OneFortyOne Determite Treated Timber

OneFortyOne Wood Products

Chemwatch Hazard Alert Code: **1**

Chemwatch: **5300-01**
Version No: **4.1**
Safety Data Sheet according to WHS Regulations (Hazardous Chemicals) Amendment 2020 and ADG requirements

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L.GHS.AUS.EN.E

SECTION 1 Identification of the substance / mixture and of the company / undertaking

Product Identifier

Product name	OneFortyOne Determite Treated Timber
Chemical Name	Not Applicable
Synonyms	H2-F Treated Timber Blue Pine Framing; H2-F Treated Timber Framing
Chemical formula	Not Applicable
Other means of identification	Not Available

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	Industrial applications - TIMBER. Use according to manufacturer's directions.

Details of the manufacturer or supplier of the safety data sheet

Registered company name	**OneFortyOne Wood Products**
Address	Jubilee Hwy East Mount Gambier SA 5290 Australia
Telephone	+61 8 8721 2777
Fax	+61 8 8721 2858
Website	http://onefortyone.com/
Email	Nigel.Boyd@onefortyone.com

Emergency telephone number

Association / Organisation	**OneFortyOne Wood Products**
Emergency telephone numbers	+61 8 8721 2777 (Mon-Fri 9am to 5pm)
Other emergency telephone numbers	Not Available

SECTION 2 Hazards identification

Classification of the substance or mixture

Poisons Schedule	Not Applicable
Classification [1]	Not Applicable

Label elements

Hazard pictogram(s)	Not Applicable
Signal word	**Not Applicable**

Hazard statement(s)

Not Applicable

Precautionary statement(s) Prevention

Not Applicable

Precautionary statement(s) Response

Not Applicable

Precautionary statement(s) Storage

Not Applicable

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Precautionary statement(s) Disposal

Not Applicable

SECTION 3 Composition / information on ingredients

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
Not Available	>99	Timber
82657-04-3	<0.01	bifenthrin
Not Available		In use may generate
Not Available		wood dust softwood
Not Available		wood dust hardwood
Legend:	*1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI; 4. Classification drawn from C&L; * EU IOELVs available*	

SECTION 4 First aid measures

Description of first aid measures

Eye Contact	If this product comes in contact with the eyes: ▸ Wash out immediately with fresh running water. ▸ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. ▸ Seek medical attention without delay; if pain persists or recurs seek medical attention. ▸ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. ▸ Generally not applicable.
Skin Contact	Brush off dust. Seek medical attention in event if irritation. If skin or hair contact occurs: ▸ Flush skin and hair with running water (and soap if available). ▸ Seek medical attention in event of irritation.
Inhalation	▸ If dust is inhaled, remove from contaminated area. ▸ Encourage patient to blow nose to ensure clear passage of breathing. ▸ If irritation or discomfort persists seek medical attention.
Ingestion	▸ If swallowed do **NOT** induce vomiting. ▸ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. ▸ Observe the patient carefully. ▸ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. ▸ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. ▸ Seek medical advice. Not normally a hazard due to physical form of product.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5 Firefighting measures

Extinguishing media

▸ There is no restriction on the type of extinguisher which may be used.
▸ Use extinguishing media suitable for surrounding area.

Special hazards arising from the substrate or mixture

Fire Incompatibility	▸ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

Advice for firefighters

Fire Fighting	▸ Use water to wet down wood dusts to reduce the dispersion of dust into the air. ▸ Remove burned or wet dust to open area, after fire is extinguished, as partially burnt or wet dust may spontaneously ignite. ▸ Rake out ashes. ▸ Self-contained breathing apparatus (SCBA) is recommended when fighting fire. Slight hazard when exposed to heat, flame and oxidisers.
Fire/Explosion Hazard	· Wood articles do not normally constitute an explosion hazard. · Wood dusts, however, may constitute an explosion risk where the mean particle size is less than 200 microns, and where as little as 10% of the mixture contains dust less than 80 microns in size. Only weak explosions are likely where the mean particle size exceeds 200 microns. Wood dust is considered to be explosive if ignition of part of a cloud of wood dust results in the propagation of flame through the rest of the cloud. The vigour of flame propagation will vary from dust cloud to dust cloud and not all flammable dusts are equally explosive. · The burning of an unconfined wood dust cloud produces a flash fire. However, if the wood dust is contained within a full or partial enclosure, the pressure build-up can produce a destructive explosion. Its severity will depend on the type and concentration of the dust, particle size distribution, moisture content, the size of the source of ignition and the strength of the enclosure. · Generally, the larger the volume of the exploding dust cloud, the more widespread its effects will be. It is important to ensure that wood dust does not escape from collection systems and be allowed to build up within workrooms. If dust does accumulate, any primary explosion which occurs in a collection unit may stir up dust deposits within the building which houses the plant. Burning particles from the primary explosion can ignite the dust cloud resulting from it, leading to a secondary explosion that is usually more destructive than the first. · Mechanical or abrasive activities which produce wood dust, as a by-product, may present a severe explosion hazard if a dust cloud contacts an

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	ignition source. · Hot humid conditions may result in ***spontaneous combustion*** of accumulated wood dust. · Partially burned or scorched wood dust can explode if dispersed in air. · Wet dusts may ignite spontaneously. · Solid fuels, such as wood, when subjected to a sufficient heat flux, will degrade, gasify and release vapours. There is little or no oxidation involved in this gasification process and thus it is endothermic. This process is referred to as ***forced pyrolysis*** but is sometimes referred to, wrongly, as smoldering combustion. This type of combustion, once initiated, can continue in a low-oxygen environment, even when the fire is in a closed compartment with low oxygen content. · An airborne concentration of 40 grams of dust per cubic meter of air is frequently used as the lower explosive limit (L.E.L) of wood dusts. · Thermal oxidative decomposition may produce vapours and gases including carbon monoxide, aldehydes (including formaldehyde), organic acids, cyanides, polycyclic aromatics, and other volatile organic fragments. Common ignition sources include naked flames, faulty or unsuitable electrics and impact sparks. The sanding or hogging of off-cuts containing metal may produce friction sparks, which can cause sawdust to smoulder and subsequently be fanned into fires or explosions. Use dedicated collection systems for these operations. Consider spark detection and extinguishing devices where there are significant risks. For dry wood dusts: · Moisture Content : less than 5% · Particle size: less than 100 micron · Dust Explosion Class: Kst1 (some wood dust is KSt2) · Minimum Ignition Energy MIE 7-250 mJ · Minimum Cloud Ignition Temperature: 490 deg C. · Minimum Layer Ignition Temperature 310-320 deg C · Minimum Explosible Concentration MEC 40-60 g/m3 · Maximum Pressure Pmax: 9.2 barg (133 psig) · Deflagration Index Kst: 100-150 bar.m-sec Combustion products include: carbon dioxide (CO_2) other pyrolysis products typical of burning organic material. May emit poisonous fumes. May emit corrosive fumes. Articles and manufactured articles may constitute a fire hazard where polymers form their outer layers or where combustible packaging remains in place. Certain substances, found throughout their construction, may degrade or become volatile when heated to high temperatures. This may create a secondary hazard.
HAZCHEM	Not Applicable

