BE SAFE - Safety Tips of the Month (Gary Guenther)

FIRE!

That's a word you never want to hear (unless you're doing some ebonizing or purposeful charring of a piece with a hand torch). It's also something you probably don't think much about in connection to your woodturning. Unfortunately, some of our colleagues have had nasty but preventable experiences. To make sure they don't happen to you, read on.

1) Spontaneous Combustion

I'm sure you've all heard about this, and I'll bet a lot of you don't really believe in it. There's no way that bucket of oily rags is going to get hot enough to catch fire. Right? *Wrong!* It can happen. Many of us use oil finishes and wipe off the excess with rags or paper towels. We like to use those rags over a few times, and then we don't want to wash just one, so we throw them in a bucket until we have enough. Or we throw all the used paper towels into a waste basket. Well, that's not such a good idea, for several reasons. First, the volatiles are very bad for our health. Second, they can catch fire – usually at night when we're asleep. The following is from our friends at OSHA.

"Spontaneous ignition occurs when a combustible object is heated to its ignition temperature by a chemical reaction involving the oxygen in the air around us. This "oxidation" process creates heat that, if not dissipated, will build up until ignition occurs. Generally, this can happen when the materials are left in piles and the heat being generated in the pile cannot be released into the air.

A number of materials are moderately or highly subject to spontaneous heating and subsequent ignition. Some of those you may find in your work area include oil based paint in contact with rags, cotton, or other fibrous combustible material; *rags that are damp with any one of a number of different types of oils,* including vegetable oils; oily uniforms or work clothes, and paint scrapings, possible coming from a paint spray booth cleaning project.

The possibility of spontaneous ignition is great if the surrounding air is also warm and dry. The added heat, say from nearby machinery or a non-insulated steam line, can either pre-heat the material, which in turn sets off the reaction, or can hasten ignition by adding even more heat to the combustible.

It is simple to prevent spontaneous ignition, since oxygen is needed for it to occur. Materials subject to spontaneous ignition should be stored in covered metal containers such as a rag safety can or trashcan. Admittedly the container will contain oxygen at first. However, the oxidation process will use up the reaction and the reaction will stop-fire prevented.

Another strategy is to spread the combustible material out so the resulting heat can be dissipated rather than allowed to build up -- again, fire prevented.

Proper housekeeping is the key to preventing fires. Properly store combustibles in covered containers. Be sure the lids of containers remain in place – they are there for a purpose."

So wash your rags promptly and properly dispose of your paper towels, and Be Safe.

2) Sparks and Shavings

We typically like to have our grinder near the lathe, and we also generally have a big pile of wood shavings on the floor. Grinding tools makes sparks. Those sparks can smolder in the shavings and eventually ignite into a fire – and you may not be there to see it. Keep the area around your grinder swept clean. Also consider what can happen if you unknowingly put smoldering curls into a paper waste bag... Not good. Be Safe.

3) Steel wool burns

Steel wool ignites easily and quickly and burns hot. It is used in survival kits for starting camping fires. Oily steel wool is even more dangerous.

I personally don't like steel wool – never have. It leaves little bits of metal everywhere. If you're working with an open-grained, tannic wood like oak or walnut, these bits can leave stains unless they are religiously removed. They get everywhere and can scratch things, like your glasses. For cutting back finishes, I use various abrasives – fine sandpaper, pads and sponges, Abralon and MicroMesh, but this scratching action doesn't leave the same surface quality that you get from the cutting action of steel wool. Many turners still prefer the look and feel that comes with rubbing down a finish with good ol' 4-Ought.

Like the oily rags, these oily pads of steel wool can be reused many times, so they invariably get thrown around here and there for use in the future. They may be near the grinder. Not a good idea! A spark into an oily piece of steel wood is a fire looking for a place to happen, and it's not easy to put out. There are many examples cited online -- as an example, check out www.woodcentral.com/cgi-bin/archives_turning.pl?read=182495. Add a little powdered aluminum, and you get thermite – you *really* don't want to go there.

Another example, possibly a combination of spontaneous combustion and steel wool is at www.woodcentral.com/cgi-bin/archives_turning.pl?read=183795 with a good follow-on reply at www.woodcentral.com/cgi-bin/archives_turning.pl?read=183839.

Clean up, store materials in metal cans, and Be Safe.