

Fluido Anti hielo CLARIANT Safewing MP I & IV LAUNCH

Destinatarios:	Comandantes, Copilotos y CCO
Fecha de Efectividad:	23-NOV-2022
Anula y reemplaza a:	CITO 261 de fecha 15-JUN-2022
Motivo de la revisión:	Se actualizan tablas de HOT SAE Tipo I CLARIANT Safewing MP I y SAE Tipo IV CLARIANT Safewing MP IV para superficies críticas de la aeronave.

Acorde a lo expresado en MO-A apartado 8.2.4.6.3 a partir del año 2015 Aerolíneas Argentinas utilizará dos tipos de fluidos:

SAE TIPO I CLARIANT Safewing MP I 1938 ECO (80) Color ROJO, para procesos de deshielo.

SAE TIPO IV CLARIANT Safewing MP IV LAUNCH Color VERDE, para procesos de Anti hielo.

Según lo publicado por la FAA "FAA Official Holdover Time Guidelines", a continuación, se detallan las tablas para el cálculo de **Snowfall Intensities as a Function of Prevailing Visibility** y **Holdover Times** según el procedimiento que corresponda:

INTENSIDAD DE LA NEVADA:

TABLE 53: SNOWFALL INTENSITIES AS A FUNCTION OF PREVAILING VISIBILITY.
(A330/B737NGMAX/E190)

PROCEDIMIENTO DE ANTI-HIELO:

TABLE 35: TYPE IV HOLDOVER TIMES FOR CLARIANT SAFEWING MP IV LAUNCH.
(A330/B737NGMAX/E190)

PROCEDIMIENTO DE DES-HIELO:

TABLE 1: ACTIVE FROST HOLDOVER TIMES FOR SAE TYPE I, SAE TYPE II, SAE TYPE III AND SAE TYPE IV FLUIDS (A330/B737NGMAX/E190).

TABLE 2: HOLDOVER TIMES FOR SAE TYPE I FLUID ON CRITICAL AIRCRAFT SURFACES COMPOSED PREDOMINANTLY OF ALUMINUM (A330/B737NGMAX).

TABLE 3: HOLDOVER TIMES FOR SAE TYPE I FLUID ON CRITICAL AIRCRAFT SURFACES COMPOSED PREDOMINANTLY OF COMPOSITES (E190).

Elaboró:
Gerencia DYNO

Revisó:
Jefatura A330/ Jefatura B737/
Jefatura E190

Aprobó:
Gerente de Operaciones AR

TABLE 53: SNOWFALL INTENSITIES AS A FUNCTION OF PREVAILING VISIBILITY

Visibility		Day		Night	
Statute Miles	Meters	-1°C and below 30 °F and below	Above -1°C Above 30 °F	-1°C and Below 30 °F and below	Above -1°C Above 30 °F
≤1/4 (≤3/8)	≤400 (≤600)	Heavy	Heavy	Heavy	Heavy
1/2 (>3/8 to ≤5/8)	800 (>600 to ≤1000)	Moderate	Heavy	Heavy	Heavy
3/4 (>5/8 to ≤7/8)	1200 (>1000 to ≤1400)	Moderate	Moderate	Moderate	Heavy
1 (>7/8 to ≤1 1/8)	1600 (>1400 to ≤1800)	Light	Light	Moderate	Moderate
1 ¼ (>1 1/8 to ≤1 3/8)	2000 (>1800 to ≤2200)	Light	Light	Moderate	Moderate
1 ½ (>1 3/8 to ≤1 5/8)	2400 (>2200 to ≤2600)	Light	Light	Moderate	Moderate
1 ¾ (>1 5/8 to ≤1 7/8)	2800 (>2600 to ≤3000)	Very Light	Light	Light	Light
2 (>1 7/8 to ≤2 ¼)	3200 (>3000 to ≤3600)	Very Light	Very Light	Light	Light
2 ½ (>2 ¼ to ≤2 ¾)	4000 (>3600 to ≤4400)	Very Light	Very Light	Very Light	Very Light
3 (>2 ¾ to ≤3 ¼)	4800 (>4400 to ≤5200)	Very Light	Very Light	Very Light	Very Light
≥3 ½ (≥3 ¼)	≥5600 (≥5200)	Very Light	Very Light	Very Light	Very Light