SECTION 6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

Minor Spills	▸ Clean up all spills immediately. ▸ Secure load if safe to do so. ▸ Bundle/collect recoverable product. ▸ Collect remaining material in containers with covers for disposal.
Major Spills	▸ Clean up all spills immediately. ▸ Wear protective clothing, safety glasses, dust mask, gloves. ▸ Secure load if safe to do so. Bundle/collect recoverable product. ▸ Use dry clean up procedures and avoid generating dust. ▸ Vacuum up (consider explosion-proof machines designed to be grounded during storage and use). ▸ Water may be used to prevent dusting. ▸ Collect remaining material in containers with covers for disposal. ▸ Flush spill area with water.

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 Handling and storage

Precautions for safe handling

Safe handling	Controls to reduce exposure to dusts include: · Many hazards are associated with wood dust production. Dusts can cause a range of skin, eye, lung and other aliments and complaints. · All work should be carried out in such a way as to minimise the generation of dust. Generally, all dust needs to collected at the point of generation. · Machining should be done with equipment fitted with exhaust extraction. · Hand power tools should be fitted with dust bags and used in well-ventilated areas. · A vacuum cleaner with a high efficiency filter or wet mop should be used to clean work areas. A dry sweeping method should not be used. · Clean inside walls, ceilings, ledges and other surfaces of workrooms regularly to prevent dust accumulating. Use vacuum cleaning equipment with high efficiency filters. Do not use compressed airlines or hand brushing as these will create dust clouds and redistribute the dust. · Clean the workshop machines and tools regularly to prevent dust build-up. · Suspect that a health problem may be related to your workshop if the symptoms improve during holidays or absences from the workshop. · Exposure to wood dust has long been associated with a variety of adverse health effects, including dermatitis, allergic respiratory effects, mucosal and non-allergic respiratory effects, and cancer.

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	· In general, exposure to excessive amounts is considered to have an irritant effect on eyes, nose and throat in addition to pulmonary function. Western red cedar dust has also been shown to cause asthma. · Many tropical timbers are spalted (i.e. black lines are present within the timber). These black lines are caused by fungus. Any timber with fungal spores will grow fungus in a bag. When this timber is worked (by hand or machine) the dust may be toxic. · Medium and high-density fibreboards (MDF) are made using up to 13% formaldehyde resin. Formaldehyde is classified as a probable human carcinogen and may be released during machining. The softwood dust from this product is a sensitiser and may cause allergic dermatitis or asthma.
Other information	‣ Store away from incompatible materials.

Conditions for safe storage, including any incompatibilities

Suitable container	Usually stored in bulk. Generally packaging as originally supplied with the article or manufactured item is sufficient to protect against physical hazards. If repackaging is required ensure the article is intact and does not show signs of wear. As far as is practicably possible, reuse the original packaging or something providing a similar level of protection to both the article and the handler.
Storage incompatibility	‣ Avoid reaction with oxidising agents

SECTION 8 Exposure controls / personal protection

Control parameters

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Australia Exposure Standards	wood dust softwood	Wood dust (soft wood)	5 mg/m3	10 mg/m3	Not Available	Not Available
Australia Exposure Standards	wood dust hardwood	Wood dust (certain hardwoods such as beech & oak)	1 mg/m3	Not Available	Not Available	Not Available

Emergency Limits

Ingredient	TEEL-1	TEEL-2	TEEL-3
OneFortyOne Determite Treated Timber	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
bifenthrin	Not Available	Not Available
wood dust softwood	Not Available	Not Available
wood dust hardwood	Not Available	Not Available

Occupational Exposure Banding

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
bifenthrin	E	≤ 0.01 mg/m³
Notes:	*Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.*	

MATERIAL DATA

WARNING: Wood dusts have been classified by the IARC as Group 1: CARCINOGENIC TO HUMANS.
Wood dusts produce dermatitis and an increased risk of upper respiratory disease. Epidemiological studies in furniture workers show an increased risk of lung, tongue, pharynx and nasal cancer. An excess risk of leukaemia amongst millwrights probably is associated with exposure to various components used in wood preservation.
IARC has not limited this finding to any specific type of industry (e.g. furniture manufacturing) or wood dust source (hardwood vs. softwood). IARC s conclusions are based primarily on human carcinogenicity data from studies of various exposed worker populations.
The softwood TLV-TWA reflects the apparent low risk for upper respiratory tract involvement amongst workers in the building industry. A separate TLV-TWA, for hard woods, is based on impaired nasal mucociliary function reported to contribute to nasal adenocarcinoma and related hyperplasia found in furniture workers.
Allergic reactions are more common from handling green timber, less common for dried hardwood.
Impairment of nasal mucociliary function may occur below 5 mg/m3 and may be important in the development of nasal adenocarcinoma amongst furniture workers exposed to hardwoods.
Certain exotic hardwoods contain alkaloids which may produce headache, anorexia, nausea, bradycardia and dyspnoea.
ACGIH Exposure Standards for Wood dusts

Species	ACGIH TLV TWA (inhalable fraction)	Notations	TLV Basis
Western red cedar (WRC)	0.5 mg/m3	Sensitiser, A4***	May produce asthma
Oak and beech	1 mg/m3	A1*	May affect pulmonary function
Birch, mahogany, teak, walnut	1 mg/m3	A2*	May affect pulmonary function
All other species	1 mg/m3	A4***	May affect pulmonary function

A1: Confirmed Human Carcinogen *
A2: Suspected Human Carcinogen **
A3 Confirmed Animal Carcinogen
A4 Not Classifiable as a Human Carcinogen ***
A5 Not Suspected as a Human Carcinogen
Australian Exposure Standard: ES: 1 mg/m3 (certain hardwoods as beech and oak)
The majority of the wood-dust mass was reported to be contributed by particles larger than 10 um in aerodynamic diameter; however, between 61% and 65% of the particles by count measured between 1 and 5 um in diameter.
Wood-dust concentrations vary with type of dust extraction, amount of wood removed, and type of sander For electric belt sanders used to sand dowels, total dust concentrations ranged from 0.22 mg/m3 with external dust extraction to 3.74 mg/m3 without extraction, and concentrations of respirable dust ranged from 0.003 mg/m3 with extraction to 0.936 mg/m3 without extraction. Rotary sanders tested with flat wood samples produced total dust concentrations ranging from 0.002 mg/m3 with extraction to 0.699 mg/m3 without extraction; concentrations of respirable dust ranged from 0.001 mg/m3 with extraction to 0.088 mg/m3 without extraction. Comparable decreases in dust concentration were observed when dust extraction was used with electrical orbital sanders.

