

CRYSTAL GROWING KIT

AGES 10+
ADULT SUPERVISION
RECOMMENDED.



THE SCIENCE

Chemistry is the study of matter - the way different materials are put together, and how they are made up of atoms and molecules. Matter is anything that has mass and takes up space, so this can be a liquid, a solid or a gas. Chemistry is also the study of how these materials act under different conditions.

Crystals form in nature when liquids cool and start to harden. Certain molecules in the liquid gather together in a uniform and repeating pattern which forms the crystal.

Crystals can be many different colours - this is caused by the chemical elements involved in their formation. Different colours can be created by different chemicals - for example amethysts have traces of iron built into their crystalline structure giving them a purple colour.

In this kit you will make a tetragonal crystal, grown using the evaporation method - evaporation is the process of a liquid turning into vapour or gas, leaving behind any previously dissolved solids as residue.

There are seven crystal systems, and the ammonium phosphate crystal powder used in this kit produces crystals in the Tetragonal crystal system. Tetragonal crystals are prisms composed of 4 faces which are parallel to a 4-fold rotation axis; usually a square base.

Naturally, crystal formations can take millions of years to form, but in this experiment your crystal should only take a few days.



KIT INCLUDES



Plastic cup with lid



Stirring spoon



Base stone



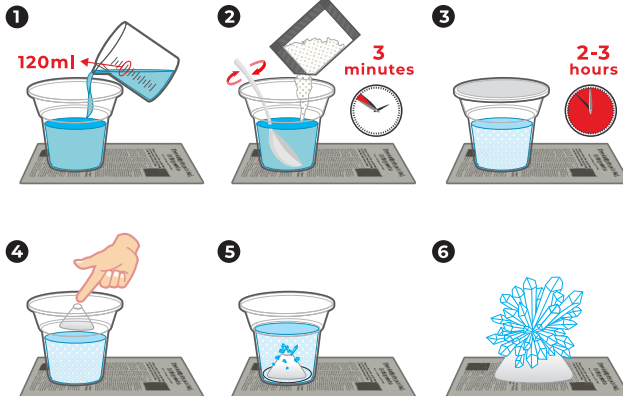
Crystal powder



Gloves



INSTRUCTIONS



CREATE YOUR CRYSTALS

- 1) Fill the supplied plastic cup with 80°C, hot tap water to the indicator line on the cup (120 ml).
- 2) Add the crystal powder to the water and stir quickly until completely dissolved (within 1-2 minutes), using the supplied spoon. DO NOT continue to stir afterwards, as over stirring may cause failure.
- 3) Place the lid loosely on the top of the cup and place in a location where it will not be disturbed. Wait for the solution to cool down (2-3 hours). DO NOT attempt to cool the solution down faster.
- 4) Once the solution has cooled, wearing the supplied gloves, place the base stone carefully into the cup. Leave uncovered. Keep the gloves for future use.
- 5) Once the base stone is in the cup, do not disturb it. Allow it to grow naturally. Within 10-12 hours, you will be able to observe the crystal starting to grow.
- 6) The crystal growing process will take approximately 7 days. After this time, wearing the supplied gloves, take the crystal cluster out of the solution and allow it to dry.

WARNING! CHEMISTRY SET - Read all instructions and warnings carefully before use. Children must be assisted by an adult during all experiments. All chemicals should be handled with care. This set contains chemicals that may be harmful if misused. Not to be used by children under 10 years old. Do not inhale powder. Wash hands after use. Avoid prolonged exposure to skin. Avoid contact with eyes and mouth. In case of contact with eyes, rinse with plenty of water immediately. If irritation occurs, seek medical advice. Retain packaging for future reference.

MADE IN TAIWAN

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WARNING: CHOKING HAZARD.
Small parts. Not for children
under 3 years of age.

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