



PRODUCT GUIDE

SKY-GO PG

**SAE AMS 1424
TYPE I DE/ANTI-ICING FLUID**

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ASGlobal

ASGlobal is a worldwide organization with offices located in Canada and the European Union and with partners and team members all over the globe. We are a small but trusted name in aviation specialty chemicals with a strong focus on aircraft and airport winterization products. Whether in support of our airline, airport or aviation ground service company customers, we take great pride in our unique world-class customer service approach as the foundation of the growth of our North American customer base along with multiple footprints in Europe.

Our team of experts has over two decades of experience in the aviation industry, challenging the status quo to ensure that our partners receive optimal solutions and the most cost-effective products possible.

Clean Aircraft Concept

The Clean Aircraft Concept was established by global aviation regulators to ensure that the takeoff of aircraft is prohibited when snow, ice, slush or frost is adhering to wings, tails, control surfaces, propellers, engine intakes and other critical surfaces of the aircraft. To this end, industry standards and robust procedures for all aspects of ground de/anti-icing operations have been developed by the global industry to ensure that aircraft are de/anti-iced on the ground prior to departure. The most common approach for de/anti-icing aircraft in winter operations is glycol-based fluid such as our Sky-Go PG Type I fluid.

What We Offer

ASGlobal is uniquely positioned as a producer and distributor of aircraft de/anti-icing fluids, runway deicing fluids and aircraft lavatory fluids. Our aircraft de/anti-icing fluids are available in either Ethylene Glycol (EG) or Propylene Glycol (PG) formulation, depending on the geographical location of the customer.

Our fluids allow for the safe and efficient departure of customer aircraft in challenging and unpredictable winter operating conditions, when used in collaboration with a comprehensive ground de/anti-icing program.

Product Guide

This Product Guide contains details and general guidance for the handling, storage and operational use of Sky-Go PG Type I de/anti-icing fluid.

This Sky-Go PG Product Guide (Version 2.2) is dated September 2022 and shall remain current until a revision is issued. It is the responsibility of the user of Sky-Go PG to verify the ASGlobal website and to ensure that the most recent version of the Product Guide is always employed. All previous versions of the Product Guide shall be removed from circulation and destroyed.

Customers using Sky-Go PG shall always ensure that this Product Guide is made available to all personnel handling and employing Sky-Go PG, and that all applicable information from this Product Guide is included within employee training programs and operational procedures, as required.

Safety Data Sheet

An associated Safety Data Sheet (SDS) has been provided along with this Product Guide. It is strongly recommended that users of Sky-Go PG consult, read and understand the safety precautions provided within the SDS and comply with such measures while receiving, handling and/or using Sky-Go PG fluid.

Product Disclaimers

ASGlobal does not guarantee, explicitly or implicitly, the properties of the Sky-Go PG product or the suitability of the Sky-Go PG product for a particular de/anti-icing operation or application. The user of Sky-Go PG is therefore solely responsible for determining the suitability of the Sky-Go PG fluid for the intended application. The user of Sky-Go PG is solely responsible for assuming all risk and liability in connection with the use of the Sky-Go PG product.

Sky-Go PG fluid is not a stand-alone deicing approach and must always be employed as part of a comprehensive aircraft ground de/anti-icing program developed based on industry standards such as SAE Aerospace Standard 6285 and specific procedures from the airlines and airframe manufacturers.

Only suitably trained and qualified personnel should be allowed to receive, handle, test and apply Sky-Go PG fluids to aircraft. All relevant product information from this guide, such as product properties, fluid dilution charts, lowest operational use temperatures, handling considerations and fluid performance data shall be included within the user's internal personnel training programs.

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 such as SAE standards and global regulations were correct at the time of publication of this Product Guide.

Introducing Sky-Go PG

Sky-Go PG is a Type I aircraft ground de/anti-icing fluid that has been fully qualified in accordance with SAE Aerospace Material Specification (AMS) 1424/1.

Sky-Go PG fluid is intended to be applied heated (60°C to 82°C or 140°F to 180°F) to aircraft surfaces to melt, dislodge or remove any snow, ice, frost or slush from aircraft surfaces either during active freezing precipitation events or after such events. Sky-Go PG can be used in one-step deicing operations or two-step de/anti-icing operations.

Sky-Go PG Type I de/anti-icing fluid is a Propylene-Glycol based fluid containing water, corrosion inhibitors, surfactants and orange dye.