Exposure controls

Appropriate engineering controls	Articles or manufactured items, in their original condition, generally don't require engineering controls during handling or in normal use. Exceptions may arise following extensive use and subsequent wear, during recycling or disposal operations where substances, found in the

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	article, may be released to the environment. For wood dusts: · Significant accumulations of fine particles of wood dust can also be a fire and explosion hazard in the workplace.Check that the design and installation of dust control equipment incorporates explosion precautions.In particular look at the location of collection equipment and the need for enclosure and/or explosion relief. · Keep floors free and clear from wood chips and dust.Pay particular attention to areas around machines and on or near heating units. · The sanding or hogging of off-cuts containing metal may produce friction sparks, which can cause sawdust to smoulder and subsequently be fanned into fires or explosions. Use dedicated collection systems for these operations. Consider spark detection and extinguishing devices where there are significant risks. · Hot work involving the careless use of welding or flame-cutting equipment has resulted in many incidents. To prevent this, plant should be isolated and thoroughly cleaned before work starts. Use cold cutting methods whenever possible. · Electrical equipment should be sited away from dusty areas. If this is not practicable, ensure it is adequately protected. There are three main types of system for collecting wood waste and as a result reduce the possibility of worker exposure and possible dust explosions. · One or more woodworking machines are exhaust ventilated to a nearby collection unit within the workshop which does not form part of any other exhaust ventilation system. · Many (perhaps all) of the woodworking machines are ventilated to a collection unit, which can be some distance from the machines and may be inside or outside the workshop. · One or more woodworking machines are exhaust ventilated to a nearby collection unit. These units deliver the wood waste into a larger collection unit, usually outside the workshop. This is known as a 'through flow system. Collection units should normally be sited outside, away from areas where there may be people. If units have to be indoors, precautions will depend on the size of the collector; the size and construction of the room it is in; the number of people nearby; and how near they are to walkways and combustible materials. To avoid the risk from secondary explosion or fire, it is essential to enforce good housekeeping practices to prevent the accumulation of wood dust within the building, eg a formal cleaning regime using appropriate vacuums fitted with HEPA-type filters. **For unenclosed sock collectors (<0.5 m3/s capacity)** These would quickly disintegrate if the contents were ignited, but would not produce high explosion pressures or widespread effects. Fire risks may exist so, if unenclosed, do not position them within 3 m of workers, combustible materials or walkways. Alternatively, provide a suitable baffle or deflector plate or enclosure. **For unenclosed sock collectors (0.5–2.5 m3/s capacity)** Ignition of wood dust can lead to a jet of flame at head height, but an explosion is not likely. Where such collectors must remain within the workroom, provide one of the following precautions: Total enclosure within a strong metal cabinet with either an air outlet large enough in area to act as explosion relief or explosion vents. Outlets or vents should preferably discharge to a safe place outside the workroom or, if inside, discharge at least above head height. A baffle or deflector plate made of non-combustible material to direct flames or burning material to a safe place. Ensure the fan can be turned off from a safe place if a fire starts in the filter. A 3 m separation between the filter and regularly occupied locations is likely to be adequate to protect employees. **For unenclosed sock collectors (>2.5 m3/s capacity)** Site these outside or enclose them in a strong cabinet fitted with explosion vents that discharge to a safe place. **For enclosed sock or fabric filter collectors (<0.5 m3/s capacity)** The top of the enclosure may be open as long as it discharges to a safe place, eg above head height. **For enclosed sock or fabric filter collectors (0.5–2.5 m3/s)** Total enclosure within a strong metal cabinet with either an air outlet large enough in area to act as explosion relief or explosion vents. Outlets or vents should preferably discharge to a safe place outside the workroom or, if inside, discharge at least above head height. **For enclosed sock or fabric filter collectors (>2.5 m3/s)** The enclosure should be strong with explosion vents that discharge to a safe place. **Cyclones** Well-made cyclones of less than 0.5 m3/s volume (rare in woodworking) do not usually require explosion relief panels. Larger low-efficiency cyclones usually have large enough air outlets to act as an explosion vent, but the need for additional explosion venting should be assessed. Larger high-efficiency cyclones do not usually have large enough air outlets to act as effective explosion vents and so additional venting will be necessary. Where cyclone air outlets discharge to an after filter, both the cyclone and the after filter will need explosion-relief panels. **Bins or hoppers** Where used to store explosible wood waste, these will require explosion relief appropriate to their volume. They should preferably be outdoors but, if indoors, additional explosion relief may be required on the building itself. There should also be a safe system of work for emptying bins and hoppers. **Interconnected plant** Take precautions to prevent an explosion spreading between interconnected units of plant, such as collectors, cyclones, filters and incinerators. Collectors should discharge their collected wood waste through an explosion choke, eg a rotary valve, or directly into strong metal containers clamped firmly to the discharge outlets. Where rotary valves are intended to act as explosion chokes, they must be certified as explosion protection devices.
Individual protection measures, such as personal protective equipment	
Eye and face protection	When sawing, machining or sanding use: ▸ Safety glasses with side shields. ▸ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]
Skin protection	See Hand protection below
Hands/feet protection	Wear general protective gloves, eg. light weight rubber gloves. **NOTE:** ▸ The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact. ▸ Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed.
Body protection	See Other protection below
Other protection	· Always wear protective clothing, including shirts with long sleeves and high collars, long trousers, shoes or boots. · Provide vacuum cleaning equipment to remove dust from clothing, where this is a problem. Prevent the use of compressed airlines for this purpose.

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	· Use barrier creams (silicone-free and fatty) before, during and after work. · Always wash hands prior to going to the toilet since some wood dust may irritate the genitals and anus. · Always wash hands prior to eating.

Respiratory protection

Respiratory protection not normally required due to the physical form of the product.
Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant. Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.

