columbia
FOREST PRODUCTS

PureBond® Material Data Safety Sheet

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PART I: PRODUCT IDENTIFICATION

Product: Decorative hardwood plywood assembled with cores of all veneer; phenolic particleboard, phenolic medium density fiberboard, phenolic oriented strandboard, phenolic combination core construction or Medite® MDI medium density fiberboards; in assemblies laminated with Columbia's proprietary, formaldehyde-free, soy-based PureBond assembly process.

Aspen or poplar veneer core lamination blanks shipped without decorative hardwood face and back veneers laminated with Columbia's proprietary, formaldehyde-free, soy-based PureBond assembly process.

Synonyms: NAF (No added formaldehyde) or NAUF (No-added urea formaldehyde) decorative hardwood plywood, LEED NC EQ 4.4 compliant hardwood plywood.

Trade Names: PureBond® brand and PureBond used together with these additional, proprietary designations: JayCore® KayCore®, Classic Core® (specified with phenolic cross bands), UV Wood® (on PureBond panels)

Manufacturer:
Columbia Forest Products
7820 Thorndike Road
Greensboro, NC 27409
www.columbiaforestproducts.com

Contact: Ang Schramm, Technical Services Manager
Emergency phone: 334-616-7745

PART II: HAZARDOUS INGREDIENTS

Component: **Wood dust**[1] (Generated as waste by-product of further fabrication by user)
CAS No.: None
Exposure limits:

	PEL	STEL
ACGIH TLV Softwoods and most hardwoods (except Beech, and Oak)	5 mg/m^3 TWA	10 mg/m^3
ACGIH TLV Certain Hardwoods (i.e. Beech and Oak)	(15 min) 1 mg /m^3 TWA	N/A
OSHA All soft and hard woods (except Western Red Cedar)	5 mg/m^3 TWA	10 mg/m^3
OSHA Western Red Cedar	2.5 mg/m^3 TWA	N/A

PART III: PHYSICAL PROPERTIES

Description: Solid wood flooring and hardwood veneers, unfinished and UV Finished multi-ply composite wood panels consisting of various combinations of hardwood or decorative veneer faces, bonded to other wood veneers or strawboard using adhesives containing no added formaldehyde. Generally used in cabinets, furnishings, flooring, and in other non-structural applications. Typically provided as solid wood strip flooring, 50"X100" lay-on hardwood veneers, and 4' X 8' hardwood panels. Other dimensions of hardwood plywood and veneers are available. Thickness of products range from 1/42" of an inch to over 1".

Specific gravity: Usually less than 1, but varies depending on wood species and moisture content.
Boiling point: Not applicable.
Solubility in water: Insoluble.
Appearance/Odor: Normal for natural wood. Light to dark in color. Color and odor vary by species and expired time since processing.

PART IV: FIRE AND EXPLOSION DATA

Flash point:	600° F for wood.
Autoignition temp.:	Varies (typically 400° F to 500° F)
Explosive limits in air:	N/A for hardwood plywood. 40 g/m^3 (LEL) for wood dust.
Extinguishing media:	Water, carbon dioxide, sand
Special fire fighting procedures:	Follow established procedures for extinguishing wood source fire.
Unusual fire and explosion hazard:	Hardwood plywood does not present an explosion hazard. Sawing, sanding, or machining of hardwood plywood 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 wood dust per cubic meter of air is often used as the LEL for wood dust.

PART V: REACTIVITY DATA

Stability:	Stable under normal conditions.
Incompatibility:	Avoid contact with strong oxidizing agents and drying oils. Avoid open flame. Product may ignite at temperatures in excess of 400° F, depending on length of time of exposure.
Hazardous decomposition products:	Thermal and/or thermal oxidative decomposition of wood can produce irritating and toxic fumes and gases, including carbon monoxide, hydrogen cyanide, aldehydes, organic acids, and polynuclear aromatic compounds.
Conditions to avoid:	Avoid open flames or other ignition source.
Storage:	In a cool, dry place, away from ignition sources. Provide adequate ventilation.

