

RiskTopics

Spontaneous combustion of rags and roofing mops

Zurich Resilience Solutions - Risk Engineering

Spontaneous combustion is not a myth. Under the right conditions, certain construction materials and products can ignite even without an ignition or external heat source, resulting in devastating fires.

Introduction

Fires can occur on construction sites from paint, stain or solvent soaked rags and hot-tar roofing mops which are not stored or disposed of properly. Even large piles of hay, compost or mulch can self-ignite. These fires tend to occur in the afternoon or evening hours after they have had an opportunity to smolder and eventually ignite.

Discussion

Rags¹

Spontaneous combustion of oily rags occurs when a flammable or combustible substance is slowly heated to its ignition point through oxidation. A substance will begin to release heat as it oxidizes. If this heat has no way to escape, the temperature may increase to a level high enough to ignite the rags.

Improper storage of rags soaked with oil-based paint, stain, and solvents ignite by themselves. Thus, it is important to read the Material Safety Data Sheets or safety precautions listed on the containers.

Common causes on construction sites are paint, stain or solvent soaked rags left in a trash can or cardboard box in a garage or building. The hotter the air temperature, the quicker the rags could reach ignition temperature.

Roofing Mops

There is a chance of a spontaneous combustion of roofing mops occurring when oxygen from the air slowly unites with flammable asphalt. As oxidation takes place, heat can potentially accumulate in the mop. The solidified asphalt on the exterior of the mop head could start to retain the heat and ignition of the mop may begin.

Guidance

Consider these actions to help prevent rag fires

- Provide metal containers with self-closing lids and store outside of the project in an area free and clear of combustible debris, brush, and organic materials.
- Do not dispose of rags in cardboard boxes or trash cans.
- Consider utilizing noncombustible solvents or water-based materials whenever possible.
- Store oily rags in a “listed disposal container” per NFPA 241, 7.5.3, OSHA 1926.25(c) and OSHA 1926.252.
- Dispose of and remove combustible wastes daily per NFPA 241, 7.5.1.
- Verify the fire extinguishers are available in accordance with all OSHA requirements.

Consider these actions to help prevent roofing mop fire:

- Consider the mop head material – use fiberglass instead of cotton.²
- Remove excess asphalt from roofing mops at the conclusion of use.²
- Consider quenching the mop head in a bucket of water.²
- Store used mops in sealed metal containers.²
- Keep used mops off the roof and away from combustible materials.²
- Verify fire extinguishers are available in accordance with all OSHA requirements.

Conclusion

Fires can cause significant property damage and potentially loss of life. The appropriate use, storage and disposal of rags and roofing mops can help reduce or eliminate the risk of spontaneous combustion fires.

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References

¹“Spontaneous Combustion of Oily Rags.” Culture Safety. N.p., n.d. Web. 26 Apr. 2016.

²Hodgin, Derek A. “Spontaneous Combustion of Roofers’ Mops.” Interface Aug. 2003: 9-11.

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