



# ASSIST

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## Science suppliers for polymer slime powder and ochre

Posted by Anonymous on Thu, 2014-05-15 14:18

Science suppliers for polymer slime powder and ochre: I was wondering if you could help with sourcing some specific items for science.

Our science curriculum manager is trying to purchase the following:

1. Polymer slime powder—this used to be produced by a company called CY Science, but this company no longer has a website or current contacts.
2. Ochre

Any suggestions or assistance would be appreciated.

### Voting:



No votes yet

### Laboratory Technicians:

Laboratory Technicians

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Showing 1-2 of 2 Responses

## Answer by David Evans on question Science suppliers for polymer slime powder and ochre

Submitted by on 07 August 2014

The Polymer slime powder you are looking for is called "Guar Gum". This is readily available from VWR. **Make Guar Gum Slime (Polymers) Materials**

- Guar gum, 1 g
- 25-mL Graduated Cylinder
- Sodium borate solution, 4%, Na<sub>2</sub>B<sub>4</sub>O<sub>7</sub>, 20 mL
- 100-mL Graduated Cylinder
- Water, distilled or deionized, 100 mL
- Food coloring (optional), 1–2 drops
- Stirring rod
- Glycerol
- Small cup (or 250 mL beaker)

**Safety Precautions** *Slime is generally considered nonhazardous; however, it should not be ingested and should only be used in the manner intended. It is not recommended that students be allowed to take slime home. Slime will easily stain clothing, upholstery, and wood surfaces. With food coloring added, it will stain these surfaces and skin even more readily.*

**Procedure** 1. Add 100 mL distilled water to the small plastic cup. If desired, add a few drops of food coloring to the water and stir. 2. Add 5mL glycerol to the mixture. 3. Slowly and with constant stirring, 1g of guar gum to the water. *Note:* If the guar gum is added too quickly, it will form large, undesirable clumps. Stir until dissolved. The mixture will thicken slightly within 1–2 minutes. 4. Add 20 mL of 4% sodium tetraborate solution. Stir. The mixture should gel in 1–2 minutes. **Disposal** Slime is to be disposed of in the chemical waste bucket. **Tips** Store the slime in an airtight container or bag to prevent it from drying out. When cold the slime will want to stick to your hands, to prevent this warm it up by juggling it from hand to hand or by rubbing it between two surfaces. **Discussion** Guar gum, a natural polymer with a molecular weight of about 220,000 g/mole, is made from the ground endosperms of *Cyamopsis tetragonolobus*, a legume cultivated in India as livestock feed. Guar gum has 5–8 times the thickening power of starch and is commonly used as a binding or thickening agent in foods and cosmetics. Guar gum is a long-chain polyalcohol with 1,2-diol groupings capable of complexation with the borate ion, B(OH)<sub>4</sub><sup>-</sup>. In addition to forming complexes with the borate ion, the interaction of long-chain polyalcohols, such as guar gum, with the borate ion leads to cross-linking of different polymer chains, or sometimes part of the same chain, in such a way that a three-dimensional network of connected chains is formed. When the concentration of cross-linked chains is high, solvent is immobilized within the network and a semisolid gel results. Because the borate ion can bond with four alcohol groups it is particularly effective in creating three-dimensional gel networks from gums such as guar gum. Other examples of networks and gels are rubber cement, gelatin, fruit jellies, agar, and yogurt.

## **Answer by kris.szalai on question Science suppliers for polymer slime powder and ochre**

Submitted by sat on 16 May 2014

Answer reviewed 26 February 2023

## Regarding Polymer slime powder

The Polymer (PVA) used for making slime, can be purchased from a number of educational suppliers, e.g., Science Supply Australia, Serrata, OfficeMax, Prof Bunsen, Westlab, and from Chem-Supply agents, e.g., Omega Scientific.

It is available either in powder or liquid form as 10% Polyvinyl Alcohol.

The PVA powder can be difficult to use and takes time to dissolve. As a comparison, the PVA solution is quicker and easier to use.

Using PVA acetate glue is also effective.

PVA is usually used in making slime using borax, which can be conducted in schools using safe procedures. Concerns over the use of borax in making slime are addressed in the Science ASSIST Information Sheet: Making slime using borax and related substances<sup>1</sup>

There are also non-borax recipes that could be considered.<sup>2,3</sup>

## Regarding Ochre

Ochre<sup>4</sup> is available from hardware stores (it is used in the building industry) and is available in a range of colours, e.g. red, brown and yellow.

It is also obtainable from Pottery/Ceramic suppliers or any school art suppliers and is available as pigment, inks and in acrylic colour or oil colour.

Art suppliers, such as OfficeMax, have a range of water-based acrylic paints (non-toxic) containing ochre pigments, e.g. burnt sienna, burnt umber, red and yellow ochre. Terracotta and stoneware clay is also available in 10 kg packs.

Ochre can be made using pottery clay from the school art department and adding hematite powder to make it red.

## School Science Suppliers

Science ASSIST has a list of School science suppliers,<sup>5</sup> which is an online spreadsheet of school science suppliers and businesses which provide laboratory equipment, resources, supplies and other merchandise which is suitable for school science laboratories.

## References

<sup>1</sup> Science ASSIST. (2020). Science ASSIST Information Sheet: *Making slime using borax and related substances*. Retrieved from the Science ASSIST website:

<https://assist.asta.edu.au/resource/4624/science-assist-information-shee...>

<sup>2</sup> Questacon. (nd) Cornflour Slime, Retrieved from the Questacon website:

<https://www.questacon.edu.au/learn-and-play/activities/cornflour-slime>

<sup>3</sup> Helmenstine, A-M. (2018, April 17). *Borax-Free Slime Recipes*. Retrieved from the ThoughtCo website:

<https://www.thoughtco.com/borax-free-slime-recipes-608227>

4 Hirst., K.K. (2019). *Ochre - The Oldest Known Natural Pigment in the World*. Retrieved from ThoughtCo website: <https://www.thoughtco.com/ochre-the-oldest-known-natural-pigment-172032>

5 Science ASSIST. (2023). *School science suppliers*. Retrieved from the Science ASSIST website: <https://assist.asta.edu.au/resource/664/school-science-suppliers>

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