



Product Guide



AeroClear MAX

**SAE AMS 1428 Type III
Aircraft Anti-Icing Fluid**

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1. About AllClear Systems LLC

AllClear Systems LLC (hereinafter AllClear) is a dynamic, customer-focused company providing aviation de/anti-icing products to the commercial and military sectors of the aviation industry, with a service-delivery ethos that is second to none.

Headquartered near Philadelphia, Pennsylvania, AllClear has extensive regional product manufacturing and logistics capability across North America.

2. The Product

AllClear's AeroClear MAX is an Ethylene Glycol-based Type III anti-icing fluid containing water, corrosion inhibitors, wetting agents, thickening agents and a bright yellow dye. The fluid has been tested in accordance with Society of Automotive Engineers (SAE) Aerospace Material Specification (AMS) 1428, and has been fully qualified.

WARNING: AeroClear MAX is supplied to customers as a neat (100%), ready to use product. The fluid **SHALL NOT** be diluted before use.

The details contained within this Product Guide were based on information believed to be reliable at the time of publication and are intended to provide general guidance on this product and its usage. All references within this document to third-party information were correct at the time of this document's publication.

AllClear does not guarantee, expressly or implied, any specific properties of the product or the suitability of the product for a particular application. The user of the product must determine the product's suitability for the intended application and purpose. The user assumes all risk and liability in connection with the use of the product.

This Product Guide provides details and guidance information for the handling and use of AeroClear MAX. The user of AeroClear MAX shall ensure that the fluid is always employed in conjunction with the procedures and processes included in the latest version of SAE Aerospace Standard (AS) 6285 and all applicable service provider and/or air carrier de/anti-icing programs. The user of AeroClear MAX shall also ensure that only properly trained personnel are employed to receive, handle and apply AeroClear MAX to aircraft.

The user of AeroClear MAX shall include applicable information from this Product Guide within employee training programs, to ensure company personnel are knowledgeable of product properties, handling considerations, limitations and performance characteristics, at a minimum.

This Product Guide (Revision 4.0) is dated August 2019 and will remain in effect until a subsequent revision of the Product Guide is developed and made available on the www.allclearsys.com website. The user of the AeroClear MAX shall always ensure that the most recent version of the Product Guide is employed and that all previously issued Product Guides are destroyed.

The user of AeroClear MAX shall read this entire document and the associated Material Safety Data Sheet (MSDS) or Safety Data Sheet (SDS) before receiving, handling or using AeroClear MAX.


3. Delivery Options

AeroClear MAX fluid can be obtained from AllClear in the following delivery formats:

- Bulk (typical volume, but can vary by region):
 - Tanker truckload up to ~32,000 litres (~8,450 US gallons)
 - ISO tank ~22,700 litres (~6,000 US gallons)
 - Railcar ~70,000 litres (~18,500 US gallons)
- IBC/Totes – ~1,000 litres (~265 US gallons)
- Drums – ~208 litres (~55 US gallons)

4. Product Development Testing and Qualification

SAE AMS 1428 establishes the testing and performance requirements for all Type III anti-icing fluids used in aircraft ground de/anti-icing operations. AMS 1428 requires the conduct of extensive product testing, which measures the compatibility of materials used in aircraft construction with the fluid and establishes the compliance requirements for the physical properties of the fluid. In addition, AMS 1428 requires that anti-icing and aerodynamic

performance tests are performed and that minimum performance results are achieved. 

AeroClear MAX fluid has been fully tested by accredited independent laboratories and has been found to meet or exceed the requirements of SAE AMS 1428. A copy of the full Fluid Qualification Report for AeroClear MAX can be obtained directly from AllClear upon request.

