

PHOTOGRAPHS BY KURT HERTZOG

Personal protective equipment

Kurt Hertzog explains how to choose and use PPE



In virtually every column, after the introduction I begin with a section on safety. This is not by accident but rather to stress how important it is. It takes so little effort to don the proper PPE as needed and follow the common safety rules. Doing so can dramatically reduce the chances

of injury. Because PPE is such an important part of woodturning, I'm devoting the entire column this month to covering the topic. Please be aware that space and specific situations preclude this being all inclusive or the final answer.

There will be brief mentions of PPE

associated with chainsaw use but that topic is beyond the scope of this column. If your situation requires equipment and procedures different or beyond that of the common woodturner, the responsibility falls on you to get the proper gear and knowledge to be safe.

Safety



Read the safe use instructions. Virtually every chemical will recommend plenty of ventilation at minimum

There is a saying among pilots that goes something like this: there are old pilots and there are bold pilots but there are very few old, bold pilots. Gone are the days of being macho by ignoring the safety precautions. Wearing the proper safety gear isn't being wimpy. It is being smart! In some instances, injuries can be immediate with varying degrees of severity. In other situations, injuries may not appear for years. This is



My local home improvement centre has a very exhaustive selection of all of the PPE needed for the typical woodturner

particularly true with dust inhalation and chemical fumes exposure. You may believe your quick and minimal exposure is safe but many of these problems are caused by cumulative exposure. Each situation you are in when using tools and equipment presents their own needs as far as PPE. Your eye protection when using the drill press drilling some small holes will be different than when you are sawing green wood stock with your



Your PPE can vary widely depending on your task. Armoured leggings, a hard hat with earmuffs and face shield, and gloves for chainsawing

chainsaw. Please be aware of these varying needs and use the appropriate PPE. I'll cover most of the common items available but you are the only one who can best determine what you need to use to provide the needed protection in each situation. Don't try to be the old, bold pilot. Use the proper PPE each and every time it is needed. If you are going to err, err on the side of more protection than less.



Just some of the safety glasses available. 3M is just one of the many vendors

Eye protection has become far more accepted in recent years but still isn't being used 100% of the time. This is obvious by the number of eye injuries that occur each year. Sometimes the injury wasn't caused by the lack of using eye protection but was caused by not using the proper type of eye protection. The safety glasses available today have all types of features to help prevent the various injuries. Varying impact resistance, side shields, headband retention, tints and more can help protect eyesight. Don't think that safety glasses are your only option. There are also goggles, chemical splash

masks and helmets of many types available for eye and face protection. Be aware that just having something in front of your face may not be sufficient. You will do well to check the rating of the various products available, particularly for impact resistance. In the US, the ratings are denoted in ANSI standards. In Europe, there will be an EN code. Depending on your location, you may have a different rating system and responsible agency. The various products available for face protection range from nuisance debris to projectiles. When I am turning larger pieces, especially when I've

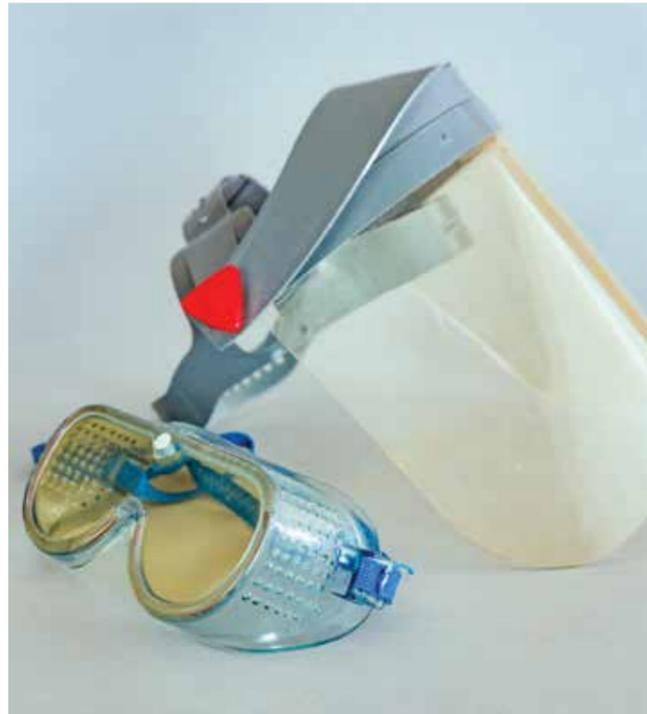


Some of the glasses I use for drilling and bandsawing. Notice the side shields on the featherspecs

