PANOLAM INDUSTRIES
INTERNATIONAL INCORPORATED

MATERIAL SAFETY DATA SHEET

SECTION I - PRODUCT AND COMPANY IDENTIFICATION

Product:	Thermofused Melamine Panel
Trade Name:	PANOLAM™
Product Description:	Decorative paper impregnated with amino-formaldehyde resin, thermofused to particleboard or medium density fiberboard
Product Use:	Manufacture of residential and office furniture, cabinets, shelving, store fixtures and hospitality furnishings
CAS Number:	Not applicable
Chemical Family:	Mixture
Formula:	Mixture
Current Version:	January 28, 2008
Previous Revision:	December 30, 2002
Manufacturer Information:	PANOLAM INDUSTRIES 20 Progress Drive Shelton, CT 06484 (203) 925-1556

SECTION II – COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL IDENTITY	CAS NUMBER	PER CENT BY WEIGHT
Ligno-Cellulosic Materials		85 – 95 %
Polymerized Amino-Formaldehyde and/or Phenol -Formaldehyde Resins		6 – 11 %
Formaldehyde	50-00-0	< 0.1%

OSHA HAZARDOUS COMPONENTS (29 CFR1910.1200):

CHEMICAL COMPONENT	OSHA PEL's	ACGIH TLV's
Formaldehyde (CAS# 50-00-0)	TWA: 0.75 ppm STEL: 2 ppm (15 min)	0.30 ppm Ceiling
Wood Dust/Ligno-cellulosic fiber[1,2]	TWA: 15.0 mg/m3 (total dust) TWA: 5.0 mg/m3 (respirable fraction)	
Wood Dust/Ligno-cellulosic fiber [1,2] (Softwood)		TWA: 5.0 mg/m^3 STEL: 10.0 $mg/^3$ (15 min)
Wood Dust/Ligno-cellulosic fiber [1,2] (Certain hardwoods such as beech and oak)		TWA: 1.0 mg/m^3
Wood Dust/Ligno-cellulosic fiber [1,2] (Western red cedar)		TWA: 2.5 mg/m^3

ACGIH: *American Conference of Governmental Industrial Hygienists* — *TLV:* *Threshold Limit Value*
OSHA: *Occupational Safety and Health Administration* — *PEL:* *Permissible Exposure Limit*
TWA: *Time-Weighted Average Exposure Concentration* — *STEL:* *Short-Term Exposure Limit*

1. In AFL-CIO v. OSHA 965 F. 2d 962 (11th Cir. 1992), the court overturned OSHA's 1989 Air Contaminants Rule, including the specific PELs for wood dust that OSHA had established at that time. The 1989 PELs were: TWA - 5.0 mg/m^3; STEL (15 min.) - 10.0 mg/m^3 (all soft and hard woods, except Western red cedar) Western red cedar: TWA - 2.5 mg/m^3.

2. Wood dust is now officially regulated as an organic dust under the Particulates Not Otherwise Regulated (PNOR) or Inert or Nuisance Dust categories at PELs noted in the Composition/Information on Ingredients section of this MSDS. However, a number of states have incorporated provisions of the 1989 standard in their state plans. Additionally, OSHA has announced that it may cite companies under the OSH Act General Duty Clause under appropriate circumstances for non-compliance with the 1989 PELs.

SECTION III – HEALTH HAZARDS

ROUTE OF ENTRY: Skin contact [X] Skin absorption [ ] Eye contact [X]
Inhalation [X] Ingestion [ ]

EFFECTS OF ACUTE EXPOSURE:

Inhalation: Gaseous formaldehyde may cause temporary irritation to nose and throat. Some reports suggest that formaldehyde may cause respiratory sensitization, such as asthma, and that pre-existing respiratory disorders may be aggravated by exposure. Wood dust may cause nasal dryness, irritation and obstruction. Coughing, wheezing, sneezing, sinusitis and prolonged colds have also been reported.

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

Skin Contact: Formaldehyde may evoke allergic contact dermatitis in sensitized individuals. Wood dust may evoke allergic contact dermatitis in sensitized individuals.

Ingestion: Not likely to occur under normal conditions of use.

EFFECTS OF CHRONIC EXPOSURE:

Formaldehyde: International Agency for Research on Cancer (IARC) has listed formaldehyde as a probable human carcinogen. The National Toxicology Program (NTP) includes formaldehyde in its Annual Report on carcinogens. OSHA regulates formaldehyde 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.
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: Wood dust (and/or ligno-cellulosic fibers), depending on species, may cause respiratory sensitization and/or irritation. IARC classifies wood dust as a carcinogen to humans (Group 1). This classification is based primarily on IARC's evaluation of increased risk in the occurrence of adenocarcinomas of the nasal cavities and paranasal sinuses associated with exposure to wood dust. IARC did not find sufficient evidence to associate cancers of the oropharynx, hypopharynx, lung, lymphatic and hematopoietic systems, stomach, colon or rectum with exposure to wood dust. On December 11, 2002 the National Toxicology Program (NTP) published the 10th edition of its Report on Carcinogens. This report now lists wood dust as a "known human carcinogen".

