Respiratory Hazards and Restroom Deodorant Blocks

Why are deodorant blocks hazardous?

Some restroom and urinal deodorant blocks contain paradichlorobenzene (p-dichlorobenzene, 1,4-dichlorobenzene, or "para"), a respiratory irritant that can trigger an asthma attack in someone who already has asthma. Most of our exposure to paradichlorobenzene occurs indoors, with the source being products such as deodorant blocks and mothballs.[1] Para persists in the environment and the National Toxicology Program reports that it is reasonably anticipated to be a human carcinogen.[2]

Many restroom and urinal deodorizing blocks that do not contain paradichlorobenzene do contain ammonium quaternary compounds ("quats"), disinfectants that are known to cause asthma when used in cleaners.[3]

What alternatives exist?

Deodorant blocks that contain surfactants or bacterial cultures can be just as effective as para- or quaternary ammonium-based blocks. In addition, autoflush toilets and urinals, as well as more frequent cleaning, may eliminate the need for deodorant blocks in certain situations.

Do alternative blocks cost more?

The para-free deodorizers chosen by Erie County (NY) for use in some of its facilities cost about $10 more per dozen, an increase that was considered minimal given the county's overall facilities operational budget. In addition, the 8-ounce enzyme-based blocks last almost three times longer than the para-based product.

Where can I get deodorant blocks without paradichlorobenzene or ammonium quaternary compounds?

Many vendors supply alternative products. A small selection of brand-name deodorant blocks without paradichlorobenzene or ammonium quaternary compounds is listed below.

Manufacturer	Product Name
IMPACT Products http://www.impact-products.com/parafree.htm	9400 and 9423 Series Para-Free Urinal Screens
NilOdor http://www.nilodor.com	Screen w/8 oz. Non-Para Block #8000
Hospital Specialty Company http://www.hospeco.com/products.asp	Rim Cage with Enzyme Deodorant Stick
Triple S http://www.triple-s.com/	SSS Ultra Urinal Screen With Enzyme Block -- Non Para

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Who else is using urinal blocks without paradichlorobenzene or ammonium quaternary compounds?
Erie County, New York, pilot-tested three alternative urinal blocks in 2001 and found two brands that were acceptable. The county now has only non-para blocks on contract and estimates that the use of these alternative products prevents 1 ton of paradichlorobenzene emissions per year. For a case study, see http://www.informinc.org/fserie.pdf. Other jurisdictions, including the City of San Francisco and the State of New York Department of Corrections, have also stopped using paradichlorobenzene blocks.

What about the urinal screens that come with the blocks?
Because of the environmental problems associated with polyvinyl chloride (PVC), INFORM recommends buying urinal screens that are not made from PVC. Screens made of polyethylene and other plastics are widely available.

Recommended purchasing contract specification

- Urinal blocks may not contain:
    - Paradichlorobenzene (CAS 106-46-7)
    - Quaternary ammonium compounds, including, but not limited to the following chemicals:
        - Parasterol or benzalkonium chloride (CAS 8001-54-5)
        - Benzethonium chloride (CAS 121-54-0)
        - Cetalkonium chloride (CAS 122-18-9)
        - Cetrimide (CAS 8044-71-1)
        - Cetylpyridinium chloride (CAS 123-03-5)
        - Benzyldimethylstearylammonium chloride (CAS 122-19-0).
    - Urinal screens may not be made from PVC.

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[1] Agency for Toxic Chemicals and Disease Registry, "Toxicological Profile for 1,4-Dichlorobenzene," 1998, http://www.atsdr.cdc.gov/toxprofiles/tp10.html.
[2] US National Toxicology Program, *Report on Carcinogens,* 10th ed., Dec. 2002, http://ehp.niehs.nih.gov/roc/toc10.html.
[3] A. Purohit *et al.*, "Quaternary ammonium compounds and occupational asthma," *International Archives of Occupational and Environmental Health*, August 2000, vol. 73, no. 6, 423-27; J.A. Bernstein *et al.*, "A combined respiratory and cutaneous hypersensitivity syndrome induced by work exposure to quaternary amines," *Journal of Allergy and Clinical Immunology*, August 1994, vol. 94, no. 2, Part 1, 257-59; P.S. Burge and M.N. Richardson, "Occupational asthma due to indirect exposure to lauryl dimethyl benzyl ammonium chloride used in a floor cleaner," *Thorax,* August 1994, vol. 49, no. 8, 842-43.

For more information contact Cameron S. Lory, 212-361-2400 x232, lory@informinc.org
or Carol Westinghouse, 802-626-8643, westies@ecoisp.com