

The microscale synthesis of aspirin

Topic

Medicines and organic synthesis.

Timing

20 min.

Description

In this experiment students do a microscale esterification reaction between 2-hydroxybenzoic acid (salicylic acid) and ethanoic anhydride using phosphoric acid as a catalyst.

Apparatus (per group)

- One 10 cm³ beaker
- Hot plate
- One 5 cm³ measuring cylinder
- One 50 cm³ beaker
- One test-tube
- Small filter funnel.

Chemicals (per group)

- 2-Hydroxybenzoic acid (salicylic acid)
- Ethanoic anhydride
- Phosphoric acid (85%).

Observations

This esterification reaction, which uses reactive ethanoic anhydride and phosphoric acid catalyst, is quite fast at microscale. A good yield of white crystals should be formed.

Reference

J.Chem.Ed., 1987, **64**, 440.

Health & Safety

Students must wear suitable eye protection (Splash resistant goggles to BS EN166 3). This experiment should be done in a fume cupboard.

2-Hydroxybenzoic acid is harmful if swallowed or in contact with the skin and can cause eye damage.

Ethanoic anhydride is CORROSIVE, harmful if swallowed or inhaled and flammable.

Phosphoric acid (85%) is CORROSIVE.



Credits

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Health & safety checked May 2018

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