Sky-Go PG is available in either concentrated or diluted ready-to-use format. The concentrated form of Sky-Go PG nominally consists of approximately 88 percent by weight Propylene Glycol.

Sky-GO PG must **NEVER** be applied to aircraft surfaces in its concentrated form and shall always be mixed with a suitable amount of water before use to make an aqueous deicing solution with the desired freezing point. For more details on how to safely dilute Sky-Go PG, please refer to the *Freezing Points of Sky-Go PG by Dilution* table on Page 11 of this Product Guide.



Sky-Go PG Qualification

Sky-Go PG Type I fluid has undergone extensive testing as per the requirements in SAE AMS 1424/1, including physical property testing, material compatibility testing, environmental performance testing, aerodynamic elimination testing and anti-icing performance testing. Sky-GO PG is a fully qualified fluid that has met or exceeded all requirements identified within SAE AMS 1424/1.

All work to qualify Sky-Go PG to the requirements of SAE AMS 1424/1 was performed by accredited independent laboratories. A copy of the full Fluid Qualification Report for Sky-Go PG can be obtained directly from ASGlobal upon request.

Sky-Go PG Type I is included on the lists of Qualified Type I Fluids published by the Anti-Icing Materials International Laboratory (AMIL), Transport Canada (TC) and the Federal Aviation Administration (FAA). These lists can be found electronically at the links below.



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



Transport
Canada

Transports
Canada

<https://tc.canada.ca/en/aviation/general-operating-flight-rules/holdover-time-hot-guidelines-icing-anti-icing-aircraft#toc-1>



Federal Aviation
Administration

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

Delivery Options

Sky-GO PG Type I de/anti-icing fluid is available in the following delivery options:

For Canada and Europe:

- ~19,000 Liters per tanker truckload
- ~22,000 Liters per ISO tank
- Totes ~1,000 Liters each
- Drums ~208 Liters each

For the United States:

- ~5,000 Gallons per tanker truckload
- ~6,000 Gallons per ISO tank
- Totes 265 Gallons each
- Drums 55 Gallons each



Freezing Point Testing of Sky-Go PG

The freezing point of a de/anti-icing fluid is the temperature at which the fluid will freeze on aircraft surfaces.

Sky-Go PG fluid used in winter operations shall be tested by the user daily (or as required in approved ground de/anti-icing programs) to ensure that the freezing points of the fluid are appropriate for each spray application and that the Lowest Operational Use Temperature (LOUT) has not been exceeded.

Hand-held refractometers should be employed by the user to measure the refractive index or Brix of an aqueous solution of Sky-Go PG. The freezing point of the aqueous solution of Sky-Go PG can then be determined for each refractive index or Brix measurement by consulting the *Freezing Points of Sky-Go PG by Dilution* table on Page 11 of this Product Guide.

The user shall always ensure that all refractometers used in operations are suitable for the intended use and that refractometers are properly calibrated and maintained, and that all functional tests (such as zeroing the refractometer) are performed daily or as per manufacturer and/or customer de/anti-icing program requirements. For details on suitable refractometers for Sky-Go PG, the user should contact ASGlobal.

Lowest Operational Use Temperature of Sky-Go PG

SAE Aerospace Standard (AS) 6285 defines a Type I fluid's LOUT as the higher (warmer) temperature of:

- 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); and
- The freezing point of the fluid plus the required freezing point buffer of 10°C (18°F).

Sky-Go PG has undergone extensive aerodynamic acceptance and fluid freezing point testing as part of the qualification process for SAE AMS 1424/1. For high-speed ramp aircraft (greater than 100 knots of rotation speed) the LOUT is -30.5°C.

The LOUT shall always be respected and Sky-Go PG shall never be applied to aircraft surfaces below the LOUT.

Freezing Points of Sky-Go PG by Dilution

Prior to use, Sky-Go PG fluid must be diluted water to create an aqueous solution with a suitable freezing point and LOUT, as per the table below. The freezing point, LOUT and dilution for any aqueous solution of Sky-Go PG can be determined using this table for any refractive index or Brix measurement.

The user should always round down if a refractive index or Brix measurement does not correspond directly to that in the table, to be conservative. For example, if the user obtained a 32.0° Brix measurement using a refractometer and wanted to determine the freezing point of Sky-Go PG fluid using the table below, the user would employ the 31.78° Brix measurement, and therefore determine that the freezing point is -38°C for this aqueous solution.

