Versum Materials’ GASGUARD Hydrogen Chloride (HCl) Purification Systems, using Pall Corporation’s purification material, can now process over 500,000 lbs. of HCl during its lifetime.

According to studies done by Pall using its “purifier lifetime calculator”, this is an increase of almost two times over earlier systems.

Versum Materials has refined its HCl purification capabilities through its longstanding and ongoing commercial relationship with Pall Corporation involving HCl purification. Over the years, Pall has built Versum Materials-designed purifier vessels and filled them with Pall’s purification materials.

The key challenge for HCl purification processes is removing moisture. To do this, purification systems use an adsorbing material to remove moisture.

Versum Materials is working with customers to transition from systems using our purification systems to systems using Pall materials. Here’s why:

- The purification material used in Versum Materials’ purifiers is virtually identical to Pall purifiers. Both companies use a reactive metal halide supported on a high surface area inorganic support material.
- The Pall material, however, does have a higher weight percent of the active metal halide compound. It also has a higher packing density (i.e. bulk density). These differences give the Pall material a significantly higher moisture capacity.
- There are additional advantages to using Pall’s HCl purification material. These include:
  - Lower effluent H₂O specification
  - Higher H₂O capacity
  - Lower volatile metal contribution
  - Dedication production and test facilities to ensure high quality material
MOISTURE REMOVAL EFFICIENCY
The two figures (below) illustrate moisture removal results from tests conducted by Pall SLS in Cortland, NY (USA).

- The specifications for the moisture removal efficiency of Pall’s materials are:
  - <15 ppb in HCl
  - <1 ppb in Argon (Ar)
- The specification for Air Products’ material is:
  - <200 ppb in HCl
MOISTURE REMOVAL CAPACITY
Versum Materials’ bulk HCl purifiers can process 300,000 lbs. of HCl. Pall’s purifier calculator products that 574,440 lbs. of HCl can be processed by an Air Products bulk purifier filled with Pall HCl purification material. The Pall purifier lifetime figure is 1.92 times that Versum Materials.

MANUFACTURING CAPABILITY
Pall has a dedicated, vertically integrated purifier manufacturing facility in Cortland, NY. This site includes:

- Production and activation of purifier material
- Preparation of purifier vessel hardware
- Welding of purifier vessels
- Uniform filling of purifier vessels
- Capping of end connections and final packaging
- Quality testing