	Disposable respirator	Re-usable respirator	Powered respirator
All woodworking operations eg use of routers, lathes, planers, saws and vertical spindle moulders (VSMs)	Type P2 filter for low residual dust levels for lower risk woods such as pine Type P3 filter for higher residual dust levels such as when sanding (hand , disc, bobbin, pad etc.). Also for all work involving more toxic woods such as hard woods, Western red cedar and MDF	Type P2 filter fitted to either a half mask or full face mask of Class 1 or 2 Type P3 filter fitted to either a half mask or full face mask of Class 2 Note: A combined organic vapour filter Type A (organic), either Class 1 or 2, will provide protection against any formadehyde vapours present from MDF	Lightweight powered hood visor or helmet of Type TH1 equivalent protection to Type P2 filter Lightweight powered visor or helmet with Type TH2 equivalent to Type P3 filter
Changing dust collection bags on simple recirculating dust collectors in the workroom	Type P3 Filter	Type P3 filter fitted to either a half mask or full face mask of Class 2	Lightweight powered visor or helmet of Type TH2 equivalent to Type P3 filter
Entry into dust collection rooms/ vaults Entry into very dusty filter galleries for bag changing Work inside heavily contaminated ducts Ensure none of these are confined spaces (oxygen deficient atmosphere)	Disposable respirators not suitable	Type P3 filter fitted to full face mask of Class 2	Lightweight powered hood, visor or helmet of Type TH2 equivalent to Type P3 filter

SECTION 9 Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Odourless solid; insoluble in water.

Physical state	Manufactured	**Relative density (Water = 1)**	Not Applicable
Odour	Not Available	**Partition coefficient n-octanol / water**	Not Available
Odour threshold	Not Available	**Auto-ignition temperature (°C)**	Not Available
pH (as supplied)	Not Applicable	**Decomposition temperature (°C)**	Not Available
Melting point / freezing point (°C)	Not Applicable	**Viscosity (cSt)**	Not Applicable
Initial boiling point and boiling range (°C)	Not Applicable	**Molecular weight (g/mol)**	Not Applicable
Flash point (°C)	Not Applicable	**Taste**	Not Available
Evaporation rate	Not Applicable	**Explosive properties**	Not Available
Flammability	Not Applicable	**Oxidising properties**	Not Available
Upper Explosive Limit (%)	Not Available	**Surface Tension (dyn/cm or mN/m)**	Not Applicable
Lower Explosive Limit (%)	Not Available	**Volatile Component (%vol)**	Not Available
Vapour pressure (kPa)	Not Available	**Gas group**	Not Available
Solubility in water	Immiscible	**pH as a solution (1%)**	Not Applicable
Vapour density (Air = 1)	Not Applicable	**VOC g/L**	Not Available

SECTION 10 Stability and reactivity

Reactivity	See section 7
Chemical stability	Product is considered stable and hazardous polymerisation will not occur.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 Toxicological information

Information on toxicological effects

Inhaled	Not normally a hazard due to physical form of product.

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	The dust may be discomforting Wood dust may cause nasal dryness, irritation and obstruction of the respiratory system, coughing, wheezing, and sneezing. Inhalation of hardwood dusts may decrease the ability of the nose to clear particles, causing any wood dust in the nose to remain longer in the nasal cavity. Both the type of wood what is being done to the wood to generate the wood dust have a big impact on the dust s hazards. For instance, asthma cases have been reported for workers using western red cedar, and pneumonitis has been associated with redwood dust. Some effects associated with wood dust are thought to be due to molds, bacteria, or pesticides present on the wood or to other materials used during certain woodworking activities (e.g. formaldehyde).
Ingestion	Not normally a hazard due to physical form of product. The dust may be discomforting
Skin Contact	Not normally a hazard due to physical form of product. The dust may be discomforting
Eye	Not normally a hazard due to physical form of product. The dust may be discomforting
Chronic	It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate. {Manufacturer] Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems. Limited evidence shows that inhalation of the material is capable of inducing a sensitisation reaction in a significant number of individuals at a greater frequency than would be expected from the response of a normal population. Pulmonary sensitisation, resulting in hyperactive airway dysfunction and pulmonary allergy may be accompanied by fatigue, malaise and aching. Significant symptoms of exposure may persist for extended periods, even after exposure ceases. Symptoms can be activated by a variety of nonspecific environmental stimuli such as automobile exhaust, perfumes and passive smoking. There exists limited evidence that shows that skin contact with the material is capable either of inducing a sensitisation reaction in a significant number of individuals, and/or of producing positive response in experimental animals. On the basis, primarily, of animal experiments, the material may be regarded as carcinogenic to humans. At least one classification body considers that there is sufficient evidence to provide a strong presumption that human exposure to the material may result in cancer on the basis of: - appropriate long-term animal studies - other relevant information Common chronic responses to wood dust exposures are dermatitis, simple bronchitis and non asthmatic chronic airflow obstruction. Wood is an organic substrate for growth of micro-organisms and fungal spores, these readily become airborne with wood dust and have caused a variety of respiratory infections Various woods, mainly tropical varieties, are able to induce allergies in joiners, carpenters, cabinet makers and model-makers. Allergies of the immediate type (rhino conjunctivitis, bronchial asthma, urticaria), caused by contact with dusts produced during wood-working and those of a delayed type (contact eczema) caused by both the dust and by direct contact with the solid wood, are seen in an occupational setting. Because of the large number of substances found in wood, only a few low molecular weight allergens have been isolated and identified; these are mostly quinone or flavone derivatives. Many of the constituents of wood may also cause primary irritation. Irritation of the skin, eyes and respiratory passages are often distinguished from allergic responses with difficulty. The use of skin tests with wood dusts to confirm suspected allergy must be viewed as suspect because the high concentration of wood components which are sometimes applied, can actually produce new sensitisation in test subjects. It should also be noted that cross-reactions or reactions to groups of similar substances, in other woods and also in other herbaceous plants can also occur. The substances in wood responsible for respiratory allergies are probably mostly high molecular weight substances. Wood dusts may induce asthmatic reactions of both the immediate and delayed types, and occasionally, both. Positive results in bronchial provocation tests, are often, but not always, associated with positive results in skin tests and IgE induction. Bronchial provocation tests may produce different results dependent on whether they are carried out with course or fine dusts or with lyophilised aqueous extracts. Very course dust may produce false negatives and very fine dust may produce false positives (irritation). Non-allergenic bronchial and nasal irritation are seen frequently. Certain exotic woods contain alkaloids which may produce headache, anorexia, nausea, bradycardia and dyspnea. Agents used to treat wood (preservatives, fungicides, stains, glues, pore fillers) may themselves be responsible for allergic reaction. Other allergic reactions may be provoked by liverworts ("Frullania dermatitis"), lichens, fungi (e.g. bronchopulmonary aspergillosis), actinomycetes or other plants which grow on wood. Microorganisms and fungal spores, associated with wood, may become airborne and provoke allergic responses. Other chronic responses associated with exposure to wood dusts include conjunctivitis, simple bronchitis and non-asthmatic chronic airflow obstruction. Epidemiologic studies in furniture workers show an increased risk of lung, tongue, pharynx and nasal cancer (adenocarcinoma). Workers in timber industries, with a history of exposure to wood dust, have shown increased occurrence of lung, liver and vocal cavity cancer. An excess risk of leukaemia amongst mill-wrights probably is associated with various components used in wood preservation. It is now suggested that sinonasal cancers may be caused by both hardwoods and softwoods (1). The causative agent or agents are unknown although certain aldehydes or their quinone oxidation products have been implicated. Exposure standards for the softwoods reflect the apparent low risk for upper respiratory tract involvement among workers in the building industry. A significantly lower exposure standard for hardwoods is based on impaired nasal mucociliary hyperplasia reported to contribute to nasal adenocarcinoma and related hyperplasia in furniture workers. Exposure standards for both hard and softwoods specifically exclude the issue of occupational asthma and related allergic respiratory response associated with exposure to red cedar dusts and similar woods. The main components of wood are polysaccharides: cellulose (40-50 wt%) and hemicelluloses (20–35%), while lignin comprises 15–30% of wood mass.3 In addition to these macromolecules, wood contains a small amount of inorganic residues and extractives, which are low molar mass molecules. Extractives include a heterogeneous group of aliphatic and cyclic compounds: terpenes and terpenoids, esters of fatty acids, fatty acids, alcohols, alkanes, simple phenols, stilbenes, lignans, isoflavones, condensed tannins, flavonoids and hydrolyzable tannins. Wood phenolic compounds may possess bioactive functions; in vitro studies suggest that they may act as antioxidants. Due to the close association of lignin and extractives with cellulose and hemicelluloses, low amounts of these compounds commonly exist in hemicellulose or cellulose extracts and can, thus, be considered as “co-passengers” of fibrous materials. While wood extracts are neither presently nor extensively used in food ingredients, they have a long history in food supplement use. Softwood extracts have also received attention in the biomedical field; spruce hemicellulose extract was patented for “use on the treatment of lower urinary tract symptoms and diseases”. The presence of mycotoxins is unlikely given the production procedure (particularly as there was no significant delay between grinding and extraction). The possibility of fungal contamination on the tree stumps is also unlikely since, firstly, these stumps come from felled wood which is therefore healthy, and secondly, if a fungal contamination were to appear (in the event that the stumps were not collected quickly after the trees were felled), this would essentially be an external contamination which would be eliminated when the stumps were examined before the grinding process. Radionuclide monitoring checks should be carried out systematically for all batches.

