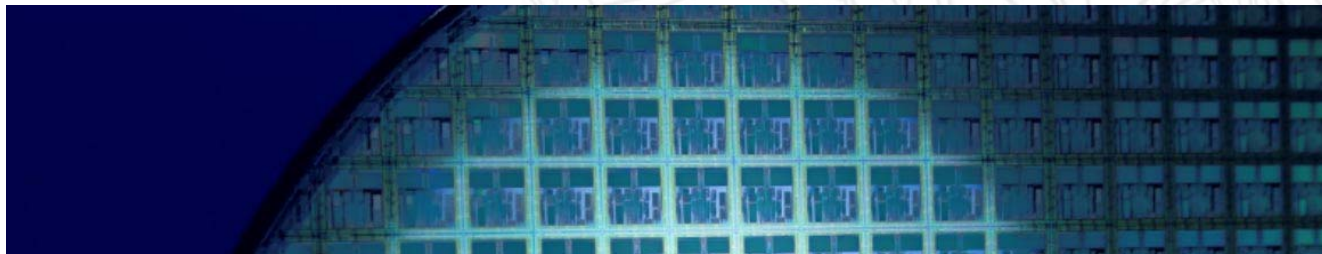


PH₃ (Phosphine) ION-X[®] Dopant Gas Storage and Delivery System



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

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)

Purity	≥ 99.9997%
Carbon Dioxide (CO ₂)	≤ 0.1 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	PH ₃
Physical Description	Colorless gas with a fish or garlic-like odor
CAS Number	7803-51-2
OSHA PEL	TWA 0.03 ppm (0.42 mg/m ³)
NIOSH PEL	TWA 0.03 ppm
ACGIH-TLV	0.3 ppm
NIOSH-IDLH	50 ppm

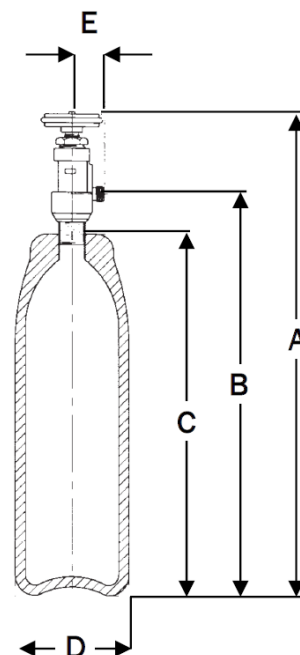
CYLINDER AND VALVE SPECIFICATIONS

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

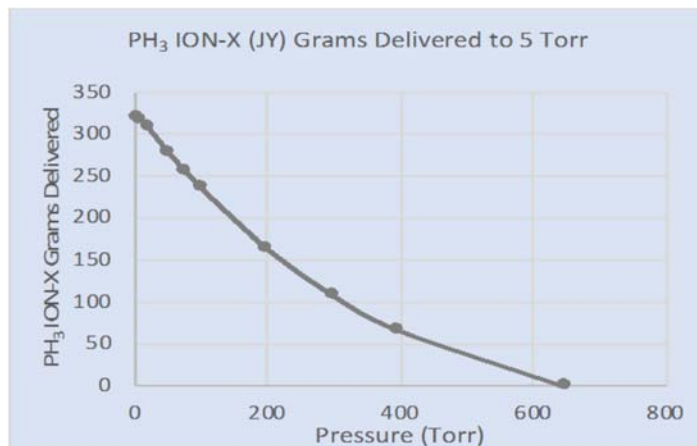
*VCR® is a registered trademark of Swagelok Marketing Co. Solon, Oh

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	235g	700g
50	280g	830g
20	307g	915g
10	317g	945g
5	320g	955g



For more information, please contact us at:

VERSUM MATERIALS, LLC
VERSUMMATERIALS.COM

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