NOTES

- The METAR/SPECI reported visibility or flight crew observed visibility will be used with this visibility table to establish snowfall intensity for Type I, II, III and IV holdover time guidelines, during snow, snow grain, or snow pellet precipitation conditions. This visibility table will also be used when snow, snow grains, or snow pellets are accompanied by blowing or drifting snow, or when snow is mixed with ice crystals or freezing fog in the METAR/SPECI.
- The use of Runway Visual Range (RVR) is not permitted for determining visibility used with the holdover tables.
- Some METARs contain tower visibility as well as surface visibility. Whenever surface visibility is available from an official source, such as a METAR, in either the main body of the METAR or in the Remarks ("RMK") section, the preferred action is to use the surface visibility value.

Example for how to read and use the table: CYVO 160200Z 15011G17KT 1SM -SN DRSN OVC009 M06/M08 A2948

In the above METAR the snowfall intensity is reported as light. However, based upon the "Snowfall Intensities as a Function of Prevailing Visibility" table, with a visibility of 1 statute mile, at night and a temperature of -6°C, the snowfall intensity is classified as moderate. The snowfall intensity of moderate - not the METAR reported intensity of light - will be used to determine which holdover time guideline value is appropriate for the fluid in use.

TABLE 35: TYPE IV HOLDOVER TIMES FOR CLARIANT SAFEWING MP IV LAUNCH

Outside Air Temperature ¹	Fluid Concentration Fluid/Water By % Volume	Freezing Fog, Freezing Mist ² , or Ice Crystals ³	Very Light Snow, Snow Grains or Snow Pellets ^{4,5,6}	Light Snow, Snow Grains or Snow Pellets ^{4,5,6}	Moderate Snow, Snow Grains or Snow Pellets ^{4,6}	Freezing Drizzle ⁷	Light Freezing Rain	Rain on Cold-Soaked Wing ⁸	Other ⁹
-3 °C and above (27 °F and above)	100/0	4:00 - 4:00	2:50 - 3:00	1:45 - 2:50	1:05 - 1:45	1:30 - 2:00	1:00 - 1:40	0:15 - 1:40	CAUTION: No holdover time guidelines exist
	75/25	3:40 - 4:00	3:00 - 3:00	1:45 - 3:00	1:00 - 1:45	1:40 - 2:00	0:45 - 1:15	0:10 - 1:45	
	50/50	1:25 - 2:45	1:25 - 1:40	0:45 - 1:25	0:25 - 0:45	0:30 - 0:50	0:20 - 0:25		
below -3 to -8 °C (below 27 to 18 °F)	100/0	1:00 - 1:55	2:25 - 2:50	1:30 - 2:25	0:55 - 1:30	0:35 - 1:40	0:25 - 0:45		
	75/25	0:40 - 1:20	2:40 - 3:00	1:30 - 2:40	0:50 - 1:30	0:25 - 1:10	0:25 - 0:45		
below -8 to -14 °C (below 18 to 7 °F)	100/0	1:00 - 1:55	2:10 - 2:30	1:20 - 2:10	0:50 - 1:20	0:35 - 1:40 ¹⁰	0:25 - 0:45 ¹⁰		
	75/25	0:40 - 1:20	2:25 - 2:55	1:25 - 2:25	0:45 - 1:25	0:25 - 1:10 ¹⁰	0:25 - 0:45 ¹⁰		
below -14 to -18 °C (below 7 to 0 °F)	100/0	0:30 - 0:50	1:15 - 1:45	0:20 - 1:15	0:06 - 0:20				
below -18 to -25 °C (below 0 to -13 °F)	100/0	0:30 - 0:50	0:30 - 0:45	0:09 - 0:30	0:02 - 0:09				
below -25 to -28.5 °C (below -13 to -19 °F)	100/0	0:30 - 0:50	0:20 - 0:30	0:06 - 0:20	0:01 - 0:06				

