

EXPLOSIVES HAZARDS

Fact Sheet No 7: Explosives Safety Characteristics.

Each explosives substance and preparation (mixture) has unique characteristics that define its potential use, and its safety. There are four basic terms that are used to define the safety characteristics of an explosive substance or preparation:

'Sensitiveness':

Sensitiveness is a measure of the ease with which an explosive may be ignited or initiated.

Sensitiveness is measured using standard laboratory tests, with different means of ignition or initiation, for example, heat, impact, friction, electrostatic discharge (static electricity), etc. Some of these tests are conducted with the explosives mixed with grit, so as to identify any adverse effect on sensitiveness.

An explosives substance or preparation may have different sensitiveness to each means of ignition for example, an explosive substance may be particularly sensitive to electrostatic discharge but at the same time, be relatively insensitive to friction, or the other way around.

'Stability':

Stability is a measure of the ease with which an explosive substance or preparation will chemically decompose on its own. Some explosives decompose very slowly at normal temperatures. This effect can be accelerated by exposure to high temperatures. The decomposition process may produce substances that are more sensitive and may also generate a local heating effect that could result in the ignition of the explosive. Normally these explosives are preparations (mixtures) that include a chemical stabiliser, which slows down the decomposition process.

'Compatibility':

Compatibility is a measure of the chemical reactivity of an explosive substance or preparation with different chemicals or materials. Materials that are incompatible with an explosive are identified from standard laboratory tests. The chemical reaction between an explosive and an incompatible substance or material, may produce substances that are more sensitive and may also generate a local heating effect that could result in the ignition of the explosive.

'Explosiveness':

Explosiveness is a measure of the rate at which an explosive releases energy, and the amount of energy released, when ignited accidentally. Explosiveness is used to determine the Hazard Type or Hazard Division of an explosive. It is also used to determine the design of protective and mitigation measures in the event of an accident; for example, an explosive with an explosiveness greater than Trinitrotoluene (TNT) may have a reduced storage quantity limit than permitted in the Explosives Licence, or is manufactured or stored in building with greater reinforcement or blast protection.