Oregon Department of Human Services

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TECHNICAL BULLETIN

HEALTH EFFECTS INFORMATION

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ENVIRONMENTAL TOXICOLOGY SECTION

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PARADICHLOROBENZENE

For More Information Contact:

Environmental Toxicology Section
(971) 673-0440

Drinking Water Section
(971) 673-0405

SYNONYMS

para-dichlorobenzene, p-Dichlorobenzene, 1,4-Dichlorobenzene, DCB, p-DCB, PDB, dichloricide, paracide, paramoth, paradow

USES

Paradichlorobenzene has been used most commonly as a mold and mildew killer, to control and kill moths and other insects, and as an odor control chemical in cleaners, sanitizes and deodorizers. It is the active ingredient in one line of mothballs, crystals and powders.

CHEMICAL AND PHYSICAL PROPERTIES

Pure Paradichlorobenzene is a colorless to white crystal solid that evaporates continuously even at room temperature. It is practically insoluble in water but will dissolve readily in alcohols and other organic solvents. It gives off a penetrating odor of "mothballs." Paradichlorobenzene is related to but should not be confused with ortho- or meta-, p- or o-dichlorobenzenes (1,2- or 1,3-forms.) Its chemical formula is $C_6H_4Cl_2$.

OCCURRENCE AND SOURCES OF PARADICHLOROBENZENE

The dichlorobenzenes are all manmade compounds developed mainly for use as insecticides. Paradichlorobenzene is still used in a variety of household pesticides, mothproofing, deodorizing, preservation, and cleaning products. Its purest form is mothballs, crystals or powders. Most environmental PDB is due to manufacture, uses of and disposal of these consumer products. PDB is quite stable in the environment and tends to accumulate in plant and animal oils and fats, so some exposure comes to us through foods and drinking water. By far the greatest exposure potential is through handling and using products containing the compound. It can enter our bodies by inhalation, eating or drinking, or possibly by skin absorption.

ENVIRONMENTAL FATE

More than 90% of the PDB used or released evaporates into the air over a period of time. In air it is broken down over a period of days (half-life 2-6 days) depending on weather conditions. Small amounts of PDB may become entrapped in soil and

water where it survives for months. It may be absorbed by plants and animals. Generally exposure of humans from environmental sources is extremely small compared to that experienced by persons who use these products in their homes.

DRINKING WATER STANDARDS

US Environmental Protection and the Department of Human Services have adopted a regulatory maximum contaminant level (MCL) for paradichlorobenzene in drinking water at 75 micrograms per liter or ppb. (0.075 milligrams per liter or ppm.) US EPA has also classified this compound as a possible human carcinogen, because it has been shown to cause cancer in some animals. If it is shown that PDB is in fact a human carcinogen, the MCL may be reduced to even lower levels.

REMOVING PARADICHLOROBENZENE FROM DRINKING WATER

Treatment methods that can remove paradichlorobenzene from drinking water include aeration and activated charcoal filtration (GAC) methods. No one method is able to remove all the different substances that may be found in drinking water, and all treatment methods have limitations and disadvantages. Before deciding to install any treatment devices or equipment, please call the Department of Human Services, Drinking Water Program for advice (971-673-0405).