

Air Monitoring Solvent Desorption Tubes

Introduction

In addition to capturing analytes of interest from air, a sampling device must ensure minimal background interference, sufficient capacity or breakthrough volume for the application for which it is intended, and provide an acceptable pressure drop during sampling. Sampling media meet these requirements, and conform to NIOSH, OSHA, US EPA, and ASTM specifications as required. Consistency and reproducibility are met through our stringent quality control testing. Many of the adsorbents we manufacture are proprietary and have unique and superior performance characteristics. Examples of these materials include our carbon molecular sieves and graphitized carbon



LpDNPH Cartridges

Use LpDNPH cartridges for sampling carbonyls (e.g., formaldehyde) in ambient, indoor, and industrial atmospheres. Carbonyls are trapped on a high purity silica adsorbent coated with 2,4-dinitrophenylhydrazine, where they are converted to the hydrazone derivatives. The derivatives are eluted from the cartridge in acetonitrile and are analyzed by HPLC. The S10x cartridge fits automated samplers (e.g., XonTech, Inc., ATEC Atmospheric Technology). Use in a XonTech unit requires a special reusable adapter (Cat. No. 505307). The S10L cartridge is for analysts who prefer the shorter dimensions and do not need an adapter for sampling. The cartridge, reversible and eluted by connecting it to a syringe barrel, acts as a reservoir for gravity-fed elution solvent. H10, H30, and H300 cartridges contain higher loadings of 2,4-DNPH, making them suitable for use in high concentration environments. The disposable ozone scrubber is similar to an S10L cartridge, containing 1.5g of high purity potassium iodide (ozone capacity at least 100,000ppb/hour).

SPECIFICATIONS

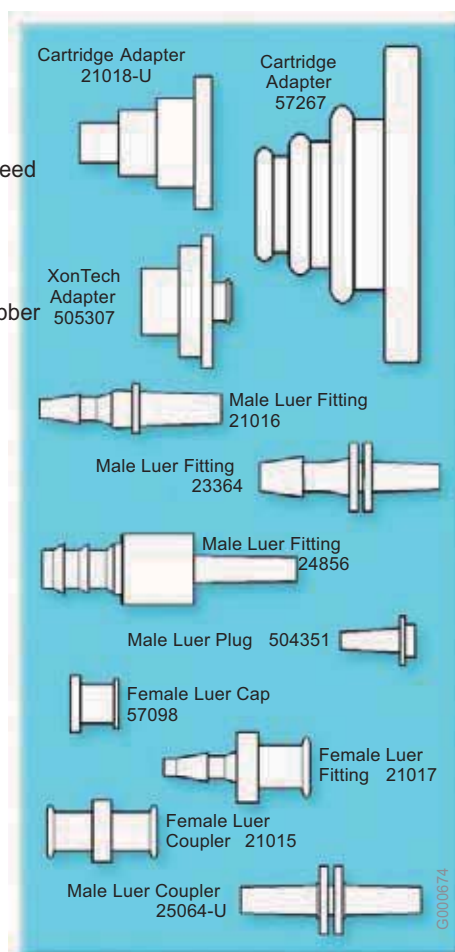
PARAMETER	S10 SERIES	H10	H30	H300
Bed Wt.	350mg	350mg	1g	10g
mg DNPH/cartridge	1	3	8.6	86
Cartridge Volume (mL)	3	3	6	20
Cartridge Length (cm)	S10: 7.5 S10x: 3.8 S10L: 4.0	7.5	7.7	9.8
Pressure Drop (inches water@200cc/min)	<3.5	<3.5	<1	<1
Theoretical Capacity (µg total carbonyls/cartridge)	75	225	643	6400

DESCRIPTION	QUANTITY	CAT. NO.	PRIC
S10	10	21026-U	
S10 Starter Kit ¹	10	21024-U	
S10	50	21014	
S10x	10	505293	
S10L	10	505358	
H10	10	505315	
H30	10	505323	
H300	10	505331	
Ozone Scrubber	10	505285	
Accessories			
Cartridge Adapters			
for S10, H10, H30	10	21018-U	
for H300	6	57267	
XonTech Adapters for S10x	10	505307	
Male Luer Fittings			
to 1/8" tubing	20	21016	
to 3/16" tubing	20	23364	
to 1/4" tubing	10	24856	
Female Luer Fittings	20	21017	
Female Luer Couplers	20	21015	
Male Luer Couplers	20	25064-U	
Lapel Clips	6	21019-U	
Bar Code Labels	100 nos	21012	
Polypropylene Tubes, 6mL ²	30	57242	
Universal Elution Rack	1	21043-U	

¹ We recommend a 6mL polypropylene tube, Cat. No. 57242.

