

# Reactivity of Alkanes and Alkenes

**Aim:** To investigate the reactivity's of alkanes and alkenes.

**Equipment:**

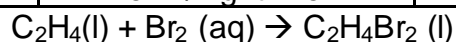
- Two unknown hydrocarbon sample (one alkane, one alkene)
- 4 test tubes
- test tube rack
- Bromine Water
- 0.01M KMnO<sub>4</sub> acidified solution
- safety glasses
- fume cupboard

**Method:**

1. Added ten drops of each unknown substance into separate test tubes
2. Added the same amount of KMnO<sub>4</sub> to one of the test tubes for each substance.
3. Recorded Results
4. Repeated steps 1 to 3 for Bromine Water in the fume cupboard.
5. Determined which substance was an alkane and which an alkene.

**Results:**

Substance	Reaction with KMnO <sub>4</sub>	Reaction with Bromine Water	Hydrocarbon
A	Purple	None	Alkane
B	Brown/Light Brown	Started Yellow, went clear	Alkene



**Conclusion:** Substance A was determined to be an alkane as it did not react with KMnO<sub>4</sub> or Bromine Water. Substance B was determined to be an alkene as it did react. This is due to the free species in an alkene as a result of the double bond between two carbon atoms.