PART VI: HEALTH AND HAZARD DATA:

Eye contact:	Wood dust can cause mechanical irritation.
Skin contact:	Wood dust from various species of wood may evoke allergic contact dermatitis in sensitized individuals.
Ingestion:	Not likely to occur.
Inhalation:	Wood dust may cause nasal dryness and/or irritation. Coughing, sneezing, wheezing, sinusitis, prolonged colds, and headaches have also been reported. May aggravate preexisting respiratory conditions or allergies. Wood dust may cause nasal obstruction.
Chronic effects:	Depending on species, wood dust may cause dermatitis on prolonged, repetitive contact. Wood dust may cause respiratory sensitization and/or irritation. Pre-existing respiratory disorders may be aggravated by exposure.

Prolonged exposure to wood dust has been reported by some observers of European furniture workers to be associated with nasal cancer. 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, lung, lymphatic, and hematopietic systems, stomach, colon, or rectum with exposure to wood dust. The National Toxicology Program (NTP) has also listed wood dust as a known human carcinogen. Wood dust is not listed as a carcinogen by ACGIH or OSHA. A large case control nasal cancer mortality study in North Carolina, Mississippi, Washington and Oregon (1962-1977) did not

demonstrate an association between nasal cancer and occupations normally associated with wood dust.

PART VII: PRECAUTIONS AND SAFE HANDLING

Ventilation:	Provide adequate ventilation and exhaust to keep airborne contaminant concentration levels below the OSHA PELs.
Personal protective equipment:	Wear goggles or safety glasses when manufacturing or machining any wood product. Wear NIOSH/MSHA approved respirator when the allowable limits may be exceeded. Other protective equipment, such as gloves and outer garments may be needed, depending on dust conditions.
Fire prevention:	Avoid open flames or other ignition sources. Keep fire extinguisher readily available.

PART VIII: EMERGENCY AND FIRST AID PROCEDURES

Eyes:	Flush with large amounts of water. Remove to fresh air. If irritation persists, seek medical attention.
Skin:	Wash affected area with soap and water. If rash, persistent irritation, or dermatitis occurs, seek medical attention.
Inhalation:	Remove to fresh air. Get medical advice if persistent irritation, severe coughing, or breathing difficulty occurs.
Ingestion:	Not applicable.

PART IX: SPILL, LEAK, STORAGE, AND DISPOSAL

Pick up, vacuum, or sweep spills for recovery and/or disposal. Avoid creating dusty conditions. Provide good ventilation where dust conditions cannot be avoided during cleanup. Place recovered wood dust in a container for proper disposal. Dispose in accordance with Federal, State, and Local regulations. Disposal is the responsibility of the generator.

PART X: KEY TO COMMONLY USED ACRONYMS

ACGIH:	American Conference of Government and Industrial Hygienists
EPA:	Environmental Protection Agency
HUD:	US Department of Housing and Urban Development
IARC:	International Agency for Research on Cancer
LEL:	Lowest explosion limit
Mg/m^3:	Milligrams per cubic meter
MSDS:	Material Safety Data Sheet
NTP:	National Toxicology Program
OSHA:	Occupational Safety and Health Administration
PEL:	Permissible exposure limit
PPM:	Parts per million
STEL:	Short term exposure limit
TLV:	Threshold limit value
TWA:	Time weighted average

PART XI: USER RESPONSIBILITY

Important: This information is offered in good faith. It is believed to be accurate and has been compiled from sources believed to be reliable. It is offered for your consideration, investigation, and verification. Columbia Forest Products makes no warranty of any kind, expressed or implied, concerning the accuracy or completeness of the information and data herein. Furthermore, Columbia Forest Products 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.

It is the responsibility of the user to comply with local, state, and/or federal regulations concerning the storage, use, processing, and disposal of the product or subsequently generated waste. It is the responsibility of the user to ensure that this MSDS is the most current version.

IMPORTANT FOOTNOTE[1]

CONCERNING OSHA PELS FOR WOOD DUST

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 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.

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 under PART II 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.

