**Features and Benefits**

- Direct purification for 100% AsH₃ and PH₃ gas used in ultra-high purity applications: point-of-use (most recommended), valve manifold boxes and gas cabinets
- Critical application: GaAs MOCVD - Proven in the field for the manufacture of high brightness LEDs and HBTs using high-purity AsH₃ and PH₃
- No external power source required
- Easy to install and operate
- Does not require heating or cooling
- Mounting bracket included
- Design uses Inlet / outlet springless diaphragm valves
- Uses new, patented, superactivated inorganic purification media ASXTM and PHXTM
- “Drop-In” replacement for competitor’s hydride purifiers

**Specifications**

- Ultra-high purification of AsH₃ and PH₃
- ASXTM and PHXTM media performance specifications:
  - < 1 ppb H₂O in inert gas (APIMS LDL)
  - < 75 ppb H₂O in AsH₃ (MAH-2 LDL)
  - < 45 ppb H₂O in PH₃ (FTIR LDL)
  - < 300 ppb CO₂ in inert gas (PHXTM, GC-DID LDL)
  - Expect to remove oxyacids: H₃AsO₃, & H₃PO₄
- 0.003 µm Pall® Teflon PTFE particle filter with 99.9999999% retention
- Recommended flows: up to 15 slpm (0.9 NM³/hr)
- Maximum feed AsH₃ /PH₃ pressure – 60 psig (0.51 MPa)
- Maximum operating temperature: 40°C
- Internal surface finish: < 10 µin Ra
- All metal parts: Type 316L stainless steel, Elgiloy® or Nickel 200
- ASXTM and PHXTM media are also available for NANOCHEM® Models L-60 and L-300

**Overview**

NANOCHEM® A-300I series purifiers offer a new, patented breakthrough technology alternative to the purification of 100% AsH₃ and PH₃ used in the III-V Compound Semiconductor Epitaxy Processes, with a “drop-in” replacement design.

Gas contaminants, especially moisture and oxygen-containing species, adversely affect process quality and reduce yields. In AsH₃ and PH₃, moisture is known to increase with cylinder use. NANOCHEM® A-300I purifiers provide protection from such moisture surges from source AsH₃ and PH₃ gases, and from system upsets, such as leaks in the process line and cylinder changes.

**Connections and Model Numbers**

- Female inlet and male outlet are 1/4"VCR®-compatible face seal fittings
- AsH₃ Model: A-300I-ASXTM (Part # S1060-0414-001)
- PH₃ Model: A-3001-PHXTM (Part # S1060-0414-002)
- “Drop-In” replacement cross reference number for Mykrolis® (Millipore®) Part #: WPGV-203-TH

LDL Lower Detection Limit by State-of-the-Art Analytical Instrumentation
APIMS Atmospheric Pressure Ionization Mass Spectrometry
FTIR Fourier Transform Infrared Spectrometry
GC-DID Gas Chromatography with Discharge Ionization Detector
MAH-2 Shimadzu Moisture Analyzer, Model MAH-2

www.mathesontrigas.com
Matheson Tri-Gas® NANOCHEm® A-3001 Purifier

Efficiency of ASX™ for Removal of Moisture in AsH₃ at 0.4 slpm (0.024 NM³/hr)
(similar performance for PHX™ with PH₃)

Within 20 minutes, ASX™ medium reduced moisture to
detection limits despite high challenge (3.5 ppm)
and low flow rate (0.4 slpm / 0.024 NM³/hr)