

Testing for unsaturation using potassium manganate(VII)

Topic

Unsaturation.

Timing

20 min.

Description

A solution of potassium manganate(VII) in propanone is used to detect whether an organic compound is unsaturated. In this experiment the propanone solution is made up and stored in a plastic pipette. The solution mixes easily with non-polar organic compounds such as cyclohexane, cyclohexene and limonene. Unsaturated compounds turn the solution a brownish colour as the manganese(VII) is reduced to manganese(IV) – *ie* MnO_2 .

Apparatus (per group)

- Plastic pipettes
- One plastic petri dish
- One 10 cm³ beaker
- Scissors.

Chemicals (per group)

- Propanone
- Potassium manganate(VII) crystals
- Cyclohexane
- Cyclohexene
- Limonene.

Health & Safety

Avoid sources of ignition. Students must wear eye protection.

Propanone is highly flammable.

Potassium manganate(VII) is an OXIDISER and IRRITANT. Avoid direct contact and store in the dark, stains glass, plastic, clothing and skin.

Cyclohexane is highly flammable, a skin/respiratory irritant and very toxic to aquatic life

Cyclohexene is a highly flammable liquid and vapour and harmful if ingested or in contact with the skin and is very toxic to aquatic life.

Limonene is flammable as liquid and vapour. Toxic to aquatic life and irritating and sensitising to skin.



Credits

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Health & safety checked May 2018

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