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# Provifrost<sup>®</sup> KF ECO

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## High performance liquid de-icer

Provifrost<sup>®</sup> **KF ECO** is an environmental friendly de-icing fluid for airport runways, taxiways and aprons. It is a 50% aqueous Potassium Formate solution, by weight, plus corrosion inhibitors. Provifrost<sup>®</sup> **KF ECO** is phosphate, chloride, nitrate, nitrite free and does not contain azole type molecules like triazoles or benzodiazole, so less eco-toxic. It is safe for the environment, especially aquatic life, is non persistent and readily biodegradable. Provifrost<sup>®</sup> **KF ECO** has excellent de-icing and anti-icing characteristics and is active at low temperatures (-50°C). Provifrost<sup>®</sup> **KF ECO** is easy to apply with existing equipment. Provifrost<sup>®</sup> **KF ECO** meets FAA approved specifications and is safe for runways, taxiways and aprons. Provifrost<sup>®</sup> **KF ECO** passes all material compatibility tests according to AMS 1435.



Provifrost® KF ECO specifications		
	Value	Unit
Density at 20°C	1,32 – 1,36	g/cm³
Assay	Min 50	%
pH	11 ± 0,5	
Freezing Point	Less than -50	°C
Miscibility with water	Complete	

## Storage and Handling

Provifrost® KF ECO is delivered ready to use. It should not be diluted nor further concentrated. Provifrost® KF ECO is available in bulk and in 1000 liter IBC's. Provifrost® KF ECO is compatible with most of the materials used at airports, in aircraft construction, and relating to storage and applying equipment such as aluminium alloy, magnesium alloy, titanium alloy and carbon steel.

It is strongly recommended to rinse the equipment after each application with lukewarm water. Do not use product in combination with zinc containing materials such as zinc-coated or galvanised steel.

## Environmental and toxicology information

Tests have been performed according to the latest version of the AMS1435 standard by Scientific Material International (SMI).

	Value	Unit
BOD <sub>5</sub>	0,079	kg O <sub>2</sub> /L Fluid
COD	0,101	kg O <sub>2</sub> /kg Fluid
Acute Toxicity to Daphnia Magna – 48h/LC50	>1000	mg/L
Acute Toxicity to Fish – 96h/LC50	>500	mg/L

## Application

Provifrost® KF ECO can be used as both anti-icer and de-icer. Suggested application rates can be found in the below table. One must however consider factors like surface material, surface structure ambient temperature and weather conditions when applying the product.

Careful monitoring of the weather conditions as well as consulting records of past events will provide you with a lead on upcoming bad weather and guide you in preventive application of the product.

## Anti-icing

In the event of announced freezing rain or (light) snow, a preventive treatment of runways, taxiways and aprons is recommended.

Smoothly spray, atomize the product. A film is then formed on the surface to prevent ice, snow and freezing rain bonding to the surface.

## De-icing

Our advice is to treat the surface mechanically before applying the Provifrost® KF ECO. This will reduce the amount of liquid used, resulting in reducing the environmental impact as well as reducing the costs. Re-apply when new accumulation shows first tendency to bond. In the case of a thick ice-layer (> 3 mm) we advise to use Provifrost® KF ECO in combination with a solid de-icer Cryotech NAAC® or Provifrost® NF.

The table below must be looked at as a guideline and not as a recommended dosage. Provifrost Industries will gladly further advise you on the use and application of this de-icer.

Pavement temperature (°C)	Dry Pavement Anti-Icing	Wet Pavement	Frost/Ice (Up to 1 mm)	Ice (1 to 2,5 mm)	Ice (> 2,5 mm)*	Freezing Rain** Active Wet Snow** Heavy snow pack
	g/m²	g/m²	g/m²	g/m²	g/m²	g/m²
0 to -5	15-25	20-35	25-50	30-50	45-65	45-65
-5 to -10	20-25	30-50	40-60	40-70	50-75	50-75
Lower than -10	25-30	40-50	40-60	50-75	50-150	50-100

\* To remove heavy ice, it is usually recommended to apply de-icer, allow it time to work (15-25 min.), then plow and broom to remove slush before it refreezes. If precipitation remains on the pavement surface, re-apply de-icer and repeat this process. Often a solid de-icer is recommended for thick ice to bore down through the ice and undercut from the pavement. A solid/liquid de-icer combination is especially effective.

\*\* Application rates are higher due to dilution during active precipitation.