

Exercise 06-01 Solution Safety Data - Flammability**Questions:**

1. *What is the flash point of a liquid?*

The flash point of a flammable liquid is the lowest temperature corrected to a barometric pressure of 101.3kPa, at which application of a test flame causes the vapour of the liquid to ignite momentarily and the flame to propagate across the surface of the liquid.

2. *What is the lower explosive limit (LEL)?*

The minimum concentration of a particular combustible gas, vapor or airborne dust necessary to support its combustion in air is defined as the Lower Explosive Limit (LEL) for that substance. Below this level, the mixture is too "lean" to burn.

3. *What is the difference between the lower explosive limit (LEL) and the lower flammable limit (LFL)?*

None

4. *What is the upper flammable limit (UFL)?*

The maximum concentration of a gas, vapor or airborne dust that will burn in air is defined as the Upper Explosive Limit (UEL) or Upper Flammability Limit (UFL). Above this level, the mixture is too "rich" to burn. The range between the LEL and UEL is known as the flammable range.

5. *There is a correlation between the flash point and the upper flammable limit (UFL) by means of the vapor pressure curve (True/False)*

Wrong this exists with the LEL or LFL

6. *What is a limiting oxidant concentration?*

Concentration of oxidant (normally oxygen) below which combustion is not possible, independent of the concentration of fuel.

7. *Pressure has a significant effect on the flammable range of most hydrocarbons (True/False).*

True. Flammable range widens with increasing pressure.

8. *What is the difference between Auto Ignition Temperature and Minimum Ignition Temperature?*

The Auto Ignition Temperature is the lowest temperature at which a substance (liquid, gas) will spontaneously ignite in a normal atmosphere without an external source of ignition

The Minimum Ignition Temperature is the lowest temperature of a hot surface which will cause a dust cloud to ignite and propagate a flame

9. *Stoichiometric mixtures generally require higher ignition energies than other mixtures within the flammable range (True/False)*

No, lower energies.

10. *Typical pressure reached in a confined deflagration are 6 to 10 times the initial pressure (True/False).*

True for $H/D < 5$

11. *Deflagration is another word for detonation (True/False)*

False. Deflagration is characterized by sub-sonic flame velocities, whereas detonation shock waves are supersonic. Pressure increase is much higher in detonation than deflagration. A deflagration can propagate and become a detonation.