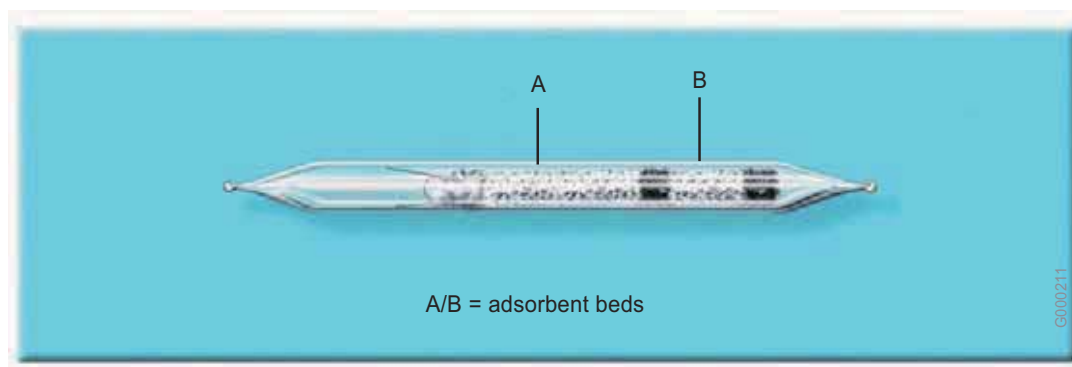
² 10 cartridges plus adapters and male luer fittings for various air sampling pumps.

³ Reservoirs for S10L cartridges.



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ORBO NO.	ADSORBENT	BED WT. (mg) A/B	OD x LENGTH (mm)	SKC INC. EQUIVALENT	QTY.	CAT. NO.	PRICE
CHARCOAL							
32 large	Activated coconut charcoal (20/40)	400/200	8 x 100	226-09	50	20228	
32 small	Activated coconut charcoal (20/40)	100/50	6 x 75	226-01	50	20267-U	
33	Activated petroleum charcoal (20/40)	700/390	8 x 150	226-36	50	20259	
34	Activated coconut charcoal, specially treated	400/200	8 x 105	—	25	20211	
301 ¹	Charcoal (20/40)	150	6 x 75	—	50	20039	
303 ¹	Petroleum charcoal (20/40)	100/50	6 x 75	226-38	50	20040-U	
304 ¹	Charcoal (low Ni) (20/40)	120/60	6 x 80	—	50	20041	
306 ¹	Petroleum charcoal (20/40)	400/200	8 x 110	—	50	20073-U	
351 ¹	4-tert-butyl catechol on charcoal	100/50	6 x 75	226-73	50	20042	
353 ¹	HBr on petroleum charcoal	100/50	6 x 75	226-38-03	25	20044	
354 ¹	Alkali-treated charcoal (AVL Barneby Cheney, 580-19)	100/50	6 x 75	226-67	50	20045	
355 ¹	4-tert-butyl catechol on charcoal	110/55	6 x 75	—	50	20046	
356 ¹	4-tert-butyl catechol on char coal	400/200	8 x 110	—	50	20047	
CARBON							
91	Carbosieve S-III carbon molecular sieve ²	130/65	6 x 75	226-121	25	20360	
90	Carboxen-564 ³ carbon molecular sieve ⁴	160/80	6 x 75	226-81	25	20358	
92	Carboxen-564 carbon molecular sieve ⁴	160/80	6 x 75	226-81	25	20362	
78	HBr on Carboxen-564 carbon molecular sieve	400/200	6 x 110	—	25	20355	
100	Carbotrap (20/40)	350/175	7 x 110	—	25	20255-U	
101	Carbotrap (20/40)	100/50	6 x 75	—	25	20254-U	
77 ¹	H ₂ SO ₄ -treated carbon bead (20/30)	500/250	8 x 150	226-29	50	20036	
SILICA GEL							
52 small	Activated silica gel (20/40)	150/75	6 x 75	226-10	50	20229	
52 large	Activated silica gel (42/60)	150/150	8 x 75	226-48	50	20263	
507	Silica gel (20/40)	520/260	8 x 110	226-15	50	20870-U	
53	Activated silica gel (20/40) with glass fiber filter	400/200	7 x 100	226-10-03	50	20265	
502 ¹	Activated silica gel (20/45)	100/50	6 x 75	226-51	50	20030-U	
504 ¹	Activated silica gel (45/60)	150/75	6 x 75	—	50	20031	
506 ¹	Activated silica gel (45/60)	300/150	8 x 75	226-10-04	50	20032	
554 ¹	H ₂ SO ₄ -coated silica gel (20/40)	150/75	6 x 75	226-53	50	20033	
FLORISIL							
60	Florisil (30/45)	100/50	6 x 75	226-39	50	20351	
POROUS POLYMERS							
42 small	Supelpak 20E (20/40)	66/33	6 x 75	—	50	20262	
42 large	Supelpak 20P (20/40)	100/50	10 x 100	—	50	20264-U	
43	Supelpak 20U (20/40) ⁴	100/50	8 x 100	226-30-04	50	20258	
44	Supelpak 20E (20/40) ⁴	100/50	8 x 100	226-30-04	50	20260-U	
49P	Supelpak 20P (20/40) with glass fiber filter (OVS-2)	270/140	—	226-30-16	10	20350	
23	2-(Hydroxymethyl)piperidine on Supelpak 20N (20/40)	120/60	6 x 85	226-118	25	20257-U	
24	2-(Hydroxymethyl)piperidine on Supelpak 20N (20/40)	150/75	6 x 105	226-117	25	20231	

