



## Oily Rags & Spontaneous Combustion

On April 12, 2011, a small business in South River, NL sustained more than \$500,000 damage as a result of a pile of oily rags left at the workplace. This unfortunate event was caused by a phenomenon known as spontaneous combustion. According to the National Fire Protection Agency (NFPA), in the United States more than 1600 fires are caused by spontaneous combustion or a chemical reaction. So, how does a pile of oily or solvent soaked rags suddenly burst into flames without a source of ignition?

### Spontaneous Combustion

Spontaneous combustion can occur when oil/solvents in the rags undergo an exothermic reaction with the air surrounding them. Heat is generated as a part of this reaction. When chemical soaked materials are piled up the

heat becomes trapped and continues to build-up. The heat may reach a temperature consistent with the specific chemical's "auto-ignition temperature". This is the lowest temperature at which a material can spontaneously ignite without any external source of ignition. The pile of rags acts as the initial source of fuel and as long as a supply of oxygen is available, heat is generated and a fuel supply exists, the fire will continue to burn and spread to other fuel sources.

### Hazard Controls

- Remove the supply of oxygen, hence removing one of the legs of the fire triangle.
- Do not leave oil or solvent soaked rags lying around your work area. Place cloth, paper or other materials that are soaked with flammable or combustible liquids in the identified "oily waste" containers that

have self closing lids and flame resistant liners.

- Do not over fill the containers and ensure that there are no obstructions that are preventing them from closing. Report any damage to your supervisor immediately.
- At the end of each shift, the "oily waste" containers are to be emptied into the designated metal drums, marked as "oily rags - flammable", that have been specifically engineered to contain and extinguish a potential fire hazard.

### Hazard Communication

Understanding the hazards of the materials you are using is critical to your safety and the safety of your co-workers. Safety Data Sheets (SDS) for all controlled products used in the workplace are to be in the SDS binder. Prior to using any controlled product, ensure that you have reviewed the safety data sheet. As a reminder, the WHMIS 2015 symbols for flammable, explosive and oxidizing materials are:



### Discussion

- Review products that pose a risk, on site.
- Review company procedure for storing oil/solvent soaked rags.
- Review location of storage containers.

The Law! - "Waste material contaminated with a solvent, oil, grease, paint or other flammable substance shall be placed in covered metal containers before disposal and shall not be stored in work areas."

As per Newfoundland and Labrador Occupational Health and Safety Regulations s.444(5)