MATERIAL SAFETY DATA SHEET

SierraPine
COMPOSITE SOLUTIONS

Date Prepared: 04/01/07

Product: Encore™ Urea Formaldehyde Free Particleboard

1. Composite Panel Product and Company Identification

Product Identifier: Unfinished, Low-VOC Particleboard Panels
General use: Re-manufacturing, construction and furniture processes.
Product Description: A panel product manufactured from cellulosic materials bonded together with a synthetic resin or other suitable binder, and which may contain other additives.

MANUFACTURER:
SierraPine
800 48th Street
Springfield, OR 97478

EMERGENCY TELEPHONE NUMBERS:
(541) 726-5300

2. COMPOSITION/INFORMATION ON INGREDIENTS

	Wt %	CAS Registry #
Ligno-cellulosic Materials	90 - 93	N/A
Alkaline Phenolic Resin	6 - 9	Proprietary
Formaldehyde	<0.1	50-00-0

OSHA HAZARDOUS COMPONENTS (29 CFR 1910.1200):

	EXPOSURE LIMITS
Formaldehyde CAS Registry # 50-00-0	OSHA PEL – TWA: 0.75 PPM OSHA PEL – STEL: 2 PPM ACGIH TLV – Ceiling: 0.30 PPM
Wood Dust/Ligno-cellulosic fiber [1, 2]	OSHA PEL – TWA 15.0 mg/m^3 (total dust) [3] 5.0 mg/m^3 (respirable fraction)
Wood Dust/Ligno-cellulosic fiber, Inhalable Fraction [3]	ACGIH TLV – TWA: 1.0 mg/m^3

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. These were total dust test based limits.[3] A common practice since 1989 has been to meet and exceed the lower 1989 limits which were supported by the wood products industry.

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.

3. Considerable debate continues to surround the inhalable-to-total dust conversion factor. ACGIH has proposed to use a ratio of 2.5 "for interpreting studies with exposure measurements based on total dust sampling" for purposes of defining a TLV for inhalable dust. However, a recent NIOSH paper states "In the case of exposures to wood dust, several studies with side-by-side sampling have revealed that inhalable sampling will increase the apparent dustiness of an atmosphere by between 150 and 400%, with an average closer to the higher end of this range." [citing Harper (2002), Martin (1998), Tatum (2001), among others].

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:
Manual or mechanical cutting or abrasion processes performed on the product can result in generation of wood dust.

POTENTIAL HEALTH EFFECTS:

ACUTE: Wood dust may cause nasal dryness, irritation or obstruction when inhaled, and irritation to skin or eyes on contact. Coughing, wheezing, sneezing, sinusitis and prolonged colds have also been reported. Various species of wood dust may evoke allergic contact dermatitis in sensitized individuals. Ingestion in not likely to occur with normal use.

CHRONIC: Wood dust, 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. The National Toxicology Program (NTP) includes wood dust in its Annual Report on carcinogens.

HMIS Ratings: Health: 1 Fire: 0 Physical Hazard: 0
Hazard Scale: *0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe*

4. FIRST AID MEASURES

INHALATION:
Wood dust may cause unpleasant obstruction in the nasal passages, resulting in dryness of nose, dry cough, sneezing and headaches. Remove to fresh air. Get medical attention if irritation persists, severe coughing or breathing difficulty occurs.

EYE CONTACT:
Wood dust may cause mechanical irritation. Treat dust in eye as foreign object. 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 applicable under normal use.

5. FIRE FIGHTING MEASURES

FIRE FIGHTING HAZARD:
Wood is classified as a Class A combustible material.

FLASHPOINT AND METHOD:
Not Applicable.

FLAMMABLE LIMITS:

LFL: Wood dust: 40 grams per cubic meter of air

AUTOIGNITION TEMPERATURE:

1) 275 C (527 F): Source: Textbook of Wood Technology 4th Edition, A.J. Panshin & Carl de Zeeuw, 1980, McGraw-Hill Book Company New York, NY.
   200 C (392 F): Source: Principles of Fire Protection, Arthur E. Cote and Percy

2) Bugbee, 1988, National Fire Protection Association, Quincy, MA.

