Encapsulation

Download the teacher notes, PowerPoint presentation and student workbook that accompany this resource at rsc.li/3aT2RsW.

Read our health & safety guidance, available from rsc.li/3IAmFA0, and carry out a risk assessment before running any live practical.

This activity is best carried out in a domestic science lab or food technology classroom, where learners can eat the fruit beads they make. Learners should not eat their beads if the activity is carried out in a lab with science equipment.

The safety equipment suggested is in line with CLEAPSS requirements. For non-hazardous substances, wearing lab coats can help to protect clothes. The safety rules might be different where you live so it is worth checking local and school guidance.

This list assumes a class of 30 learners working in pairs.

Acknowledgements

This resource was originally developed by the University of Reading to support outreach work delivered as part of the Chemistry for All project.

To find out more about the project, and get more resources to help widen participation, visit our Outreach resources hub: rsc.li/3CJX7M3.

Activity 1: encapsulation of fruit juices

Note: sodium alginate takes approximately four hours to settle, so solutions will need to be prepared in advance.

Equipment *(for a class of 30 working in pairs)*

- 45 × 100 ml beakers (or cups if the experiment is carried out in a food technology classroom)
- 90 × 50 ml beakers (or cups if the experiment is carried out in a food technology classroom)
- 75 × 5 ml syringes
- 45 × 1 ml syringes
- 45 × stirring rods
- At least 1.125 L sparkling water
- At least 75 ml concentrated blackcurrant juice
- At least 75 ml concentrated orange juice
- At least 75 ml concentrated lemon juice
- 15 × sieves (fewer can be provided and shared between pairs)
- 1 × blue paper roll
- Whiteboard pens
- Provide spare 50 ml beakers and syringes in case they are needed

Chemical supplied for the practical	Hazards and disposal
At least 500 ml 2% sodium alginate solution	Currently not classified as hazardous.
At least 675 ml 1.5% calcium lactate solution	Currently not classified as hazardous.

Disposal

Drain and place alginate beads in the normal refuse.

Do not pour alginate solution down the sink as the gel may block drains. Add unused sodium alginate solution to the calcium lactate solution to solidify it. Dispose of the solid in the normal refuse.

Rinse the used calcium lactate solution down the sink.