

# Bulkhead Bonder DBB III

## Material Safety Data Sheet

### Section 1 – Manufacturer Information

**Manufacturer Diversified Products Mfg Inc.**  
5523 Baggett Marysville Rd  
Oroville, CA 95965

Trade Name Bulkhead Bonder

**Emergency Phone # 800-535-5053**  
Prepared By Safety Advisor  
Prepared/Revised Nov 14, 2003 New  
Part Number DBB III

Health.....2	Flammability...3	Reactivity...2	PPE
0 Normal use Material	0 Will Not Burn	0 Stable	See section 4&5
1 Slight Hazard (temporary)	1 Possible to Burn	1 Unstable if Heated	
2 Health Affected (lengthy)	2 Burns if Heated	2 Violent Chemical Change	
3 Extreme Danger	3 Easily Burns	3 Shock & Heat Sensitive	
4 Severe or Fatal	4 Very Easily Burns	4 May Explode Workplace need	

### Section 2 - Ingredients

Chemical/Common Name	CAS-Number	%	PEL-OSHA		TLV-ACGIH	
			TWA	STEL	TWA	STEL
Tetrahydrofuran (THF)	109-99-9	> 25% Proprietary	200 ppm	250 ppm	200 ppm	250 ppm
Polyurethane	Proprietary*	> 25% Proprietary	**	**	**	**
2,6-di-tert-butyl-4-methylphenol	128-37-0	0.012%				

\*This product does not contain any ingredients classified as hazardous under the OSHA Hazard Communication Standard 29CFR 1010.1200

\*\*None established and/or not required to be listed. The remainder of the MSDS sheet deals principally with the THF component except as modified herein.

### Section 3 – Health Data

**CARCINOGENICITY** IARC, NTP, NIOSH, EPA, OSHA and MAK do not list TETRAHYDROFURAN as a carcinogen.

**HEALTH EFFECTS: Acute: Inhalation:** The material is moderately discomforting to the upper respiratory tract and may be harmful if inhaled. Inhalation of vapor may aggravate a pre-existing respiratory condition. Over exposure by inhalation may result in the irritation of the mucus membrane and cause coughing, chest pains, nausea, dizziness, headache and narcosis. Exposure to high concentrations can affect the central nervous system due to the strong narcotic effect of the material. Concentrations greater than 2500 ppm were required to produce anesthesia in animals. Anaesthetic properties are poor in that onset is delayed and recovery slow. Pronounced hypotensions and marked respiratory hypernea accompany narcosis. Other symptoms include muscular hypotonia and disappearance of corneal reflexes followed by coma and death. **Eye:** The material is highly discomforting to the eyes, may cause chemical burns and is capable of causing pain and severe conjunctivitis. Corneal injury may develop, with possible permanent impairment of vision, if not promptly and adequately treated. THF applied as a 20% aqueous solution to rabbit eyes produced irritation. **Skin:** The material is moderately discomforting to the skin and is capable of causing skin reactions, which may lead to dermatitis. Open cuts, abraded or irritated skin should not be exposed to this material. **Ingestion:** The material is moderately discomforting to the gastrointestinal tract and may be harmful if swallowed. On ingestion tetrahydrofuran may cause liver and kidney damage. Warning: The intake of alcoholic beverages enhances the toxicity effects. Chronic: Repeated exposure has been associated with cytolytic hepatitis and fatty degeneration of the liver. A case history suggests that interaction of THF and enflurane (an anesthetic) may provoke epileptic seizures following surgery. Inhalation of THF at concentrations greater than 3000 ppm, 8hours/day for 20 days produced irritation and evidence of hepatic and renal injury in animals. Male rats inhaling more than 5000 ppm THF for 12 days, 4 hours/day showed signs of systemic intoxication, skin and respiratory irritation, liver function disturbance and abnormalities in glucose function. Muscle acetylcholinesterase activity increased in a concentration-dependent manner in male rats that inhaled 200 ppm for 18 weeks, 6 hours/day. Hepatic protein and mixed function oxidase activity also increased. At 2000 ppm, liver function was inhibited. In a 13 week inhalation study, ataxis was reported in rats at 5000 ppm and narcosis in mice at 1800 ppm. Hepatocytomegaly developed in mice of both sexes at 5000 ppm while uterine atrophy and degeneration of the adrenal cortex was found in female mice. The parent compound of tetrahydrofuran, furan is carcinogenic in rats based on an increase incidence of cholangiocarcinoma and hepatocellular neoplasms of the liver and increased incidences of mononuclear cell leukemia. In male and female mice, furan induced hepatocellular neoplasms and benign pheochromocytomas of the adrenal gland.

