THE HAZARDS OF LINSEED OIL

We recently published an article about the various oils that can be used in finishing projects.

It has come to our attention that there may be serious danger in how we store or dispose of the cloths, rags and brushes with which we applied the oils. The containers the oils come in may not fully explain these dangers or indeed even give warnings.

Generally the culprit is linseed oil, but as this oil is a component in so many oil finishes, the danger may extend across the board for oils and wipe-on stains.

Linseed oil is a drying oil, meaning it can oxidise into a solid form. Due to this property, linseed oil is used on its own or blended with other oils, resins, and solvents as an impregnator and varnish in wood finishing, as a pigment binder in oil paints, as a plasticizer and hardener in putty, and in the manufacture of linoleum.

Linseed oil is still widely used for the finishing and refinishing of furniture and timber products.

Two types of linseed oil are commonly sold, raw and boiled.

- Raw linseed oil is oil which has been squeezed from flax seed and packaged with no additional additives or preservatives. Raw linseed oil dries very slowly, taking weeks to fully cure. It is commonly used to protect items exposed to the elements where drying time is not a consideration.
- Boiled linseed oil is not boiled. Instead solvents are added which cause the linseed oil to dry more quickly, acting as if it were boiled. This makes it a better product for preserving when a quicker drying time is required.

With both raw and boiled linseed oil, and other oils used to finish wood, including some exterior deck sealers and wood stains, heat is generated during the drying process. This is because these oils do not dry like paint (through the evaporation of a solvent or water). Instead, they dry through the same chemical process that generates fire – oxidation, a process that generates heat which may be sufficient to spontaneously ignite the material it is on and then anything else nearby.

For spontaneous combustion to occur, enough heat must accumulate so fire can start. You would never see a piece of furniture spontaneously combust because the oil oxidizes in open air so the surface never even gets warm to the touch! But a pile of oil-soaked rags can. As the oil oxidizes it generates heat. The rags act as an insulator, allowing the heat to build up until the cloth smokes and eventually ignites. A brush used to apply linseed oil that was left on a bookshelf has been known to cause spontaneous combustion.

The bigger the pile, the greater the possible heat and the greater the risk. Ambient temperature is also a factor. The warmer it is, the quicker the rags can reach ignition temperature.

The danger is that when stored or disposed of as a bundle, cloths and rags containing the elements of linseed oil may spontaneously ignite. **THERE HAVE BEEN MANY REPORTS OF SPONTANEOUS COMBUSTION OF LINSEED OILED CLOTHS RAGS AND BRUSHES** and there should be no need to tell you of the danger this creates if it happens, and worse still if it happens after you have left the scene.

Even though **Tung Oil** is said not to combust like this, it is safer to follow the disposal instruction set out in this article rather than risking that a small amount of linseed oil may have been mixed into the oil.

Varnish (as opposed to oil) doesn't create this danger, so check the component parts list on your container.

LESSONS LEARNED AND RECOMMENDATIONS

- Store rags or other applicators (eg. brushes) in a non-combustible container (metal) with a close fitting lid, away from the house and combustible materials
- Rags or other applicators (eg. brushes) soaked with linseed or other drying oils may smoulder for several hours before flames are visible
- Rags or other applicators (eg. brushes) used with linseed oil should be allowed to dry completely in a safe place, away from flammable materials.

The best way to achieve this is to lay the rags or other applicators (eg. brushes) out flat on a concrete driveway, or other non-combustible surface, and allow them to completely dry off.

Then they can be disposed of into the rubbish.

REMEMBER, IT REMAINS COMBUSTIBLE WHILE WET!