AeroClear MAX is included on the Qualified Fluids List published by the Anti-Icing Materials International Laboratory (AMIL). The list can be found at the following location:

<https://amillaboratory.ca/aircraft-deanti-icing-fluids/qualified-fluids-lists/>

5. Regulatory Testing and Approval

Holdover Time is defined as the estimated time for which an anti-icing fluid will prevent the formation of frost or ice and the accumulation of snow on the treated surfaces of an aircraft.

AeroClear MAX fluid was rigorously tested in accordance with SAE Aerospace Recommended Practice (ARP) 5485 to determine the endurance times of the fluid when subjected to various winter weather conditions. This test program was completed by an accredited independent laboratory and was supported by Transport Canada (TC) and the Federal Aviation administration (FAA), resulting in the development of a fluid Holdover Time Table for AeroClear MAX that was published by each regulator in their respective annual Holdover Time Updates. AeroClear MAX has also been included on the TC and FAA lists of approved fluids.

The TC and FAA Holdover Time Updates, which include the lists of approved fluids and the fluid-specific Holdover Time Tables for AeroClear MAX for high-speed and low-speed aircraft, can be found at the following locations:

Transport Canada

www.tc.gc.ca/eng/civilaviation/standards/commerce-holdovertime-menu-1877.htm

Federal Aviation Administration

www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/deicing

The user of AeroClear MAX shall always ensure that the most current versions of the AeroClear MAX Holdover Time Tables are employed in operations, as these tables may change from year to year based on potential changes to test protocols, regulatory requirements or other considerations.

6. Operational Data Summary

AeroClear MAX		
Composition	Ethylene Glycol-based liquid	
Color	Bright yellow	
Dilution	<u>Must Not Be Diluted</u>	
Lowest Operational Use Temperature	<u>High Rotation Speed Take-off Aircraft</u>	<u>Low Rotation Speed Take-off Aircraft</u>
	-35°C (-31°F)	-16°C (3.2°F)
Product Freeze Point	Below -43°C (-45.4°F)	
Viscosity at 0 °C (32 °F)		
Production Range:	12,500 – 15,000 mPa.s	
Lowest On-Wing Viscosity:	7,800 mPa.s	
	Brookfield spindle SC4-31/13R. Small sample adapter, 9 mL, 0°C, 0.3 rpm, 65.0 minutes	
Application	Apply <u>unheated</u> , using only low shear nozzles and positive displacement or screw pumps. AllClear recommends that a schedule is established to conduct viscosity checks of sprayed fluid from each deicing unit.	

7. Lowest Operational Use Temperature

The Lowest Operational Use Temperature (LOUT) for a Type III fluid is defined as the higher (warmer) temperature of:

- The freezing point of the fluid plus the required freezing point buffer of 7°C (13°F); and ^[1]_{SEP}
- The lowest temperature at which the fluid meets the aerodynamic acceptance test (determined in accordance to SAE AS 5900) for a given type of aircraft rotation speed (high-speed or low-speed).

Based on the results of testing conducted with AeroClear MAX, the LOUT of AeroClear MAX fluid for high-speed aircraft has been determined to be -35°C (-31°F). The LOUT of AeroClear MAX for low-speed aircraft is -16°C (3.2°F).

The user of AeroClear MAX shall ensure that the LOUT is respected at all times and that AeroClear MAX is never applied to aircraft surfaces below this temperature.

8. Product Viscosity and Required Tests

AeroClear MAX fluid is a thickened fluid with relatively high viscosity designed to protect clean aircraft surfaces against the reformation of ice, frost and snow. The fluid is designed to remain on aircraft surfaces until the shear forces of the take-off roll are exerted upon the fluid. As such, the viscosity of the fluid plays a significant role in the overall performance of the fluid.

AllClear employs the following methodology for measuring and reporting the viscosities of AeroClear MAX fluid:

- Brookfield LVT Viscometer, DV-II or equivalent, equipped with a small sample adapter and Spindle SC4-31/13R;
- Bubbles are removed from the fluid sample with a centrifuge; ^[1]_{SEP}
- Temperature of the adapter is maintained at 0°C (32°F) using a constant temperature bath;
- 9 ml of centrifuged fluid is placed in the small sample adapter;

- The sample is allowed to cool to the desired test temperature of 0°C (32°F);
- The viscometer is started at a test speed of 0.3 RPM;
- The measurement (in millipascal-seconds or mPa.s) is recorded at precisely 65 minutes time.

The user of AeroClear MAX should perform periodic measurements of fluid viscosity to ensure the quality of AeroClear MAX used in operations, including pre-seasonal tests of fluid stored in tanks and vehicles.

9. Production Range Viscosity

The Production Range Viscosity for AeroClear MAX fluid has a lower limit of 12,500 mPa.s and an upper limit of 15,000 mPa.s. AeroClear MAX fluid received by the user shall always be within this defined range. More details on Product Delivery Acceptance will be provided in Section 12 of this Product Guide.

10. Lowest On-Wing Viscosity

The Lowest On-Wing Viscosity (LOWV) for AeroClear MAX is the lowest viscosity at which the fluid-specific holdover times for AeroClear MAX will apply. The LOWV for AeroClear MAX, which is identified in the TC and FAA Holdover Time guidance material, is 7,800 mPa.s, using AllClear's recommended fluid viscosity measurement methodology (identified in Section 8 of this Product Guide).

SAE AS 6285 and global air carrier de/anti-icing programs require that testing is performed on an annual basis to ensure that de/anti-icing vehicles used in operations do not shear Type III fluids below the LOWV. These tests are vital to ensure the performance of AeroClear MAX. The user of the fluid shall perform tests and collect samples according to procedures included in AS 6285 and/or the carrier programs. These samples shall then be tested for viscosity using AllClear's recommended viscosity measurement methodology. Alternatively, fluid samples may be collected and sent to AllClear for measurement.

Tests to determine compliance of fluid sprayed through de/anti-icing vehicles with the documented LOWV should be performed a minimum of one time annually prior to the onset of the season, but air carriers and other end users may also require additional testing at various points during the year or whenever equipment is repaired or new equipment is introduced. For more details on spray tests, consult the various air carrier programs or contact an AllClear representative for guidance.

11. Storage and Handling

It is very important that AeroClear MAX is stored and handled correctly to prevent degradation and the potential for performance reduction.

11.1 Product Safety

The user shall always consult the latest MSDS or SDS, as appropriate to local jurisdiction, before handling the AeroClear MAX product. All necessary steps to ensure that this product is used safely and in an environmentally responsible manner consistent with all applicable regulations shall be observed.

Regulations and use conditions are subject to change by government, state, provincial and local authorities. It is the user's responsibility to determine that the available information is appropriate and complete in order to comply with the applicable laws and regulations in force at the time and place of use.

The user should provide all applicable information to its employees, contractors, customers, or any other users of the product, and request that they do the same.

Areas sprayed with glycol-based products may become slippery. Caution shall be maintained while operating equipment or walking on areas exposed to these products. Even areas only affected by overspray or dripping should be treated with the same caution. Before you enter vehicles, aircraft or buildings, wipe your feet and be aware that vehicles, and even foot traffic, can cause other areas to become slippery. If vacuum trucks are available, they can remove excess accumulations on the ground. If further ground cleanup is required using solid or absorbent materials, ensure that it is quickly removed and disposed of in accordance with the regulations in force at your location.

11.2 Storage Vessels

AeroClear MAX should only be stored in vessels made from either stainless steel, or light colored opaque high-density polyethylene (dark colors can generate higher internal tank temperatures due to sunlight exposure). Other materials may be considered on a case-by-case basis, subject to receipt of written approval from AllClear.

All storage vessels (bulk, tote and drum) and associated pumps, piping and hoses should be kept in a well-maintained and clean condition.

When supplied in totes and drums, it is preferable for these storage units to be stored inside a dry building with all fill and drain ports protected against damage. They should be kept away from direct heat sources.

