

D1: Zinc Christmas Tree

● Preparation and demonstration time 30 minutes

Requirements

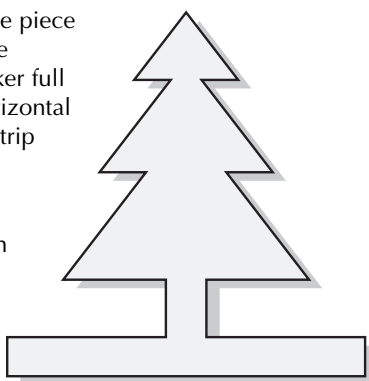
sheet of zinc foil (7 cm x 7 cm)
 shears or metal cutters suitable for cutting foil
 100 cm³ glass beaker
 150 cm³ lead nitrate solution (0.5 mol dm⁻³) (**toxic solid and solution**)



TOXIC
lead nitrate

Method

- 1 Cut out the shape of a Christmas tree from the piece of foil. The tree should be small enough to be submerged when standing in a 100 cm³ beaker full of solution. At the base of the trunk cut a horizontal strip (perpendicular to the trunk). Curve the strip so that the tree stands up in the beaker.
- 2 Stand the tree in the empty beaker.
- 3 Carefully pour in enough lead nitrate solution to cover the tree. Leave undisturbed.
- 4 Within a few minutes the tree becomes covered with sparkling crystals of lead. For the best results leave for about 20 minutes.



Safety advice

This activity is for younger pupils, but should be carried out by the teacher because lead nitrate is toxic at this concentration.

Beware of the sharp edges of the cut foil.

Chemical background

Zinc displaces lead from the solution because it is higher than lead in the reactivity series. The lead forms beautiful crystals.