



HEALTH, SAFETY,
& ENVIRONMENTAL



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Near-Miss Involving Burning Metals

A recent **near-miss** brings the importance of Fire Classification to the forefront.

A worker was using a torch to cut through steel on a cooler coil. The aluminum in the coil tubes caught fire after being exposed to such high temperatures from the torch. The worker then proceeded to spray water on the fire, resulting in a small, but powerful explosion. Workers were able to cover the fire with dirt from the ground around them and put it out.



When water is applied to an aluminum or magnesium fire, it does not extinguish the flames and instead makes the situation far more dangerous. At the extremely high temperatures produced by burning metals, water instantly flashes into steam and breaks apart into hydrogen and oxygen. The hydrogen gas is highly flammable and can ignite or explode, causing the fire to flare violently and spread molten metal. In addition, the rapid steam expansion can eject burning metal particles outward, increasing the risk of severe burns and secondary fires. For these reasons, water should never be used on aluminum or magnesium fires; only appropriate **Class D** fire extinguishing agents are effective.

Fire classifications are standardized categories that identify the type of fuel involved so the correct extinguishing method can be used. **Class A** fires involve ordinary combustibles such as wood, paper, cloth, and trash. **Class B** fires involve flammable liquids and gases, including gasoline, oils, solvents, and propane. **Class C** fires involve energized electrical equipment such as wiring, motors, and panels. **Class D** fires involve combustible metals like magnesium, aluminum, sodium, potassium, and titanium, which require specialized dry powder agents. **Class K** fires involve cooking oils and fats commonly found in commercial kitchens. In the United States, these fire classifications are established and maintained by the National Fire Protection Association (NFPA), which develops widely adopted fire codes and standards, including guidance on fire extinguishers and fire protection systems.

For more information on Fire Classification, you can contact the LIFE Department at LIFE@gisy.com. For training on Fire Classification and fighting small, incipient fires, contact ITEC at training@gisy.com.

Proper use of the **GIS LIFE Processes** can help to create a **FAIL-SAFE** Work Environment.



SAFETY ALERT