SECTION IV – FIRST AID MEASURES

Inhalation: Remove to fresh air. Get medical attention if irritation persists, or if severe coughing or breathing difficulty occurs.

Eye Contact: Flush eyes with large amounts of water. Remove to fresh air. If irritation persists, get medical attention.

Skin Contact: Wash affected areas with soap and water. Get medical attention if rash or irritation persists or dermatitis occurs.

Ingestion: Not likely to occur under normal conditions of use.

SECTION V - FIRE OR EXPLOSION HAZARDS

Conditions of flammability:	Open Flame
Extinguishing media:	Water, Dry Chemical, CO2
Hazardous combustion products:	CO, CO_2, NH_3, Aliphatic Aldehydes, Rosin Acids, Terpenes
Special fire fighting procedures:	Firefighters should wear Chemical Cartridge Respirators approved for Formaldehyde and Organic Vapors. Use water to wet down wood dust to reduce the likelihood of ignition or dispersion of dust into the air.
Flash point & method of determination:	Not applicable
Upper flammable limit:	Not applicable
Lower flammable limit:	Not applicable
Auto-ignition temperature:	200 - 250°C
Explosion Hazards:	Sawing, sanding or machining can produce wood dust (and/or ligno-cellulosic fibers) which may present a strong to severe 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 VI – ACCIDENTAL RELEASE MEASURES

Steps to be taken in case of a leak or spill: Sweep or vacuum spills for recovery or disposal; avoid creating dust conditions.

SECTION VII – HANDLING AND STORAGE

Precautions to be taken in handling and storing: This product should not be stored where exposure to water could occur or near a source of ignition. Avoid storing in areas of high relative humidity and increased temperature. High temperature and inadequate ventilation could allow concentrations of formaldehyde vapors in the storage area. Adequate ventilation of the storage area will help reduce the build-up of the formaldehyde vapors. It is recommended to store product in an area of relative humidity and temperature that approximates end use.

SECTION VIII – EXPOSURE CONTROL/PERSONAL PROTECTION

Hand protection: Not required; cloth, leather gloves recommended.

Eye protection: Wear side shield safety glasses or safety goggles during the machining of this product.

Respiratory protection: When machining, use a NIOSH approved dust mask. Avoid prolonged or repeated breathing of wood dust in air.

Body protection: Outer garments may be desirable when machining.

Foot protection: Safety shoes.

Ventilation controls: PANOLAM™ thermofused melamine panels emit less than 0.3 ppm formaldehyde when tested according to the ASTM E 1333 large scale chamber standard test. Panels produced on board with no UF resin added will emit significantly less than that. In practice, actual formaldehyde levels will depend upon product loading rates, ambient temperature and humidity. Forced ventilation may be required to maintain formaldehyde concentrations in the workplace below the regulated values. Use vacuum (explosion proof) or local ventilation to maintain dust levels below the regulated value when machining.

SECTION IX - PHYSICAL DATA

Physical state (room temperature):	Solid
Odor:	Pungent odor in process, otherwise mild wood odor;
Appearance:	Colored solid or print
Odor threshold:	1 ppm (recognition)
Boiling point:	Not applicable
Freezing point:	Not applicable
Percent volatile by volume:	Not applicable
Specific gravity:	0.7 - 0.8
Evaporation rate:	Not applicable
Vapor pressure:	Not applicable
Vapor density:	Not applicable
pH:	Not applicable
Coefficient of water/oil distribution:	Not applicable
Solubility in water:	<0.1%

SECTION X – STABILITY AND REACTIVITY

Stability:	Stable under normal conditions.
Conditions to Avoid:	Avoid product contact with any high temperature sources that could induce thermal decomposition. High relative humidity and temperature can also increase the rate of formaldehyde emissions.
Incompatibility (Materials to Avoid):	Avoid oxidizing agents and strong acids
Hazardous decomposition products:	Thermal and/or thermal oxidative decomposition can produce irritating and toxic fumes and gases, including carbon monoxide, hydrogen cyanide, aldehydes, organic acids and polynuclear aromatic compounds.
Hazardous polymerization:	None.

