

MATERIAL SAFETY DATA SHEET

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Manufacturer's
Name: Universal Woods Inc.

Emergency
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Preparation: Terry Newhouse

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SECTION 1 - IDENTITY

Common Name: Hardboard Unisub

CAS No: NA

Trade name & Synonyms: HB Unisub

Chemical Family: hard and soft woods

Description: Wood fibers, resin solids and wax.

Formula: NA

SECTION 2 - HAZARDOUS INGREDIENTS

Principal Hazardous Component (s): This material is hardboard (HB). As such it is essentially inert (non-toxic) during handling and storage. This MSDS also discusses potential hazards created in the sublimation process. The product may release small quantities of formaldehyde. Emissions decrease with time as the panels age. Only information specific to HB is included as required. PLEASE NOTE: Other components used in the sublimation process such as inks are separate materials and are not covered in this MSDS.

<u>Chemical & common names:</u>	1999 ACGIH Threshold <u>Limit Value:</u>	OSHA <u>PEL :</u>
Wood	Hard wood 1 mg/M3 Soft wood 5 mg/M3	15 mg/M3 15 mg/M3
Formaldehyde	0.3 ppm ceiling	0.75 ppm TWA 2.0 ppm STEL 0.5 ppm Action Level 0.1ppm Training Level

NOTE : The following materials were detected at the exposure levels listed below in a test of 8 hour Time Weighted Average exposures during the sublimation process in a small un-vented room (to simulate worst case conditions). No odor was noted in this controlled situation.

<u>Chemical name:</u>	<u>Concentration</u>
Wood particulates	Total dust : None detected (<0.216 mg/M3) Respirable dust: None detected (<0.246 mg/M3)
Formaldehyde	< 0.091 ppm (estimated)

SECTION 3 - PHYSICAL & CHEMICAL CHARACTERISTICS

Boiling Point: NA		Specific Gravity: 0.4- 0.8
Vapor Pressure (mm Hg): NA	Percent Volatile by Volume (%): 0	Vapor Density (Air = 1): NA
Evaporation Rate (butyl acet = 1): NA	Solubility in Water: <0.1 %	Reactivity in Water: None known

Appearance and Odor: HB Unisub is shaped as a dark panel. It has a aromatic wood odor. The sublimation or engraving process could also create an odor.

FIRE AND EXPLOSION DATA

Explosive Limits: See below under Unusual Fire and Explosion Hazards

Flash Point: NA	Flammable Limits in Air % by Volume:	<u>Lower</u> NA	<u>Upper</u> NA
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Extinguisher Media: Sand, water, carbon dioxide	Auto-Ignition Temperature: 400 -500 degrees F for dust
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Special Fire Fighting Procedures: This material is a combination of wood and binders. Combustion products are expected to be primarily formaldehyde and other aldehydes, carbon monoxide and smoke. See hazardous decomposition products.

Unusual Fire and Explosion Hazards: Sawing, sanding or machining can produce wood dust as a by-product which may present an explosion hazard if a dust cloud contacts an ignition source. An airborne concentration of 40 grams of dust per cubic meter of air is often used as the LEL for wood dust.

SECTION 4 - PHYSICAL HAZARDS

Stability: Stable
 Conditions to Avoid: Excessive dust build up can create fire or explosive conditions.

Incompatibility (Materials to Avoid): Avoid contact with oxidizing agents. Avoid open flame. Product (sawdust) may ignite in excess of 400 degree F.

Hazardous Decomposition Products: Thermal and/or thermal oxidative decomposition can produce irritating and toxic fume and gases, including carbon monoxide, hydrogen cyanide, aliphatic aldehydes, rosin acids, terpenes and polynuclear aromatic compounds.

The actual sublimation process emits extremely small amounts of formaldehyde. Tests have shown that concentrations are below the 0.1 ppm training level. However, due to background levels of formaldehyde present in all indoor environments, it is possible that the 0.1 ppm level could be exceeded.

Hazardous Polymerization: Will not occur.

SECTION 5 - HEALTH HAZARDS: Product is a solid sheet of hardboard. No hazards anticipated during handling and storage. The following information was developed for the products produced by HB during the sublimation process.

