The form has been prepared by an expert in accordance with the rules specified in latest Commission Regulation (EU) 2020/878 of 18 June 2020 amending Annex II to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), by an expert stated on Annex-XVIII of the Turkish Regulation on Registration, Evaluation, Authorization and Restriction of Chemicals (Official Gazette Date: 23.06.2017, Official Gazette Number: 30105 Duplicate) who has received a competence certificate from an organization accredited by the Turkish Accreditation Agency (TURKAK) for personnel certification in chemical assessment.

The information contained in this document is based on our knowledge declared on the above-mentioned date. It refers to the single product only and does not carry a particular quality guarantee.

It is the user's responsibility to ensure the appropriateness of this information and to complete it in the indicated suitable manner.

This MSDS replaces or cancels the previous one.

The information in this document should be kept and made readily accessible by the supplier for a period of 10 years.

Prepared by: Yusuf Melek

Chemical Assessment Expert
Certificate Number: NBC/04.24.02
Certificate Date: 12.07.2023
Certificate Validity Date: 12.07.2028

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