**PRIMARY ROUTES OF ENTRY:** Inhalation, Skin **TARGET ORGANS:** eyes, CNS, skin, respiratory system

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Skin diseases. Individuals with bronchial asthma and/or other types of chronic obstructive respiratory diseases may develop bronchospasm if exposure to processing fumes or vapors is prolonged.

#### EMERGENCY FIRST AID PROCEDURES:

**Inhalation:** Remove to fresh air. Lay patient down. Keep warm and rested. If breathing is shallow or has stopped, ensure clear airway and apply resuscitation. Transport to hospital or doctor.

**Eye Contact:** Immediately hold the eyes open and flush continuously for at least 15 minutes with fresh running water. Ensure irrigation under eyelids by occasionally lifting the upper and lower lids. Transport to hospital or doctor without delay. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

**Skin Contact:** Immediately remove all contaminated clothing, including footwear (after rinsing with water). Wash affected areas thoroughly with water (and soap if available). Seek medical attention in the event of irritation.

**Ingestion:** Contact a Poison Control Center. Do not induce vomiting. Give a glass of water.

*After first aid, get appropriate in-plant, paramedic or community medical support. Note to physicians: Treat symptomatically.*

### Section 4 Chemical Data

Boiling Point..... 151F (THF)	Specific Gravity (Water=1)..... 0.891 (THF)
Vapor Pressure..... 114 mm Hg @ 59F (THF)	Percent Volatile by Volume(%)..... 100% (THF)
Vapor Density (Air=1)..... >1 (THF)	Evaporation Rate (Butyl Acetate=1)..... 8 (THF)
Solubility in Water..... 30% at 77F (THF)	Weight lbs per gallon..... Zip Tite
PH (1% solution)..... 5 (20% aqueous) (THF)	Melting Point..... -163F (THF)

**Appearance and Odor Information:** Viscous, thick to pour liquid, generally off amber to neutral in color with a fruity odor .

## Section 5 – Physical Data

Flash Point (Method Used).....-14.44 C Closed Cup (THF) Flammable limits: LEL: 2% v/v UEL: 11.8% v/v (THF)

Autoignition Temperature.....321 C (THF)

**Extinguishing Media:** Alcohol stable foam; dry chemical powder; BCF (where regulations permit) Carbon Dioxide.

**Special Fire Fighting Procedures:** Wear positive pressure self-contained breathing apparatus (SCBA). Caution! Structural firefighters' protective clothing will only provide limited protection.

**Unusual Fire and Explosion Hazards:** Most vapors are heavier than air. They will spread along the ground and collect in low or confined areas. Vapors may travel to a source of ignition and flash back.

**Incompatibility (Materials to Avoid):** THF will attack some forms of plastic, rubber and coatings. It is explosive with potassium hydroxide, sodium hydroxide, and sodium tetrahydroaluminate since caustic alkalis deplete the inhibitor, reacts with potassium dioxide 2-aminophenol to form an explosive product; reacts violently with metal halides; forms explosive hydrogen gas with borane or lithium tetrahydroaluminate and reacts vigorously with bromine and calcium hydride + heat. THF is incompatible with sulfanyl chloride and oxidizing materials.