3) It is difficult to identify the specific ignition temperature of wood because of the large number of variables involved. Source: Essentials of Fire Fighting 4th Fourth Edition, 1998, Edited by Richard Hall and Barbara Adams, Fire Protection Publications, Oklahoma State University, Stillwater, OK.

4) Ignition of wood takes place when wood is subject to sufficient heat and in atmospheres that have sufficient oxygen. Ignition can be of two types: piloted or unpiloted. Piloted ignition occurs in the presence of an ignition source (such as a spark or flame). Unpiloted ignition is ignition that occurs where no pilot source is available. The surface temperature of wood materials has been measured somewhere between 300 C and 400 C (572 F to 752 F) prior to piloted ignition. Unpiloted ignition depends on special circumstances that result in different ranges of ignition temperatures. At this time, it is not possible to give specific ignition data that apply to a broad range of cases. With convection heating of wood, unpiloted ignition has been reported as low as 270 C (518 F) and as high as 470 C (878 F). Source: Wood Handbook Wood as an Engineering Material, 1999, Forest Products Laboratory, U.S. Department of Agriculture, Madison, WI.

FIRE FIGHTING INSTRUCTIONS:
Fire fighting procedures for extinguishing a Class A fire should be followed.
Source: Essentials of Fire Fighting 4th Fourth Edition, 1998, Edited by Richard Hall and Barbara Adams, Fire Protection Publications, Oklahoma State University, Stillwater, OK.

1) When extinguishing a fire in a wood dust or fiber pile care needs to be taken. A direct stream of water, into the pile from a hose, could cause the burning material to become airborne creating a risk in spreading the fire to other areas. Source: Handbook of Industrial Loss Prevention, 1967, Factory Mutual Engineering Corporation, McGraw-Hill Book Company New York, NY.

2) Water is used to quench the burning material below its ignition temperature. The addition of Class A foams (sometimes referred to as wet water) may enhance water's ability to extinguish Class A fires, particularly those that are deep seated in bulk materials (such as piles of hay bales, sawdust piles, etc.). This is because the Class A foam agent reduces the water's surface tension, allowing it to penetrate more easily into piles of material. Class A fires are difficult to extinguish using oxygen-exclusion methods like CO_2 flooding or coating with foam because these methods do not provide the cooling effect needed for total extinguishment. Source: Essentials of Fire Fighting 4th Fourth Edition, 1998, Edited by Richard Hall and Barbara Adams, Fire Protection Publications Oklahoma State University, Stillwater, OK.

FIRE FIGHTING EQUIPMENT:
Use recommended Class A fire fighting equipment when fighting an incipient fire.
Source: Essentials of Fire Fighting 4th Fourth Edition, Edited by Richard Hall and Barbara Adams, Fire Protection Publications, Oklahoma State University, Stillwater, OK.

UNUSUAL FIRE OR EXPLOSION HAZARDS:

Sawing, sanding or machining can produce wood dust as a by-product that may present an explosion hazard.

NFPA Rating for Wood Dust (Scale 0-4): Health = 1
Fire = 1
Reactivity = 0

Refer to the National Fire Protection Association's standard 664 "Standard for the Prevention of Fires and Explosions in Wood Processing and Woodworking Facilities" for more details on wood dust explosions. Copies of this standard are available from the NFPA web site www.nfpa.org)

6. ACCIDENTAL RELEASE MEASURES

LAND SPILL:
Generally not applicable to panel products, however if a spill occurs the applicable federal, provincial, state, and local regulations must be followed.

WATER SPILL:
Generally not applicable to panel products, however if a spill occurs the applicable federal, provincial, state and local regulations must be followed.

7. HANDLING AND STORAGE

STORAGE:
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 temperature. It is recommended to store product in an area of relative humidity and temperature that approximates end use.

