

# Type II aircraft de-icing fluid **SAFEWING<sup>®</sup> MP II FLIGHT**

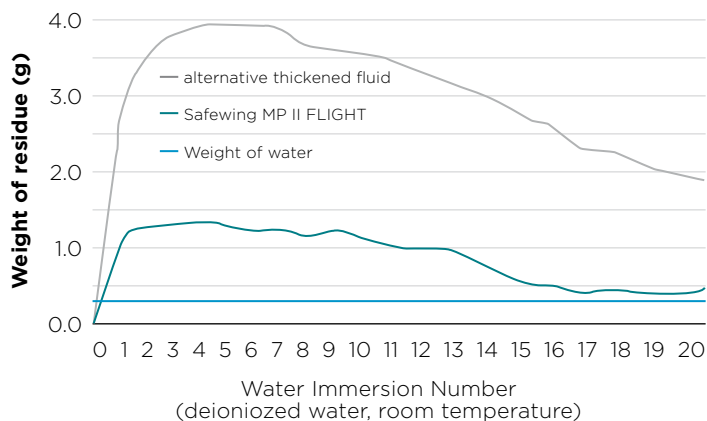


# SAFEWING® MP II FLIGHT

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

- Excellent spraying and handling behaviour due to an optimum viscosity profile and extremely low shear degradation (compatibility with most spray equipment).
- Applicable hot or cold, neat or diluted.
- Fully biodegradable additive package, low surfactant content and triazole-free formulation gives superior environmental profile.
- Extended Holdover Time which exceeds generic type II and generic type IV tables.
- Low residue formulation maximizes fluid elimination and minimizes the formation of rehydrated residues.
- Long term in field experience at many airports around the world.



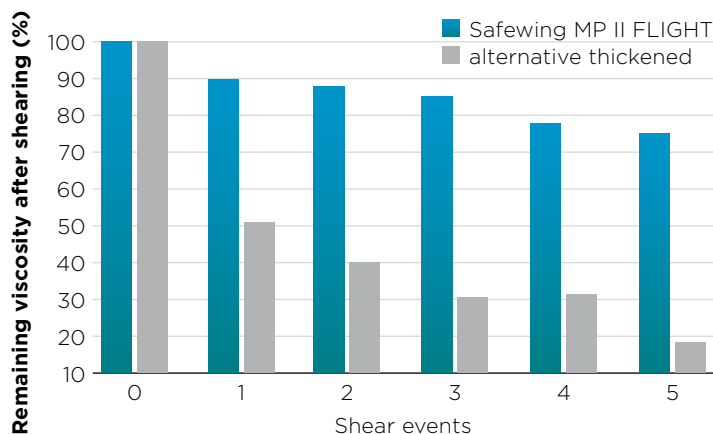
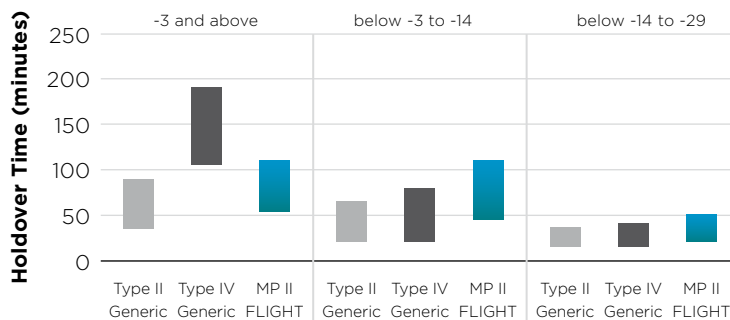
## PRODUCT DESCRIPTION

- Safewing® MP II FLIGHT is a modern propylene based type II de-/anti-icing fluid.
- Safewing® MP II FLIGHT meets and exceeds all requirements of the latest revision AMS 1428.

## PERFORMANCE

Safewing® MP II FLIGHT gives operators the benefit of easy handling with high endurance and safety margin when working with generic or brandspecific holdover time tables. It exceeds generic type II and even generic type IV tables.

Holdover Times Freezing Fog 100/0  
FAA Holdover Time Guidelines Winter 2012-2013



## ENVIRONMENT

Safewing® MP II FLIGHT contains a low amount of surfactant and a fully biodegradable, triazole-free corrosion inhibitor package leading to a superior environmental profile.

Aquatic toxicity		
LC <sub>50</sub>	(Rainbow trout, 96 h OECD 203)	2.4 g/L
EC <sub>50</sub>	(Daphnia magna, 48 h, OECD 202)	1.0 g/L
EC <sub>50</sub>	(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 Safewing® MP II FLIGHT to temperatures up 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.

# SAFEWING® MP II FLIGHT



## CERTIFICATION AND APPROVALS

Safewing® MP II FLIGHT is certified according to the latest revision of AMS 1428. Among the international standard, Safewing® MP II FLIGHT is certified and approved by many airlines around the world.

## PRODUCT PROPERTIES

Chemical Composition	50% aqueous propylene glycol solution with corrosion inhibitors
Appearance	yellow liquid
Refractive Index (20 °C)	1.389 - 1.392
pH (as is)	7.0 - 7.5
Density (20 °C)	approx. 1.04 g/cm <sup>3</sup>
Freezing Point (diluted 1 : 1 with water)	< -10 °C
Brookfield Viscosity (0.3 rpm, 20 °C)	6,000 - 14,000 mPa·s
Surface Tension	29.6 dynes/cm
COD	0.83 kg O <sub>2</sub> /kg
BOD <sub>5</sub>	0.28 kg O <sub>2</sub> /kg

## IN SERVICE LIMITS

pH	7.0 - 7.5
Neat fluid	7.0 - 7.5
Dilutions	6.5 - 7.5
<b>Minimum On-Wing Viscosities (LV 1, 0.3 rpm, 20 °C)</b>	
Neat fluid	3,340 mPa·s
Diluted 75:25 with water	13,000 mPa·s
Diluted 50:50 with water	10,500 mPa·s
<b>Maximum On-Wing Viscosities (LV 2, 0.3 rpm, 20 °C)</b>	
Neat fluid	20,500 mPa·s
Diluted 75:25 with water	47,800 mPa·s
Diluted 50:50 with water	63,000 mPa·s
<b>LOUT</b>	
Neat fluid	-29 °C
Diluted 75:25 with water	-14 °C
Diluted 50:50 with water	-3 °C

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