OneFortyOne Determite Treated Timber	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
bifenthrin	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: >2000 mg/kg[2]	Eye (rabbit): non-irritant *
	Oral (Rat) LD50: 54.5 mg/kg[2]	Skin (rabbit): non-irritant *

Continued...

wood dust softwood	**TOXICITY** / **IRRITATION** Not Available / Not Available
wood dust hardwood	**TOXICITY** / **IRRITATION** Not Available / Not Available
Legend:	*1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances*

BIFENTHRIN	NOEL (dogs) 1.5 mg/day/1y * ADI 0.02 mg/kg * Non-teratogenic in rats (< 2 mg/kg/day) and rabbits (8 mg/kg/day)* No skin sensitisation (guinea pigs) * The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. The significance of the contact allergen is not simply determined by its sensitisation potential: the distribution of the substance and the opportunities for contact with it are equally important. A weakly sensitising substance which is widely distributed can be a more important allergen than one with stronger sensitising potential with which few individuals come into contact. From a clinical point of view, substances are noteworthy if they produce an allergic test reaction in more than 1% of the persons tested. For bifenthrin: **Acute Toxicity:** Bifenthrin is moderately toxic to mammals when ingested. Large doses may cause incoordination, tremor, salivation, vomiting, diarrhea, and irritability to sound and touch . The dose at which half of the test animal die, the LD50, for bifenthrin is about 54 mg/kg in female rats and 70 mg/kg in male rats. The LD50 for rabbits whose skin is exposed to bifenthrin is greater than 2,000 mg/kg . Bifenthrin does not sensitize the skin of guinea pigs . Although it does not cause inflammation or irritation on human skin, it can cause a tingling sensation which lasts about 12 hours. It is virtually non-irritating to rabbit eyes . **Chronic Toxicity:** No information Available. **Reproductive Effects**: The dose at which no toxic effect of bifenthrin is observed on the mother (maternal toxicity NOEL) is 1 mg/kg/day for rats and 2.67 mg/kg/day for rabbits. At higher doses, test animals had tremors . The dose at which no toxic effect is observed on development (developmental toxicity NOEL) is 1 mg/kg/day for rats and is greater than 8 mg/kg/day for rabbits. **Teratogenic Effects:** Bifenthrin does not demonstrate any teratogenic effects at the highest levels tested (100 ppm, approximately 5.5 mg/kg/day) in a two-generational study in rats . **Mutagenic Effects:** Evidence of mutagenic effects from exposure to bifenthrin are inconclusive. Studies of mouse white blood cells were positive for gene mutation. However, other tests of bifenthrin's mutagenic effects, including the Ames test and studies in live rat bone marrow cells, were negative . **Carcinogenic Effects**: There was no evidence of cancer in a 2-year study of rats who ate as much as 10 mg/kg/day of bifenthrin. However, an 87 week feeding study of mice with doses of 7, 29, 71, and 86 mg/kg showed a significantly higher, dose related trend of increased tumor incidence in the male urinary bladder. The incidence was significantly increased at 86 mg/kg/day. Also, females had higher incidences of lung cancer than the controls at doses of 7 mg/kg and higher. The EPA has classified bifenthrin as a class C carcinogen, a possible human carcinogen. **Organ Toxicity**: Pyrethroids are poisons that affect the electrical impulses in nerves, over-stimulating nerve cells causing tremors and eventually causing paralysis. **Fate in Humans and Animals**: Bifenthrin is absorbed through intact skin when applied topically. It undergoes similar modes of breakdown within animal systems as other pyrethroid insecticides. In mammals, bifenthrin is rapidly broken down and promptly excreted. Rats treated with 4 to 5 mg/kg, excreted 70 % in the urine and 20% in the faeces within 7 days. After 7 days, the remaining bifenthrin was found accumulated in tissues with high fat content such as the skin and fat in males and females and the ovaries of females . Bifenthrin is less toxic to warm-blooded animals, such as mammals, than to cold-blooded animals
WOOD DUST SOFTWOOD	Allergic reactions which develop in the respiratory passages as bronchial asthma or rhinoconjunctivitis, are mostly the result of reactions of the allergen with specific antibodies of the IgE class and belong in their reaction rates to the manifestation of the immediate type. In addition to the allergen-specific potential for causing respiratory sensitisation, the amount of the allergen, the exposure period and the genetically determined disposition of the exposed person are likely to be decisive. Factors which increase the sensitivity of the mucosa may play a role in predisposing a person to allergy. They may be genetically determined or acquired, for example, during infections or exposure to irritant substances. Immunologically the low molecular weight substances become complete allergens in the organism either by binding to peptides or proteins (haptens) or after metabolism (prohaptens). Particular attention is drawn to so-called atopic diathesis which is characterised by an increased susceptibility to allergic rhinitis, allergic bronchial asthma and atopic eczema (neurodermatitis) which is associated with increased IgE synthesis. Exogenous allergic alveolitis is induced essentially by allergen specific immune-complexes of the IgG type; cell-mediated reactions (T lymphocytes) may be involved. Such allergy is of the delayed type with onset up to four hours following exposure. WARNING: Inhalation of wood dust by workers in the furniture and cabinet making industry has been related to nasal cancer [I.L.O. Encyclopedia] Use control measures to limit all exposures.
WOOD DUST HARDWOOD	Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. On the other hand, industrial bronchitis is a disorder that occurs as a result of exposure due to high concentrations of irritating substance (often particles) and is completely reversible after exposure ceases. The disorder is characterized by difficulty breathing, cough and mucus production. WARNING: Inhalation of wood dust by workers in the furniture and cabinet making industry has been related to nasal cancer [I.L.O. Encyclopedia] Use good occupational work practices to limit all exposures.
WOOD DUST SOFTWOOD & WOOD DUST HARDWOOD	No significant acute toxicological data identified in literature search. For wood dusts: Wood dusts may cause respiratory symptoms including sensitisation and diminished respiratory function and may also be carcinogenic. OSHA has determined that the health evidence for the toxicity of wood dust cannot be separately distinguished for soft wood and hard wood. A final OSHA ruling however establishes an 8-hour TWA PEL of 2.5 mg/m3 for Western red cedar wood dust, based on its widely recognized ability to cause immune-system-mediated allergic sensitization. Evidence in the record demonstrates the seriousness of this effect. Wood dust is defined as any wood particles arising from the processing or handling of woods. Hard woods derive from the deciduous broad-leaved flowering species of trees, and soft woods include the coniferous species that do not shed their leaves in the winter. The distinction between hard woods and soft woods is purely botanical. Many so-called "softwoods" are actually hard (i.e., Douglas fir as a softwood is harder than the hardwood birch) and one of the softest woods in existence (balsa) is botanically a hardwood. Some commentators were of the opinion that many other woods, such as Douglas fir, pine, red and white oak, redwood, walnut, spruce, boxwood, cocobolo, teak, mahogany, and others, should also be designated by OSHA as allergenic in this rulemaking. However, OSHA finds that "it is unlikely that species other than WRC are responsible for large numbers of cases of respiratory allergies". Other commonly used woods such as oak, birch, redwood, pine, teak, alder, and hemlock, produce pulmonary effects that are less well described

