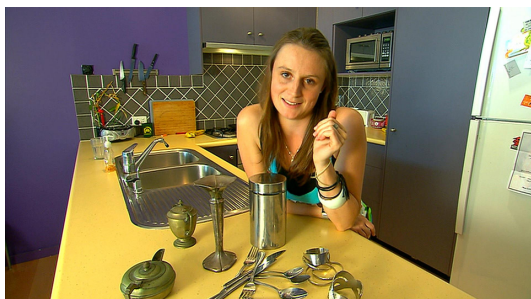


Cleaning Metals

On SCOPE's Metal Madness episode, Julia cleaned some tarnished silver. Here's how you can try it at home:



What you need:

A tarnished silver object (e.g. old spoons, jewellery from op shops)
 Hot water from the tap
 Large mixing bowl or jug
 Spoon
 Large container (e.g. a plastic lunch box)
 Aluminium foil
 Salt
 Paper towel

What to do:

1. Fill the bowl with hot water from the tap. Be very careful!
2. Add a spoonful of salt to the hot water and stir until it dissolves.
3. Keep adding salt to the water until no more salt will dissolve. You now have a saturated salt solution!
4. Completely cover the inside of the container with aluminium foil.
5. Fill the container with the salty water.
6. Place your tarnished silver object into the salt bath and leave for around 5 minutes.
7. Take the object out of the bath and after wiping it with a piece of paper towel, you should find the tarnish simply wipes away!

What's happening?

Silver, the star of today's experiment, is a champion of the metal world! This element is the best conductor of electricity, is one of the shiniest metals out there, and is used in everything from jewellery, electronics and cutlery... to medicine! Finding something silver for this experiment can be a bit tricky, as lots of stuff that is silver *in colour* is actually made from other metals like stainless steel or aluminium, or is simply just painted silver!

Genuine silver can sometimes have a black and dull tarnish, which is made from a compound called silver sulphide. Each molecule contains 2 silver atoms and a sulphur atom. The tarnish forms when tiny traces of sulphides in the air react with shiny silver surfaces.

In the experiment, the aluminium foil was used to cover the salt bath container because aluminium is a lot better than silver at attracting sulphur atoms. Aluminium steals the sulphur from the silver, forming aluminium sulphide and leaving the silver behind. The salt in the solution acts as a kind of bridge that helps the reaction along. The result? Shiny, tarnish-free silver!

Silver Sulphide + Aluminium

→

Silver + Aluminium Sulphide