

>> TOOLBOX TALK – Rags and Spontaneous Combustion

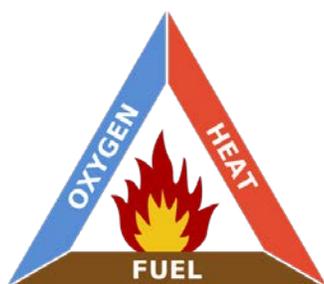
On April 12, 2011, a small business in South River, NJ sustained more than \$500,000 damage as a result of a pile of oily rags left at the workplace.¹ On October 8, 2016, in Fort Collins, Colorado, a fire destroyed a home, killing the daughter of the homeowner as she attempted to escape. In this case, the fire was caused by a pile of stain soaked rags that were found under the deck of the home. The rags had been used by a local company contracted to stain the deck.² Both of these unfortunate events were 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.³ 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 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 symbols for flammable, explosive and oxidizing materials are as follows:



Home Safety

Many of the greases, oils and lubricants used in the workplace pose a risk of spontaneous combustion. Paints (oil based), varnish, stains and thinners are also among common culprits. But the work site is not the only place that might be of concern. Many regular household products can pose the same risk; cooking oil, massage oils and furniture polish to name a few. While you may not have access to the same disposal facilities at home, there are things that you can do to ensure that this fire risk is mitigated in your home.

- Don't place soiled cleaning rags in a pile, bag etc.
- Hang the rags on a clothes line or lay them out flat in a well ventilated area.
- Allow the rags to completely dry.
- Dried rags should be stored in an airtight, metal container. Fill the container with a solution made of water and detergent.
- Store the container in a cool, dry area away from direct sunlight and sources of ignition.
- In St. John's, containers can be dropped off between 8am and 4pm on Mondays and Wednesdays at the Household Hazardous Waste Depot, located at the Robin Hood Bay waste facility on East White Hills Rd. Details regarding other drop off locations around the province can be found at <http://rethinkwaste.nl.ca>

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)

Footnotes:

- 1 *Combustion cited in slate business fire CBC News.* (2011, 04 12). www.cbc.ca/news/canada/.../combustion-cited-in-slate-business-fire-1.1026180
- 2 Citnis, Shawn. (2017, 10 19). *Deadly House Fire Caused By Spontaneous Combustion.* Eye 4 CBS Denver: <http://denver.cbslocal.com/2017/10/19/deadly-fire-caused-spontaneous-combustion/>
- 3 *Safety with Oily Rags.* (n.d.). www.nfpa.org <https://www.nfpa.org/-/media/Files/Public-Education/Resources/Safety-tip-sheets/OilyRagsSafetyTips.ashx>

Other information and/or graphics sources include:

How Do I Work Safely with - Flammable and Combustible Liquids (General). Retrieved 04 25, 2018, from www.ccohs.ca: https://www.ccohs.ca/oshanswers/prevention/flammable_general.html

Oil and solvent soaked rags must be stored and disposed of properly too prevent combustion fires. (n.d.). Retrieved 04 28, 2018, from Concordia University: http://www.concordia.ca/content/dam/concordia/services/safety/docs/EHS-DOC-027_OilAndSolventSoakedRagDisposalProcedure.pdf

Complete and attach Toolbox Meeting Form and process as per company policy.



TOOLBOX MEETING FORM

Date: _____ Project: _____

Supervisor: _____ No. in Crew: _____ No. Attending: _____

Review Last Meeting:

	Names of Attendees (Signature Required)
Topics Discussed (policies, practices, procedures, hazard assessment):	
Suggestions Offered:	
Action(s) to be Taken:	
Injuries/Accidents Reviewed:	

Supervisor's Remarks: _____

Signature: _____