Continued...

than the asthma responses to Western red cedar.
OSHA is establishing a PEL of 5 mg/m3 as an 8-hour TWA and 10 mg/m3 as a 15-minute STEL for hard and soft wood dust, with the exception of Western red cedar. OSHA concludes that promulgation of these exposure limits will substantially reduce the significant risk of material impairment in the form of pulmonary dysfunction (including changes in peak flow, interference with mucociliary clearance, respiratory symptoms, and chronic effects) that is associated with exposure to wood dust at the higher levels that would be permitted in the absence of any limit.
Carcinogenicity The association between occupational exposure to wood dust and various forms of cancer has been explored in many studies and in many countries. In 1987, the International Agency for Research on Cancer (IARC) classified furniture manufacturing in Category I (confirmed human carcinogen) and carpentry in Category 2B (suspected human carcinogen). IARC concludes that there is sufficient evidence in humans for the carcinogenicity of wood dust. (Group 1) Wood dust causes cancer of the nasal cavity and paranasal sinuses and of the nasopharynx. IARC also concludes that there is inadequate evidence in experimental animals for the carcinogenicity of wood dust.
In 1998, IARC issued the results of its detailed analyses of the combined results from 17 studies of nasal cancers and wood dust exposures. These analyses supported IARC s earlier conclusions and led to the following findings:
• Excess sino-nasal cancers were seen primarily in studies of European furniture makers
• The degree of risk was increased in workers with the highest level and length of exposure
• Observed risk levels were lower in studies of U.S. populations, possibly due to differences in the types of exposures that had occurred (e.g., exposures to different types of wood).
Based on its analyses, IARC has concluded that wood dust may cause “adenocarcinomas of the nasal cavities and paranasal sinuses”. This is a specific type of cancer in a specific region in the respiratory tract. IARC did not find sufficient evidence to associate wood dust exposure with other types of cancer of the nasal cavities (e.g., squamous cell carcinomas) or cancers in other parts of the body, such as the oropharynyx, hypopharynx, lung, lymphatic and haematopoietic systems, stomach, colon or rectum.
Dust particles may act as carriers for genotoxic agents. Chromium compounds are often present in oak and beech dusts as they are frequently used in the wood-processing industry, particularly as potassium dichromate in stains as well as fixing agents in wood preservatives. Stained furniture is made largely from oak and beech as they contain enough tannic acid to allow for chemical staining Direct genotoxic effects of wood dust extracts were summarized by IARC (1995).
Dust particles may act as carriers for genotoxic agents. Chromium compounds are often present in oak and beech dusts as they are frequently used in the wood-processing industry, particularly as potassium dichromate in stains as well as fixing agents in wood preservatives.
Stained furniture is made largely from oak and beech as they contain enough tannic acid to allow for chemical staining.
Direct genotoxic effects of wood dust extracts were summarized by IARC (1995). Dust particles may act as carriers for genotoxic agents.
Chromium compounds are often present in oak and beech dusts as they are frequently used in the wood-processing industry, particularly as potassium dichromate in stains as well as fixing agents in wood preservatives.
Exposure to hexavalent chromium has been associated with the development of sinonasal cancers.
NIOSH (Ex. 8-47) considers both hard and soft wood dust to be potentially carcinogenic in humans; for soft wood dust, NIOSH recommends a separate 6(b) rulemaking (Ex. 8-47, Table N6B). NIOSH concurred, however, with the proposed PEL of 1 mg/m3 TWA for hard wood dust.
Several chemicals were isolated from wood extracts, but only quercetin and delta-3 -carene were shown to be mutagenic (IARC, 1995)
Summary of evidence for nasal and sinus cavity cancers. NIOSH (1987a/Ex. 1-1005) concluded that the literature clearly demonstrates an association between occupational wood dust exposure and nasal cancer. English studies first identified this link by showing a 10- to 20-times-greater incidence of nasal adenocarcinoma among woodworkers in the furniture industry than among other woodworkers and 100 times greater than in the general population. In the United States, three studies have reported a fourfold risk of nasal cancer or adenocarcinoma in furniture workers, and another study noted a similar relationship between nasal cancer and wood dust exposure. One other study failed to find such an association for furniture workers, but did find an increase among logging and timber industry workers.
The association between lung cancer and occupational wood dust exposure is inconclusive, although several epidemiological studies have reported increases in lung cancer among wood-dust-exposed workers. A significant excess of malignant tumours of the bronchus and lung in carpenters and joiners. Only construction workers showed a statistically significant increase in lung cancer rate.
Although the data are conflicting, several epidemiological studies of U.S. workers do report increases in the incidence of Hodgkin's disease among woodworkers. This excess is particularly apparent among carpenters.
Data on the relationship between occupational exposure to wood dust and the development of cancers other than nasal, Hodgkin's disease, or lung cancers are insufficient and inconclusive.
Copper chrome arsenic (CCA) is used widely to treat timber in both industrial and domestic situations. CCA is a water-borne preservative and contains copper, chromium and arsenic salts dissolved in water. Exposure to CCA is considered a potential health risk mainly because some arsenic and chromium compounds are known to cause cancer. It is recommended practice that freshly treated timber is stored at the treatment plant for at least two weeks (and up to 6 weeks) to ensure fixation and surface drying of the CCA. Timber for domestic or playground use should also be surface washed prior to distribution.
Exposure to wood dust has long been associated with a variety of adverse health effects, including dermatitis, allergic respiratory effects, mucosal and non-allergic respiratory effects, and cancer. The toxicity data in animals are limited, particularly with regard to exposure to wood dust alone; there are, however, a large number of studies in humans. There are a large number of case reports, epidemiological studies, and other data on the health effects of wood dust exposure in humans. Dermatitis caused by exposure to wood dusts is common, and can be caused either by chemical irritation, sensitization (allergic reaction), or both of these together. As many as 300 species of trees have been implicated in wood-caused dermatitis.
Allergic respiratory responses are mediated by the immune system, as is also the case with allergic dermatitis. Asthma is the most common response to wood dust exposure, and the allergic nature of such reactions has been demonstrated by the presence of IgE antibodies and positive skin reactions on patch testing. The best-studied of the allergic reactions to wood dust is Western red cedar (WRC) asthma; it is estimated that 5 percent of the workers handling this species are allergic to it.