Refer to the Composite Panel Association (CPA) Technical Bulletin titled *"Storage and Handling of Particleboard and MDF" for further information.* Available on website www.pbmdf.com

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:
Certain activities of the re-manufacturing process of this product could possibly produce wood dust. Provide adequate general and local exhaust ventilation to keep airborne contaminant concentration levels below the applicable levels.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

RESPIRATOR:
Wear NIOSH/MSHA approved respirator when the allowable exposure limits may be exceeded.

PROTECTIVE CLOTHING:
Wear side shield safety glasses during the re-manufacturing of this product. Other protective equipment such as gloves and outer garments may be needed depending on dust conditions.

GENERAL HYGIENE:
Practice proper personal hygiene.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Description: light to dark colored solid, color and odor are dependent on the wood species.

Boiling Point: not applicable	PH: not applicable
Evaporation Rate: not applicable	Solubility in Water (% by weight): Insoluble
Freezing Point: not applicable	Specific Gravity: generally < 1
Melting Point: not applicable	Vapor Density: not applicable
Molecular Formula: not applicable	Vapor Pressure: not applicable
Molecular Weight: not applicable	Viscosity: not applicable
Oil-Water Distribution Coefficient: not applicable	% Volatile by volume (70°F): not applicable

10. STABILITY AND REACTIVITY

STABILITY:
Stable under normal conditions.

REACTIVITY:
Avoid product contact with open flame and any temperature sources that could induce thermal decomposition. Avoid product contact with oxidizing agents, drying oils and strong acids. For further information on the reactivity of wood products, refer to Chapter 17 of the Wood Handbook (Wood Handbook Wood as an Engineering Material, 1999, Forest Products Laboratory, U.S. Department of Agriculture, Madison, WI

HAZARDOUS DECOMPOSITION:
Thermal and/or thermal-oxidative decomposition can produce irritating and toxic fumes and gases, including carbon monoxide, hydrogen cyanide, polynuclear aromatic hydrocarbons, aldehydes and organic acids.

HAZARDOUS POLYMERIZATION:
Will not occur.

11. TOXICOLOGICAL INFORMATION

Wood Dust:

Wood dust (softwood or hardwood: OSHA Hazard Rating = 3.3; moderately toxic with probable oral lethal dose to humans being 0.5 – 5 g/kg (about 1 pound for a 70 kg or 150 pound person). Source: OSHA Regulated Hazardous Substances, Government Institutes, Inc., February 1990.

Wood dust (generated from sawing, sanding or machining the product) may cause nasal dryness, irritation, coughing and sinusitis. National Toxicology Program (NTP) and the International Agency for Research on Cancer (IARC) classify wood dust as a human carcinogen (IARC Group 1). This classification is based primarily on increased risk in the occurrence of adenocarcinomas of the nasal cavities and paranasal sinuses associated with exposure to wood dust. The evaluation 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.

12. ECOLOGICAL INFORMATION

Not available for product in purchased form.

13. DISPOSAL CONSIDERATIONS

General Product Information

This panel product is recyclable. It is the user's responsibility to determine at the time of disposal whether your product meets any applicable criteria for hazardous waste disposal. Disposal must follow applicable federal, provincial, state and local regulations.

EPA Waste Number & Descriptions

This product in purchased form is not considered hazardous waste under federal hazardous waste regulations 40 CFR 261. If the product is altered by processing, use or contamination, waste can be tested using methods described in 40 CFR 261 to determine whether the altered product meets the criteria for hazardous waste.

State, provincial and local requirements for waste disposal may be different than U.S. federal regulations.

Disposal Instructions
If disposed or discarded in its purchased form, ordinary trash collection is acceptable. It is the user's responsibility to determine at the time of disposal whether your product meets RCRA criteria for hazardous waste. Follow applicable federal, state, provincial and local regulations.

14. TRANSPORT INFORMATION

Department of Transportation (DOT): This product is not a DOT hazardous material.

It is the purchaser's responsibility to see if this product meets any regulations depending on their location.