Freezing Points of Sky-Go PG Type I by Dilution

Dilution Sky-Go PG / Water (Vol:Vol)	Refractive Index (+/- 0.0015)	BRIX @ 20°C	Freezing Point (°C)	LOUT by Rotation Speed (°C)	Dilution Sky-Go PG / Water (Vol:Vol)	Refractive Index (+/- 0.0015)	BRIX @ 20°C	Freezing Point (°C)	LOUT by Rotation Speed (°C)
				> 100 Kts					> 100 Kts
100:00	1.4245	51.00	-54	DO NOT USE	40:60	1.3741	23.30	-22	-12
70:30	1.4027	41.30	-57	-30.5	39:61	1.3731	22.77	-21	-11
69:31	1.4018	40.67	-55	-30	38:62	1.3722	22.24	-21	-11
68:32	1.4008	40.03	-54	-30	37:63	1.3712	21.71	-20	-10
67:33	1.3999	39.40	-53	-30	36:64	1.3702	21.18	-19	-9
66:34	1.3989	38.76	-51	-30	35:65	1.3693	20.65	-18	-8
65:35	1.3980	38.13	-50	-30	34:66	1.3683	20.12	-18	-8
64:36	1.3970	37.49	-48	-30	33:67	1.3673	19.59	-17	-7
63:37	1.3961	36.86	-47	-30	32:68	1.3663	19.06	-17	-7
62:38	1.3951	36.22	-46	-30	31:69	1.3654	18.53	-16	-6
61:39	1.3942	35.59	-45	-30	30:70	1.3644	18.00	-15	-5
60:40	1.3933	34.95	-43	-30	29:71	1.3634	17.47	-15	-5
59:41	1.3923	34.32	-42	-30	28:72	1.3625	17.47	-14	-4
58:42	1.3914	33.68	-41	-30	27:73	1.3615	16.41	-14	-4
57:43	1.3904	33.05	-40	-30	26:74	1.3605	15.88	-13	-3
56:44	1.3895	32.41	-39	-29	25:75	1.3600	15.35	-13	-3
55:45	1.3885	31.78	-38	-28	24:76	1.3586	14.82	-12	-2
54:46	1.3876	31.14	-36	-26	23:77	1.3576	14.29	-12	-2
53:47	1.3866	30.51	-35	-25	22:78	1.3566	13.76	-11	-1
52:48	1.3857	29.87	-34	-24	21:79	1.3557	13.23	-11	-1
51:49	1.3847	29.24	-32	-22	20:80	1.3547	12.70	-11	-1
50:50	1.3838	28.60	-31	-21	19:81	1.3537	12.17	-10	0
49:51	1.3828	28.07	-30	-20	18:82	1.3528	11.64	-10	0
48:52	1.3819	27.54	-29	-19	17:83	1.3518	11.11	-10	0
47:53	1.3809	27.01	-28	-18	16:84	1.3508	10.58	-9	1
46:54	1.3799	26.48	-27	-17	15:85	1.3499	10.05	-9	1
45:55	1.3790	25.95	-26	-16	14:86	1.3489	9.52	-9	1
44:56	1.3780	25.89	-25	-15	13:87	1.3479	8.99	-8	2
43:57	1.3770	25.42	-25	-15	12:88	1.3469	8.46	-8	2
42:58	1.3760	24.36	-24	-14	11:89	1.3460	7.93	-8	2
41:59	1.3751	23.83	-23	-13	10:90	1.3450	7.40	-7	3

ASGlobal - Sky-Go PG Freezing Points
Version 3.0, November 2023

Sky-Go PG Data Summary

A summary of physical, operational and performance data for Sky-Go PG has been provided in the table below.

	Data	Sky-Go PG Concentrate
1	Qualification	Conforms to SAE AMS 1424
2	Composition	Approximately 88% Propylene Glycol
3	Colour	Orange/Red
4	Appearance	Free of Suspended Matter
5	Dilution	Must be Dilution Prior to Use
6	Freezing Point	-54°C
7	Brix @ 20°C	49.5 - 52.5
8	Refractive Index @ 20°C	1.4235 - 1.4255
9	pH	8.0 - 9.0
10	LOUT - High Speed Ramp 70/30	-30.5°C
11	LOUT - High Speed Ramp 60/40	-30°C

Fluid Acceptance

Users of Sky-Go PG fluid shall ensure that a robust and consistent procedure for fluid acceptance is employed and that only duly trained personnel perform fluid acceptance duties.

