

SPN 2

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Convenience in a Small Package

Ozone has been shown to interfere with the analysis of carbonyl compounds in air samples that have been drawn through cartridges containing silica coated with 2,4-dinitrophenylhydrazine [DNPH]¹⁻³.

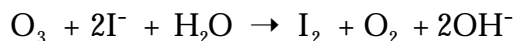
Waters Ozone Scrubber Cartridges [Box of 20, Part No. WAT054420] are designed to remove this ozone interference.

These disposable devices are intended for use in series combination with Waters Sep-Pak® DNPH-Silica Cartridges [Box of 20, Part No. WAT037500] or XPoSure™ Aldehyde Sampling Cartridges [Box of 20, Part No. WAT047205].

One Ozone Scrubber Cartridge replaces the 1/4" diameter by 36" long copper ozone denuder located in the heated zone of sampling systems used for outdoor air monitoring (PAMS program)⁴.

Chemistry and Capacity

Each Ozone Scrubber Cartridge contains 1.4 grams of granular potassium iodide. When air containing ozone is drawn through this packed bed, iodide is oxidized to iodine, consuming the ozone, according to the following reaction:



The theoretical capacity of a single cartridge is 4.2 mmoles of ozone (200 mg).

The particle size of the potassium iodide granules is optimized for good mass transfer and flow characteristics.

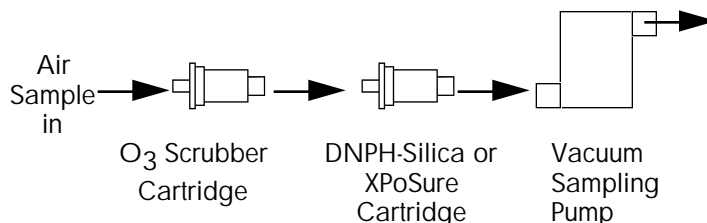
Ozone Scrubber Cartridge Construction

Waters patented radial compression technology⁵ is used to form a uniform packed bed in the long-body, Sep-Pak Plus Cartridge format.

Each body component is molded from high-purity, high-density polyethylene. Polyethylene frits retain the granules but are highly porous with minimum air-flow resistance. A gold-colored aluminum compression ring seals the cartridge.

Integral female and male Luer fittings mate conveniently to a variety of manifold plumbing adapters.

Flow Schematic for Air Sampling System



Cartridges are sealed in individual foil-lined pouches to protect them indefinitely from degradation by light, moisture, and air.

¹ Arnts, RR, & Tejada, SB, *Environ Sci Technol*, **23**(1989) 1428-1430 [SP89296].

² Slemr, J, *Fresenius J Anal Chem*, **340**(1991) 672-677.

³ Sirju, A-P, & Shepson, PB, *Environ Sci Technol*, **29**(1995) 384-392.

⁴ Purdue, LJ, Dayton, D-P, Rice, J, & Bursey, J, "Technical Assistance Document for Sampling and Analysis of Ozone Precursors, Revision 0", EPA/600-8-9/215 (1991).

⁵ U.S. Patent #4,250,035

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