PARADICHLOROBENZENE BLOCKS	U17039,U17051,U17061,U17070

MATERIAL SAFETY DATA SHEET

PRODUCT IDENTIFICATION AND MANUFACTURER'S INFORMATION

NFPA Ratings:
Health-2; Flammability-2; Reactivity-0

Manufactured for: Unisource Worldwide, Inc.	**Chemical Name:** 1,4-dichlorobenzene
Address: P.O. Box 3000 Berwyn, PA 19312-0935	**Identity:** Deodorizer/air freshener Restroom Deodorant

Emergency Phone #: For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident call Chemtrec-Day or Night. For calls from anywhere in the US, Canada, or the Virgin Islands, call toll free to 1-800-424-9300. For calls originating elsewhere, call 1-202-483-7616 (collect calls accepted).

For Information: (216) 361-1230	**Chemical Family:** Chlorinated Aromatic

Chemical Formula: $C_6H_4Cl_2$ **CAS #:** 106-46-7 **% by Wgt. in Product:** 99.4-100.0%

SECTION 2 - WARNING STATEMENTS

Warning! Causes irritation to eyes, skin and respiratory tract irritation. Harmful if swallowed. Keep out of reach of children. Keep away from food. Combustible vapor and material. Marine pollutant. Molten material can cause severe burns. Excessive exposure may cause liver and kidney damage. **Warning!** This material has been shown to cause cancer when administered orally to rodents at high levels.

SECTION 3 - PRECAUTIONS FOR SAFE HANDLING

Skin Protection: Wear appropriate protective clothing and chemical resistant gloves to prevent skin contact. Consult glove manufacturer to determine appropriate type glove for given application. Use face shield and chemical resistant clothing such as a rubber apron when splashing is likely. Wash contaminated skin promptly. Launder contaminated clothing and clean protective equipment before re-use. Wash thoroughly after handling.	**Respiratory Protection:** Avoid breathing vapor, mist or dust. Use NIOSH/MSHA approved respiratory protection equipment (full facepiece recommended) when airborne exposure limits are exceeded (see below). If used, full facepiece replaces need for face shield and/or chemical goggles. Consult respirator manufacturer to determine appropriate type equipment for given application. Observe respirator use limitations specified by NIOSH/MSHA or the manufacturer. Respiratory protection programs must comply with 29C.F.R.1910.134.
Ventilation: Provide ventilation to control exposure levels below airborne exposure limits. Use local mechanical exhaust ventilation at sources of air contamination such as open process equipment. Consult NFPA Standard 91 for design of exhaust systems.	**Airbourne Exposure Limits:** para-Dichlorobenzene (99.4 - 100% by wt. of product). **OSHA PEL:** 75 ppm 8-Hour TWA;110 ppm short term exposure limit. **ACGIH TLV:** 10 ppm 8-Hour TWA.

NOTE: The National Toxicology Program finding of tumors in laboratory animals was not available when these airborne exposure limits were set for para-Dichlorobenzene by OSHA and ACGTH.

SECTION 4 - FIRST AID PROCEDURES

Eyes: Remove material from eyes, skin and clothing. Flush Eyes for at least 15 min., call physician. **Skin:** Immediately flush with water, remove contaminated clothing. If hot, treat for thermal effects. **If Inhaled:** remove to fresh air. If not breathing, give artificial respiration, preferably mouth to mouth. If breathing difficult, give oxygen. Call physician. **If swallowed:** Immediately get medical attention. Do NOT induce vomiting unless directed by medical personnel. Never give anything by mouth to an unconscious person.

SECTION 5 - FIRE AND EXPLOSION HAZARD/REACTIVITY DATA

Flash Point (Method Used): 150°F (Tagliabue Closed Cup)	**Extinguishing Media:** Water spray, foam, CO_2, dry chemical or any Class B extinguishing agent.

Special Firefighting Procedures: Wear full protective clothing and self-contained breather apparatus where exposure to vapor or gases is possible. Firefighting equipment should be thoroughly decontaminated after use.

Stability: Stable under normal conditions; avoid strong oxidizers, oxidizing agents.	**Incompatibility:** None known

Hazardous Decomposition: Carbon monoxide (CO), carbon dioxide (CO_2), smoke, soot, chlorides and phosgene.
Hazardous Polymerization: Does not occur.