Prior to accepting fluids, the receiver shall ensure that all shipping documents and product labels clearly identify the Sky-Go PG fluid and that a Certificate of Analysis for the fluid has been provided. All seals and caps on the shipping vessels shall be intact as required.

The user shall always verify that the Sky-Go PG fluid received complies with the provided Certificate of Analysis and that specific data related to the received shipment be recorded and retained, as per SAE standards and customer de/anti-icing programs. Fluid samples should also be collected and retained.

If any pertinent information is not provided or if any test results are out of range, the user should not accept the fluid shipment and should contact ASGlobal immediately.

Applying Sky-Go PG

The responsibility for ensuring that de/anti-icing operations with Sky-Go PG comply with airframe manufacturer requirements, customer de/anti-icing programs, regulatory requirements, environmental considerations and SAE standards resides solely with the user of the product. As such, the fluid application information contained within this Product Guide shall be considered as additional information only.

The user shall also ensure that only properly trained personnel apply Sky-Go PG fluids in accordance with applicable customer de/anti-icing programs.

To ensure optimal performance, Sky-Go PG should be heated to 60°C to 82°C (140°F to 180°F) at the nozzle and should be applied with a high-velocity flow rate and concentrated spray pattern to melt, dislodge and wash away frozen contamination types such as snow, ice and slush from aircraft surfaces. It is a combination of the heat and hydraulic pressure that effectively deices aircraft surfaces in these conditions. For smaller amounts of contamination such as frost, a wider spray pattern and lower flow rate may be sufficient to effectively deice aircraft surfaces. In all cases and for all contamination types, fluid application temperatures, application pressures and operational procedures shall conform with airframe manufacturer requirements, to avoid causing harm or damage to the aircraft.

Each airframe manufacturer identifies the surfaces that can be treated with deicing fluids. Spray diagrams for common aircraft types are included in SAE AS 6286 and customer de/anti-icing programs. The user of Sky-Go PG shall always comply with the guidance and restrictions provided in the aircraft spray diagrams and should be aware of all no-spray zones. In the event that the user of Sky-Go PG is unfamiliar with the airframe being deiced or has questions about where Sky-Go PG can be applied to such aircraft, the user should discuss the de/anti-icing operation with the flight crew or consult the air carrier de/anti-icing program or SAE AS 6286.

Sky-Go PG fluids should always be applied to aircraft surfaces from a close yet safe distance, as per minimum distances for the deicing vehicle, bucket and nozzle included in applicable ground de/anti-icing programs. To prevent heat loss and therefore improve the deicing capabilities of Sky-Go PG fluid the distance between the spray nozzle should be minimized. To prevent pressure damage when applying Sky-Go PG using concentrated nozzle setting and high flow rate, all fluids should be applied at a 45-degree angle relative to the aircraft surfaces.

The freezing point of Sky-Go PG fluid used in one-step deicing operations or two-step de/anti-icing operations must be at least 10°C (18°F) below the ambient air temperature. The second-step application must be completed as quickly as possible after the first step has been completed, or within a maximum of three minutes, to prevent re-freezing of the first-step fluid. As aircraft surfaces could potentially be cold-soaked and therefore be below ambient temperature, a deicing fluid with an even lower freezing point should be considered.

For deicing purposes, Sky-Go PG should be applied heated to aircraft surfaces in sufficient quantity to completely remove all frozen deposits as per SAE standards, regulations and customer de/anti-icing program requirements.

One-Step and Two-Step Fluid Applications

In a one-step deicing operation, frozen deposits are removed from aircraft surfaces using heated Sky-Go PG fluid. The fluid needs to be applied at a suitable concentration and in sufficient quantity to properly deice all surfaces, leaving no adhering contamination on the aircraft following completion of the application. All aircraft surfaces shall be properly inspected by the user of Sky-Go PG as per SAE standards, regulations and customer de/anti-icing programs.

A one-step operation is typically performed only in periods where where winter precipitation has ceased and no fluid holdover time is required. If holdover time is required or the operation is taking place in active precipitation conditions, the user should employ a two-step de/anti-icing process.

A two-step process is typically employed when aircraft surfaces are contaminated and active precipitation is falling or is expected to begin prior to the departure of the aircraft. In this case, deicing would be completed with Sky-Go PG in the first step, but then would be immediately followed up with an anti-icing application of Sky-Go PG or a suitable SAE Type II, Type III or Type IV anti-icing fluid as a second step. The flight crew operating the aircraft is responsible for selecting the desired de/anti-icing process (one-step or two-step) and the desired fluid types.

In the first step of a two-step de/anti-icing operation, the user shall ensure that sufficient amounts of heated Sky-Go PG Type I fluid are employed at a suitable concentration. All aircraft surfaces shall be properly cleaned in the first step and inspected by the user of Sky-Go PG as per SAE standards, regulations and customer de/anti-icing programs to ensure that no contamination remains on treated surfaces.

In the second step of two-step operations, the user shall apply an anti-icing fluid to deiced surfaces within three minutes of the Type I spray.

As indicated above, Sky-Go PG Type I fluid may be used in the second step of two-step operations, at the request of the flight crew. In such cases, and because Type I fluids have very limited holdover times in certain active precipitation conditions, two-step operations with Type I only should only be considered in active frost or very light precipitations conditions. When applied as an anti-icing fluid, Sky-Go PG must be applied heated (60°C to 82°C or 140°F to 180°F), within three minutes of the deicing application, and in a minimum quantity of one liter per square meter on treated surfaces in the second step.

In most two-step de/anti-icing operations, after the application of heated Sky-Go PG has been completed and all aircraft surfaces are clean, the user shall apply an unheated SAE Type II, Type III or Type IV fluid (as appropriate and as available) to the required aircraft surfaces within three minutes. The amount of anti-icing fluid applied shall be sufficient to displace the Type I fluid used in the first step and to provide a suitable and uniform layer of anti-icing fluid on treated surfaces. SAE AS 6286 and customer de/anti-icing programs provide guidance on minimum spray amounts for anti-icing fluids on specific airframes.

Fluid Failure

An aircraft ground de/anti-icing fluid has lost its effectiveness, and as such is considered to have failed, when it is no longer able to absorb, melt and shed contamination. Fluid failure can typically be determined by performing a visual or tactile inspection of treated aircraft surfaces. Some visual clues that a fluid has lost (or is in the process of losing) its effectiveness are a loss of fluid dye or a lack of uniformity in fluid dye across a treated surface, loss of gloss, snow or ice accumulation within the fluid layer, surface freezing, buildup of ice crystals in or on the fluid surface or the presence of slush.

When the user of Sky-Go PG has determined that the fluid has lost or is in the process of losing its effectiveness, the flight crew shall be notified immediately and another complete deicing and anti-icing (if required) of the aircraft must be completed before it should be permitted to attempt to take off. A pre-takeoff check of the aircraft, or even a pre-takeoff contamination check, may be the only ways to determine that aircraft are free of any contamination.

Fluid failure recognition is an important part of user responsibilities and therefore all user personnel should be trained and qualified to conduct visual and tactile inspections and recognize the onset of fluid failure.

Holdover Time

The holdover time of an aircraft anti-icing fluid is defined as the estimated time that an anti-icing fluid is effective in preventing frost, ice, slush or snow from adhering to treated surfaces. Holdover time is calculated as beginning with the final application of the anti-icing fluid and expiring when the fluid is no longer effective. Holdover times are published in winter operations updates published annually by Transport Canada and the Federal Aviation Administration.

When using Sky-Go PG as an anti-icing fluid in accordance with the regulator Type I holdover time tables, the Sky-Go PG fluid must be heated (60°C to 82°C or 140°F to 180°F) and applied in a minimum quantity of one liter per square meter on required aircraft surfaces.

As an unthickened fluid, Sky-Go PG provides only a limited holdover time protection in comparison to thickened anti-icing fluids (Type II, Type III, Type IV). In cases of active precipitation where the Type I holdover times will be exceeded, it is strongly recommended that thickened fluids be considered as the anti-icing fluid.

As part of the communication of the anti-icing code to the flight crew, users are required to provide the flight crew with a start of holdover time application. In one-step operations with Type I fluid, a start of holdover time should never be provided. The start of holdover time only applies to two-step operations.

Storage and Handling of Sky-Go PG

The user should ensure that Sky-Go PG is stored and handled correctly to maintain satisfactory fluid performance and to ensure that all sources of potential degradation are minimized.