The symptoms of sensitization are redness, scaling, and itching, which may progress to vesicular dermatitis and, after repeated exposures, to chronic dermatitis. The parts of the body most often affected are the hands, forearms, eyelids, face, neck, and genitals. This form of dermatitis generally appears after a few days or weeks of contact.
The chemicals associated with allergic reactions are generally found in the inner parts of a tree, e.g., the heartwood, and the workers most prone to these reactions are those involved in secondary wood processing (e.g., carpenters, joiners, and finishers).
Cereal flours are used in the wood industry to improve the quality of the glues necessary to produce veneer panels and are a potential source of sensitising substances. Cereal alpha-amylase inhibitors have been previously described as important occupational allergens responsible for baker's asthma. IgE proteins belong to the cereal alpha-amylase inhibitor family have been identified in the sera of several wood workers.
Exposure to microorganisms that grow on wood can also cause potential health effects. Endotoxins from bacteria and allergenic fungi growing on wood are the main biohazards found in wood processing workplaces. Exposure to these biohazards can cause adverse health effects such as organic dust toxic syndrome (ODTS), bronchitis, asthma, extrinsic allergic alveolitis (EAA), and mucous membrane irritation. The fungi predominantly associated with EAA and ODTS are dry spored species such as Aspergillus and Penicillium.
A large number of studies have demonstrated that occupational exposure to wood dust causes both statistically significant and non-significant increases in respiratory symptoms at exposure levels as low as 2 mg/m3. These symptoms range from irritation to bleeding, wheezing, sinusitis, and prolonged colds. In addition, chronic wood dust exposure causes mucociliary stasis (i.e., the absence of effective clearance) in the nose and, in some workers, also causes changes in the nasal mucosa. Several studies have demonstrated decreased pulmonary function among wood-dust-exposed workers, although other studies have not confirmed these findings. One study relates exposure level to ventilatory function. In that study, exposure to concentrations of 2 mg/m3 of WRC dust caused significant decreases in forced vital capacity and forced expiratory volume. Exposures to concentrations above 3 mg/m3 produced eye irritation.
Mucosal and non-allergic respiratory effects have also been demonstrated. These changes include nasal dryness, irritation, bleeding, and obstruction; coughing, wheezing, and sneezing; sinusitis; and prolonged colds. These symptoms have been observed even at wood dust concentrations below 4 mg/m3. Workers (carpenters, sawmill workers, woodworkers) exposed from 3 to 24 years to the dust of several different hard woods showed radiologic evidence of pulmonary abnormalities. In all of these workers, mucociliary movement was markedly depressed, leading these authors to conclude that exposure to wood dust in the furniture industry for 10 years or more can impair mucociliary clearance. A respiratory survey in pulp and paper mill workers showed that workers exposed to wood dust at a mean total dust concentration of 0.5 mg/m3 had a slight but statistically significant decrease in pulmonary function values compared with controls. The authors concluded that the chemical

Continued...

	preservatives used to treat the wood could also have been responsible for these adverse effects. A further study found that exposure to higher (10+ mg-years/m3), as compared with lower (0 to 2 mg-years/m3), dust concentrations was associated with a statistically significant and higher incidence of decreased pulmonary function. However, dose-response effects were observed only for soft wood (i.e., pine) dusts. Yet another study found no correlation between years of exposure to pine wood dust and pulmonary function. A study of Italian woodworkers showed that the number of wood-dust-exposed workers who had developed anosmia (loss of smell) was significantly higher than in a control group of non-exposed workers. This confirmed was confirmed in other workers exposed to hardwood dusts. Exposure to wood dust can cause chronic obstructive lung disease. Exposure to saw fumes containing terpenes, which is a constituent of wood, also causes chronic obstructive impairment in lung function. Medium density fibre boards (MDF) is widely used in the joinery and furniture industry as well as in building and housing construction. The major constituents of MDF particle boards are pulverised softwood and urea-formaldehyde resin, both of which are recognised as potential health hazards in the working environment. MDF produces very fine dust during processing and the dust particles act as a carrier of absorbed formaldehyde to the lower airways of the lungs. Wood dust and formaldehyde together have been reported to cause respiratory irritation with symptoms of dryness of the throat, rhinitis and eye irritation as well as occupational skin disease. Groups of male guinea pigs were injected intratracheally with suspensions containing 75 mg of sheesham or mango wood dust or of hemp or bagasse fibers, or 20 mg of jute fiber. Lung examination revealed that, at 90 days, Grade I fibrosis of the lungs had occurred in the guinea pigs injected with mango or jute, while those treated with sheesham or hemp had developed Grade II pulmonary fibrosis. In another experiment involving guinea pigs, animals were exposed by inhalation to average respirable dust concentrations of 1143 mg/m3 for 30 minutes/day, 5 days/week for 24 weeks. Histopathological examination showed lung changes, described as moderate to severe, in all exposed guinea pigs. The changes seen included an increase in septal connective tissue components and aggregation of lymphocytes; however, no pulmonary fibrosis or extensive destruction of the parenchymal tissue occurred. The study concluded that exposure to fir bark dust may cause inflammatory changes in the lung. Two studies examined the effect of exposing Syrian golden hamsters to beech wood dust by inhalation, with or without concurrent administration of the known carcinogen diethylnitrosamine (DEN). In Study I was given the DEN doses only (positive control), and the fourth group was given no exposure at all (negative control). Four hamsters exposed to wood dust and DEN exhibited squamous cell papillomas of the trachea, as did three animals in the positive control group and one in the negative control group. No differences in organs other than the respiratory organs were seen between the treated and control groups. In Study II, there were 24 animals in each of four groups. Two groups of animals were exposed to fresh beech wood dust at a mean total dust concentration of 30 mg/m3 for six hours/day, five days/week for 40 weeks. All DEN-exposed hamsters had nasal lesions ranging from hyperplasias and dysplasias to papillomas. In addition, half of all DEN-exposed hamsters developed nasal adenocarcinomas, whether or not they had also been exposed to wood dust. Half of the DEN-exposed animals also had papillomas of the larynx and trachea. In the wood-dust-exposure-only group, two of the animals had nasal lesions, one of which was an unclassifiable malignant nasal tumor and the other of which consisted of focal metaplasia with mild dysplasia. The study concluded that exposure to wood dust did not increase the tumour incidence in DEN-exposed animals but did affect the respiratory tract of all exposed animals.