Totes should be shielded from sources of Ultraviolet (UV) light, which include fluorescent lights and sunlight. If this is not possible, storage units should be fully covered to prevent UV exposure. Failure to do so may result in the product dye color fading and possibly also cause a decrease in product viscosity.

AeroClear MAX is not corrosive and will not damage materials commonly used for storage tanks, pumps, fittings and transfer lines, as well as many gasket, seal and hose elastomers. Avoid using dissimilar metals in contact with each other as galvanic action can occur, which may degrade the fluid. Some, but not all, symptoms of galvanic action occurring may be indicated by the presence of gels or light residues.

11.3 Piping and Hoses

All piping and hoses should be dedicated solely for use with this product, clearly labeled, color-coded and well maintained. A minimum pipe or hose diameter of 8 centimeters (3 inches) is recommended.

It is recommended that fixed piping used for this product is made from stainless steel. The piping surfaces should be smooth, and sharp bends must be avoided. Again, be aware of the use of dissimilar metals and the potential for galvanic action to degrade the fluid.

Flexible hoses approved for use with either petroleum-based products or chemical solvents should be used. Hose fittings should be capped when not in use and stored off the ground to keep them free from contaminants.

11.4 Pumping and Handling

It is preferable for either Compressed Air or Gravity to be used to transfer AeroClear MAX. If this is not possible, then low-shear diaphragm or progressive cavity pumps must be used. Product circulation should be limited as extended use may cause degradation.

AeroClear MAX should not be filtered as an increase in shear potential may result in viscosity degradation.

11.5 Maintaining Product Integrity

All fluid storage vessels or deicing unit tanks should be clean, dry and stain free prior to initially filling with AeroClear MAX. **Do not** mix AeroClear MAX with any other product. **Do not dilute AeroClear MAX** before use. Tank access hatches and fill/dispense ports should be properly closed and sealed to prevent ingress of foreign matter.

Once AeroClear MAX has been loaded into a de/anti-icing vehicle or spray equipment, it must not be transferred back into a storage tank, tote, drum or similar vessel that contains fresh AeroClear MAX. This will prevent the possibility of contamination in the deicing application equipment from degrading the fresh product in the storage vessel.

AeroClear MAX must be stored unheated.

The dye in AeroClear MAX is designed to degrade upon exposure to UV light, causing the product color to gradually fade. This color loss is most noticeable in sight level tubes used on storage tanks or deicing trucks and these shouldn't be used as the sole means of determining the appearance of the fluid inside the tank. Exposure to UV light may also cause a decrease in product viscosity.

If the integrity of the product is in doubt, the user should contact AllClear for guidance.

11.6 Storage Stability

Provided that storage requirements are adhered to, under normal ambient conditions the shelf life of AeroClear MAX will exceed one year. It is recommended that, at a minimum, product samples are quality tested against AllClear specifications prior to use at the start of each deicing season. Each

company or customer may also specify that a more frequent schedule is adopted.



12. Product Delivery Acceptance

Prior to accepting delivery of AeroClear MAX, the user shall confirm that:

- All delivery vessel port caps are secured with identifiable tamper proof seals that match the delivery documentation;
- All delivery documentation/labeling refers to AeroClear MAX;
- The product complies with the test parameters described on the delivery Certificate of Analysis (C of A), in accordance with the product acceptance procedures employed by the user or specified by the air carriers. The following table summarizes the C of A acceptance criteria.

AeroClear MAX	
Base Composition	Ethylene Glycol

Appearance	Clear or slightly turbid bright yellow colored liquid, free from any visible impurities. Air bubbles may be present.
pH at 20°C	7.5 – 8.5
BRIX at 20°C	32.2 – 35.2
Refractive Index at 20°C	1.3852 to 1.3908
Viscosity at 0 °C Note: Delivery only.	12,500 – 15,000 mPa.s Brookfield spindle SC4-31/13R. Small sample adapter, 9 mL, 0°C, 0.3 rpm, 65.0 minutes
If any test results are out of range, <u>do not use</u>; contact AllClear immediately.	