SECTION 6 - PHYSICAL DATA

Vapor Pr. (MM HG) 20C: .6 mm Hg	**Odor:** Penetrating "mothball odor"	**Melting Point:** 53°C (127.4°F)
Vapor Density (AIR = 1): 5.1	**Color:** White crystals/pink cake	**Boiling Point:** 174°C (345.2°F)
Spec. Gravity @ 55°/4°C: 1.25	**H_2O Solubility @25C, % by wt.:** .008	

NOTE: These physical data are typical values based on material tested but may vary. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

SECTION 7 - SPILL, LEAK, & DISPOSAL INFORMATION

Emergency Spill and Leak Information: Keep people away. Shut off or extinguish all sources of ignition. Shut off lead if without risk. Small spills, keep upwind. Large spills, evacuate area. If necessary to enter spill area, wear self-contained breathing apparatus and full protective clothing including boots. Sweep up or shovel into clean metal containers. Run-off to sewers may create health and explosion hazards; notify fire, health and pollution control authorities.

Release of more than 100 pounds to the environment in a 24-hour period requires notification of the National Response Center, 1-800-424-8802. Notification of state authorities may also be required.

Disposal Information: This product can become a hazardous waste as designated by the Environmental Protection Agency under the authority of the Resource Conservation and Recovery Act (RCRA). Product (or waste) has RCRA Hazardous Waste Number U072 as designated in 40 CFR 268. Disposal by incineration is Best Available Demonstrated Treatment (BDAT). All federal, state, and local regulations should be followed in disposing of this substance.

SECTION 8 - TRANSPORT / REGULATORY

DOT Proper Shipping Name: Environmentally Hazardous Substance, Solid, N.O.S., (p-Dichlorobenzene)

DOT Hazard Class/ID No./Packing Group: CL 9, UN 3077, PG - III	**DOT Label(s):** Not required, limited quantities
US. Surface Freight Classification: para-Dichlorobenzene.,	Reportable Quantity (RQ) Under US EPA Para Dichlorobenzene 100 lbs. (45.4 kg) CERCLA Regulations

Section 313 Toxic Chemical(s): This product contains the following substances(s) which is defined as toxic chemicals under, and subject to the reporting requirements of, Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372: p-Dichlorobenzene. **Hazard Categories Under Criteria of SARA Title 111 (40 CFR Part 370):** Immediate, Delayed, Fire

TSCA Inventory: 1,4-dichlorobenzene (para-Dichlorobenzene) appears on the inventory of Chemical Substances published by the US Environmental Protection Agency (EPA) under authority of the Toxic Substances Control Act (TSCA).

Hazardous Chemical(s) under OSHA Hazard Communication Standards: This product is identified as a hazardous chemical under the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200)

SECTION 9 - ENVIRONMENTAL EFFECTS

Environmental Toxicity Information: Oral LD50 Bobwhite quail: 1,608 mg/kg, Slightly Toxic **48-hr EC50 Daphnia magna:** 7.4 mg/1, Moderately Toxic **96-hr LC50 Fathead minnow:** 4.2-30 mg/1, Moderately Toxic **96-hr LC50 Grass shrimp:** 60 mg/1, Slightly Toxic

Fathead minnow eggs were exposed to PDCB at concentration of 1, 0.57, 1.0, 2.0, 4.1 and 8.7 mg/1. Fry did not survive the 32-day exposure at 2.0 mg/1 and higher. Survival and weight of the fry was reduced at 1.0 mg/1.

PDCB was evaluated in a 24-hour semi-continuous activated sludge (SCAS) test and in the Thompson Duthle-Sturm biodegradability assay. Primary degradation was greater than 95% in the SCAS test. Theoretical CO_2 evolution was approximately 58% using the Thompson-Duthle-Sturm method. PDCB was intermediate to readily biodegrable in both assays.

SECTION 10 - HEALTH EFFECTS SUMMARY

The following information summarizes human experience and results of scientific investigations reviewed by health professionals for hazard evaluation of para dichlorobenzene and development of Precautionary Statements and Occupational Control Procedures recommended in this document.

A - EFFECTS OF EXPOSURE

Inhalation and skin contact are expected to be the primary routes of occupational exposure to paradichlorobenzene (PDCB). Eye contact with PDCB has been reported to produce pain in the eyes, but has not been reported to cause serious injury to the eyes. This material produces a burning sensation when held in contact with skin, though injury to the skin is minimal. Minor eye and nasal irritation have been reported with exposure to PDCB in air at concentrations as low as 50 ppm. Exposure to PDCB above recommended airborne exposure limits may result in headache, swelling around the eyes, inflammation of the mucous membranes of the nose, loss of appetite, nausea and vomiting. Though composition data was limited, several reports in the literature indicate jaundice and liver toxicity as a result of overexposure. Toxicity studies indicate high doses of PDCB produce liver and kidney injury in laboratory animals.

