LEGISLATIVE INTERPRETATIONS

Topic: Definitions of Explosion	Issued by: Director, Compliance and Regulatory Review
Statute: Occupational Health and Safety Act	Date Issued: August 29, 2016
Section: 43(4)	Date Revised:

Question:
Does a bursting automobile tire warrant an immediate report to WorkSafeNB as an explosion, as required by Section 43 (4) of the *OHS Act*?

Answer:
Yes, you must immediately report this type of incident to WorkSafeNB. Explosions can be categorized into three groups: physical, electrical and chemical explosions.

1. Physical

Physical explosions occur when there is a sudden release of mechanical energy, such as the discharge of a compressed gas. These types of physical explosions include vessel rupture and rapid phase transition explosion.

Vessel rupture explosion occurs when a process vessel containing a pressurized material (such as air) suddenly fails. A tire explosion is one type of vessel rupture explosion.

Rapid phase transition explosion occurs when a material is exposed to a heat source, causing a rapid phase change (such as liquid to vapour), resulting in a change in material volume.

2. Chemical

Chemical explosions require a chemical reaction, which could be a combustion or reaction (rapid exothermic reaction or rapid release of heat). Chemical explosions can occur in either vapour, liquid, or solid phases.

An example of a combustion reaction explosion is the release of high volume propane gas. When ignited, this can cause a boiling liquid expanding vapour explosion (BLEVE).

A chemical reaction explosion can be an out of control chemical process resulting in a rapid release of heat and chemical products.

3. Electrical

Arc flash is an example of an electrical explosion. The Canadian Standards Association defines arc flash as “a dangerous condition associated with the possible release of energy caused by an electric arc. An arc flash hazard can exist when energized electrical conductors or circuit parts are exposed or are within equipment in a guarded or enclosed condition, if a person is interacting with the equipment in a manner that could cause an electric arc. Under normal operating conditions, enclosed energized equipment that has been properly installed and maintained is not likely to pose an arc flash hazard”.

Fire, equipment damage, serious injury or even death can occur when close to an arc flash.

Arc flash can be caused by many things including dust, dropping tools, accidental touching, condensation, material failure, corrosion, and faulty installation.

Referenced Legislation

43(4) The employer shall notify the Commission* immediately if

(a) an accidental explosion or an accidental exposure to a biological, chemical or physical agent occurs at a place of employment, whether or not a person is injured,

*Commission = WorkSafeNB