

Product Sheet

AIRCRAFT DE-ICER

CLARIANT^E

SAFEWING®
MP I LFD 80



Product Description

Safewing® MP I LFD 80 is a modern propylene glycol based SAE type I aircraft deicing fluid, designed to meet all individual environmental demands. Safewing® MP I LFD 80 is an AMS 1424/1 fluid.

Benefits

- Safewing® MP I LFD 80 is approved according to the latest revision of SAE AMS 1424 (and AMS 1424/1 in particular).
- Safewing® MP I LFD 80 is a low foaming fluid which entirely covers the aircraft surfaces.
- Excellent wetting properties avoid premature re-icing of already treated surfaces.
- Low foaming after application ensures easy identification of any remaining frozen deposits.
- Improved inhibitor package allows the preparation of fluid dilutions with water qualities of different hardness.
- Fully biodegradable additive package, low surfactant content and triazole-free formulation gives superior environmental profile.
- Can be stored under proper conditions for minimum 3 years with possible extension.
- Can be used at temperatures (LOUT) down to -33 °C (-27 °F)
- Excellent availability throughout the world.
- Long term in field experience at many airports.

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Technical Data - Product Properties

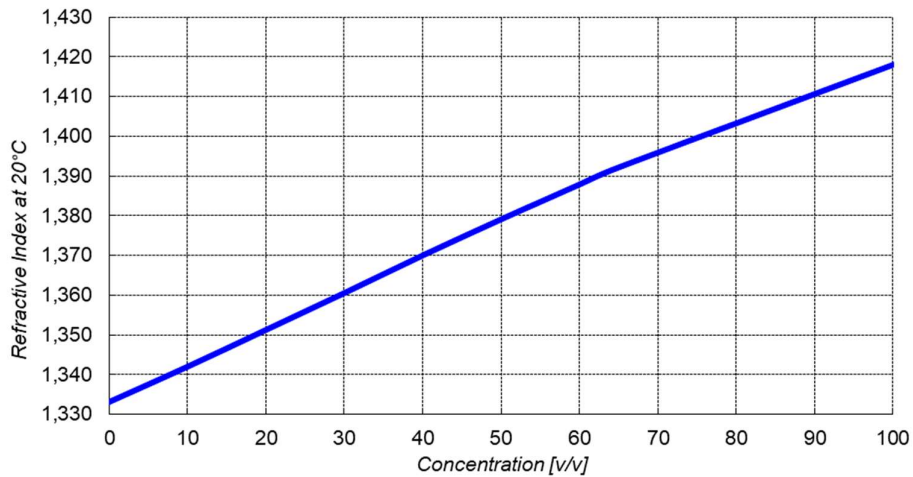
ITEMS	VALUE	REFERENCE METHOD
Appearance	orange liquid	visual
Density (20 °C)	approx. 1.04 g/cm ³	DIN 51757
Refractive Index (20 °C)	1.418 – 1.420	ASTM D 1747
Content Water	18 – 20 %	ASTM E 203
Content Propylene Glycol	≥ 80 %	GC
pH Value (20 °C)	7.0 – 8.0	ASTM E 70
Freezing Point (diluted 50/50 with water)	< - 20 °C	ASTM D 1177
Kinematic Viscosity (20 °C)	18 - 22 mm ² /s	ASTM D 445
Flash Point	> 100 °C	ASTM D 93
Boiling Point (1013 hPa)	119 °C	ASTM D 1120
Water Spray Endurance Time	> 3 min	AMS 1424
High Humidity Endurance Time	> 20 min	AMS 1424
Chemical Oxygen Demand (COD)	1.27 kg O ₂ /kg	APHA; Annex A
Biological Oxygen Demand (BOD, 5 d, 20 °C)	0.45 kg O ₂ /kg	APHA; Annex A
Daphnia Acute Toxicity Test (LC₅₀, 48 h, Daphnia magna)	16,125 mg/L	SMI EPA 40 CFR 797.1300
Fish Acute Toxicity Test (LC₅₀, 96 h, pimephales promelas)	8,250 mg/L	SMI EPA 40 CFR 797.1400
Water Hazard Classification (WGK)	1	
Trace Contaminants		
Sulfur	6 ppm	AMS 1424
Halogens	< 10 ppm	AMS 1424
Phosphorus	< 1 ppm	AMS 1424
Nitrate	< 2 ppm	AMS 1424
Heavy Metals	< 1 ppm	AMS 1424
Low Embrittling Cd Corrosion	conforms	ASTM F 1111
Sandwich Corrosion	conforms	ASTM F 1110
Hydrogen Embrittlement	conforms	ASTM F 519
Effect on Transparent Plastics	conforms	ASTM F 484
Total Immersion Corrosion	conforms	ASTM F 483
Stress Corrosion	conforms	ASTM F 945
Effect on Painted Surfaces	conforms	ASTM F 502
Effect on Unpainted Surfaces	conforms	ASTM F 485
Runway Concrete Scaling Resistance	conforms	ASTM C 672

