



Wheel Cleaners Can Be Nasty

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How would you feel about using a cleaning product that warns that it could be fatal if in contact with skin? Sounds pretty nasty. Maybe it's the most effective product for the job. But wouldn't you at least want to take some extra precautions when handling it?

Too often, we don't see those precautions taken – and too often, it is the least experienced workers who are assigned to work with this product. What's the product? Wheel cleaner.



We've seen three types of wheel cleaners: strong acids, weak acids, and non-acids (alkaline cleaners).

The ones labeled as non-acids are corrosive, able to cause skin burns and permanent eye damage. In general, they're pretty straightforward except for one major point: you may not feel pain or irritation from them immediately. Instead, they may feel soapy on your skin. But if you get them washed off your skin before they can start damaging the tissue, you won't have any long term effects.

The strong acid ones also cause burns. They often contain sulfuric acid, the same acid found in lead-acid batteries. That's a "what you see is what you get" chemical. If you get it on your skin or splash it in your eyes, you'll immediately feel pain or irritation.

The strong acid wheel cleaners and the weak acid ones also contain hydrofluoric acid or ammonium bifluoride. These fluoride compounds are nasty. Burns from them aren't felt right away – it can take as long as 24 hours to notice the pain. The chemicals readily go through skin, causing very deep burns that can be very slow to heal. And if not treated correctly, the burning can continue for days. These chemicals are hazardous from skin contact, eye contact, and from breathing any mist if they're sprayed.

If you get a corrosive chemical on your skin, the standard first aid procedure is to immediately remove any contaminated clothing and flush the skin with lots of water. That's true for fluoride burns, but that's not enough. Because fluoride penetrates and binds, water alone won't remove it. Special and prompt treatment with an iced solution of benzalkonium chloride (a common disinfectant) or calcium gluconate gel is needed. Don't have any on hand? Get to a doctor immediately.

If it's in the eye, flush with lots of water and then get to a doctor right away.

Make sure you tell the treating clinic that they're dealing with a fluoride burn. You want to be sure they understand that it isn't an ordinary acid burn. If this type of burn is not treated correctly, the fluoride can even penetrate to the bone, making it lose calcium.

It makes sense for shops that use acid wheel cleaners to stock some of the treatment for skin contact. But prevention is better than treatment.

- Evaluate the wheel brightener or wheel cleaner you use. Could you change to one that is less hazardous? If you think you must use a very strong one, can you get away from the fluoride-containing cleaners?
- Require that anyone using wheel cleaners wear protective gloves. Neoprene, butyl rubber, or nitrile should be sufficient, but check the safety data sheet for the specific chemical. Keep the gloves clean and uncontaminated. One car washer lost her fingers when she wore contaminated gloves. The gloves held the substance right against her skin, causing severe tissue destruction.
- Require that anyone using wheel cleaners wear a face shield and chemical safety goggles. We don't see this often, but it should be mandatory.
- Don't use stronger solutions than needed. And be especially careful when diluting solutions. If you buy a concentrated product and then dilute it for use, remember to *always add acid* – add the acid to water, never the other way around.
- Be prepared for a spill. If you use a strong acid wheel cleaner, get some limestone pebbles (calcium carbonate) or a spill kit designed for hydrofluoric acid to neutralize it. Other neutralizers, such as baking soda, can leave toxic salts after the acid is neutralized. Use a commercial neutralizer for the nonacid (alkaline) wheel cleaners.
- Be prepared for an accident. Make sure you have a working eyewash nearby. If you use the fluoride products, have some of the first aid treatment (the gel, for instance) on hand. Honeywell, the world's largest producer of hydrofluoric acid, has a good guide to medical treatment for fluoride exposure. You can find it by searching for "Honeywell exposure treatment guide." If an employee is exposed, provide that guide to the clinic.

If you have questions about chemical safety, requirements for personal protective equipment, or general safety issues, call CHESS at 651-481-9787 or e-mail us at CHESS@chess-safety.com

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