












Substance	Hazard	Comment
Methane (natural gas); ethane ; propane (Calor gas, camping gas); butane (lighter fuel); LPG is a mixture of propane & butane.	 FLAMMABLE	DANGER: Extremely flammable gases; asphyxiants. Mixtures with air between 6% and 12% methane by volume are explosive, others similar. Mixtures may ignite below 650 °C. Butane is easily liquefied under pressure (it normally boils at 0 °C) and both it and propane are denser than air. For a 15-minute exposure, the concentration of butane in the atmosphere should not exceed 1810 mg m ⁻³ .
Pentane , hexane , heptane , etc; cyclohexane , cyclohexene ; petrol (gasoline); paraffin (kerosine); benzene ; methylbenzene (toluene); dimethylbenzene * (xylene) (* WARNING: flammable liquid & vapour, skin irritant, harmful if inhaled).	  FLAMM. HEALTH HAZ.   HARMFUL ENVIRON.	DANGER: (highly) flammable liquid & vapour; may be fatal if swallowed and enters airways; may cause drowsiness or dizziness; (very) toxic to aquatic life with long-lasting effects. <i>Pentane</i> : repeated exposure may cause skin dryness/cracking. <i>Hexane</i> : causes skin irritation (also <i>heptane</i> , <i>cyclohexane</i> , <i>paraffin</i> , <i>benzene</i>); suspected of damaging fertility; may cause damage to organs through prolonged/repeated exposure (also <i>benzene</i>). <i>Benzene</i> : causes serious eye irritation; may cause genetic defects and cancer. <i>Petroleum spirits (ethers) 40-60, 60-80, 80-100; 100-120 °C</i> and <i>petrol</i> are mixtures of alkanes of variable composition – assume similar hazards if similar boiling points. Use of benzene is no longer banned in educational laboratories but is not recommended. For a 15-minute exposure, concentration of benzene in the atmosphere should not exceed 9.75 mg m ⁻³ .
Diesel fuel ; engine oil	   CORR. IRRIT. ENVIRON.	DANGER: (<i>Diesel fuel</i>) causes serious eye damage & skin irritation; toxic to aquatic life with long-lasting effects. Some oils may contain substances which cause cancer. After oil has been used in car engines, it may have broken down into more hazardous products.
Naphthalene	   HEALTH HARM. ENVIR.	WARNING: Harmful if swallowed; suspected of causing cancer by inhalation; very toxic to aquatic life with long-lasting effects. Used in moth balls. If heated, concentration of vapour increases considerably.
Waxes; oils	LOW HAZARD	Includes: <i>paraffin wax</i> , <i>candle wax</i> , <i>petroleum jelly</i> , <i>Vaseline</i> ; <i>medicinal paraffin</i> , <i>liquid paraffin</i> , <i>oil for oil baths</i> .

Typical control measures to reduce risk

- Use smallest amount possible; wear eye protection; avoid skin contact; make sure room is well ventilated.
- Use fume cupboard or prevent escape of vapour, eg with mineral wool plug in test tube.
- Check gas supplies for leaks; store bottled gas in a cool place; use “spirit burners” with care.
- Check equipment to put out fires, eg damp cloth, bench mat, fire blanket.
- Do not use the highly flammable liquids near naked flames; if heating is necessary, use an electrically-heated water bath or hot water from a kettle.

Assessing the risks

- **What are the details of the activity to be undertaken? What are the hazards?**
- **What is the chance of something going wrong?**
eg, does hydrocarbon need to be heated? Could quantities of the vapour be breathed in?
- **How serious would it be if something did go wrong?**
- **How can the risk(s) be controlled for this activity?**
eg, can it be done safely? Does the procedure need to be altered? Should goggles or safety spectacles be worn?

Emergency action

- **In the eye** Flood the eye with gently-running tap water for 10 minutes. Consult a medic.
- **Vapour breathed in** Remove the casualty to fresh air. Consult a medic.
- **Swallowed** Do no more than wash out the mouth with water. Do **not** induce vomiting. Consult a medic.
- **Spilt on the skin or clothing** Remove contaminated clothing. Wash the skin with soap and water. Take contaminated clothing outside for the solvent to evaporate.
- **Spilt on the floor, bench, etc** Open windows if large amounts are spilt. Consider the need to evacuate for large spills. Cover with mineral absorbent (eg, cat litter) and scoop into a bucket. Add washing-up liquid and work into an emulsion. Wash to waste with plenty of water.