12.1 Refractometers

While laboratories use specialized equipment and procedures to determine fluid refractive index, or degrees Brix, this is not necessarily practical for testing during winter operations on the airport. In the field, temperature-compensated, correctly calibrated, portable refractometers are more convenient for operational usage. Do not use hydrometers on AllClear products.

The user should contact AllClear for guidance on obtaining a suitable refractometer model for use with AllClear products.

The user should always comply with the refractometer manufacturer's requirements for the maintenance and calibration schedule of the selected refractometer, as well as its proper care and use.

13. Product Usage

13.1 Introduction

Aircraft manufacturers provide recommendations for the de/anti-icing their aircraft models in maintenance and operating manuals. Additionally, aviation regulators, such as TC and the FAA, require air operators to have a regulator approved Ground Icing Operations Program. Industry standards, material specifications and recommended practices published by SAE are employed generally as the basis for these programs, and should be adhered by the user of AeroClear MAX.

Environmental considerations may need to be adopted depending on Federal, State/Provincial and Local agency requirements at the airport location.

Consideration should be given to the suitability of the de/anti-icing location with respect to all applicable airport operational and environmental factors.

CAUTION: As with any aircraft deicing or anti-icing process, only personnel who have been properly trained in the use of AeroClear MAX fluid in accordance with the requirements of applicable approved Ground Icing Operations Program should be employed. Personnel should also be kept up to date on revised AeroClear MAX technical material as provided from time to time by AllClear.

13.2 Product Strength

AeroClear MAX must only be used in an undiluted state. This is defined as the fluid being in a "Neat" condition (undiluted as shipped by the fluid manufacturer). Dilution is not permitted as the fluid protection time performance has been determined based upon independent testing of the "Neat" fluid. Holdover times do not exist for dilutions of this product.

When reporting the fluid strength to aircraft flight crews as part of the communication of the anti-icing code, this could be stated as "AllClear Systems, AeroClear MAX Type III, 100%". The user should always follow accepted or customer communication requirements at all times.

13.3 Precautions

- a) AeroClear MAX is only to be applied unheated and is recommended for application on aircraft exterior surfaces only.
- b) Prior to any individual piece of deicing equipment being filled with AeroClear MAX for the first time, and prior to it being used to anti-ice an aircraft, the user should ensure:
 - i. That the anti-icing fluid storage tank, associated pump(s), valves, pipes, hoses and nozzles have been thoroughly cleaned to remove all traces of prior products or foreign contaminants. Once filled, operate the fluid spray system until a steady stream of clean AeroClear MAX is viewed at the nozzle;
 - ii. That all local safety and environmental regulations in effect for test spraying an Ethylene Glycol based product shall be complied with; and
 - iii. That fluid samples from the spray nozzle are collected and returned to AllClear for verification of fluid viscosity with the AeroClear MAX specification.
- c) Following any subsequent major deicing equipment pumping and spraying system maintenance, and prior to the equipment being used to anti-ice an aircraft, ensure that in addition to a system cleanliness check, fluid samples are taken from the spray nozzle and returned to AllClear for verification of fluid viscosity with the AeroClear MAX specification.
- d) AeroClear MAX should not be used on:
 - Helicopters (unless approved by the helicopter manufacturer);
 - Areas designated by the aircraft manufacturer as no-spray zones. The user of AeroClear MAX should refer to air carrier programs or SAE 6286 for more details on aircraft diagrams and no-spray zones. Common examples have historically been, but are not limited to, cockpit windows, aircraft brakes, engine/auxiliary power unit inlets and exhausts, passenger or cargo door gaps, systems inlets or vents, instrument sensors etc.;
 - Runways;
 - Pavement;