Acute Toxicity	✗	**Carcinogenicity**	✗
Skin Irritation/Corrosion	✗	**Reproductivity**	✗
Serious Eye Damage/Irritation	✗	**STOT - Single Exposure**	✗
Respiratory or Skin sensitisation	✗	**STOT - Repeated Exposure**	✗
Mutagenicity	✗	**Aspiration Hazard**	✗

Legend: ✗ *– Data either not available or does not fill the criteria for classification*
✔ *– Data available to make classification*

SECTION 12 Ecological information

Toxicity

OneFortyOne Determite Treated Timber

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

bifenthrin

Endpoint	Test Duration (hr)	Species	Value	Source
NOEC(ECx)	504h	Crustacea	0.000004mg/l	4
LC50	96h	Fish	<0.001mg/L	4
EC50	48h	Crustacea	<0.002mg/L	4

wood dust softwood

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

wood dust hardwood

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

Legend: *Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data*

DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
bifenthrin	HIGH	HIGH

Bioaccumulative potential

Ingredient	Bioaccumulation
bifenthrin	LOW (LogKOW = 8.1524)

Continued...

Mobility in soil

Ingredient	Mobility
bifenthrin	LOW (KOC = 3228000)

SECTION 13 Disposal considerations

Waste treatment methods

Product / Packaging disposal	▸ Recycle wherever possible or consult manufacturer for recycling options. ▸ Consult State Land Waste Management Authority for disposal. For wood wastes including wood dusts: Various public policies encourage the utilisation of waste wood for heat and energy production. Generation of heat using combustion technologies such as grate-fired boilers, fluidised bed combustion and cement kilns. Energy production technologies have been developed which are able to utilise mixed biomass to create energy. Common technologies include steam turbines, gasification and pyrolysis. The main issue preventing the utilisation of wood wastes is overcoming contamination, especially contamination by chemicals such as wood preservatives. However, technologies are being developed to overcome such issues, which may be viable for some of the larger industries wishing to use waste wood for manufacturing or energy production. When considering options for minimising waste, the waste hierarchy of “reduce, reuse, recycle” is a common feature across jurisdictions. The hierarchy expresses a preference to achieve sustainable outcomes by reducing the amount of waste that is generated, reusing what cannot be reduced and recycling what cannot be reused, with disposal as the last option. ▸ Recycle wherever possible or consult manufacturer for recycling options. ▸ Consult State Land Waste Authority for disposal. ▸ Bury or incinerate residue at an approved site. ▸ Recycle containers if possible, or dispose of in an authorised landfill.

SECTION 14 Transport information

Labels Required

Marine Pollutant	NO
HAZCHEM	Not Applicable

Land transport (ADG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Product name	Group
bifenthrin	Not Available
wood dust softwood	Not Available
wood dust hardwood	Not Available

Transport in bulk in accordance with the IGC Code

Product name	Ship Type
bifenthrin	Not Available
wood dust softwood	Not Available
wood dust hardwood	Not Available

SECTION 15 Regulatory information

Safety, health and environmental regulations / legislation specific for the substance or mixture

bifenthrin is found on the following regulatory lists

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 2
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 7

wood dust softwood is found on the following regulatory lists

Not Applicable

wood dust hardwood is found on the following regulatory lists

Not Applicable

National Inventory Status

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	No (bifenthrin)
Canada - DSL	No (bifenthrin)

Continued...

National Inventory	Status
Canada - NDSL	No (bifenthrin)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	No (bifenthrin)
Japan - ENCS	Yes
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	No (bifenthrin)
USA - TSCA	No (bifenthrin)
Taiwan - TCSI	Yes
Mexico - INSQ	Yes
Vietnam - NCI	Yes
Russia - FBEPH	No (bifenthrin)
Legend:	*Yes = All CAS declared ingredients are on the inventory* *No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.*

SECTION 16 Other information

Revision Date	23/12/2022
Initial Date	20/03/2018

SDS Version Summary

Version	Date of Update	Sections Updated
3.1	01/11/2019	One-off system update. NOTE: This may or may not change the GHS classification
4.1	23/12/2022	Classification review due to GHS Revision change.

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average
PC—STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit。
IDLH: Immediately Dangerous to Life or Health Concentrations
ES: Exposure Standard
OSF: Odour Safety Factor
NOAEL :No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index
AIIC: Australian Inventory of Industrial Chemicals
DSL: Domestic Substances List
NDSL: Non-Domestic Substances List
IECSC: Inventory of Existing Chemical Substance in China
EINECS: European INventory of Existing Commercial chemical Substances
ELINCS: European List of Notified Chemical Substances
NLP: No-Longer Polymers
ENCS: Existing and New Chemical Substances Inventory
KECI: Korea Existing Chemicals Inventory
NZIoC: New Zealand Inventory of Chemicals
PICCS: Philippine Inventory of Chemicals and Chemical Substances
TSCA: Toxic Substances Control Act
TCSI: Taiwan Chemical Substance Inventory
INSQ: Inventario Nacional de Sustancias Químicas
NCI: National Chemical Inventory
FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances