Toxic Dust Safety

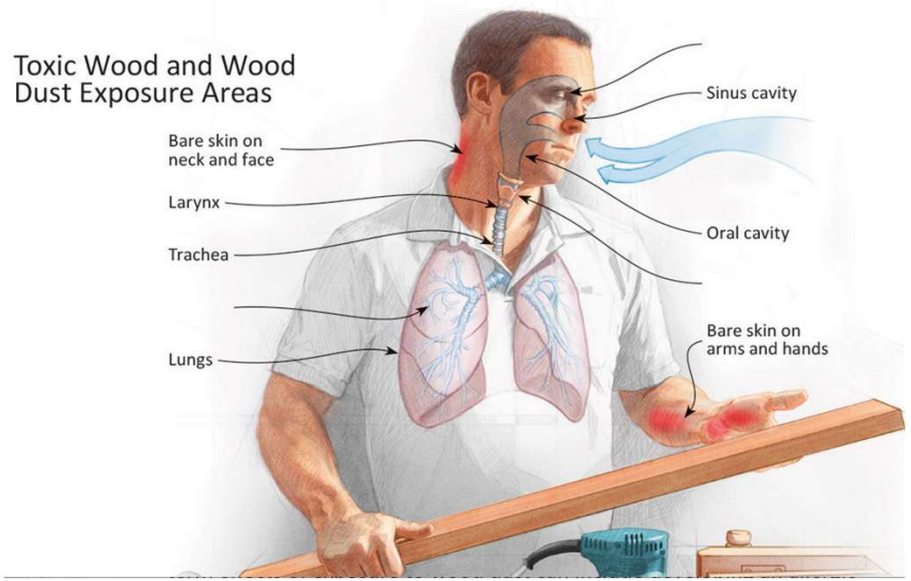
Jeff Langsner and the TCWT assume no responsibility for your woodworking safety. The rules and guidelines listed on these pages are only introductory informational reminders. This presentation is not a complete treatise on safety.

You must read familiarize yourself with applicable safety rules, read and understand any safety manuals and operate machinery in a safe manner.

- Dust masks and air cleaners are on the list of necessary tools in most shops, but research shows that some woods are more dangerous than others. Most woodworkers realize that over time, wood dust can cause many of the same lung problems as asbestos. But some woods have developed their own protection against insects, microbes, fungus, and even other competing plants.
- These defenses, usually in the form of an irritant or toxin, carry over to the lumber used in woodworking projects. Not every person responds to these woods the same way, but the chart on the next page highlights some woods that you might consider taking more precautions with.
- Sawdust irritates a person's respiratory system, but some woods, such as willow, can actually cause nasal cancer! While most of the reactions on the chart are caused by the wood dust, a few are confined to just the bark and leaves. At the other end of the spectrum, contact with the actual wood of some species can cause extreme reactions.

Possible Reactions to Woods

Wood	Class (Irritant or Sensitizer)	Reaction Type	Potency	Source	Incidence
Alder	Irritant*	Respiratory, eye and skin	No info	Dust	No info
Ash	Irritant	Respiratory	No info	Dust	No info
Avodire	Irritant	Respiratory, eye and skin	No info	Dust	No info
Bandgpress	Sensitizer[4]	Respiratory	Small	Dust	Rare
Beech	Sensitizer	Respiratory	Great	Dust	Rare
Birch	Sensitizer	Respiratory, nausea	Great	Dust	Rare
Black locust	Irritant	Nausea	Great	Dust	Rare
Bubinga	Irritant	Eye and skin	No info	Dust	No info
Red cedar, Eastern	Irritant	Respiratory, eye and skin	No info	Dust	Common
Red cedar, western	Sensitizer	Respiratory	Great	Dust, leaves & bark	Common
Cocobolo	Irritant	Respiratory, eye and skin	Great	Dust & wood	Common
Ebony	Irritant & sensitizer	Respiratory, eye and skin	Great	Dust & wood	Common
Elm	Irritant	Eye and skin	Small	Dust	Rare
Goncalo alves	Sensitizer	Eye and skin	Small	Dust & wood	Rare
Greenheart	Sensitizer	Respiratory, eye and skin	Extreme	Dust & wood	Common
Ipe	Irritant	Respiratory, eye and skin	No info	No info	No info
Mahogany	Irritant	Respiratory, eye and skin	Small	Dust	Rare
Maple (usually only epidem)	Sensitizer	Respiratory	Great	Dust	Rare
Oak, red	Irritant	Nasal	Great	Dust	Rare
Padauk	Irritant	Respiratory, eye, skin, and nausea	Extreme	Dust & wood	Common
Purpleheart	Sensitizer	Eye and skin, nausea	Small	Dust & wood	Rare
Rosewood	Irritant & sensitizer	Respiratory, eye and skin	Extreme	Dust & wood	Common
Sassafras	Sensitizer	Respiratory, nausea, and nasal cancer	Small	Dust & wood	Rare
Teak	Sensitizer	Eye and skin	Extreme	Dust	Common
Walnut, black	Sensitizer	Eye and skin	Great	Leaves & bark	Common
Willow	Sensitizer	Nasal cancer	Great	Dust	Common



