

# Lesson 4: Flammable vs. Combustible

SNCIP

## What is the difference between flammable and combustible?

- Flammable is a material that can easily catch fire under normal circumstances and with the help of minimal ignition source. Just a spark is sufficient enough. An ideal example of flammable substances is propane.
- Combustible materials can include anything that will burn. Propane can also be placed in the same category but more vigorous conditions are required for an ideal combustible material to burn. A simple spark is definitely not enough. Paper or wood can be ideal examples of combustible materials.
- In conclusion, we can say that combustion is measured with the help of calorimetry (the science of measuring the heat of chemical reactions or physical changes). Flammability is calculated with the help of fire testing. All flammable substances are surely combustible, but all combustible substances are not essentially flammable.

<http://www.differencebetween.net/science/difference-between-flammable-and-combustible/>

- Flammable materials have a flash point (the lowest temperature at which the vapor of a combustible liquid can be made to ignite momentarily in air) below 61°C. So, most common solvents (Stoddard solvent, kerosine, petrol, VM&P Naptha) and organic liquids and gases (acetone, ether, nitromethane, methane, ethane, propane, butane, ... up to about nonane) are flammable. Some solids (eg naphthalene) are also flammable.
- Combustible materials have a flash point greater than 61°C. So diesel fuel, paper, coal, wood, etc are all combustible.
- Also, don't get confused between explosivity and flammability - many explosives aren't flammable. C4 is an example - it will burn (combust) but requires percussive detonation to make it explode. So here's a tip - don't try to "stamp out" burning C4!
- Also, explosivity may be limited to a certain range of concentrations (expressed as Lower Explosive Limit - LEL and Upper Explosive Limit - UEL). These are usually expressed as the % w/v of the fuel in air, although it is sometimes expressed in relation to the oxygen content.

<http://in.answers.yahoo.com/question/index?qid=20060623130955AA10djC>

### Ponder:

Are all flammable materials combustible? Are all combustible materials flammable?

Are all explosives flammable? Are all flammables explosive?

**Stoddard solvent** is a colorless, flammable liquid that smells and tastes like kerosene. It will turn into a vapor at temperatures of 150–200 ° C.

**VM & P Naptha** is used in place of paint thinner for certain thinning application Higher strength and faster evaporation rate.

Naphtha - any of several highly volatile, flammable liquid mixtures of hydrocarbons distilled from petroleum, coal tar, and natural gas and used as fuel, as solvents, and in making various chemicals.

**C4 or Composition C4** is a common variety of the plastic explosive known as Composition C. It is 1.34 times as powerful as TNT. **Plastic explosive** (or **plastique**) is a specialised form of explosive material. It is soft and hand moldable solid material. Plastic explosives are properly known as putty explosives within the field of explosives engineering.

Common plastic explosives include Semtex and C-4. Plastic explosives are especially suited for explosive demolition as they can be easily formed into the best shapes for cutting structural members, and have a high enough velocity of detonation and density for metal cutting work. They are generally not used for ordinary blasting as they tend to be significantly more expensive than other materials that perform just as well in that field. Also, when an explosive is combined with a plasticizer, its power is generally lower than when it is pure.

**Think & Reason Out:**

- 1) Are all flammable materials combustible?
- 2) Are all combustible materials flammable?
- 3) Are all explosives flammable?
- 4) Are all flammables explosive?

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