15. REGULATORY INFORMATION

US Federal Regulations

A. General Product Information

OSHA: Wood products are not hazardous under the criteria of the Federal OSHA Hazard communication Standard 29 CFR 1910.1200. However, wood dust generated by sawing, sanding or machining this product may be hazardous.

HUD: The Department of Housing and Urban Development (HUD) regulation 24 CFR 3280 sets emission standards and provides for 3rd party certification of particleboard and MDF formaldehyde emissions. Emissions from this product are below the limit required by HUD.

ANSI A208.1-1999 PARTICLEBOARD: This industry consensus standard limits formaldehyde emissions from particleboard. Formaldehyde emissions from this product are below the ANSI standard.

B. Component Analysis
This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Formaldehyde (50-00-0)
SARA 302: 500lb. TPQ
CERCLA: 100lb final RQ; 45.4 kg final RQ

State Regulations

Component Analysis – State
The following components appear on one or more of the following state hazardous substances lists and may also appear on similar lists in states not on the chart:

Component	CAS	CA	MA	MN	NJ	PA	RI
Formaldehyde	50-00-0	yes	yes	yes	yes	yes	yes
Wood dust, all soft and hard woods	None	no	no	yes	no	yes	yes

Additional Regulatory Information

Component Analysis – WHMIS IDL
No components are listed in the WHMIS IDL.

Component Analysis – Inventory

Component	CAS#	TSCA	CAN	EEC
Formaldehyde	50-00-0	yes	DSL	EINECS

16. OTHER INFORMATION

DEFINITIONS OF ACRONYMS:

ACGIH: American Conference of Governmental Industrial Hygienists
ANSI: American National Standards Institute
C: Ceiling Limit
CAS: Chemical Abstract Services Number
CERCLA: Comprehensive Environmental Response Compensation & Liability Act
CFR : Code of Federal Regulations
CWA : Clean Water Act
DOT: Department of Transportation
EC_{50}: Effective concentration that inhibits enpoints for 50% of control population
EPA: Environmental Protection Agency
FDA: Food and Drug Administration
HCS: Hazard Communication Standard
HMIS: Hazard Material Information System
IARC: International Agency for Research on Cancer
LC_{LO} Lowest lethal concentration of a substance
LC_{50} Concentration of a material expected to kill 50% of an animal text group
LD_{LO} Lowest lethal dose of a material
LD_{50} Dose of a material expected to kill 50% of an animal text group
LEL: Lower Explosive Limit

LFL:	Lower Flammability Limit
MSHA:	Mining Safety and Health Administration
NA:	Not Applicable
NFPA:	National Fire Protection Association
NIOSH:	National Institute for Occupational Safety and Health, U.S. Public Health Service, U.S. Department of Health and Human Services
NPRI:	Canadian National Pollution Release Inventory
NTP:	National Toxicology Program
OSHA:	Occupational Safety and Health Administration, U.S. Department of Labor
PEL:	Permissible Exposure Limit
PPE:	Personal Protective Equipment
RCRA:	Resource Conservation and Recovery Act
RQ:	Reportable Quantity
SARA:	Superfund Amendments and Reauthorization Act
STEL:	Short Term Exposure Limit
STP:	Standard Temperature and Pressure
TC_{LO}:	Lowest concentration in air resulting in a toxic effect
TDG:	Canadian Transportation of Dangerous Goods
TLV:	Threshold Limit Value
TSCA:	Toxic Substances Control Act
TWA:	Time-weighted Average
UFL:	Upper Flammable Limit
WHMIS:	Workplace Hazardous Material Information System

DISCLAIMER:

This information was believed to be accurate at the time of preparation, and compiled from sources believed to be reliable. Products and/or articles manufactured from this product may have characteristics that are significantly different; therefore, it is the user's responsibility to investigate and understand other pertinent information and to comply with all applicable laws and regulations. There is no warranty of any kind, express or implied, concerning product or merchantability or fitness thereof for any purpose. Buyer assumes all risk of use, storage and handling of the product in compliance with applicable Federal, State and local laws and regulations. SierraPine, a California limited partnership, 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 the information and data are inaccurate, incomplete or otherwise misleading.