„In Service“ Properties

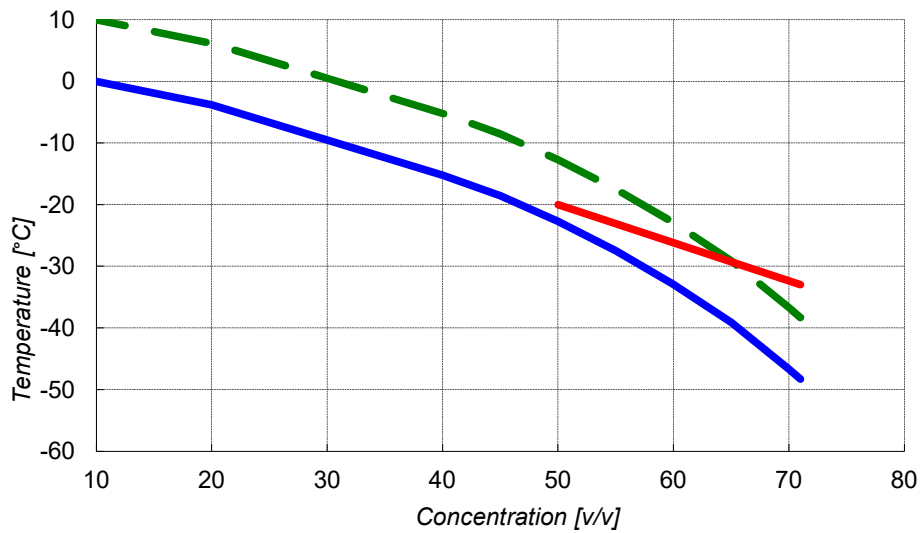
pH value undiluted (20 °C / 68 °F): 7.0 – 8.0

pH value in dilutions (20 °C / 68 °F): 5.5 – 8.0

Refractive Index (20 °C / 68 °F): 1.416 – 1.420



LOUT (Lowest Operational Use Temperature):



Freezing Point Curve



+10 °C Buffer Line



Aerodynamic
Acceptance Line



„In Service“ Properties:

REFRACTIVE FREEZING				REFRACTIVE FREEZING			
DILUTION	INDEX*	POINT	LOUT	DILUTION	INDEX*	POINT	LOUT
[1]	[2]	[3]	[4]	[1]	[2]	[3]	[4]
100/0	Must not be used !			36/64	1,366	-13	-3
71/29	1,397	-48	-33	35/65	1,365	-12	-2
70/30	1,396	-47	-33	34/66	1,364	-12	-2
69/31	1,395	-45	-33	33/67	1,363	-11	-1
68/32	1,395	-44	-33	32/68	1,362	-11	-1
67/33	1,394	-42	-32	31/69	1,362	-10	±0
66/34	1,393	-41	-31	30/70	1,361	-10	±0
65/35	1,392	-39	-29	29/71	1,360	-9	+1
64/36	1,391	-38	-28	28/72	1,359	-8	+2
63/37	1,391	-37	-27	27/73	1,358	-8	+2
62/38	1,390	-35	-25	26/74	1,357	-8	+2
61/39	1,389	-34	-24	25/75	1,356	-7	+3
60/40	1,388	-33	-23	24/76	1,355	-7	+3
59/41	1,387	-32	-22	23/77	1,354	-6	+4
58/42	1,386	-31	-21	22/78	1,353	-6	+4
57/43	1,385	-30	-20	21/79	1,352	-5	+5
56/44	1,384	-29	-19	20/80	1,351	-5	+5
55/45	1,384	-28	-18	19/81	1,350	-5	+5
54/46	1,383	-27	-17	18/82	1,349	-4	+6
53/47	1,382	-26	-16	17/83	1,348	-4	+6
52/48	1,381	-25	-15	16/84	1,348	-4	+6
51/49	1,380	-24	-14	15/85	1,347	-3	+7
50/50	1,379	-23	-13	14/86	1,346	-3	+7
49/51	1,378	-22	-12	13/87	1,345	-3	+7
48/52	1,377	-21	-11	12/88	1,344	-3	+7
47/53	1,376	-20	-10	11/89	1,343	-3	+7
46/54	1,376	-19	-9	10/90	1,342	-2	+8
45/55	1,375	-19	-9	9/91	1,341	-2	+8
44/56	1,374	-18	-8	8/92	1,340	-2	+8
43/57	1,373	-17	-7	7/93	1,339	-2	+8
42/58	1,372	-17	-7	6/94	1,338	-1	+9
41/59	1,371	-16	-6	5/95	1,337	-1	+9
40/60	1,370	-15	-5	4/96	1,337	-1	+9
39/61	1,369	-15	-5	3/97	1,336	-1	+9
38/62	1,368	-14	-4	2/98	1,335	±0	+10
37/63	1,367	-13	-3	1/99	1,334	±0	+10

[1] Dilution Safewing® MP I LFD 80 with water (v/v-%).

[2] According to ASTM D 1747 at 20 °C.

[3] According to ASTM D 1177 (in °C).

[4] Ambient temperature limit or LOU according to AMS 1424, Paragraph 1.2.2.1 (in °C) (LOU's listed are for large transport type jet aircrafts).

[*] The Refractive Index values refer to the minimum. However, Refractive Index values must not exceed 1.397.

Important Note:

Minimum allowed RI for corresponding dilution to meet LOU requirements.
Any dilution higher can be used up to the highest allowed dilution (71/29).
Any mixture above 71/29 must not be used.

Water Quality:

Tap water may or may not be applicable for diluting Safewing® MP I LFD 80.
This decision belongs to the end-user. Water can be checked by Clariant at any time to assist you in this process.

Storage Requirements:

- Safewing® MP I LFD 80 can be stored in a variety of containers, ranging from mild steel tanks to plastic totes (high-density). Please keep the fluid tightly closed and store it under proper conditions. For further storage information please refer to the Material Safety Data Sheet of Safewing® MP I LFD 80 and to our Best Practice Guide (available via your local Sales Representative). It is recommended to examine storage and vehicle tanks annually to check if corrosion or contamination has occurred.
- Safewing® MP I LFD 80 consists mainly of glycol and therefore is sensitive to over-heating. Do not store the fluid at temperatures higher than 90 °C for a long time to prevent decomposition of glycol. Safewing® MP I LFD 80 can be stored at low temperatures. The lowest recommended storage temperature is – 40 °C.
- Safewing® MP I LFD 80 shows Newtonian behavior and can be transferred and pumped with any common commercially available pumps.
- Please take care to use only homogenous Safewing® MP I LFD 80 material for application.

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