

Aircraft De-icing Fluid Recycling News

* Last winter set a world record for glycol recycling at Denver

* St. John's , Newfoundland opens a centralized de-icing facility



An Inland Technologies employee drives up to the glycol recycling site assisted by a snowplough in blizzard conditions. The storm brought approximately one meter/three feet of snow just before Christmas 2006.

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Denver Airport World's Largest Glycol Recycler for 2006/07 Season

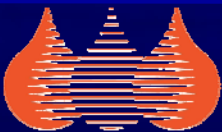
A favourite North American pastime is reflecting on the weather, and last year, Mother Nature delivered winter conditions to Denver International Airport that gave everyone lots to talk about. The weather had a huge impact on de-icing last season and once the numbers were tallied, a record-setting 710,000 gallons [or 2,688,000 liters] of pure propylene glycol was recycled from waste de-icing fluid at DIA.

"We made some comparisons to other sites and it turns out that 710,000 gallons was the most glycol recycled of any airport in the world that year," said Keith Pass, environmental program administrator at DIA. "It was the third snowiest year on record, but what drove the volume to a record high was the day after day of snowy, winter weather."

Like tracking weather and baseball, glycol collection and recycling also rely on statistics. So far, the winter of 2007 – 2008 is shaping up to be a strong one and may turn out to be another record setter.

"We've seen more frost than heavy snow," says Brian Stierman, Inland's site operations manager at DIA. He explained that under precipitation conditions, spent de-icing chemical is collected in high concentrations via the pad collection system.

He adds, "Most of the effluent we're recovering has about 20% chemical – twice as high as some other years." Although the overall volume is lower, with the high chemical concentrations, the amount of glycol reclaimed could be on track to set another record.2



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...Denver [continued]

In 2004, Inland Technologies began providing glycol-recycling services at DIA. The program includes collecting glycol-based spent aircraft de-icing fluid and processing it onsite. "Fluid with more than 1% glycol is recycled, and fluid with less than 1% glycol is sent to the Metro Wastewater Reclamation District plant where it is treated" said Stierman.

As part of the initial set up in 2004, Inland installed Glycol Concentrators at Denver Airport. These patented units process dilute effluent and produce a rough grade glycol product that is 50% glycol and 50% water.

"In order to be able to reuse the glycol contained in this raw material for most applications it needs to be refined further to remove the remaining water and airfield contaminants," said Stierman.

To do this, the airport-owned distillation plant is used. This system processes the 50% material and produces a 99% glycol product. "Using two types of equipment is ideal because it minimizes energy consumption and maximizes quality," explained Stierman. Inland's Glycol Concentrators use about one-tenth the energy of traditional distillation plants. ▶



Outside view of the glycol recycling plant at Denver Airport. The site hosts Inland's Glycol Concentrator's, the airport-owned distillation plant [operated by Inland] and the tank farm.



A technician runs a system check on the patented Glycol Concentrator at Inland's Denver airport recycling plant. The units are used to process dilute effluent up to the 50% glycol level.

"This equipment configuration allows us to produce a high-grade recycled glycol product that is used as heat transfer fluid and automotive coolant in the Colorado area," Stierman added.

"Recycling saves DIA money," said Keith Pass of DIA. "Higher concentrations of glycol effluent take a lot of effort for the wastewater plant to process. We are charged a fee based on the size of the environmental load we discharge so it is much more economical for us to recycle the effluent versus using the treatment plant," he adds.

DIA has many programs in place to protect the environment as well as an ISO 14001 certified Environmental Management System [EMS].

"We recycle nearly 25 commodities at DIA as part of our environmental initiatives," said Pass. "We're happy that aircraft de-icing fluid is one of them." ✱

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Aerial view of the new 45,000 square meter de-icing pad at St. John's International Airport.

Area 1: Terminal and gate area

Area 2: Inland Technologies' glycol recycling plant. The plant houses three Glycol Concentrators. There are two Glycol Recovery Vehicles at the site for active recovery of glycol effluent.

Area 3: The new centralized de-icing pad. The pad serves as a rest overnight parking area for large aircraft.

St. John's International Airport hosts about 1.25 million passengers per year, of which, a significant portion are de-iced on leaving.

St. John's International Airport Unveils a New Central De-icing Pad

St. John's International Airport in Newfoundland, eastern Canada, recently commissioned a 45,000 square meter [484, 400 square feet] centralized de-icing facility. The new de-icing pad brings all carriers, including general aviation and the military, to one location at the airport.

"Not only does it improve airport efficiencies and safety in operations, it also allows us to more easily capture and control the release of effluent remaining after an aircraft has been de-iced," said Randy Mahon, director of operations at the St. John's International Airport Authority.

Mr. Mahon was part of the team that planned for and designed the centralized de-icing facility. He added, "We believe everyone has a role to play in protecting our environment and this is an important tool in helping us achieve this goal."

Safety and environmental protection were the key priorities behind the construction of the ▶

de-icing pad and there are several design features that ensure these goals were met. For example, the site has a designated pink snow dump area. "Pink snow" is the industry term used to describe snow that has been contaminated with aircraft de-icing fluid. Melt water from pink snow must be contained so that it does not negatively affect the environment.

The pad also alleviates aircraft parking congestion by serving as a rest-overnight area for large aircraft, including flights from the United States Air Force.

It's expected the new de-icing pad will get a lot of use. According to Environment Canada's weather statistics, St. John's averages 114 days per year where there is some frozen precipitation. With this adding up to an average of 322 centimeters per year [127 inches], winter operations and the environmental impacts of de-icing need to be well planned for. Added to this is an annual passenger growth rate for the airport that is double the national average. /4

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De-icing operations at the new centralized pads. The area allows better traffic management and containment of effluent generated from de-icing operations.



Inland installed a third Glycol Concentrator at St. John's. Additional recycling equipment was necessary in order to process the higher volumes of collected effluent.

...St. John's [continued]

Inland Technologies Canada manages the glycol recovery and recycling program at St. John's International Airport.

"The opening of the pad means that there are a few unknowns when it comes to managing this environmental program," said Roger Hussey, Inland's site operations manager. "The area of this pad means that during strong winds and poor weather conditions the total volume of glycol impacted stormwater collected could be very high."

As part of this expanded scope of operations, Inland has increased the recycling capacity by adding a third Glycol Concentrator, the system used to separate re-usable glycol from water. The additional unit will add over three million liters [one million gallons] to the overall processing capacity of the recycling plant.

"We're excited about this new pad and the operational and environmental improvements it brings to our airport," said Mahon. "Although the facility is in full operation, improvements are planned for next year that will ensure things run even more smoothly."

As part of the research and development process, Inland has been assisting the Airport Authority in gathering data on the volume collected and glycol levels in all effluent streams to determine the type and capacity of a planned underground storage tank system. The Airport Authority is planning to centralize aircraft de-icing fluid storage tanks to an area adjacent to the pad.

Mahon adds, "In the not too distant future, we will have a facility that will be considered world-class by any standard." *

Editors Note:

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