



**"Yes, folks, this really is a separator!"**



### **CASE STUDY: Chemical Production Facility**

**LOCATION:** Ontario, Canada

**INDUSTRY:** Chemical production/Olefins

**THE SITUATION:** An olefins production facility needed a separation system to remove entrained hydrocarbon liquids from hydrogen "charge" gas.

**THE CHALLENGE:** The customer needed extremely high efficiency removal of entrained benzene and toluene so that the hydrogen process gas contained less than 1 ppb (part per billion) of liquid. The design case was based on a 30% incoming moisture level and required >99% removal of 0.3 micron liquids and solids. The mechanical design of the pressure vessel and internals had to take into account both hydrogen service and low temperature process conditions.

**THE SOLUTION:** A CECO Peerless two-stage filtration system, consisting of a vane-type separator followed by high efficiency coalescing filters proved to be the ideal solution for this challenge. The first stage vanes were used to provide primary separation to extend the operating life of the coalescing filters.

**THE PACKAGE:**

Multi-stage vane and coalescing filter



#### THE RESULTS:

- High-efficiency filtration of sub-micron particles (< 1 ppb liquid carryover)
- Corrosion resistant and low temperature materials
- Easy access via dual manways to replace filter elements
- Canadian "CRN" and ASME registration

**ENVIRONMENTAL BENEFITS:** By eliminating liquid carryover, process upset conditions such as foaming are avoided, allowing for continuous and safe operation in this hydrogen process.

**THE CECO ADVANTAGE:** Replace Advantage text with: CECO Peerless applied multiple stages of separation and filtration to meet the performance specifications within a single pressure vessel. By optimizing the primary separation stage, operating time between filter replacements is extended and operating costs are reduced.

"We leveraged our ability to deliver game changing technologies and created an exceptional customer experience to help meet the growing customer needs." – CECO Environmental Team