Wood Species and Toxicity

Wood Species	Reaction
African Blackwood	irritant, sensitizer
Alder (Alnus genus)	irritant
Andiroba	irritant, sneezing
Angelim vermelho	unspecific allergic reactions
Ash (Fraxinus genus)	irritant
Birch (Betula genus)	irritant, sensitizer, nausea
Bloodwood	irritant, excessive thirst, salivation, nausea
Bocote	cross reactions possible once sensitivity to other woods have developed
Bubinga	irritant, lesions
Camphor	irritant, asthma, headaches, giddiness
Cedar, Aromatic Red	irritant
Cedar, Spanish	irritant
Chechen	irritant, sensitizer
Chinaberry	irritant, headaches
Cocobolo	irritant, sensitizer, nausea, asthma, pink eye
Cypress	sensitizer
Cypress, Australian	irritant, asthma, swelling of eyelids, boils, NPC (rare)
Ebony (Diospyros genus)	irritant, sensitizer, pink eye
Ebony, Macassar	irritant, sensitizer
Garapa	irritant
Greenheart	sensitizer, wheezing, severe throat irritation, splinters go septic, cardiac and intestinal disorders
Imbuia	irritant
Ipe	irritant, headache, asthma, vision effects
Iroko	irritant, sensitizer, asthma, boils, giddiness, HP
Jatoba	irritant
Katalox	irritant
Kingwood	irritant, sensitizer, pink eye
Lacewood	irritant
Mahogany, African	irritant, sensitizer, NPC (rare)
Mahogany, Santos	irritant
Makore	irritant, nausea, headache, giddiness, nervous system and blood effects
Maple (Acer genus)	irritant, sensitizer, asthma; HP in spalted maple
Monkeypod	irritant
Mora	irritant
Oak (Quercus genus)	irritant, sensitizer, asthma, NPC (rare)
Obeche	irritant, sensitizer, runny nose, sneezing, hives, asthma
Padauk (Pterocarpus genus)	irritant, sensitizer, nausea, asthma
Palm (Arecaceae family)	irritant, constitutional effects
Persimmon	irritant
Poplar	irritant, blisters, asthma, bronchitis
Purpleheart	irritant, sensitizer, nausea
Rosewood (Dalbergia genus)	irritant, sensitizer, asthma
Rosewood, East Indian	irritant, sensitizer
Sapele	irritant, sneezing
Silky Oak, Northern	irritant
Silky Oak, Southern	irritant, sap may cause blistering of skin, eyelid inflammation
Sissoo	irritant
Sucupira (Bowdichia nitida)	irritant
Tatajuba	irritant
Teak	irritant, sensitizer, rash, nausea, asthma, vision effects, pink eye, HP
Tigerwood	sensitizer
Tzalam	cold-like symptoms
Walnut, Black	irritant, sensitizer, NPC (rare)
Wenge	irritant, sensitizer, splinters go septic, nervous system effects, abdominal cramps
Yellowheart	irritant
Zebrawood	sensitizer
Ziricote	cross reactions possible once sensitivity to other woods have developed

Irritation

- Skin, respiratory tracts, and mucous membranes get irritated easily by any fine dust because dust absorbs moisture, thereby drying out the surface with which the dust is in contact. Itchy skin and sneezing are examples of basic irritation thanks to wood dust. The level of irritation is proportional to the exposure time to, and concentration of, wood dust.
- But irritation is not necessarily benign. Woods like walnut and rosewood emit pleasant odors with low levels of dust, which most woodworkers equate with being one of the benefits of working with woods. However, the natural substances in these woods that cause the scents are also potentially toxic with greater dosage exposure and concentration. Long term effects of exposure to wood dust can include developing an allergic reaction to the dust or possibly nasal cancer.

Sensitization

- Substances in wood that cause an emerging (and potentially serious) allergic reaction after repeated exposure are called sensitizers. This type of toxicity is specific to individuals and takes time to develop – some people may experience a significant reaction to a wood while others do not. While sensitization typically takes time and repeated exposure to develop, it is possible for some individuals to have an allergic reaction to a wood upon their first contact.
- Even if you do not have any reaction to a wood (or its dust) the first few times you use it, it's still vital that you take precautions and avoid as much exposure as possible. It's possible that your body will develop a reaction the more you are exposed.

Poisoning

- Universally lethal chemicals are rarely found in *natural* wood that's available on the commercial market. Most poisons in plants and trees are located in the bark and/or sap – there are some exceptions for rare woods.
- Spalting in wood is caused by a FUNGUS. That may be very toxic.
- Sometimes poisonous chemicals are introduced to wood products, such as with pressure treated lumber. Hardwoods cut for cabinetry, flooring, and furniture are not pressure treated.
- Take care using a woodburner on a piece that has been painted. The paints may have pigments such as cadmium which can be toxic when burned. Even the smoke from untreated wood may contain benzene and/or formaldehyde.
- Some common woods demand that woodworkers be aware of their own allergies. Those who have an allergic reaction to aspirin should avoid using woods from birch and willow trees (*Betula spp.* and *Salix spp*.) because these contain good concentrations of salicylic acid, the key ingredient in aspirin.

Prevention

- Limit your exposure to wood dust by doing the following things:

1. Use vacuum dust collection in your shop, and keep your shop ventilated with fresh air.
2. Use protective equipment while woodworking: dust mask, goggles or a full-face respirator, and a protective barrier cream on your arms or exposed skin.
3. When woodcarving or woodburning, use a secondary fan with filtration to draw the dust and/or smoke away.
4. Immediately after woodworking change your clothes, wash them, and take a shower. This will prevent transferring wood dust to your house where you or your family may be repeatedly exposed to it.