Product Safety

The user shall always consult the SDS before handling Sky-Go PG and ensure that the fluid is employed safely and in an environmentally responsible manner consistent with all applicable local procedures and regulations. It is the responsibility of the user of Sky-Go PG to know, understand and adhere to all local procedures, regulations and restrictions on the use of glycol-based fluids in operations.

The user is responsible for ensuring that all employees, contractors and customers are supplied with pertinent information related to the safe use of the Sky-Go PG product and that all employees tasked with handling and applying the fluids are properly trained to undertake these functions.

All fluids shall be stored responsibly as outlined in this Product Guide.

Areas where de/anti-icing operations occur can become contaminated with glycol-based fluids due to overspray or dripping and become slippery. The user should employ great caution when operating equipment in these areas and all personnel, flight crews or even passengers should exercise great caution if required to walk in areas exposed to these products. To prevent the spread of glycol-based fluids to other uncontaminated areas, personnel exposed to fluids on the ground should wipe their feet before entering aircraft, vehicles or buildings.

All runoff from de/anti-icing operations should be contained, collected and disposed of in accordance with federal, provincial/state, and local regulations and guidelines. As the requirements governing the collection and disposal of waste fluids from de/anti-icing operations can vary greatly from one location to the next, it is the sole responsibility of the user of Sky-Go PG to understand and adhere to all applicable regulations and requirements.

To ensure responsible environmental management of glycol-based fluids used in aircraft ground de/anti-icing operations, users should maintain a Glycol Management Plan (GMP) for each station undertaking de/anti-icing activities and should include this plan within local operating procedures. The GMP would identify local roles and responsibilities related to de/anti-icing, acceptable areas for deicing operations, details on fluids employed, storage and handling procedures, methods to contain and dispose of effluent, glycol reporting procedures, emergency response plans in the events of spills or accidents and inventory control procedures, amongst other elements.

Storage Tanks

Bulk deliveries of Sky-Go PG fluid should only be stored in structurally intact and well-maintained storage tanks. These storage tanks can be made from carbon steel, coated carbon steel, aluminum, stainless steel or light colored opaque high-density polyethylene. If the user intends to store Sky-Go PG fluid in a tank made from material other than those identified above, the user should contact ASGlobal in advance of loading the fluid in such tanks.

All fluid tanks used to store de/anti-icing fluids should be inspected at least annually to ensure that no corrosion or contamination is present on the inside of the tanks. All records of tank inspections should be kept on file by the user for auditing purposes.

When Sky-Go PG is supplied to the user in totes and/or drums, it is preferable for the totes and drums to be stored inside a dry building with all fill and drain ports protected against damage. Totes and drums should be kept away from direct heat sources and shielded from sunlight and fluorescent lights, as these are source of ultraviolet light, which may degrade fluid performance and quality. Totes and drums can also be covered to prevent exposure to ultraviolet light.

When stored in a proper manner, Sky-Go PG is not corrosive and will not damage materials commonly used for storage tanks, pumps, fittings and transfer lines such as iron, carbon steel, aluminum, copper and stainless steel. Sky-Go PG fluid is compatible with most elastomers used in gaskets, hoses and seals.

The user should avoid using dissimilar metals in contact with each other as galvanic action may occur, which may degrade Sky-Go PG fluid in some cases and result in the possible formation of gels and light residues.

Piping and Hoses

All piping and hoses used to supply Sky-Go PG should be dedicated solely for use with this product and should be clearly labelled and color-coded as applicable. A minimum pipe or hose diameter of 8 centimeters (3 inches) is recommended.

Fixed piping can be made from various metals used in storage tank construction, so long as incompatibility issues are considered to prevent degradation of the fluid. All piping used for Sky-Go PG should be well maintained by the user and the surfaces should be smooth with no sharp bends.

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

Pumps

Sky-Go PG Type I fluid is a shear-stable fluid that can be transferred with various commercially available pump types such as gear pumps, centrifugal pumps, diaphragm pumps and progressive cavity pumps without affecting the fluid's quality or performance. The viscosity of Sky-Go PG fluid increases with colder temperatures, and therefore more powerful pumps may be required as the temperature decreases.

Storage Stability

If the user adheres to strict guidelines for the proper storage of Sky-Go PG fluid, the shelf life of Sky-Go PG will exceed one year under normal ambient conditions.

