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# TEST CERTIFICATE

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**CLIENT:** HAI PRECISION

**PURCHASE ORDER:**

**ADDRESS:** 160 STANLEY ST.  
TRENTON ON. K8V 4W1

**DATE:** JAN 31 2013

*This report refers to the HELIUM LEAK TEST of the following: Qty (1) PARTICLE DETECTOR ASSEMBLY*

**REFERENCE SPECIFICATION:**

HOOD-1 REV 0

**ACCEPTANCE CRITERIA:** NO LEAKS >  $1 \times 10^{-8}$  STD. CC/SEC

**EQUIPMENT REQUIRED:**

Varian 959 MSLD, S/N LLF2144; Commercial grade helium; Calibrated Leak @  $4.82 \times 10^{-8}$  std cc/sec. S/N: 6144, Edwards vacuum pump, Inficon digital vacuum gauge

**TEST DESCRIPTION:**

The vessel was evacuated to below 50 mtorr and maintained for the entire test. The mass spectrometer was warmed up, stabilized and calibrated to  $4.8 \times 10^{-8}$  std. cc/sec. The mass spectrometer leak detector was then connected directly to the center nozzle. The auxiliary pump was valved off allowing the mass spec to maintain the vacuum independently. A response and sensitivity test was performed by introducing helium from a known leak standard into the assembly at a distant point from the mass spec. A notable response was seen after 10 minutes. The helium source was valved off and pumped out. The entire assembly was then enshrouded in plastic and helium was introduced at the bottom. The helium atmosphere was maintained for the entire test period. Mass spectrometer background at the start was  $8 \times 10^{-9}$  atm cc/sec and after 60 minutes of testing was  $7 \times 10^{-9}$  atm cc sec. No evidence of leaks were noted

**RESULTS OF TEST:**

No Leaks greater than  $1 \times 10^{-8}$  were noted.

Technician: Wayne Yetman

Qualifications: SNT-TC-1A LTIII

Job I.D. #: 1171