B - TOXICOLOGICAL DATA

Data from laboratory studies and from the scientific literature on PDCB are summarized hereby: Single exposure (acute) studies indicate:

Oral-Slightly Toxic; Rat LD50 3,826 mg/kg) Category III **Dermal**-Practically Nontoxic; (Rabbit L50 >5,010 mg/kg) Category IV **Vapor Inhalation**-Practically Nontoxic; (Rat 4-hr LC50> 6.0 mg/1) **Eye Irritation**-Sever irritation, clearing in 13 days; (Rabbit) Category 1 **Skin Irritation**-Slightly irritating; (Rabbit, 4-hr exposure 2,9/8.0) Category III

Repeated inhalation studies (up to 14 weeks) with PDCS, conducted in rats, rabbits, guinea pigs and dogs, have resulted in liver, kidney and lung damage, reversible eye changes (rabbits only), reduced body weights and number of white blood cells, clinical signs and animal deaths at high exposure levels, while no effects were reported in monkeys. No adverse effects were observed in rats following repeated skin exposure (3 weeks) to PDCS. In repeat oral dosing studies (4 to 31 weeks), rodents given PDCB exhibited changes in body weight, some organ weights and clinical parameters, porphyria and kidney damage (male rats only) with liver toxicity. Changes in bone marrow, spleen, thymus, and nasal turbinates were also observed in rats at dosages which produced some deaths.

No teratogenic efects were reported in the offspring of rats administered PDCB. Exposure of pregnant rats and rabbits to PDCB in inhalation produced no increase in treatment-related birth defects. No effects were seen on the ability of male or female rats to reproduce when exposed to PDCB in inhalation for 2 successive generations; kidney toxicity (male rat only) and liver toxicity with reductions in body weight and pup survival during days 0-4 of nursing were observed.

PDCB has generally produced no genetic changes in a variety of standard tests using animals and animal or bacterial cells. A positive response was reported in one assay using animals and mixed responses were reported in another assay using animal cells. PDCB has been shown to bind to nucleic acids in mouse organs, but not to bind nucleic acids in rat organs and to increase cell replication in male rat kidneys.

C - CANCER STUDIES

Long-term inhalation exposure of rodents (57 and 76 weeks for rats and mice, respectively) did not produce an increase in tumors; liver and kidney weights and urine coproporphyrin were increased at the highest exposure level. In long-term oral dosing studies with rats and mice (2-year) conducted by the National Toxicology Program (NTP); reduced survival and body weights with tumors of the kidney (male rat only) and liver (male and female mice), as well as kidney damage in rat and changes in mouse liver, thyroid and adrenal gland were observed. Mechanistic data suggest the PDCB products kidney tumors via a special mechanism unique to the male rat. These data show hyaline droplet kidney toxicity in the male rat only. This toxic response is considered to result from reaction of PDCB and/or its metabolite (2,5-dichlorophenol) with alph-2u-globulin, a protein unique to the male rat (not found in female rats, mice or humans). The mechanism of male rat kidney tumor formation is considered to be secondary to the interaction of PDCB and alpha-2u-globulin.

As a consequence of the NTP studies, PDCB is listed as a substance that "may reasonably be anticipated to be" carcinogenic by NTP in their Annual Report on Carcinogens and is classified as "possibly carcinogenic to humans" by the International Agency for Research on Cancer (ARC Monographs, Vol. 29). The NTP and IARC listings are based on their determination that there is inadequate evidence for the carcinogenicity of PDCS in humans and sufficient evidence for the carcinogenicity of PDCB in experimental animals.

These listings are based exclusively on studies which found kidney tumors in male rats and liver tumors in male and female mice. There is a large body of scientific evidence beyond these studies which conclusively demonstrates the tumor findings have only minimal relevance in humans. Many regulatory and advisory groups throughout the world, such as the US Environmental Protection Agency (EPA), the US Consumer Product Safety Commission (CPSC), and the World Health Organization's review of the entire body of scientific evidence addressing the health effects of PDCB. EPA, for examples, rejected a proposal to classify PDCB as a "probable" human carcinogen and decided that the less restrictive "possible" classification was warranted. CPSC more recently concluded that PDCB products should not be treated as "toxic" or "hazardous" products under federal law.

Para-dichlorobenzene is also listed as a carcinogen under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65).

Additional Information: Excretion of dichlorophenol, a metabolite of PDCB, in urine of workers has occurred after exposure to PDCB. The presence of dichlorophenol in the urine is revealed by its distinctive odor. Prolonged exposure to PDCB produces a noticeable odor in urine of workers.

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