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Provifrost® KA ECO

High performance liquid de-icer

Provifrost[®] KA ECO is an environmental friendly de-icing fluid for airport runways, taxiways and aprons. It is a 50% aqueous Potassium Acetate solution, by weight, plus corrosion inhibitors. Provifrost[®] KA 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[®] KA ECO has excellent de-icing and anti-icing characteristics and is active at low temperatures (-60°C).
Provifrost[®] KA ECO is easy to apply with existing equipment. Provifrost[®] KA ECO meets FAA approved specifications and is safe for runways, taxiways and aprons. Provifrost[®] KA ECO passes all material compatibility test according to AMS 1435.

| Provifrost® KA ECO specifications | | | | | |
|-----------------------------------|---------------|-------|--|--|--|
| | Value | Unit | | | |
| Density at 20°C | 1,25 - 1,30 | g/cm³ | | | |
| Assay | Min 50 | % | | | |
| рН | 11 ± 0.5 | | | | |
| Freezing Point | Less than -60 | °C | | | |
| Miscibility with water | Complete | | | | |

Storage and Handling

Provifrost[®] KA ECO is delivered ready to use. It should not be diluted nor further concentrated. **Provi**frost[®] KA ECO is available in bulk tankers and in 1000 liter IBC's. **Provi**frost[®] KA 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). The results show that **Provi**frost[®] KA ECO is not acute toxic to daphnia, algae and fish.

| | Value | Unit |
|---|--------|-------------------|
| BOD ₅ | 0,22 | kg O2/kg Fluid |
| COD | 0,33 | kg O2/kg Fluid |
| Acute Toxicity to Daphnia Magna – 48h/LC50 | > 1000 | mg/L (limit test) |
| Acute Toxicity to Fish – 96h/LC50 | > 500 | mg/L (limit test) |
| Algae Growth Inhibition – 72h/LC50 | > 500 | mg/L (limit test) |

Application

Provifrost[®] KA 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 **Provi**frost[®] KA 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 **Provi**frost[®] KA ECO in combination with a solid de-icer Cryotech NAAC[®] or **Provi**frost[®] NF.

The table below must be looked at as a guideline and not as a recommended dosage. Proviron 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) | lce (1 to 2,5 mm) | lce (> 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.