



SNI

SOLUTIONS

GENESEO, IL

**ENVIRONMENTAL
CHEMICAL CONTRACTOR**

888-840-5564

GEN 3 *Runway De-icer*
Taking the ice out of winter

GEN 3 - New Technology Runway De-icer

AMS 1435 Approved

GEN3 runway de-icers resolve the corrosion issues caused by traditional alkali salt de-icers (acetates / formates) without any loss in performance.

GEN3 product benefits:

- Reduced catalytic carbon brake oxidation
- Reduced cadmium plate corrosion
- Reduced corrosion to airport infrastructure
- Less conductive
- Non damaging to spray trucks
- Excellent hold-over times
- Excellent friction
- Excellent performance
- Biodegradable
- Cost effective

GEN3 technology is a unique patented combination of freeze point depressants, including traditional acetates and non-toxic proprietary polyols. The blend is so non-corrosive that there is no requirement to include the toxic corrosion inhibitors routinely added to commercial acetate / formate de-icers.

GEN3 application rates 50% less than typical potassium acetate.

Suggested application rates. Adjust per environmental conditions.

Anti-icing : 20/30 gal / lane mile,40/80 gals/acre,0.8 gals/1000Ft²,(1-2 oz/yd²)

Deicing: 50/60 gal/lane mile.115/150 gals/acre,2.5 gals/1000Ft²(3-4 oz/yd²)



Corrosion Costs

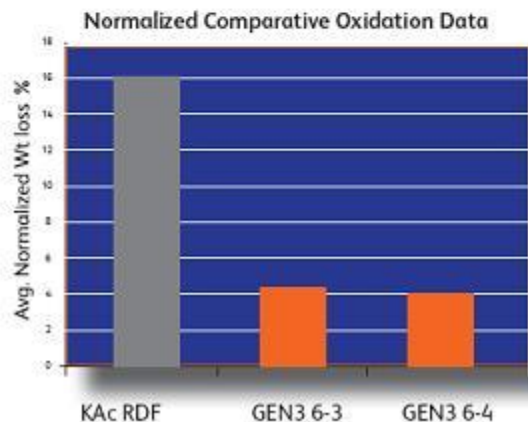
Corrosion to infrastructure, carbon brake parts and cadmium plate is of increasing concern to airport authorities and airlines. GEN3 runway de-icers resolve these issues without any loss in performance compared to acetate / formate de-icers.



Boeing 767 carbon brake piston failure. Carbon oxidation has led to complete loss of the pressure plate resulting in hydraulic piston collapse.



Carbon brake stator oxidation. Carbon oxidation has led to degradation of structural strength and subsequent loss of drive insert.



GEN3 formulations reduce carbon brake oxidation by 74% compared to commercial acetate de-icers.

GEN 3 6-3 tests conducted in accordance with AIR5567 on Meggitt carbon. GEN3 6-4 tests conducted by Dunlop on Dunlop carbon.



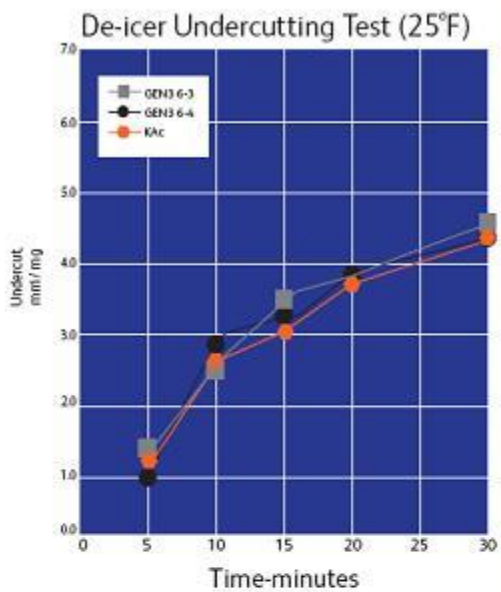
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De-icing Performance

Laboratory tests conducted by Michigan University show the ice undercutting performance of GEN3 RDF to be identical to that of Potassium Acetate RDF.

Field trials carried out at Pearson Airport, Toronto in winter 09 showed GEN3 6-4 fluid to *outperform* a commercial acetate runway de-icer in all respects.

The two products were laid side by side on 2cm of snow contamination at the identical time and application rate. The GEN3 6-4 product was observed to melt the contamination faster and, as the pictures show, prevent contamination build-up for longer than the Potassium Acetate.



