

MICHIGAN



MICHIGAN STATE UNIVERSITY: Prevention of work-related injuries & illnesses through research & investigation

INVESTIGATION/RESEARCH

Prevent Burns from Hydrofluoric Acid in the Workplace

Hydrofluoric acid (HF) in cleaners used to wash cars and trucks can cause severe corrosive chemical burns. Some cleaning products may contain ammonium bifluoride, a chemical that forms HF when mixed with water. The State of Washington recently reported 48 workers in their workers' compensation system from 2001-2013 with HF burns. In Michigan we identified eleven workers from 2011-2014 treated in emergency departments or hospitalized for HF burns. Some examples:

- A man in his 20's using Car Brite Acid Wheel Cleaner at a car detailing shop developed pain in one hand on his fingers an hour after leaving work. He was treated with calcium gluconate gel and the pain resolved 4-8 hours later. He had worn gloves which presumably had a hole, allowing HF to burn his fingers.
- A man in his 20's who worked at a car wash had cleaner which contained hydrofluoric acid spill on his foot. Two hours later he had pain and noted that an area of the skin on the top of his foot had turned black. He was hospitalized overnight for treatment.

TO PREVENT WORK-RELATED BURNS FROM HYDROFLUORIC ACID

- Use cleaners that do not contain HF.
- If cleaners with HF must be used:
 - ✓ Protect Your Skin: use chemically-resistant gloves, an apron and boots made of Neoprene or Nitrile (22 mil thick), Butyl, Viton®, or Teflon®. Examine to ensure there are no holes, tears, or visible deterioration of the protective gear you wear. Do not use cotton gloves.
 - ✓ Protect Your Eyes: Use acid-resistant chemical splash goggles and a face shield.
- If a cleaner with HF gets on your skin or in your eyes, immediately remove contaminated clothes and jewelry, wash with water, and then go to the hospital for treatment with calcium gluconate.
- If a cleaner with HF gets in your eyes, immediately wash your eyes out and go to the hospital for treatment by an eye doctor.
- Employers who use HF-containing cleaners should have workplace health and safety programs that include policies to reduce the likelihood of splashes or spills, provide the proper personal protective equipment and have an emergency treatment plan for individuals who get HF-containing cleaners in their eyes or on their skin.
- Workers who use HF-containing cleaners should familiarize themselves with their workplace health and safety programs, policies and personal protective equipment and know what to do if a cleaner splashes in their eyes or on their skin.

DID YOU KNOW?

- Numbness from HF can make a person unaware of tissue destruction that occurs for up to 24 hours after HF has gotten on the skin.
- HF is more dangerous than other acids used in cleaners because washing with water is not enough to remove HF. Specific treatment with calcium gluconate skin gel is needed.
- Car and truck cleaning products such as Aluma Brite, Aluma-Kleen 1000, A-Wall, Fast Bright, Lume Brite Aluminum Cleaner and Brightener, TC-303 Acid Aluminum Truck Brightener, and Zep-A-Lume contain 0.5 - 20% HF.

Occupational Hydrofluoric Acid Injury from Car and Truck Washing — Washington State, 2001–2013

http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6432a4.htm?s_cid=mm6432a4_w

Facts about Hydrogen Fluoride (Hydrofluoric Acid)

<http://www.bt.cdc.gov/agent/hydrofluoricacid/basics/facts.asp>

Recommended Treatment for Hydrofluoric Acid Exposure

<http://www.honeywell.com/sites/docs/D47O8KSXCHVRH7M7737TW4JJXG2I3YSV0803114421015.pdf>