Primary Routes of Exposure:

Inhalation (Gaseous Formaldehyde)—Formaldehyde may cause temporary irritation to eyes, nose and throat. Some reports suggest that formaldehyde may cause respiratory sensitization, such as asthma, and that pre-existing respiratory sensitization may be aggravated by exposure. Formaldehyde is listed by the International Agency for Research on Cancer (IARC) as a probable human carcinogen. The National Toxicology Program (NTP) includes formaldehyde in the Annual Report on Carcinogens. Formaldehyde is regulated by OSHA as a potential cancer agent. In studies involving rats, formaldehyde has been shown to cause nasal cancer after long-term exposure to very high concentrations (>14 ppm), far above those normally found in the workplace using this product. The National Cancer Institute (NCI) conducted an epidemiological study of industrial workers exposed to formaldehyde (published June 1986). The NCI concluded that the data provides little evidence that mortality from cancer is associated with formaldehyde exposure at the levels experienced by workers in the study.

Wood Dust- Dust may cause nasal dryness, irritation and obstruction. Coughing, wheezing, and sneezing; sinusitis and prolonged colds have also been reported. Depending on species, may cause respiratory sensitization and/or irritation. Prolonged exposure to wood dust has been reported by some observers to be associated with nasal cancer. IARC classifies wood dust as a carcinogen to humans (Groups 1). This classification is based on IARC's evaluation of increased risk in the occurrence of adeno-carcinomas of the nasal cavities and paranasal sinuses associated with exposure to wood dust. IARC did not find sufficient evidence to associate cancers of oropharynx, hypopharynx, lung, lymphatic and hematopoietic systems, stomach, colon or rectum with exposure to wood dust.

Eye Contact: Gaseous formaldehyde may cause temporary irritation or a burning sensation. Wood dust can also cause mechanical irritation.

Skin Contact: Both formaldehyde and various species of wood dust may evoke allergic contact dermatitis in sensitized individuals.

Ingestion: Not likely to occur.

Signs and Symptoms of Overexposure:

Inhalation: Irritation, possible sensitization.

Eye Contact: Formaldehyde may cause temporary irritation or a burning sensation. Wood dust can also cause mechanical irritation.

Skin Contact: Both formaldehyde and various species of wood dust may evoke allergic contact dermatitis in sensitized individuals.

Ingestion: None known.

Effects of Overexposure: Respiratory and skin irritation. Possible sensitization.

Medical Conditions Generally Aggravated by Exposure: : Respiratory and skin irritation, possible sensitization.

Chemical Listed as Carcinogen or Potential Carcinogen: Yes, formaldehyde and certain woods.

Emergency and First Aid Procedures:

Inhalation: Hazard is unlikely. Remove from further exposure. Keep warm and at rest. If not breathing, give artificial respiration. If breathing is difficult, trained personnel should administer oxygen. Seek immediate medical attention.

Eyes: Flush eyes with large amounts of water. Remove to fresh air. If irritation persists, get medical advice.

Skin: Wash affected areas with soap and water. Get medical advice if rash or persistent irritation or dermatitis occurs.

Ingestion: Not applicable.

Primary Routes of Exposure: Hazard is unlikely. Inhalation of decomposition products possible

SECTION 6 - SPECIAL PROTECTION INFORMATION :

Respiratory Protection: Usually not necessary to reduce exposures to TLV during anticipated normal use. If requested, due to odor or if TLV is exceeded; use organic vapor filtration system with a respirator type appropriate for the exposure level.

Ventilation: Usually not necessary to reduce exposures to TLV during normal use. General or local exhaust may be necessary to minimize odors in small rooms. **All confined space work should be done in accordance with OSHA 1910.146.**

Protective Gloves: Possible material handling hazard (cuts, abrasion). Use cloth or leather if necessary or requested.

Eye Protection: Safety glasses required.

Other Protective Clothing or Equipment: None known.

SECTION 7 - SPECIAL PRECAUTIONS AND SPILL/LEAK PROCEDURES

Precautions to be Taken in Handling and Storage: None known. Product is hardboard.

Other Precautions: Use sufficient local or general ventilation to reduce odors.

Steps to be Taken in Case Material is Released or Spilled: Currently none for product. It is hardboard.

Waste Disposal Methods: Currently none for product. It is hardboard.