needed a chain fall assist to hoist the blank on to the lathe, I wear a hockey mask. It does look a bit foolish to be wearing a street hockey mask while turning at the lathe but if it was designed to deflect a puck, it should help deflect any errant pieces of my blank. While it does provide head, face and throat protection, the open wire construction doesn't provide eye protection. That needs to be worn underneath the helmet. Whatever system you choose, full face protection is recommended when turning and it should be rated to be impact resistant not just a nuisance chip deflector.



A modestly priced full face shield that is very popular among turners. It is my typical use face shield.



Goggles and face shields can be used for splash protection when using chemicals

Skin contact protection

Most of us use adhesives, solvents, colourants and finishing products in our workshops. Nearly all are mild enough to let the casual user have some limited hand contact without immediate critical consequences. That said, some are not so benign. Also, repeated exposure to some can cause problems over time. We'll address fumes later but now we'll cover skin contact. Nearly every manufacturer will recommend avoiding contact with your skin in their safe use instructions on the product label. There are probably many ways to avoid contact by using brushes, application sticks and other non-contact methods. I use these



Polyethylene food service gloves for nuisance protection and nitrile gloves for chemical protection serve all of my needs

when appropriate. Using applicators or not, if I could potentially come in contact with the chemicals, I wear the proper protective gloves. This can include even handling the containers and dispensing the product. The two types that I keep handy are polyethylene food service gloves and chemical-resistant nitrile gloves. These are readily available in home improvement centres, industrial supply companies and sometimes in woodturning retailers. The polyethylene food service gloves are very inexpensive and I use them to keep from getting my hands 'dirty'. This is usually when working with adhesives that will stick to me and be difficult to remove. Simply putting on the food service gloves keeps my hands clean. Sometimes it takes a couple of pairs depending on the mess I might make. I don't use the food service gloves when I need chemical resistance. When I am dealing with chemicals such as dyes, solvents, stains and finishes, I use the nitrile gloves. These are resistant to any chemicals I use in my 'shop. Not as inexpensive as the food service gloves types but well worth the minor expense for the protection they provide. There may be other products available in your area for you to select from as well as special recommendations by chemical product manufacturers. Perhaps not as frugal as I could be, I dispose of the gloves after use rather than keeping them around once they've been soiled. Do dispose of them safely and properly.

While these two types of gloves serve

all of my needs, you may have additional requirements for temperature or more hazardous chemicals. Should you have needs beyond the basics, there are professional-level safety supply companies in all major cities as well as online. On the topic of gloves, there are some turners who will use bicycle riding gloves, work gloves or other hand-protective products to shield their hands while turning. This is especially true when roughing stock with bark. The debris that will hit the hands can be painful and injurious. In the few instances that I need this protection, I will only use the one glove for the hand on the toolrest and favour my chainsaw work gloves. I will let you determine the best choice for your needs. Other than those few situations, I avoid wearing gloves while turning.

GOOD PRACTICES

- Plenty of ventilation is always a good idea, regardless of your specific need.
- Sweeping puts all the dust into the air. Use the vacuum when you clean up if you can.
- Keep your various PPE right next to the point of use for convenience.
- Dust masks, filter cartridges, gloves, etc. have a finite life. Check often and replace as needed.
- When in any doubt, don your PPE. Problems don't always show up immediately.
- Those who scoff at safety are being unwise. Perhaps not very good role models.

