

NORKOOL DESITHERM™ HS Specialty Dehydration Fluid

Keep salt buildup at bay



The gas dehydration system is a critical part of any gas transmission or gas processing system. For gas storage sites, salt contamination represents one of the most pervasive challenges to reliable operation. Similarly offshore, when associated gas is dehydrated prior to reinjection or production, intrusion of salts can cause corrosion and or plugging. In either case, if salts are allowed to build up in the separation trays or reboiler, the efficiency of the dehydrator suffers, and shutdown can result.

This is a particular problem for gas storage terminals, which must keep running full time and at maximum efficiency during peak gas usage months. Remediating salt fouling issues requires dehydrator downtime to wash out salt build-up. This translates to high maintenance costs and deferred throughput during the peak season.

Traditional triethylene glycol (TEG) solvent used for gas dehydration has extremely low solubility for salts, causing the salt fouling issues. In addition, when salt comes out of solution, it can lead to increased TEG degeneration, higher TEG replacement rates and frequent filter changes. These combined problems also raise the risk of system corrosion and, ultimately, lead to lost gas plant revenue.

A salt-tolerant solution

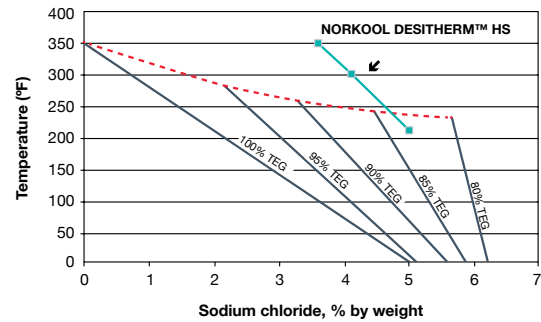
Dow offers a solution to salt buildup with NORKOOL DESITHERM™ HS Specialty Dehydration Fluid, an innovative, inhibited TEG-based desiccant with a higher solubility for salts than pure TEG. It replaces conventional TEG to keep more of the salts in solution, which provides a number of operational benefits that directly impact dehydrator performance and online operation:

- Extends filter life
- Prevents plugging and fouling in dehydration units
- Possesses properties that prevent scale formation
- Helps control pH and prevent system corrosion by adding buffering capacity to solution
- Prevents midseason replacement of TEG, avoiding costly downtime during peak months
- Demonstrates full compatibility with current dehydrator equipment

Reliable, pH-stable alternative to TEG for salt control

Lab testing has shown NORKOOL DESITHERM™ HS Specialty Dehydration Fluid improves salt solubility and corrosion control. Results shown in Figure 1 confirm that the solution can absorb from 3-5 percent sodium chloride by weight at temperatures ranging from 210°F to 350°F. Salt concentrations this high would cause significant plugging in a pure TEG system.

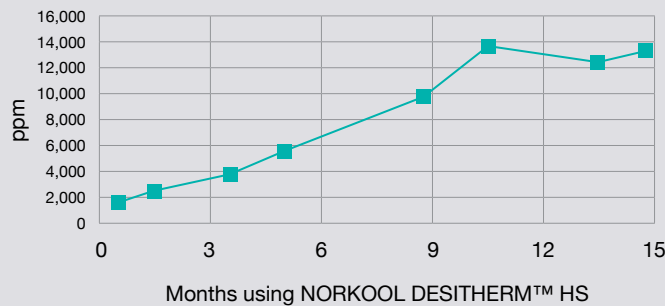
Figure 1. Sodium chloride solubility: NORKOOL DESITHERM™ HS vs. TEG



Field-proven technology: Over one year without a shut down

A large midstream operator in the Marcellus Shale region was experiencing shut downs every 1-2 months to replace the TEG and clean their system. They also had to routinely replace their fire tubes, which would be damaged from under-deposit corrosion. Dow worked with the operator to determine salt buildup was the key reason for these shut downs and helped implement NORKOOL DESITHERM™ HS to address the issue. By making the switch, the customer is now able to operate for **over one year** between shut downs. This has led to more uptime, reduced corrosion and lower operating costs.

Chloride level in glycol over time



Increased chloride levels in the glycol indicates more salt is held in the system versus deposited, reducing the likelihood of buildup, corrosion and unnecessary downtime.



Before: Scale buildup and corrosion from commodity TEG.



After: Equipment after operating with NORKOOL DESITHERM™ HS for roughly 15 months.

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