

Type IV aircraft de-icing fluid **SAFEWING® MP IV LAUNCH PLUS**



SAFEWING® MP IV LAUNCH PLUS

Clariant is the global leader in aircraft and runway de-icing products with over 40 years of experience. Our outstanding expertise in business relationships, product service, logistics and our world class research team make Clariant's Safewing®, Max Flight™, Octaflo™ and Safeway® products your preferred choice in the aviation business.

BENEFITS AT A GLANCE

- Extended holdover time at all weather conditions.
- Low viscosity profile minimizes air entrapment and gives enhanced fluid elimination during take-off.
- Low residue formulation maximizes fluid elimination and minimizes the formation of re-hydrated residues.
- Excellent shear stability enables compatibility with most spraying cars and spray nozzles.
- Low surfactant content gives low foaming during application resulting in easier handling.
- Fully biodegradable additive package, low surfactant content and triazole-free formulation gives superior environmental profile.

PRODUCT DESCRIPTION

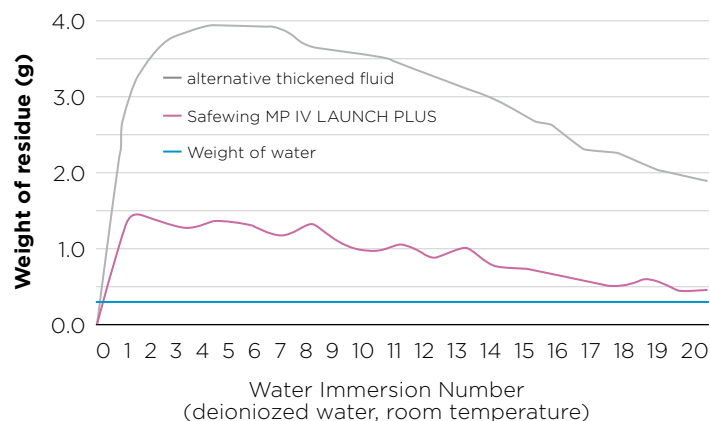
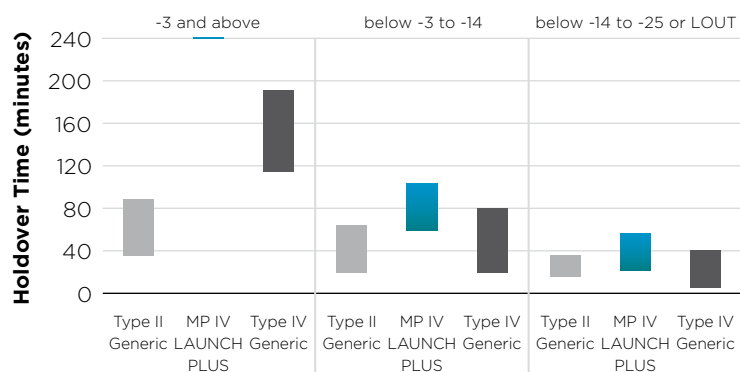
- Safewing® MP IV LAUNCH PLUS is your preferred choice for a modern de-/anti-icing fluid. Due to its outstanding shear stability and product properties this fluid is setting new standards among the aviation industry. This propylene glycol based fluid can be applied hot or cold, neat or diluted.
- Safewing® MP IV LAUNCH PLUS is designed to combine a low viscosity profile with an outstanding product performance.
- Safewing® MP IV LAUNCH PLUS is approved according to AMS 1428.

PERFORMANCE

Holdover time: Safewing® MP IV LAUNCH PLUS was designed to compete among the strongest fluids of its class. Outstanding holdover times offer an extra safety margin and operational flexibility during winter operations.

Residues: Safewing® MP IV LAUNCH PLUS not only belongs to the most shear stable fluids of its class, but additionally produces a minimum amount of re-hydrated residues.

**Holdover Times "Freezing Fog" for 100/0
FAA Holdover Time Guidelines 2013/2014**



SAFEWING® MP IV LAUNCH PLUS



ENVIRONMENT

The fluid contains a minimum amount of surfactant and a fully biodegradable, triazole-free corrosion inhibitor package. This gives Safewing® MP IV LAUNCH PLUS a leading environmental profile.

Aquatic toxicity

LC₅₀	(Rainbow trout, 96 h OECD 203)	2.4 g/L
EC₅₀	(Ceriodaphnia spec., 48 h OECD 202)	0.5 g/L
EC₅₀	(Bacteria, 30 min DIN EN ISO 11348-2)	5.2 g/L

HANDLING

Thickened fluids are heat-sensitive. It is recommended to restrict the temperature of standby storage heaters to +60 °C. Special care has to be taken not to cause fluid damage due to local overheating by use of high capacity heating elements. Furthermore, exposure to UV light has to be avoided.

Can be applied with all common displacement pumps due to the excellent shear stability.

CERTIFICATION AND APPROVALS

Safewing® MP IV LAUNCH PLUS meets or exceeds current revision of SAE specifications AMS 1428.

PRODUCT PROPERTIES

Chemical Composition	50% aqueous propylene glycol solution with corrosion inhibitors
Appearance	green liquid
Refractive Index (20 °C)	1.390 - 1.393
pH (as is)	7.0 - 7.5
Density (20 °C)	approx. 1.04 g/cm ³
Freezing Point (diluted 1 : 1 with water)	< -33 °C -- 39 °C
Dynamic Viscosity (0.3 rpm, 20 °C)	12,000 - 20,000 mPa·s
Surface Tension	24 - 30 dynes/cm
COD	0.85 kg O ₂ /kg
BOD ₅	0.34 kg O ₂ /kg

IN SERVICE LIMITS

pH	7.0 - 7.5
Neat fluid	7.0 - 7.5
Dilutions	6.5 - 7.5
Minimum On-Wing Viscosities (LV 1, 0.3 rpm, 20 °C)	
Neat fluid	8,700 mPa·s
Diluted 75:25 with water	18,800 mPa·s
Diluted 50:50 with water	9,700 mPa·s
Maximum On-Wing Viscosities (LV 2, 0.3 rpm, 20 °C)	
Neat fluid	23,200 mPa·s
Diluted 75:25 with water	43,200 mPa·s
Diluted 50:50 with water	63,600 mPa·s
LOUT	
Neat fluid	-29 °C
Diluted 75:25 with water	-14 °C
Diluted 50:50 with water	-3 °C

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