

New! DSD-DNPH Passive Sampling Device

High Efficiency Diffusive Sampler for the Determination of Aldehydes and Ketones in Indoor and Ambient Air

Benefits

- Specified in OSHA Method 1007 for Determination of Aldehydes
- Fast sampling rates due to radial design
- High capacity – up to 7 days (not recommended for STEL)
- Stable blank data – important for LOQ
- Easy extraction relative to badges and other passive samplers
- Stable for wind, temperature and humidity

Comparison to Active Sampling

Experimental Conditions

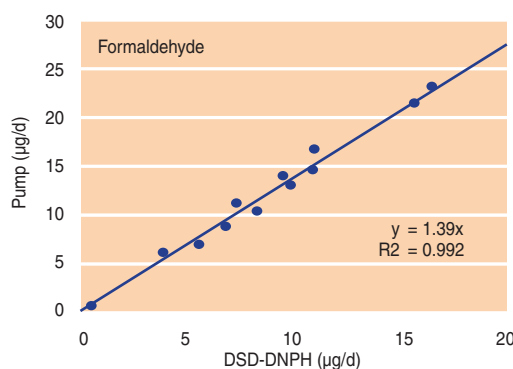
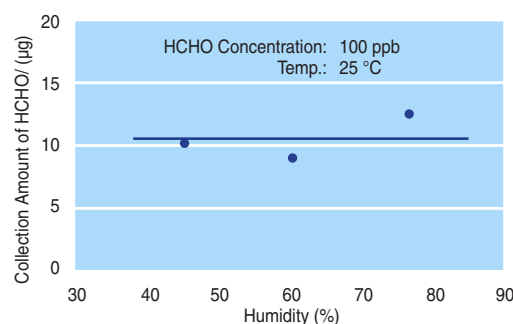
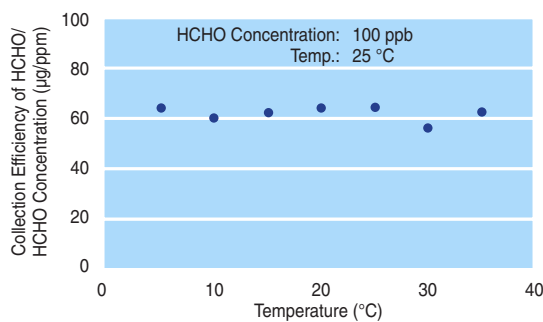
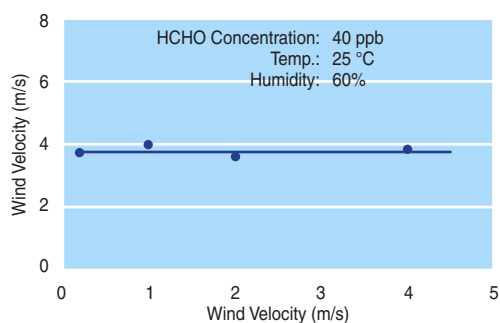
Location: Samples from both indoor and outdoor atmospheres.

Active Sampling Method:

A commonly used active DNPH cartridge was used at 100 mL/min for 24 hours. A mass flow controller was used to accurately achieve 100 mL/min sampling rate. A wet-type gas meter was used to verify the sample volume.

DSD-DNPH: The DSD-DNPH Sampler was used for 24 hours in the same location as the active sampler.

The effective sampling rate of 71.9 mL/min of formaldehyde was obtained from the slope of the graph. The formaldehyde results and Graham's Law were used to calculate the sampling rates for other compounds.



