

IKAROS SRL

Firefighting and Technical Gas Solutions

Technical Data Sheet - FK 5-1-12 Fire Extinguishing Agent

PRODUCT DESCRIPTION

FK 5-1-12 belongs to the ketone fluoride group of compounds and is a clear, colorless, and tasteless liquid. Typical applications include computer rooms, data centers, aviation, ships, vehicles, libraries, oil and gas production, etc. Its high safety, low environmental impact, and superior fire extinguishing performance make it a long-term viable and environmentally sustainable alternative to chemical halon fire extinguishing agents for special hazard fire prevention.

PRODUCT FEATURES

- **Physical Properties & Compatibility:** Colorless, odorless, good solubility, insoluble in water, and good thermal stability. It features low surface tension, low viscosity, small latent heat of evaporation, excellent material compatibility, and high fire extinguishing performance with enhanced safety.
 - **Zero Environmental Impact:** The ODP value is zero (no damage to the ozone layer) and it has a very low greenhouse effect value (GWP < 1.0). It fully complies with the most stringent international environmental regulations.
 - **High Fire-Extinguishing Efficiency:** The minimum extinguishing concentration is **3.5%** for Class A fires and **4.5%** for Class B fires. The safe-to-use extinguishing concentration is significantly lower than the NOAEL level.
 - **Excellent Electrical Insulation:** Dielectric strength up to 74.6 kV (3 mm gap) and has successfully passed the 110 kV electrical insulation performance test.
 - **No Residue & Superior Cooling:** Provides a unique cooling effect immediately after discharge. It volatilizes rapidly after use, leaving no residue, which prevents any damage to precision instruments, antique calligraphy, and artwork.
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PHYSICAL PROPERTIES

Property	Value	Property	Value
Appearance	Colorless, Transparent	Odor	Odorless
Molecular mass	316.0	Liquid Density (25°C)	1.601 g · mL ⁻¹
Boiling Point (1 atm)	49.2°C	Freezing Point	-108°C
Flash Point	None	Ignition Point	None
Critical temperature	168.7°C	Critical pressure	1865 kPa
Critical density	0.6391 g · mL ⁻¹	Insulating property (110 kV)	3.8 mA
Vapor Pressure (25°C)	44.4 kPa	Latent Heat of Vaporization	84.55 kJ · kg ⁻¹
Kinematic viscosity (25°C)	0.4014 mm ² · s ⁻¹	Dielectric Strength (3 mm)	74.6 kV
Specific Heat (25°C)	1.013 J · g ⁻¹ · K ⁻¹	Solubility of water (25°C)	<0.001 wt%
Gas density (25°C)	0.0136 g · mL ⁻¹	Atmospheric lifetime (days)	5
ODP	0	GWP	<1.0

MAIN APPLICATION

- 1. Fixed and Portable Fire Extinguishing Systems:** Widely used all over regional or local total flooding fire extinguishing systems and portable fire extinguishers. It is especially applicable to electronic control centers, computer rooms, transformer rooms, power distribution cabinets, wind power equipment rooms, energy storage power stations, high precision instruments, museums, data processing centers, ship control rooms, and new energy vehicle lithium battery protection.

2. **Alternative Uses:** It can be used as a coolant for electronic equipment and as a protection gas for light metal smelting. It can also be utilized to replace sulfur hexafluoride (SF_6) for transformer protection.
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STORAGE AND TRANSPORTATION

1. FK 5-1-12 should be stored in a clean and dry warehouse, protected from high-temperature insolation, and kept away from heat sources, acids, strong alkalis, oxidants, etc.
 2. The product is a colorless, transparent liquid. It is transported as a non-dangerous goods product; however, violent vibration should be avoided during transportation, and it should not be stacked upside down.
 3. Since FK 5-1-12 is highly volatile, close attention must be paid to the airtightness and tightness of the product containers during storage and transportation.
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SAFETY AND PRECAUTIONS

1. Local regulations concerning normal protection and industrial hygiene for chemical handling must be observed. Avoid inhalation of thermal decomposition products and skin contact with hot substances.
2. Do not eat, drink, or smoke when using this product. Wash thoroughly after operation. Avoid release into the environment. Avoid contact with strong oxidizing agents (such as chlorine, chromic acid, etc.).
3. When using this product, you should strictly follow the information and recommendations provided in our **"Chemical Safety Data Sheet" (SDS)**, alongside the standard basic precautions required for handling chemicals.

Disclaimer & Limitation of Liability:

Your use of our product, technical assistance, and information (whether oral, written, or through production evaluation), and the purposes of your use—including any suggested formulations and recommended content—are entirely beyond our control. Therefore, it is imperative that you test our product, technical assistance, and information to determine whether it meets your specific usage needs.

The specific application analysis must at least include testing to determine its applicability from technical, health, safety, and environmental perspectives. We are not required to carry out such tests. Unless we agree otherwise in writing, all products are sold strictly in accordance with our Standard Terms of Sale, which are available upon request. We do not guarantee or warrant any information and technical assistance provided, and they are subject to change without prior notice.

Both parties expressly understand and agree that the purchaser assumes all liability (whether in tort, contract, or otherwise in connection with the use of our products, technical assistance, and information) and that our company shall have no such liability.

Nothing herein shall be construed as a recommendation to use any product in contravention of any patent rights associated with any material and use. This information does not imply or in fact confer any license under any patent rights.

SPECIAL USAGE RESTRICTIONS

- **Medical Field:** This product is **NOT a “medical grade” product** and must not be used in the production of medical equipment or intermediate products of medical equipment where it would directly contact the patient’s body during normal use (e.g., skin, body fluids, or body tissues, including non-direct contact blood).
- **Food & Cosmetics Field:** This product must not be used in the manufacture of medical supplies, food-grade products (or food contact items), or cosmetics unless you contact our company in advance to obtain explicit written permission.
- **Purchaser’s Responsibility:** The purchaser of the product must independently decide whether the product is suitable for the production of medical products, intermediate medical equipment, “food contact” products, or cosmetics, and must not rely on any representations made by the company.