



A Bad Mix

On November 7, 2019, a 32-year-old restaurant manager died. The cause: chlorine gas. It's a good thing nothing like that can happen in your shop, right? Wrong.

The restaurant manager's death made national news, because a death from chlorine at a Buffalo Wild Wings is unusual. But when we look at what actually happened, the tragedy was predictable.

The restaurant used an 8-10% bleach solution to sanitize the floors. The strong bleach solutions you can buy at your local grocery store are likely to be about 8% bleach. Bleach is corrosive, but that isn't what killed the manager.

A container of a product used to remove scale and lime deposits evidently spilled when the floor was being sanitized. That product was 50% water, about 25% phosphoric acid (the same acid used in toilet bowl cleaners), and about 25% nitric acid.

When you combine a strong acid with bleach, chlorine gas is created. Your lungs don't fare well with an assault with that.

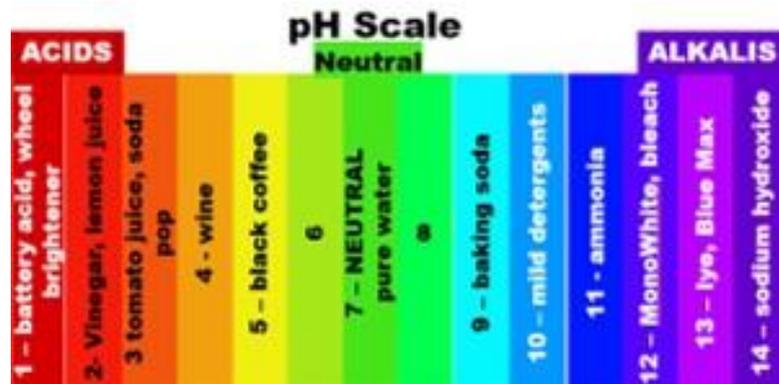
Do you use any strong acids in your shop? Wheel brightener, perhaps? Battery acid? Do you have any strong alkalis, such as Blue Max cleaner or Mono White degreaser, often used as a floor cleaner? Cleaning agents such as bleach?



It isn't hard to tell what chemicals are corrosive. They'll have the red-bordered corrosive symbol. If the package was large enough to ship by itself (such as 55-gallon drum), it'll have the black and white corrosive placard. The two labels are very similar: both show a dissolving block of metal and a dissolving thumb.

Corrosives have some key characteristics in common. They can cause permanent eye damage, or they can cause tissue damage, or they can dissolve metals. But they aren't interchangeable chemicals. Some corrosives are strong acids. Others may be alkaline or caustic. Still other may be neutral but still able to cause permanent eye damage.

How do you know what's a strong acid or a strong base? Go to section 9 of the product's safety data sheet and look for the pH.



pH measures acidity or alkalinity on a scale from 0 to 14. Acids have low pHs, around 0 to 2. Alkalis have pHs above 12. 7 is neutral. Confused? Section 7 of the SDS, Safe Handling and Storage, will advise on what materials to avoid.

Wheel brightener and battery acid are very strong acids, with pH of 1 or less. Blue Max cleaner is alkaline, with a pH above 13. Water based degreasers are likely to be strong alkalis. Solvent based degreasers are neutral.

The best way to ensure you don't have a mix-up such as the one that killed the restaurant manager: don't have incompatible chemicals. That's easier for an automotive repair shop than it is for a restaurant, because the sanitizing agents used in food service are usually very strong.

But what if you're convinced that nothing will make wheels look better than an acid wheel brightener? Go look at how you're storing and using that. Is anything else with the corrosive symbol stored near it? If containers leak or are spilled, what could happen? Don't store incompatible materials together. Don't store one on top of the other – you don't want a leak to drip onto an incompatible product.

Look, too, at how people are using the corrosive chemicals. Do they know to use them only according to the manufacturer's directions? Do they know the dangers of mixing? Even experienced detailers may not know the dangers of mixing. There are plenty of stories of cleaners mixing product A and product B, because "there's only a little of this left in the bottle" or "if product A cleans okay and product B cleans okay, then product A mixed with product B will clean even better." Those naïve actions are dangerous.

Make sure products are clearly labeled with the product name and hazard warning. We've seen alkaline materials labeled just as "degreaser." Mineral spirits is a degreaser – but it won't cause a violent reaction when mixed with an acid. If employees don't know the product name, they can't read the precautions on the original product label and they can't look up more information about it.

Two weeks after the Buffalo Wild Wings manager died, a Red Robin restaurant, only four miles from that Buffalo Wild Wings, was evacuated when an employee mixed two cleaning chemicals. Three people were brought to the hospital. This one wasn't so bad – no one died. Again, it was preventable.

<p>This article is intended to provide general information (no advice) about current safety topics. To discuss your specific concerns and how CHESS may help, please contact CHESS at 651-481-9787 or chess@chess-safety.com</p>
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