- Roadways;
 - Sidewalks;
 - Vehicles; or
 - Ground Support Equipment.
- e) AeroClear MAX should not be used as antifreeze for:
- Vehicles;
 - Ground Support Equipment;
 - Sanitary Water Facilities; or
 - Aircraft or Portable Lavatories.
- f) AeroClear MAX should not be applied using forced air application systems. Some de/anti-icing vehicles have forced air application systems that are designed to reduce the amount of fluid required for deicing operations. These trucks may either inject the fluid into the airstream, or on top of it. Applying anti-icing fluids using forced air assistance can seriously degrade the viscosity of the product to the point that it may not conform to its original qualification parameters. Forced air application may also result in a thinner or uneven coating of fluid on the wing. Additionally, holdover times have not yet been established for AeroClear MAX applied with forced air assistance equipment.
- g) Some aircraft operators may allow the application of anti-icing fluid to uncontaminated aircraft surfaces if freezing precipitation is not present, but is expected to start prior to the scheduled departure time. This preventative practice can minimize the possibility of snow and ice bonding, or reduce the accumulation of frozen precipitation on aircraft surfaces making subsequent deicing easier, although it does increase the potential of building up dried product residues.

If this preventative practice is allowed by the air operator's approved Ground Icing Operations Program, care should be taken to ensure that any applicable holdover times are not exceeded. In the event that the expected holdover time will be exceeded, the aircraft should be thoroughly deiced before flight using heated Type I and then anti-iced as appropriate for the conditions.

Low Rotation Speed Certified Aircraft Only

If this preventative practice is used then the user must remove any remaining AeroClear MAX from the applicable aircraft surfaces using heated Type I deicer if the following conditions are both present:

- Freezing precipitation does not occur before the aircraft's departure time, **and**
- If the elapsed time between the initial AeroClear MAX application and the aircraft's departure is greater than the maximum holdover time shown on the holdover tables regardless of condition.

Note: The maximum time allowed, for this low rotation speed aircraft preventative practice, will probably be as shown on the Active Frost Holdover table for AeroClear MAX at 100% concentration.

13.4 Application Guidance

The following guidance is provided for general information purposes only. The user is responsible for employing correct application procedures compliant with SAE standards, regulatory requirements, airframe manufacturer requirements and customer de/anti-icing program requirements.

AeroClear MAX Type III anti-icing fluid has been designed for use as either:

1. The second step of a two-step de/anti-icing process following correct application of AllClear Lift-Off Type I deicing fluid heated to 60°C to 82°C (140°F to 180°F).
 - **CAUTION:** The use of AeroClear MAX with other SAE AMS1424 Type I deicers must be discussed with AllClear prior to use.
2. A standalone anti-icing fluid applied on a clean aircraft.

AeroClear MAX should be:

- Applied unheated, using only low shear nozzles and positive displacement or screw pumps;
- Applied only after a check to confirm that the applicable aircraft surfaces are clean in accordance with all applicable programs, regulations and procedures;

- Applied in sufficient quantity to ensure a stabilized thickness of fluid of 1 to 3 millimeters on aircraft surfaces. For more information on suggested spray quantities for various aircraft types, the user of AeroClear MAX should consult the air carrier programs or SAE AS 6286.

General AeroClear MAX Application Tips:

Using a low-shear pumping system and nozzle, AeroClear MAX should be applied with a reduced flow rate and a fan spray setting to lay an even coating over the surface being treated. High fluid pressures and flow rates can be detrimental to this product reducing fluid viscosity and resulting in reduced fluid holdover performance.



Proper and uniform coverage should be ensured by applying a sufficient quantity to completely remove any remaining Type I fluid. Aircraft surfaces should be coated to a depth of 1 to 3 millimeters. Insufficient application will result in a thin layer and reduced holdover protection.

AeroClear MAX will quickly provide even and effective coverage.

