**Year 10 Chemistry - semester 2**

**Activity 4 - Catalysts**

Catalysts are substances that speed up chemical reactions without being consumed in the reaction themselves. They are extremely important in a many industrial and biological processes.

Two part resins typically contain the glue as one part and an initiator or catalyst in the second part.

Hydrogen peroxide slowly breaks down into oxygen and water but this reaction can be sped up using MnO2 as a catalyst

Complex organic chemicals can be synthesised in living organisms at much lower temperatures than they can be produced industrially through the use of enzymes a type of catalyst.

**Teacher demonstration**

**Materials**

20 vol hydrogen peroxide, MnO2  **optional** detergent, ground liver

1. Place 50 mL of H2O2  in a 100 mL beaker. Place this in a plastic tray. Add a small quantity of MnO2 .
2. Use a glowing splint to confirm the gas evolved is O2.

As a variation some detergent can be mixed through the peroxide prior to adding the MnO2

Alternatively the MnO2  could be replaced with the enzymes from a small amount of ground liver.

**Student activity**

**Materials**

Granulated zinc, Aluminium foil, 2M HCl, 1M CuSO4 solution

Method

Place two similar sized pieces of zinc into each of two test tubes.

Add the same volume of acid to each so that the acid covers each piece of metal by a couple of cm.

Add a dropper of CuSO4  to one of the test tubes.

Record your observations

Repeat the steps above replacing the zinc with a piece of aluminium foil.