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ORBO NO.	ADSORBENT	BED WT. (mg) A/B	OD X LENGTH (mm)	SKC INC. EQUIVALENT	QTY.	CAT. NO.	PRICE
POROUS POLYMERS (CONT'D)							
25	2-(Hydroxymethyl)piperidine on Supelpak 20N (20/40)	450/225	8 x 115	226-27	25	20357	
70	5% Na ₂ CO ₃ on Chromosorb P (30/60)	335/185	8 x 100	—	50	20256-U	
47	Supelpak 70	100/50	6 x 90	226-95	50	20349	
402	Tenax TA 35/60	100/50	8 x 100	226-35-03	50	20832-U	
403 ¹	Tenax TA 60/80, acetone/methanol-treated	100/50	6 x 85	—	50	20034	
601 ¹	Amberlite XAD-8 (16/50)	100	6 x 75	226-30-08	50	20048	
605 ¹	Amberlite XAD-2 (20/50)	100/50	6 x 100	—	50	20049	
608 ¹	Amberlite XAD-2 (20/50)	150/75	8 x 110	226-30-05	50	20050-U	
609 ¹	Amberlite XAD-2 (20/50)	400/200	8 x 110	226-30-06	50	20051	
613 ¹	Amberlite XAD-4	80/40	6 x 75	226-93	50	20052	
65M ¹	XAD-4 with MCE filter (OVS-2)	160/80	—	—	10	20028-U	
65P ¹	XAD-4 with glass fiber filter (OVS-2)	160/80	—	—	10	20029-U	
615 ¹	Amberlite XAD-7 (15/50)	100/50	6 x 75	226-94	50	20053	
655 ¹	Amberlite XAD-7 (20/60), H ₃ PO ₄ (phosphoric acid)-treated	80/40	6 x 75	226-98	—	20054	
657 ¹	Amberlite XAD-7, 1-(2-pyridyl)piperazine-coated	80/40	6 x 90	—	50	20055	
706 ¹	Chromosorb 102 (20/40)	100/50	8 x 100	226-107	50	20057	
710 ¹	Chromosorb 108 (60/80)	400/200	10 x 100	226-113	50	20058	
711 ¹	Chromosorb 106 (60/80)	600/300	10 x 115	226-111	50	20059	
751 ¹	Silvered Chromosorb P	30	6 x 20	—	50	20060	
1101 ¹	Porapak QS (50/80)	100/50	6 x 75	226-59-09	50	20061	
1102 ¹	Porapak P (50/80)	100/50	6 x 75	226-114	50	20062	
1103 ¹	Porapak Q (50/80)	150/75	6 x 100	226-115	50	20063	
1104 ¹	Porapak R (50/80)	70/35	6 x 75	226-59-04	50	20064	

ORBO NO.	DESCRIPTION	OD	SKC INC. EQUIVALENT	QTY.	CAT. NO.	PRICE
COATED FILTERS						
80	1-(2-Pyridyl)piperazine on glass fiber filter	37mm	—	25	20811	
80 kit	ORBO-80 filter with cassettes (unassembled)	37mm	225-9002	25	20812-U	
828 ⁶	Silver nitrate-impregnated Whatman #4	37mm	225-9008	25	20070-U	

¹ Tubes made on request.

² German Pat. No. 1935500. Patent holder: Badische Anilin- & Soda-Fabrik Aktiengesellschaft.

³ US Pat. No. 4,839,331.

⁴ Similar tubes QA tested for different methods. Refer to Appendix to Technical Bulletin 769 (Literature No. 411091).

⁵ Assembled cassettes are available on request.

⁶ Coated filters made on request.

