

## Answer on Question #44693 – Chemistry – Inorganic Chemistry

### Question

You are presented with identical metal containers of about 5 liters capacity each about half full of fuel. The containers have short neck and are normally closed by screw cap of about 30mm diameter. The cans contain

1. petrol(gasoline, flashpoint-43 degree Celsius.)
2. methyl alcohol (methanol, flashpoint 11 degree Celsius.)
3. paraffin (kerosene, flashpoint 50 degree Celsius.)

Explain concisely what would happen if top was taken off and a lit match was immediately dropped in the head space of each can. Assume the ambient temperature and thus that of liquid is 15 degree Celsius.

### Answer

The flash point of a volatile material is the lowest temperature at which it can vaporize to form an ignitable mixture in air. At the flash point, the vapor may cease to burn when the source of ignition is removed. If flash point is less than ambient temperature, dropping of ignition source into the head space results in ignition (flash). That is why **ignition occurs in the first and the second cans** (with petrol and methyl alcohol, correspondingly) **and does not occur in the third can** (with paraffin). In both first and second cans burning stops when ignition source is removed from the can because ambient temperature is much lower than firepoint.