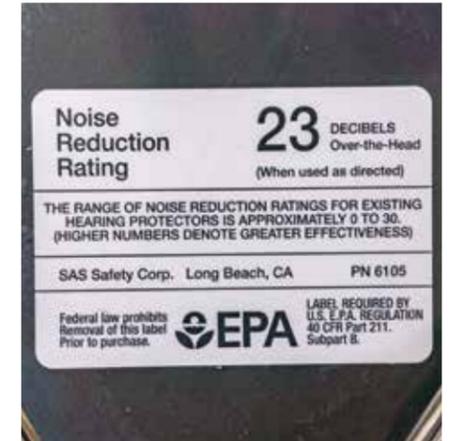
Hearing protection

For the most part, hearing protection isn't needed when woodturning. If you are making that kind of noise at the lathe, I'd suggest you need to figure out why. However, there are other times I use hearing protection in the workshop. Many times cutting at the bandsaw will yield loud and unpleasant noise. I keep earplugs available at each of the bandsaws for when they are needed. Of course, hearing protection is needed when running the chainsaw so I always use the earmuffs attached to my face shield. Under the normal woodturning situation where noise levels are minimal, I recommend that you don't wear anything that will restrict your ability to hear. While turning, the sounds of the turning process gives you extremely valuable information as to the effectiveness of the cut and the current state of the blank. Changes in the sounds usually indicate a change that needs to be investigated. These are warning noises



I keep an assortment of hearing protection in the 'shop. Stored at point of use makes for convenience and therefore use.

that you might miss if you are wearing earphones pumping in music. Should you feel the need for music in the 'shop, use a



When shopping for hearing protection, the ratings give a good indication of the relative effectiveness

source for the entire 'shop that you can keep the volume low enough to be aware of all the workshop situations.

Dust protection

While it might be called dust protection, it should be more aptly called inhaled particle protection. The reason I make the distinction is that your PPE for dust really will revolve around particle size and point of filtering. Not only for the efficacy of the filtering system but also for the impact the various particle sizes can have on your health. Granted, breathing in dust and debris isn't good for your health regardless of the particle size but the particles' sizes do have different impacts on you. The 10 micron and below sized particles are the respirable sized, i.e. they're breathable and reach deeply into the lung. It is recommended that you be certain your dust protection devices work to filter out these sized particles if you are creating them. Many masks don't filter these. They will catch the 'boulders' but not the very fine, more problem-sized particles.

There are three basic systems that the home user will be involved with. The first point of protection and simplest piece of dust protection gear is the user-wearable dust mask. These are available as disposable or permanent. Regardless of which type, you should be cognizant of the filtering particle size. You'll have different particle sizes generated in the 'shop depending on what you are doing. Turning will create certain particle sizes and even the degree of dryness and wood species can alter the particle sizes. Sanding creates different-sized particles as does the drill press and bandsaw. You aren't doing the best you can for yourself if you are wearing a mask that filters down to 50 micron sized particles and you are sanding creating 10 micron sized particles.

The second point of filtering is at the source. Many turners have an inlet to their



Locating an input to your dust extraction at the point of dust generation works well helping keep the air clean



For simple dust filtration, I run my overheads, a 4in vacuum inlet at the point of source, and a permanent style dust mask

dust collection system available right at their lathe. Various hoods, commercial and home built, try to catch the dust as it is created. These range from simple plastic shrouds to exotic air flow control inlets. Collection at the source is a great idea and effective if done properly. It needs to be positioned to be effective and with sufficient air flow to draw all of the dust and debris into the extraction system. The key point to remember is if your dust extraction system doesn't filter out the bad stuff, you may be collecting it at the



There are throwaway dust masks available at your retailer. Notice the filter designation on the packaging



There are more industrial-level masks with replaceable filter elements in various filtering capabilities

source and blowing the fine particles right out through the dust bags and into the 'shop air. Most of the dust extraction equipment manufacturers offer different filtering options and the data on the particle sizes they are effective for. Also, cleaning and changing your filtering media as needed in the central dust extraction equipment is a very important task. It is often neglected to the point of being ineffective.