ORBO Accessories

DESCRIPTION	CAT. NO.	PRICE
ORBO tube cutter	20596	
Replacement sapphire blade	20575	
Puller/insert tool, pk. of 2	22406	



ORBO Tube Cutter
20596

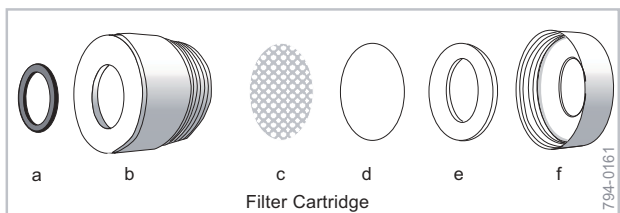


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SPECIFICATIONS FOR SMALL PUF (LOW VOLUME)		
	ORBO-1000 Small PUF	ORBO-1500 PUF/XAD-2/PUF Layers
Dimensions	22mm OD x 7.6cm length	PUF: 22mm OD x 30mm length XAD-2: 1.5g PUF: 22mm OD x 30mm length
Sampling Rate	1-5L/min	1-5L/min
PUF Density	0.022g/cm ³	0.022g/cm ³
Applications	ASTM D4861 – Pesticides/PCBs ASTM D4947 – Chlordane/Heptachlor EPA IP-8 – Pesticides/PCBs EPA TO-10A – Pesticides/PCBs	Pesticides/PCBs

SPECIFICATIONS FOR LARGE PUF (HIGH VOLUME)		
	ORBO-2000 Large PUF	ORBO-2500 PUF/XAD-2/PUF Layers
Dimensions	6cm OD x 7.6cm length	PUF: 6cm OD x 50mm length XAD-2: 10g PUF: 6cm OD x 25mm length
Sampling Rate	20-225L/min	20-225L/min
PUF Density	0.022g/cm ³	0.022g/cm ³
Applications	ASTM D6209 - PAHs EPA IP-7 – PAHs EPA TO-4A – Pesticides/PCBs EPA TO-9A – Dioxins EPA TO-13A – PAHs	Pesticides/PCBs PAHs Dioxins



ORBO PUF Cartridges

Several US EPA and ASTM methods require a polyurethane foam (PUF) adsorbent cartridge for monitoring semivolatiles in stack, ambient, indoor, and workplace atmospheres. A low pressure drop across the cartridge facilitates high volume sampling. Refer to the table for descriptions of our PUF cartridges. We thoroughly clean our PUF plugs, then test them to ensure absence of contamination.

DESCRIPTION	QTY.	CAT. NO.	PRICE
SMALL PUF CARTRIDGES AND COMPONENTS			
ORBO-1000 Assembled Cartridge – Glass holder with cleaned PUF plug	3	20557	
Cleaned PUF Plugs (7.6cm length)	3	20600-U	
ORBO-1500 Assembled Cartridge – Glass holder with cleaned XAD-2 resin and PUF plugs	3	21233-U	
Cleaned XAD-2 Resin (Supelpak-2)	100g	20279	
Glass Holder for Small PUFs	1	20556	
LARGE PUF CARTRIDGES AND COMPONENTS			
ORBO-2000 Assembled Cartridge – Glass holder, screen, and cleaned PUF plug	1	20037	
Cleaned PUF Plugs (7.6cm length)	1	20038	
ORBO-2500 Assembled Cartridge – Glass holder with cleaned XAD-2 resin and PUF plugs	1	21235-U	
Cleaned XAD-2 Resin (Supelpak-2)	100g	20279	
Glass Holder and Screen for Large PUFs	1	20563	
Stainless Steel Screens for Large PUFs (55mm diam.)	2	21008-U	

Filter Cartridge

An optional filter cartridge can be attached to the inlet of an ORBO-1000 or ORBO-1500 cartridge, to trap aerosol and particulate forms of semivolatiles. The filter cartridge contains replaceable 32mm diameter quartz microfiber filter with a stainless steel support screen.

Filter Cartridge Assembly includes

1 O-ring (a), 1 filter cartridge body (b), 1 stainless steel screen (c), 1 quartz filter (d), 1 filter ring (e), 1 cartridge screw cap (f), and 2 end caps.

Filter Cartridge consists of 1 O-ring (a), 1 filter cartridge body (b), 1 filter ring (e), and 1 cartridge screw cap (f).

DESCRIPTION	QTY.	CAT. NO.	PRICE
Filter Cartridge Assembly		21031	
Filter Cartridge		21033	
Filter Cartridge Replacement Parts			
O-Rings (a)	2	21037	
Filter Cartridge Body (b)	1	21034	
Stainless Steel Screens 32mm diam. (c)	2	21039-U	
Quartz Filters, 32mm diam. (d)	10	21038	
Filter Ring (e)	1	21035	
Cartridge Screw Cap (f)	1	21036	
End Caps	2	21041-U	

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