

Anasorb 747

Anasorb® — a Trademark of Quality

In 1973, SKC made the first commercial sorbent tube to be sold to NIOSH. Since then, sorbent tube technology has continued to advance and SKC is proud to have played a major role in this effort. To more easily identify SKC proprietary sorbents in air sampling methods and other technical areas, the name Anasorb became a registered trademark in 1990. While the first sorbents with the Anasorb trademark were beaded materials, the Anasorb name is used for SKC proprietary sorbents of all types.

Anasorb 747

Anasorb 747 is a synthetic carbon with low ash content. It was examined as a candidate material for sampling polar organic compounds that cannot be sampled using coconut charcoal, such as ketones.¹ When ketones are adsorbed on coconut charcoal, they break down by reactions involving water that are catalyzed by the chemical surface. In addition, a non-polar desorbing solvent, such as carbon disulfide, displaces the adsorbed water, which forms an immiscible phase into which the ketones partition. This causes a further drop in desorption efficiency with coconut charcoal.

In dynamic uptake studies, Anasorb 747 picked up less water vapor than coconut charcoal. Acetone and 2-butanone adsorbed from humid atmospheres showed only very slow breakdown at ambient temperatures. Breakdown was further slowed by refrigeration. Desorption efficiencies using carbon disulfide alone were high (> 90%), reproducible, and showed little difference (4 to 5%) between wet and dry samples. When a polar co-solvent (e.g., butanol) was added to the desorption solvent, recoveries from the wet sorbent increased to nearly 100%.

Anasorb 747 has properties similar to the best petroleum charcoals and can be used for a very wide range of polar and non-polar organic vapors. When combined with a solvent appropriate to mixtures such as dimethylformamide, successful sampling is possible for a majority of organic vapors.

For a list of Anasorb 747 sorbent tubes and passive samplers for particular chemical hazards, refer to the chart below.



Other sorbents with the Anasorb name:

Anasorb 727 - a microporous polymer for sampling less volatile reactive and polar compounds

Anasorb CMS - a Carbon Molecular Sieve for sampling very volatile organic compounds

Anasorb GCB1 - Graphitized Carbon Black for sampling aliphatic and aromatic hydrocarbons

Anasorb GCB2 - Graphitized Carbon Black for sampling less volatile compounds

Anasorb CSC - the new lot 2000 of Coconut-shell Charcoal for sampling organic compounds



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Sorbent Tube Applications for Anasorb 747

Chemical Sampled	Sampling Method	Anasorb 747 Amount	Size (mm) OD x L	Cat. No.
Ammonia	OSHA ID 188	250/500 mg coated with Sulfuric acid	8 x 110	226-29
2-Butanone (MEK)	NIOSH 2500	70/140 mg	6 x 70	226-81A
n-Butyl acrylate	Non-agency Method 54 ²	70/140 mg	6 x 70	226-81A
Desflurane	OSHA 106	70/140 mg	6 x 70	226-81A
Enflurane	OSHA 103	70/140 mg	6 x 70	226-81A
Ethyl alcohol (Ethanol)	OSHA 100	400 mg (front tube) 200 mg (back tube)	8 x 110	226-82
Ethyl acrylate	Non-agency Method 54 ²	70/140 mg	6 x 70	226-81A
Halothane	OSHA 103	70/140 mg	6 x 70	226-81A
Iodine	OSHA ID 212	50/100 mg coated with Potassium hydroxide	6 x 70	226-80
Iodine (particulates present)	OSHA ID 212	50/100 mg coated with Potassium hydroxide	16 to 8 x 85	226-142
Isoflurane	OSHA 103	70/140 mg	6 x 70	226-81A
Methyl acrylate	Non-agency Method 54 ²	70/140 mg	6 x 70	226-81A
Methyl alcohol	OSHA 91	400 mg (front tube) 200 mg (back tube)	8 x 110	226-82
Methyl ethyl ketone	NIOSH 2500	70/140 mg	6 x 70	226-81A
Methyl formate	OSHA SG	200/400 mg	8 x 110	226-83
Methyl methacrylate	Non-agency Method 54 ²	70/140 mg	6 x 70	226-81A
Propylene oxide	OSHA 88	70/140 mg	6 x 70	226-81A
Styrene	Non-agency Method 54 ²	70/140 mg	6 x 70	226-81A
Sulfur dioxide	OSHA ID 200	50/100 mg coated with Potassium hydroxide	6 x 70	226-80
Volatile Organic Compounds (VOCs)	EPA Method 30	5 gm	16 x 125 (VOST)	226-133
Volatile Organic Compounds (VOCs)	EPA Method 18, revised Developed by Enthalpy Analytical	200/800 mg	10 x 110	226-84
Anasorb 747 in bulk/100 gm			P226200	P226200

Passive Sampler Applications for Anasorb 747

Chemical Sampled	Sampling Method	Anasorb 747 Amount	Description	Cat. No.
Acetone	SKC Validation	500 mg	Passive Sampler	575-002
2-Butanone (MEK)	SKC Validation	500 mg	Passive Sampler	575-002
Butyl acrylate	SKC Validation	500 mg	Passive Sampler	575-002
o-Chlorostyrene	SKC Validation	500 mg	Passive Sampler	575-002
Diisobutyl ketone	SKC Validation	500 mg	Passive Sampler	575-002
Ethyl acrylate	SKC Validation	500 mg	Passive Sampler	575-002
Methyl acrylate	SKC Validation	500 mg	Passive Sampler	575-002
Methyl isobutyl ketone	SKC Validation	500 mg	Passive Sampler	575-002
Methyl methacrylate	SKC Validation	500 mg	Passive Sampler	575-002
alpha-Methyl styrene	SKC Validation	500 mg	Passive Sampler	575-002
Propyl bromide	SKC Validation	500 mg	Passive Sampler	575-002
Styrene	SKC Validation	500 mg	Passive Sampler	575-002

References

- ¹ Harper, M., "Anasorb 747 - A Universal Sorbent for Air Sampling?" presented at the Air & Waste Management U.S. EPA International Symposium on Measurement of Toxic & Related Air Pollutants, Research Triangle Park, North Carolina, April 29 - 30, 1997.
- ² Saunders, H., Methyl Acrylate, Acrylonitrile, Ethyl Acrylate, n-Butyl Acrylate, Methyl Methacrylate, and Styrene Using Anasorb 747 Sorbent Tubes, Rohm & Haas Corporate Hygiene Laboratory, Method IH9402, SKC Non-agency Method 54

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