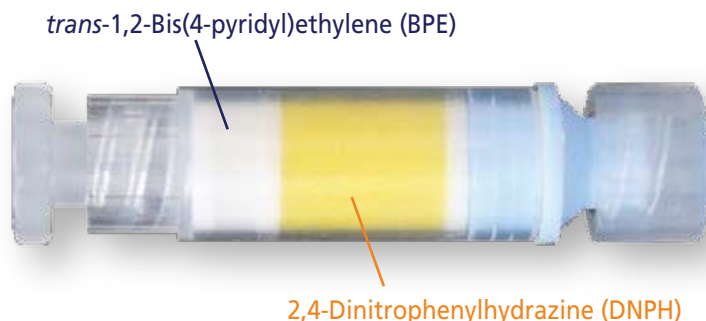


# New! BPE-DNPH\* Cartridge

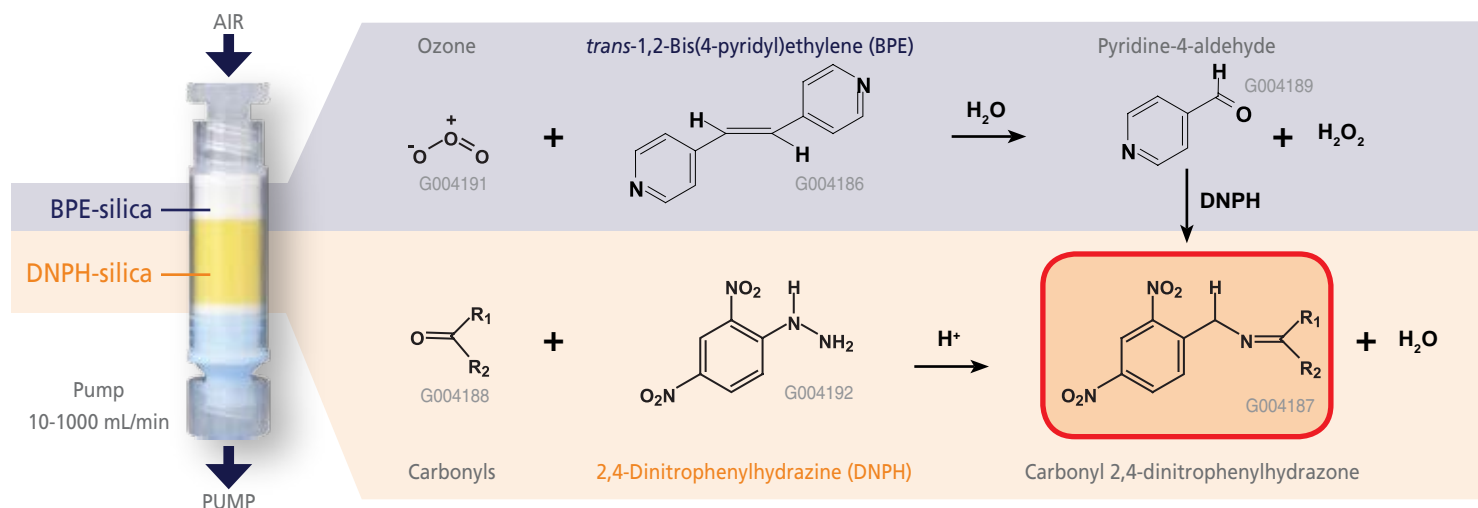
For Simultaneous Determination of Ozone and Aldehydes

## Benefits

- Dual ozone and aldehyde analysis
- Integrated ozone scrubber
  - No extra connections
  - No leaking connections
- Not affected by high humidity
- Low background



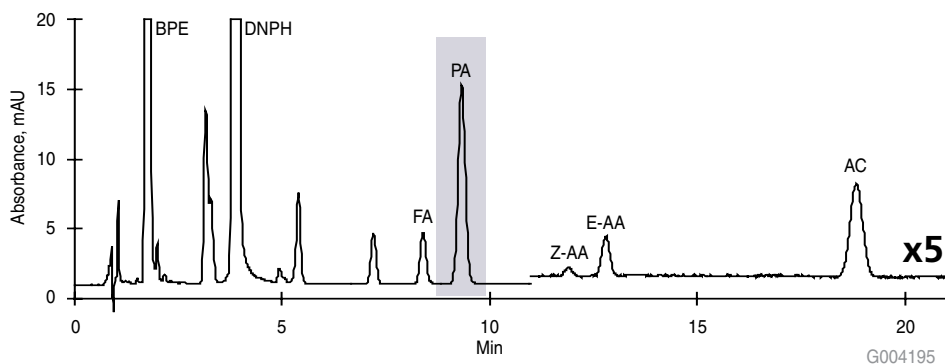
## Reaction Principle and HPLC



## HPLC Analysis of Ambient Air Sample

column: Ascentis® RP-Amide, 25 cm x 4.6 mm I.D.,  
5 µm particles (565325-U)  
mobile phase: 5 mM Ammonium Acetate,  
40:60 Acetonitrile:Water  
flow rate: 1.5 mL/min  
temp.: 40 °C  
inj.: 10 µL

