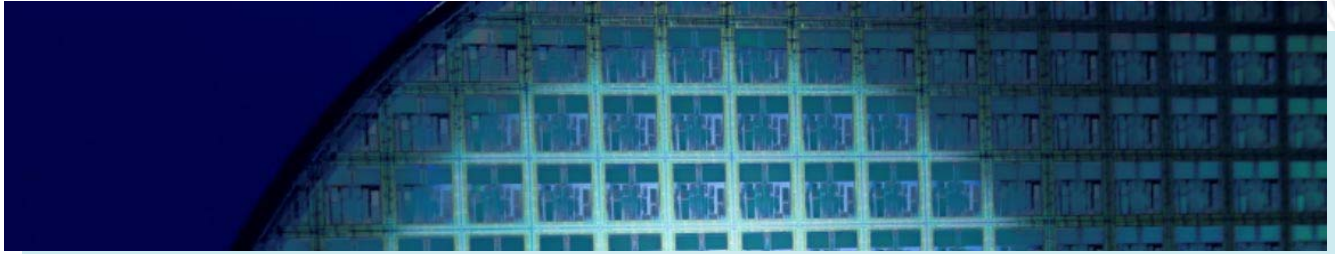


AsH₃ (Arsine) ION-X® Dopant Gas Storage and Delivery System



Next-Generation Adsorbent Technology of Sub-Atmospheric Dopant Gases



Versum Materials and NuMat Technologies announce a global alliance to bring ION-X® sub-atmospheric gas storage and delivery system solutions to our worldwide customers.

BENEFITS

- New line of products for the safe storage and delivery of toxic dopant gases, using state-of-the-art MOF (Metal Organic Framework) technology as adsorbent
- Delivers ultrahigh purity dopant gases at sub-atmospheric pressures
- Best true sub-atmospheric solution
- 100% Plug and Play with existing implant machines
- Delivers capacity premium to SDS3 with AsH₃ and BF₃
- Reduced change-outs and cost-of-ownership
- Favorable desorption and flow characteristics supporting ease of gas extraction
- Superior cylinder construction with the least failure modes



SPECIFICATIONS

(Shelf life: 5 years)

Arsine (AsH ₃)	≥ 99.9995%
Carbon Dioxide (CO ₂)	≤ 0.5 ppmv
Carbon Monoxide (CO)	≤ 0.1 ppmv
Methane (CH ₄)	≤ 0.5 ppmv
Nitrogen (N ₂)	≤ 2.0 ppmv
Oxygen (O ₂)	≤ 1.0 ppmv
Water (H ₂ O)	≤ 2.0 ppmv

SAFETY INFORMATION

Formula	AsH ₃
Physical Description	Colorless gas with a mild, garlic-like odor
CAS Number	7784-42-1
OSHA PEL	TWA 0.05 ppm
NIOSH PEL	0.002 mg/m ³ (15 min. ceiling)
ACGIH-TLV	0.05 ppm
NIOSH-IDLH	Ca (3 ppm)

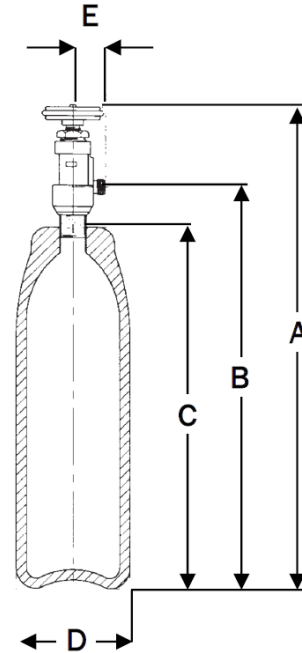
CYLINDER AND VALVE SPECIFICATIONS

Cylinder pressure (full)	650 +/- 50 Torr at 21°C	
Regulatory Approvals		
US Dot	DOT 3AA2015	
European Union	ADR and PED Compliant ("π" marked)	
Maximum working pressure	2015 psig	
Minimal burst pressure	5375 psig	
Cylinder material	Carbon steel	
Valve	Stainless steel diaphragm type	
Valve connection	1/2" VCR male	
Adsorbent material	NuMat Metal-Organic Framework	

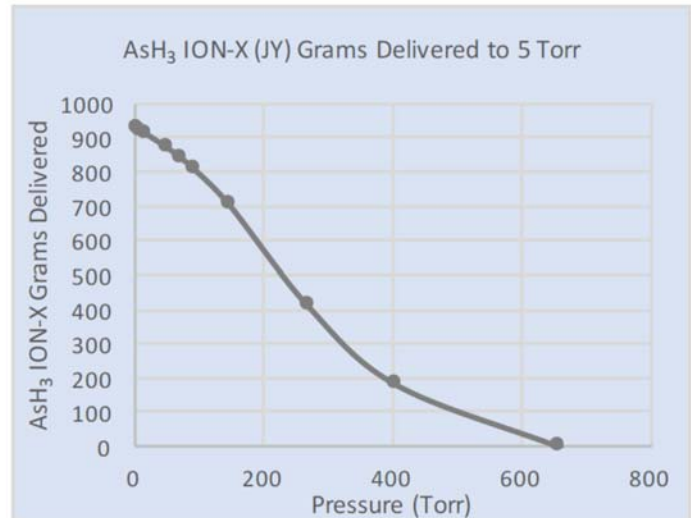
*VCR® is a registered trademark of Swagelok Marketing Co. Solon, Oh

CYLINDER DIMENSIONS AND VOLUME

Size	Units	A	B	C	D	E	Volume
JY	(in)	17.4	14.8	13.5	4.4	1.3	146 in ³
	(mm)	442	377	343	112	33	2.4 liter
UY	(in)	23.6	21.1	19.8	6.3	1.3	450 in ³
	(mm)	601	536	502	159	33	7.37 liter



FINAL CYLINDER PRESSURE (TORR)	JY DELIVERABLE CAPACITY	UY DELIVERABLE CAPACITY
100	790g	2400g
50	865g	2600g
20	910g	2710g
10	920g	2750g
5	925g	2760g



For more information, please contact us at:

VERSUM MATERIALS, LLC
VERSUMMATERIALS.COM

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