SECTION XI- TOXICOLOGICAL PROPERTIES

Toxicity:	LD_{50}: Not available LC_{50}: Not available
Irritancy:	Both formaldehyde and wood dust may cause irritation of skin, eyes, throat and nose.
Sensitization:	Some reports suggest that formaldehyde may cause respiratory sensitization, such as asthma, and that pre-existing respiratory disorders may be aggravated by exposure.
Carcinogenicity:	FORMALDEHYDE - IARC has classified formaldehyde as 2A Carcinogen. California's Safe Drinking Water and Toxic Enforcement Act of 1986, commonly known as "Proposition 65" (Cal. Health and Safety Code SS 25249.5-25249.13) has recognized formaldehyde as a chemical known to the state to cause cancer. WOOD DUST – IARC classifies wood dust as a carcinogen to humans (Group 1). NTP classifies wood dust as a "known human carcinogen" in its 10th edition of its Report on Carcinogens.
Reproductive toxicity:	There is one Soviet report of menstrual disorders and secondary sterility in women exposed to formaldehyde and some other chemicals.
Teratogenicity:	No information available.
Mutagenicity:	Insufficient human or animal effect information.
Toxicologically synergistic products:	No information available.

SECTION XII – ECOLOGICAL INFORMATION

No information available

SECTION XIII – WASTE DISPOSAL METHOD

Waste disposal method: This product is not considered a hazardous waste under EPA Hazardous Waste Regulations 40 CFR Part 261, however, State and local requirements for waste disposal may differ and should be reviewed. Incinerate or landfill in accordance with local, provincial, state, federal regulations.

SECTION XIV – TRANSPORT INFORMATION

PIN Number	Not applicable
TDG Shipping Name	Not applicable
TDG Hazard Class	Not applicable
DOT Class	Not a DOT hazardous material

It is the responsibility of the transporting organization to follow all applicable laws, regulations, and rules relating to the transportation of the material.

SECTION XV – REGULATORY INFORMATION

NFPA Rating: Health: 1 Flammability: 1 Reactivity: 0
HMIS Rating: Health: 1 Flammability: 1 Reactivity: 0

OSHA (29CFR 1910.1200): See Section II of MSDS

TSCA: All components are listed on the TSCA Inventory

SARA 311/312:

Immediate (Acute) Health Hazard:	No
Delayed (Chronic) Health Hazard:	No
Fire Hazard:	No
Reactive Hazard:	No
Sudden Release of Pressure Hazard:	No

SARA 313: This product does not contain chemical(s) in concentrations that should require reporting under SARA 313.

California Proposition 65: This product contains formaldehyde, a substance known to the State of California to cause cancer per California's Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) Section 25249.8. Based on information gathered on the formaldehyde emissions of particleboard and MDF substrates used in the production of our TFM panels, in accordance with the statute, it has been determined that the formaldehyde emissions of our TFM panels are below the "no significant risk" level and do not require warnings per Section 25249.10 .

HUD: This material conforms to the formaldehyde emission requirements for particleboard of the U.S. Department of Housing and Urban Development. Under 24 CFR 3280 Manufactured Home Construction and Safety Standards, formaldehyde emissions must be less than 0.3 ppm for particleboard tested in accordance with FTM-2, the NPA/HPMA Large Scale Chamber Test.

WHMIS: This product is not considered a controlled product. It has been classified in accordance with the hazard criteria of the *Controlled Products Regulations* and the MSDS contains all the information required by the *Controlled Products Regulations*.

DSL: All materials are listed

SECTION XVI – OTHER INFORMATION

Label:

WOOD DUST
CAUTION!

SAWING, SANDING OR MACHINING WOOD PRODUCTS CAN PRODUCE WOOD DUST WHICH CAN CAUSE A FLAMMABLE OR EXPLOSIVE HAZARD.

WOOD DUST MAY CAUSE LUNG, UPPER RESPIRATORY TRACT, EYE AND SKIN IRRITATION. SOME WOOD SPECIES MAY CAUSE DERMATITIS AND/OR RESPIRATORY ALLERGIC EFFECTS.

- **Avoid dust contact with ignition source.**
- **Sweep or vacuum dust for recovery or disposal.**
- **Avoid dust contact with eyes and skin.**
- **FIRST AID: If inhaled, remove to fresh air. In case of contact, flush eyes and skin with water. If irritation persists call a physician.**

For additional information, see the Material Safety Data Sheet.

DISCLAIMER:

The information and data herein are believed to be accurate and have been compiled from sources believed to be reliable. It is offered for your consideration, investigation and verification. Buyer assumes all risk of use, storage and handling of the product in compliance with applicable federal, state, provincial and local laws and regulations. Panolam Industries makes no warranty of any kind, express or implied, concerning the accuracy or completeness of the information and data herein. The implied warranties of merchantability and fitness for a particular purpose are specifically excluded. Panolam Industries will not be liable for claims relating to any party's use of or reliance on information and data contained herein regardless of whether it is claimed that the information and data are inaccurate, incomplete or otherwise misleading.