1. BPE: trans-1,2-Bis(4-pyridyl)ethylene
2. DNPH: 2,4-dinitrophenylhydrazine
3. FA: formaldehyde
4. PA: pyridine-4-aldehyde
5. AA: acetaldehyde
6. AC: acetone



For more information or to obtain samples, call our technical experts at **800-359-3041/814-359-3041** or visit [sigma-aldrich.com/spe-samples](http://sigma-aldrich.com/spe-samples)

\* Patent Pending

## Sampling Under High Humidity

After Collection (Rainy, 100 mL/min, 24 hr.)



DNPH  
KI + DNPH  
BPE-DNPH

Concentrations of ozone and carbonyls measured in ambient air collected by a DNPH cartridge, a DNPH cartridge coupled with a KI ozone scrubber and a BPE-DNPH cartridge. Air collections were performed simultaneously in Chiba city, Japan, June-July 2007.

As shown in the photo, the KI scrubber adsorbed a lot of moisture and some mist moved into the DNPH cartridge. As a result, aldehyde and ketone concentrations show lower results compared to DNPH alone and BPE-DNPH cartridge. (see table below)

### Aldehyde and Ketone Concentration Under Different Climate Conditions

Analyte:	Ozone		Formaldehyde		Acetaldehyde		Acetone	
	Sunny	Rainy	Sunny	Rainy	Sunny	Rainy	Sunny	Rainy
DNPH	n.a.	n.a.	4.1	3.0	2.2	2.9	2.6	3.1
KI+DNPH	n.a.	n.a.	5.0	1.8	2.8	1.2	3.4	1.6
BPE-DNPH	41.9	15.6	5.2	3.8	2.9	3.2	3.5	3.3

Conc. units are in  $\mu\text{g}/\text{m}^3$

### Ordering Information

Description	Qty.	Cat. No.
<b>Cartridges</b>		
BPE-DNPH 90/260 mg Rezorian™	10	54269-U
BPE-DNPH 90/260 mg Rezorian	50	54270-U
<b>Calibration Standards</b>		
TO11/IP-6A Aldehyde/Ketone DNPH Mix	1	47285-U
Formaldehyde-DNPH, 1 mL	1	47177
Formaldehyde-DNPH, 1mL (100 $\mu\text{g}/\text{mL}$ as aldehyde)	5	4M7177
Acetaldehyde-DNPH, 1 mL	1	47340-U
Acetaldehyde-DNPH, 1 mL (1000 $\mu\text{g}/\text{mL}$ as aldehyde)	5	4M7340-U
4-Pyridylaldehyde-2,4-DNPHHydrazone Sol, 1 mM, 2 mL in Acetonitrile:DMSO (80:20)	3	40081-U
<b>Accessories</b>		
LpDNPH Cartridge Adapter	10	21018-U
Male Luer Fitting to 1/8"	20	21016
Male Luer Fitting to 3/16	20	23364
Male Luer Fitting to 1/4"	10	24856
Female Luer Fitting	20	21017
Female Luer Coupler	20	21015
Male Luer Coupler	20	25064-U
Male Luer Plug	12	504351
Visidry™ Female Luer Plug	12	57098
LpDNPH Lapel Clips	6	21019-U
Filtration Column w/o Frit, 6 mL	30	57242
Elution Rack	1	21043-U
<b>Analytical Columns</b>		
Ascentis RP-Amide 25 cm x 4.6 mm, 5 $\mu\text{m}$	1	565325-U
Ascentis C18 25 cm x 4.6 mm 5 $\mu\text{m}$ , 5 $\mu\text{m}$	1	581325-U

**REFERENCE:**  
Uchiyama, Shigehisa, Anal. Chem. 2008, 80, 3285-3290

**TRADEMARKS:**  
Ascentis, Discovery, Rezorian, Visidry – Sigma-Aldrich Biotechnology LP

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