



March 20, 2013

Chief Inspector's Directive Light Alloy Use in Areas Where the Potential for Flammable Atmospheres Exists

Objective:

To manage the use of light alloys, including, but not limited to, scaffolding, ladders and shovels, to minimize the potential for the ignition of flammable atmospheres through a thermite reaction (spark).

Background:

If a *light alloy* contains a combination of aluminum, magnesium and titanium that exceeds 15% of its total weight and/or contains a combination of magnesium and titanium that exceeds 6% of its total weight, that light alloy has the potential to create a thermite reaction.

A *thermite reaction* is a chemical reaction that occurs when a light alloy comes into close contact with oxygen-bearing material. If light alloys are scraped and smeared onto oxygen-bearing material, such as iron oxide (rust), a spark of up to 2,000°C can be created.

Thermite reactions occur in areas where flammable gases, vapours or dust are present in quantities sufficient to produce explosive atmospheres. These hazardous locations are also defined in section 18 of the Canadian Electrical Code.

Requirements:

The mine manager shall prepare and initiate a plan to control the potential for the creation of a thermite spark in all areas of the mine where flammable gases, vapours or dust may be present in quantities sufficient to produce explosive atmospheres. These areas are typically found in coal-processing and drying plants, breaker buildings and loadout and storage facilities.

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