After spraying an area, the user should take a moment to see how the fluid is flowing to provide the required coverage. AeroClear MAX's flow properties may differ from those of previous fluids employed by the user as it is designed to shear off the surfaces of low rotation speed aircraft. SAE Type II and Type IV fluids typically do not comply with the qualification requirements for use on low rotation speed aircraft.

Two-Step De/Anti-Icing Operations

This process is generally used when frozen deposits are required to be removed from the aircraft and active freezing precipitation is either occurring or is expected before take-off of the aircraft.

- First step: AllClear Lift-Off Type I deicing fluid shall be used to clean the aircraft surfaces in accordance with the procedural and inspection requirements of the approved Ground Icing Operations Program in effect for the aircraft. The Type I fluid should be heated to 60°C to 82°C.
- Second step: After the Type I application has been satisfactorily completed and the required aircraft surfaces are clean, AeroClear MAX should be applied to the clean surfaces typically within 3 minutes of the Type I application and prior to the onset of any refreezing of the Type I fluid. Unheated, undiluted AeroClear MAX anti-icing fluid should be applied in sufficient quantity to the required aircraft surfaces to adequately displace any Type I used in the first step and also to form a layer of suitable thickness to provide adequate protection.

One-Step Anti-Icing Operations

While not a common practice, this process is sometimes used as a preventative measure on clean aircraft surfaces prior to the start of active precipitation. Examples of using this practice might be, but are not limited to, when frost or freezing precipitation is expected to start or when fluid is applied to clean aircraft surfaces in a hangar.

CAUTION: Do not use AeroClear MAX on an aircraft that still has contamination present on its surfaces.

CAUTION: In one-step anti-icing operations, the holdover time of AeroClear MAX EG always starts upon first application of the anti-icing fluid, even when

active precipitation has yet to start. The anti-icing fluid should be removed with heated Type I prior to the next take-off if either:

- The applicable holdover time has expired; or
- The required inspection of pre-treated aircraft surfaces identifies contamination prior to the departure of the aircraft.

CAUTION: In the event that AeroClear MAX is applied in the hangar to clean aircraft surfaces and the fluid holdover time is exceeded, the failed fluid needs to be removed from the aircraft using an acceptable process or heated Type I fluid (if available) and the one-step anti-icing process needs to be repeated, if required.

Monitoring Fluid Effectiveness

AeroClear MAX is designed to absorb and melt precipitation in order to prevent recontamination occurring on aircraft surfaces for a period of time known as holdover time. As with any SAE deicing or anti-icing fluid, continued exposure to precipitation after application will dilute the fluid and will eventually cause the fluid to lose its effectiveness in preventing frozen contamination from reforming.

It is important that both Flight and Ground personnel are trained to recognize when this might be about to happen, or has happened. A fluid will typically start to lose its gloss and dye when it is losing its effectiveness. At this point it may be close to providing inadequate protection, so it is important to also look for signs of snow or ice accumulation, surface freezing, build-up of ice crystals in or on the fluid, or the presence of slush. A pre-takeoff check, or if necessary, a pre-takeoff contamination check is the only way to determine if an aircraft is free of contamination prior to take off.

13.5 Anti-Icing Fluid Runoff and Mitigation

Anti-icing fluid runoff mitigation control measures may be required at your airport. AeroClear EG is produced using high-quality Ethylene Glycol, and therefore complying with any required mitigation measures may be simplified when it is used in conjunction with AllClear's Ethylene Glycol-based Type I deicing fluid.

All applicable authorities should be consulted to assure compliance with federal, state, provincial and local laws as appropriate. It is the responsibility

of the user to determine and ensure compliance with all applicable legal requirements.

Fluid runoff will contain additional materials that are not present in the products when they are supplied by AllClear. Such runoff should be tested to determine its material composition and the measures needed to dispose of it in order to comply with the applicable legal requirements.



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