NOTES

- Ensure that the lowest operational use temperature (LOUT) is respected. Consider use of Type I fluid when Type IV fluid cannot be used.
- Freezing mist is best confirmed by observation. It is never reported by METAR however it can occur when mist is present at 0 °C (32 °F) and below.
- Use freezing fog holdover times in conditions of ice crystals mixed with freezing fog or mist.
- To determine snowfall intensity, the Snowfall Intensities as a Function of Prevailing Visibility table (Table 53) is required.
- Use light freezing rain holdover times in conditions of very light or light snow mixed with light rain or drizzle.
- Use snow holdover times in conditions of very light, light, or moderate snow mixed with ice crystals.
- Includes light, moderate and heavy freezing drizzle. Use light freezing rain holdover times if positive identification of freezing drizzle is not possible.
- No holdover time guidelines exist for this condition for 0 °C (32 °F) and below.
- Heavy snow, ice pellets, moderate and heavy freezing rain, small hail and hail (Table 52 provides allowance times for Type IV PG fluids in ice pellets and small hail).
- No holdover time guidelines exist for this condition below -10 °C (14 °F).

CAUTIONS

- The cautions that apply to the holdover times in the table above can be found on page 32.

TABLE 1: ACTIVE FROST HOLDOVER TIMES FOR SAE TYPE I, TYPE II, TYPE III, AND TYPE IV FLUIDS

Outside Air Temperature ^{1,2,3}	Type I	Outside Air Temperature ^{2,3}	Concentration Fluid/Water By % Volume	Type II	Type III ⁴	Type IV
-1 °C and above (30 °F and above)	0:45 (0:35) ⁵	-1 °C and above (30 °F and above)	100/0	8:00	2:00	12:00
			75/25	5:00	1:00	5:00
			50/50	2:00	0:30	3:00
below -1 to -3 °C (below 30 to 27 °F)		below -1 to -3 °C (below 30 to 27 °F)	100/0	8:00	2:00	12:00
			75/25	5:00	1:00	5:00
			50/50	1:30	0:30	3:00
below -3 to -10 °C (below 27 to 14 °F)		below -3 to -10 °C (below 27 to 14 °F)	100/0	8:00	2:00	10:00
			75/25	4:00	1:00	5:00
below -10 to -14 °C (below 14 to 7 °F)		below -10 to -14 °C (below 14 to 7 °F)	100/0	6:00	2:00	6:00
			75/25	1:00	1:00	1:00
below -14 to -21 °C (below 7 to -6 °F)		below -14 to -21 °C (below 7 to -6 °F)	100/0	3:00	2:00	6:00
below -21 to -25 °C (below -6 to -13 °F)		below -21 to -25 °C (below -6 to -13 °F)	100/0	2:00	2:00	4:00
below -25 °C to LOUT (below -13 °F to LOUT)		below -25 °C (below -13 °F)	100/0	No Holdover Time Guidelines Exist		

NOTES

- 1 Type I Fluid / Water Mixture must be selected so that the freezing point of the mixture is at least 10 °C (18 °F) below outside air temperature.
- 2 Ensure that the lowest operational use temperature (LOUT) is respected.
- 3 Changes in outside air temperature (OAT) over the course of longer frost events can be significant; the appropriate holdover time to use is the one provided for the coldest OAT that has occurred in the time between the de/anti-icing fluid application and takeoff.
- 4 To use the Type III fluid frost holdover times, the fluid brand being used must be known. AllClear AeroClear MAX must be applied unheated.
- 5 Value in parentheses is for aircraft with critical surfaces that are predominantly or entirely constructed of composite materials.

CAUTIONS

- The cautions that apply to the holdover times in the table above can be found on page 8.

TABLE 2: HOLDOVER TIMES FOR SAE TYPE I FLUID ON CRITICAL AIRCRAFT SURFACES COMPOSED PREDOMINANTLY OF ALUMINUM

Outside Air Temperature ^{1,2}	Freezing Fog, Freezing Mist ³ , or Ice Crystals ⁴	Very Light Snow, Snow Grains or Snow Pellets ^{5,6,7}	Light Snow, Snow Grains or Snow Pellets ^{5,6,7}	Moderate Snow, Snow Grains or Snow Pellets ^{5,7}	Freezing Drizzle ⁸	Light Freezing Rain	Rain on Cold-Soaked Wing ⁹	Other ¹⁰
-3 °C and above (27 °F and above)	0:11 - 0:17	0:18 - 0:22	0:11 - 0:18	0:06 - 0:11	0:09 - 0:13	0:02 - 0:05	0:02 - 0:05	
below -3 to -6 °C (below 27 to 21 °F)	0:08 - 0:13	0:14 - 0:17	0:08 - 0:14	0:05 - 0:08	0:05 - 0:09	0:02 - 0:05	CAUTION: No holdover time guidelines exist	
below -6 to -10 °C (below 21 to 14 °F)	0:06 - 0:10	0:11 - 0:13	0:06 - 0:11	0:04 - 0:06	0:04 - 0:07	0:02 - 0:05		
below -10 °C (below 14 °F)	0:05 - 0:09	0:07 - 0:08	0:04 - 0:07	0:02 - 0:04				