The third point of filtering is the 'shop overhead types of filters intended to filter

the dust from the environment. I have two of these in one of my 'shops but I know they are the least effective means of dust protection. They filter the environmental air after you've been breathing it! Even if your overhead dust collection is located at the end of your lathe as mine is, it is filtering the air after you've been breathing it. Again, filter particle size, filter cleanliness, location, air



My older 3M powered filter helmet filters the incoming air through a HEPA filter which is on the belt behind me

flow, etc. all have an impact. By all means use the 'shop overhead filtering systems to help keep the environment bearable but don't believe you are protecting your lungs with them alone. There is one system that filters the air just before you breathe it. My 3M (now different names) filter air mask has a positive ventilation system that forces air into the face shield preventing outside air



The filtered air is delivered to the helmet in a positive ventilation arrangement keeping all unfiltered air out

from entering. The air provided is filtered through a HEPA filter on the belt behind me. There are other powered filter masks and face shields available from other manufacturers. These usually have the filter media and power supply in the helmet itself. You need to remember that these types of helmets filter dust, not chemical fumes. For chemical fumes, you need special filtering media.



Filter systems do no good if the filters are clogged. Here my tell-tale strings are warning me to change the filters

Chemical breathing protection

Chemical breathing protection is not only for breathing but also for eye and mucous membrane safety and comfort. Even Ca adhesive fumes will have uncomfortable effects on many people causing them eye and or throat and nose irritation. Read and heed the warning labels on every chemical product container. They aren't kidding. I've rarely seen any label that didn't recommend plenty of ventilation. That can mean opening the garage door, putting a fan in the window, using a power vent or some

other means of ventilating. In essence, get rid of the chemical fumes and replace them with fresh air. Some chemicals require even more than good ventilation. They require a mask with the filter system for that specific family of chemical. Most of these masks have activated charcoal canisters that will filter out the harmful fumes from the air being pulled into the mask. These filters are replaceable as needed. When you buy a mask and the filters for it, check to be certain that it is suitable for the chemicals you will be

using. The filter replacement cartridges will also indicate their suitability for the various types of chemicals. These chemical-filtering masks should be used in addition to plenty of ventilation. To prolong the functional life of the filtering media, I store the mask in a sealed plastic bag when not in use. Don't put yourself at risk by not changing the filtering media cartridges as needed. They do have a finite lifetime. While they are not inexpensive, your long-term health is well worth the cost.



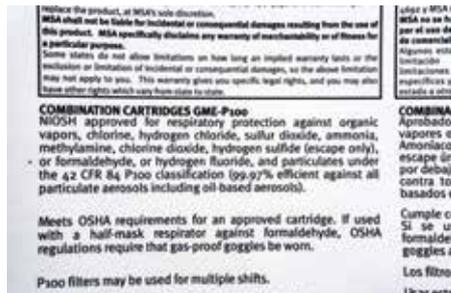
Chemical filter masks are usually called 'respirators' and their protection is based on the filter media used



You'll see the regulating agencies indicators well marked telling you what vapours that your mask filters are effective for



My vapour mask with the proper replacement filters. Keep extra filters on hand to allow changing when needed



The filter media will be labelled with all the details and the standards that it meets per your regulating agency

Conclusions

Personal protective equipment may not be at the top of your wish list for topics in this column. As noted earlier, it isn't glamorous or something you can brag about on the show-and-tell table at the club meetings. It is, however, one of the most important things you can do to provide yourself with a long and healthy woodturning career. The number of my club members who have suffered from dust and chemical exposure is sad. They injured themselves through repeated exposure over many years and before we collectively emphasised making personal safety a high priority. It is too late now for many of them after their problems have occurred. Don't let anyone make fun of you for your efforts to be safe. Any one who is making light of personal protective equipment and safety is not doing you, themselves or anyone else any favours. Don't be embarrassed to try to explain the importance to them. You may be doing them a very good deed. ●