**Hazardous Decomposition-By Products:** Thermal oxidative decomposition of Tetrahydrofuran can produce carbon oxides and irritating vapors.

**Will hazardous Polymerization Occur?:** Tetrahydrofuran forms explosive (>1%) peroxides when exposed to air or sunlight. It is inhibited to prevent peroxide formation. Hazardous polymerization may occur in the presence of cationic inhibitors such as strong proton acids or selected Lewis acids.

**Conditions to Avoid for Polymerization:** Exposure to heat, ignition sources, and incompatibles.

## Section 6 – Spill or Leak Procedures

**Steps to be taken in Case Materials are Released or Spilled:** Ventilate closed areas before entering. Wear protective equipment SCBA and clothing during cleanup. Caution! Structural firefighters' protective clothing will only provide limited protection. Eliminate all ignition sources (no smoking, flares, sparks or flames in the immediate area). Ground all equipment used when handling the product. Do not touch or walk through spilled material. Soak up material with absorbent or cover with dry earth, sand or other non-combustible material and transfer to containers for disposal. Use clean non-sparking tools to collect absorbed material.

**Waste Disposal Methods:** A good candidate for rotary kiln incineration at 1508 to 2912 F, for liquid injection incineration at 1202 to 2912 F, and fluidized incineration at 842 to 1796 F. Dispose of waste in accordance with local state and federal regulations.

## Section 7 – Exposure Control Information

**Ventilation:** General exhaust is adequate under normal operating conditions.

**Respiratory Protection:**

**Exposure range >200 to 1000 ppm:** Air Purifying, Negative Pressure, Half Mask

**Exposure range >1000 to <2000 ppm:** Supplied Air, Constant Flow/Pressure Demand, Half Mask

**Exposure range >2000 to unlimited ppm:** Self-contained Breathing Apparatus, Pressure Demand, Full Face, Cartridge Blk

**Hands & Feet:** Rubber Neoprene or PVA gloves, safety footwear & rubber boots.

**Eye Protection:** Wear protective eyeglasses or chemical safety goggles, per OSHA eye and face protection regulations (29CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

**Protective Gloves:** Wear chemically protective rubber, neoprene or PVA gloves.

**Other Protective Equipment:** Wear chemically protective boots, aprons and gauntlets to prevent prolonged or repeated skin contact.

**Other Engineering Controls:** Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

**Contaminated Equipment:** Separate contaminated equipment work clothes from street clothes. Launder before reuse. Remove contaminated material from your shoes and clean personal protective equipment.

**Work & Hygienic Practices:** Never eat, drink or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet or applying cosmetics.

## Section 8 – Special Precautions

**Precautions to be taken in Handling and Storage** Prevent skin and eye contact. Avoid breathing vapors and mist. Use in a well ventilated area. Avoid smoking, bare lights or ignition sources. Vapors may ignite on pumping or pouring due to static electricity. Use spark free tools when handling. Vapors may travel a considerable distance to source of ignition.

**Maintenance Precautions** Do not remove or deface label. Check that containers are clearly labeled and free from leaks.

**Other Precautions.** Do not drink, eat or smoke while working with the product. Wash before such an activity.

## Section 9-Transportation Information (49CFR 172.101)

**D.O.T. Proper Shipping Name:** Tetrahydrofuran Mixture

**D.O.T. Hazard Class** 3.1

**If a consumer commodity code N/A What is the Hazard Class** 3.1

**Label:** Flammable Liquid [3]

**D.O.T. Id. No.** UN 2056

**Hazard label or marking required on Shipping Ctn:** Packing Group II

## Section 10 – 313 Supplier Notification

EPA Regulations:

**RCRA 40CFR:** Listed U213 Ignitable Waste **TSCA:** Listed **SARA 40 CFR 372.65:** Not Listed

**CERCLA 40 CFR 302.4:** Listed per RCRA Section 3001 1000lb

**SARA EHS 40CFR 355:** Not Listed

## Disclaimer

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