NOTES

- 1 Type I fluid / water mixture must be selected so that the freezing point of the mixture is at least 10 °C (18 °F) below outside air temperature.
- 2 Ensure that the lowest operational use temperature (LOUT) is respected.
- 3 Freezing mist is best confirmed by observation. It is never reported by METAR however it can occur when mist is present at 0 °C (32 °F) and below.
- 4 Use freezing fog holdover times in conditions of ice crystals mixed with freezing fog or mist.
- 5 To determine snowfall intensity, the Snowfall Intensities as a Function of Prevailing Visibility table (Table 53) is required.
- 6 Use light freezing rain holdover times in conditions of very light or light snow mixed with light rain or drizzle.
- 7 Use snow holdover times in conditions of very light, light, or moderate snow mixed with ice crystals.
- 8 Includes light, moderate and heavy freezing drizzle. Use light freezing rain holdover times if positive identification of freezing drizzle is not possible.
- 9 No holdover time guidelines exist for this condition for 0 °C (32 °F) and below.
- 10 Heavy snow, ice pellets, moderate and heavy freezing rain, small hail and hail.

CAUTIONS

- The cautions that apply to the holdover times in the table above can be found on page 10.

**TABLE 3: HOLDOVER TIMES FOR SAE TYPE I FLUID ON CRITICAL AIRCRAFT SURFACES
COMPOSED PREDOMINANTLY OF COMPOSITES**

Outside Air Temperature ^{1,2}	Freezing Fog, Freezing Mist ³ , or Ice Crystals ⁴	Very Light Snow, Snow Grains or Snow Pellets ^{5,6,7}	Light Snow, Snow Grains or Snow Pellets ^{5,6,7}	Moderate Snow, Snow Grains or Snow Pellets ^{5,7}	Freezing Drizzle ⁸	Light Freezing Rain	Rain on Cold-Soaked Wing ⁹	Other ¹⁰
-3 °C and above (27 °F and above)	0:09 - 0:16	0:12 - 0:15	0:06 - 0:12	0:03 - 0:06	0:08 - 0:13	0:02 - 0:05	0:01 - 0:05	
below -3 to -6 °C (below 27 to 21 °F)	0:06 - 0:08	0:11 - 0:13	0:05 - 0:11	0:02 - 0:05	0:05 - 0:09	0:02 - 0:05	CAUTION: No holdover time guidelines exist	
below -6 to -10 °C (below 21 to 14 °F)	0:04 - 0:08	0:09 - 0:12	0:05 - 0:09	0:02 - 0:05	0:04 - 0:07	0:02 - 0:05		
below -10 °C (below 14 °F)	0:04 - 0:07	0:07 - 0:08	0:04 - 0:07	0:02 - 0:04				

NOTES

- 1 Type I fluid / water mixture must be selected so that the freezing point of the mixture is at least 10 °C (18 °F) below outside air temperature.
- 2 Ensure that the lowest operational use temperature (LOUT) is respected.
- 3 Freezing mist is best confirmed by observation. It is never reported by METAR however it can occur when mist is present at 0 °C (32 °F) and below.
- 4 Use freezing fog holdover times in conditions of ice crystals mixed with freezing fog or mist.
- 5 To determine snowfall intensity, the Snowfall Intensities as a Function of Prevailing Visibility table (Table 53) is required.
- 6 Use light freezing rain holdover times in conditions of very light or light snow mixed with light rain or drizzle.
- 7 Use snow holdover times in conditions of very light, light, or moderate snow mixed with ice crystals.
- 8 Includes light, moderate and heavy freezing drizzle. Use light freezing rain holdover times if positive identification of freezing drizzle is not possible.
- 9 No holdover time guidelines exist for this condition for 0 °C (32 °F) and below.
- 10 Heavy snow, ice pellets, moderate and heavy freezing rain, small hail and hail.

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