Snow contamination 1 hour after application of Potassium Acetate



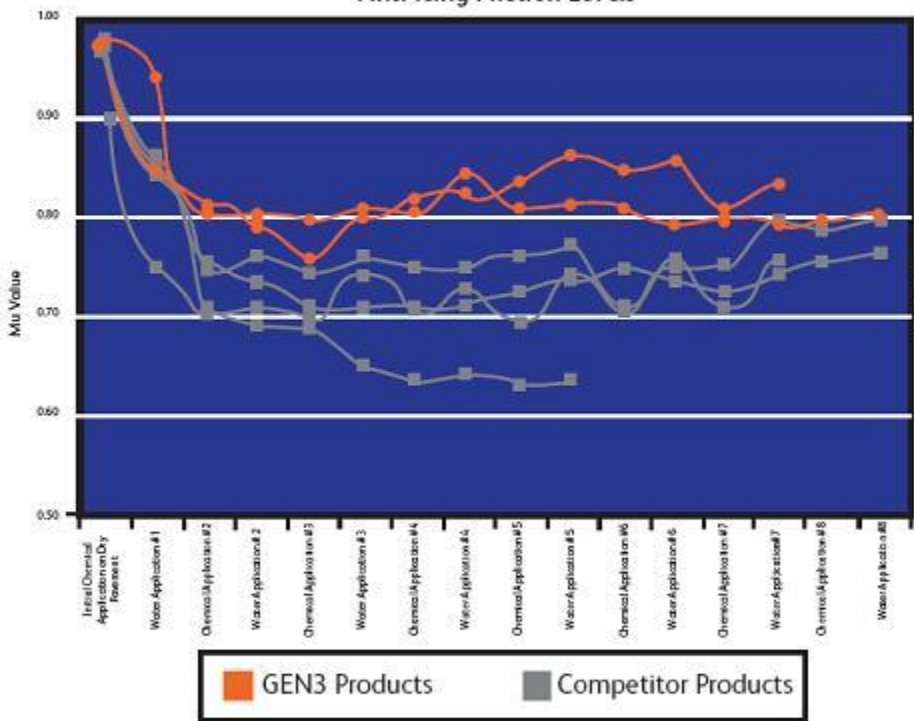
Snow contamination 1 hour after application of GEN3 6-4



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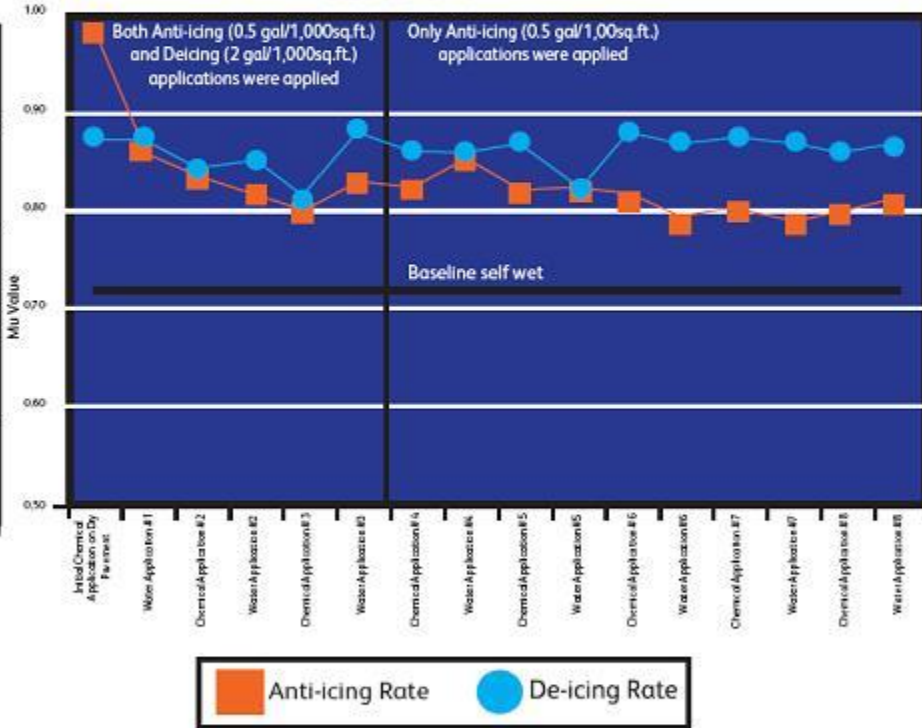
Friction tests carried out on behalf of the FAA in October 2008 showed GEN3 products to outperform all other de-icing technologies.

Anti-icing Friction Levels

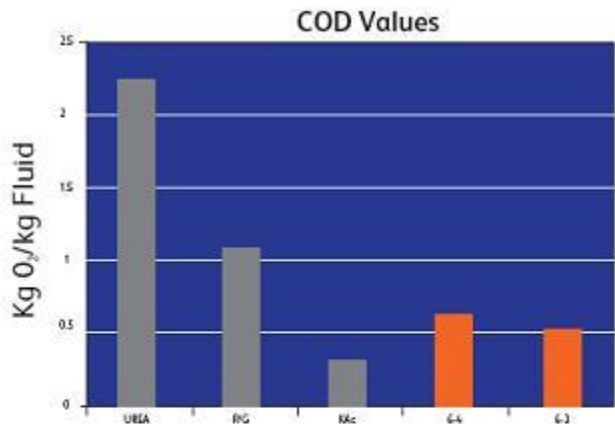


Gen3 6-4 friction test results taken in isolation show they amply exceed the self wet benchmark.

GEN3 6-4



Low Environmental Impact



- 100 % biodegradable.
- Completely harmless to water treatment plants.
- Low BOD / COD values.
- 50 % smaller carbon foot-print compared to 2nd Generation Acetate and Formate RDFs.
- Low Toxicity – see data table below.

Ecotoxicity	Aquatic Toxicity LC50 (Daphina Magna, 48 hr) >4000 mg/L LC50 (PimephalesPromelas, 96 hr) >4000mg
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GEN3 Technical Data

Composition	
Proprietary Polycols	20-50 %
Organic Salts	20-50 %
Water	35-45 %
Physical/Chemical Properties	
Physical State	Liquid
Color	Clear or Blue
Odor	Odorless
pH	10 -11
Freezing Point	> -38°F
Initial Boiling Point	250°F
Flash Point	210°F
Specific Gravity @20°C	1.25-1.3



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