DSD-DNPH Passive Sampling Device

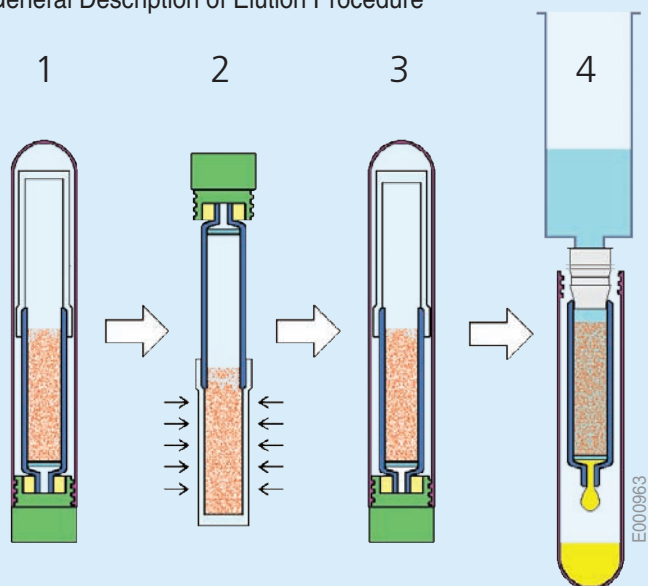
Reaction Principle

Carbonyl compounds like formaldehyde and acetone pass through the diffusive membrane and reacts with 2,4-dinitrophenylhydrazine (DNPH) coated silica gel to produce a hydrazone derivative. This derivative is eluted by acetonitrile, then analyzed by HPLC or GC.

Reference:

S. Uchiyama and S Hasegawa, "A Reactive Sensitive Diffusion Sampler for the Determination of Aldehydes and Ketones in Ambient Air", Atmospheric Environment 1999, 33, 1999-2005.

General Description of Elution Procedure



Easy Extraction Method

1. Tap cap-side of sampler on table so the DNPH coated silica falls into the elution tube.
2. Unscrew and remove the storage tube.
Important: maintain a vertical orientation with cap on the bottom.
3. Remove the cap and diffusive membrane.
Important: maintain vertical orientation of elution tube.
4. Connect 6 mL reservoir to top of the elution tube using female adapter (28224-U).

Specifications

- Adsorbent: 2,4-DNPH impregnated silica gel, 250 mg
- Particle Size: 105-210 μm , spherical silica gel
- DNPH Amount: 1 mg per tube
- Capacity: 150 μg formaldehyde
- Background: Formaldehyde < 0.1 μg
Acetaldehyde < 0.1 μg
Acetone < 0.5 μg

Ordering Information

Description	Qty.	Cat. No.
DSD-DNPH	10	28221-U
Perforated Holder	10	28222-U
Female Luer Fitting to 5/32" tubing	20	28224-U
Lapel Clip	10	21019-U
Filtration Column w/o Frit 6 mL	30	57242
Plastic Color-Coded Cap Insert	100	0001004
Visiprep™-DL Vacuum Manifold	1	57044
Visi-1™ Sample Processor	1	57080-U
Calibration Standards		
TO11/IP-6A Aldehyde/Ketone – DNPH Mix	1	47285-U
Formaldehyde-DNPH, 1 mL	1	47177
Acetaldehyde-DNPH, 1000 $\mu\text{g}/\text{mL}$, 1 mL	1	47340-U
Acetone-DNPH, 1000 $\mu\text{g}/\text{mL}$, 1 mL	1	47341
Acrolein-DNPH, 1000 $\mu\text{g}/\text{mL}$, 1 mL	1	47342
Propionaldehyde-DNPH, 1000 $\mu\text{g}/\text{mL}$, 1 mL	1	47181
Analytical Column		
Discovery® RP-Amide C16, 25 cm x 4.6 mm I.D., 5 μm particles		505064

TRADEMARKS

Discovery, Visi-1, Visiprep - Sigma-Aldrich Biotechnology LP

World Headquarters

3050 Spruce St., St. Louis, MO 63103
(314) 771-5765
sigma-aldrich.com

Order/Customer Service (800) 325-3010 • Fax (800) 325-5052

Technical Service (800) 325-5832 • sigma-aldrich.com/techservice

Development/Bulk Manufacturing Inquiries **SAFC**™ (800) 244-1173

©2008 Sigma-Aldrich Co. All rights reserved. SIGMA, SAFC, SAFC, SIGMA-ALDRICH, ALDRICH, FLUKA, and SUPELCO are trademarks belonging to Sigma-Aldrich Co. and its affiliate Sigma-Aldrich Biotechnology, L.P. Sigma brand products are sold through Sigma-Aldrich, Inc. Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please see reverse side of the invoice or packing slip.

KIX
T408065

