

National Crystal Growing Competition

Tips:

Use the best distilled water possible. In our school, we completely empty the distillation system and restart it to get “new” distilled water at the beginning of every school year, to get the best possible distilled water.

Use only clean glassware, ideally non-scratched.

The following indications might help you save some time:

- With 100g of Alum, the first crystals shall appear in a volume of about 650mL. This is an approximate volume as read directly on the beaker.
- With 100g of copper sulfate, the first crystals shall appear in a volume of about 275mL. This is an approximate volume as read directly on the beaker.
- With 100g of Rochelle salt, the first crystals shall appear in a volume of about 150mL. This is an approximate volume as read directly on the beaker.

When dissolving all 100g of solid material, the volume of solution should be slightly larger (about 10 mL) than the volume given above, to allow for the evaporation of water during the process. When in doubt, it is better to use a larger volume to avoid getting a beaker full of crystals the next morning, this would be deceiving.

The maximum temperature for any solution should not be greater than 70°C to use the values above.

If, by any chance, the starting solid material contains impurities, you must get rid of them. A simple filtration or decantation should do it.

The choice of the seeding crystal is crucial. Any small imperfection on a small crystal will just be amplified as the crystal is growing.

With Alum, the initial volume of solution is large enough to allow the growth of several crystals. This will allow you to choose the best one of them.

Do not transfer your crystals just for fun. Avoid touching them as much as possible. If you have to touch them, the crystal must be dry. Last year's winners (2011) did not take their crystal out of the solution except to change the solution or to get rid of small outgrowing crystals on the cord (rope or wire or string).

When transferring a crystal into a new solution, the fresher it is, the more it will make your crystal gain mass to the detriment of the quality of the crystal. For the alum crystal, our team in 2011 and 2009 waited 24 hours after the apparition of crystals at the bottom of their beaker of a new solution before transferring their crystal. This avoided having different layers on their crystal.

You must make sure that your crystal is completely immersed in the solution all the time. Make sure that there is a good height of solution underneath as well as above your crystal. By the end of the growing period, to follow this last principle, you can add some pieces of glass, like a prism, into your beaker. This is particularly helpful with copper sulfate and Rochelle Salt solutions.

Keep going! The more the crystal grows, the more its surface is in contact with the solution and the more its mass will grow. In other words, the rate of mass increase grows with time.

Have fun growing...

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