Periodic testing of Sky-Go PG fluid is required to ensure that the fluid quality is within specifications and the fluid is still acceptable for use. At a minimum, Sky-Go PG fluid in user storage tanks shall be tested for quality prior to the onset of each deicing season. This testing shall include, at a minimum, conformance to specifications for product identification and labeling, color, suspended matter, refractive index and pH. The user may also specify more frequent intervals for such quality tests, as required in internal de/anti-icing programs and/or as per customer requirements.

All Sky-Go PG fluid not meeting specifications during periodic tests shall be quarantined and samples should be sent to ASGlobal for laboratory verification.

Heating of Sky-Go PG

All Sky-Go PG fluids should ideally be stored be stored unheated, however to reduce heating time and increase operational flexibility when preparing for an aircraft deicing event, dilutions of Sky-Go PG may be pre-heated to a maximum of 60°C (140°F) in heated standby storage in a storage tank or in a deicing vehicle. Users of Sky-Go PG shall limit heating of the fluid to periods of deicing activity, as to avoid repetitive heating and cooling cycles on the fluid which may result in thermal degradation and increases in refraction measurements.

To ensure that Sky-Go PG fluids are safe to use, the user shall ensure that fluid refraction is verified daily during the winter season as part of a robust and ongoing fluid quality program.

Sky-Go PG concentrate shall not be stored heated or subjected to heating and cooling cycles.

Using Sky-Go PG with New Equipment

When Sky-Go PG is slated for use in a new deicing vehicle, the user shall ensure that the vehicle is thoroughly cleaned prior to the introduction of the fluid. Anti-icing solutions placed in the vehicle for transport should thoroughly flushed and the fluid tanks and piping rinsed with water prior to loading Sky-Go PG into the fluid tanks.

Incompatible Mixtures

Sky-Go PG should not be mixed with any other deicing or anti-icing fluid.

Fluid Changeover Procedures

If the user is undertaking a fluid changeover from another fluid to Sky-Go PG, the user should communicate with ASGlobal in advance of the fluid changeover, to ensure that all precautions are taken to manage the fluid changeover process and maintain product integrity.

Fluid Transfers

If transferring Sky-Go PG fluids for any reason (ex: placing water in vehicle tanks for personnel training or for maintenance on deicing vehicle tanks), all vessels receiving a Sky-Go PG transfer shall be thoroughly cleaned and flushed prior to the Sky-Go PG fluid being loaded on the vessel. If the receiving tank already contains Sky-Go PG, the user should ensure that fluid is tested as required prior to transferring fluid from the tank to the receiving vessel. If the tank fluid was contaminated, the action of transferring the contaminated fluid to the receiving vessel would contaminate the fluid in this vessel. To minimize the risk of product contamination, the user should verify the labels on both the source and receiving vessels prior to the transfer of fluid.

Product Labels

All storage tanks and deicing vehicles housing Sky-Go PG fluids shall be properly labeled to indicate the type of fluid in use. The user shall communicate with ASGlobal to obtain such product labels and shall ensure that they are properly affixed to tanks and vehicles.

Precautions

- Sky-Go PG concentrate should never be applied to aircraft surfaces. An aqueous deicing solution of Sky-Go PG with a suitable LOUT shall be used in all cases.
- Sky-Go PG fluid should be heated to 60°C to 82°C or 140°F to 180°F to deice aircraft surfaces.
- Sky-Go PG fluid should never be applied unheated to aircraft surfaces.
- The user shall ensure that all personnel tasked with handling, testing and using Sky-Go PG are properly trained and qualified.
- Sky-Go PG fluid should not be applied on aircraft no-spray areas. The user should ensure that all personnel have access to no-spray diagrams for common aircraft types and that the spray restrictions related to these aircraft types are trained to personnel.
- Sky-Go PG should not be used as antifreeze for vehicles or aircraft lavatories.
- Areas sprayed with Sky-Go PG fluid may become slippery. The user should exercise great caution when walking or working in areas where the fluid has accumulated.
- Sky-Go PG should not be used to de/anti-ice:
 - Helicopters (unless the use of Sky-Go PG has been approved by the manufacturer)
 - Runways
 - Apron or ramp areas
 - Pavement
 - Sidewalks
 - Deicing vehicles or ground support equipment

Contact Information

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