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PRODUCT INFORMATION

Cellu-gum

Description: **Cellu-gum** grades are water soluble cellulose ethers, for use as stabilisers and rheology modifiers in liquid glaze formulations. **Cellu-gum** may also be used as a stabiliser in slip used in Paperclay, and as an adhesive and suspending agent in Papier Maché applications.

Properties: **Cellu-gum grades** are soluble in either cold or hot water, and give smooth, viscous solutions with rheology properties dependent on grade and concentration. Typically, higher concentrations of **Cellu-gum** grades give more shear thinning solutions. For use in glaze formulations containing high percentages of fine particle size solids, you should choose a low to medium viscosity grade, to permit high enough dosage levels to give enough low shear viscosity to prevent settlement, whilst giving the required shear thinning characteristics to allow brushing, spraying or dipping. A typical dosage level would be 0.5 – 1% based on the weight of the water in the glaze formulation – that is between 5 and 10 gms of **Cellu-gum** per litre of water. If you find that your glaze settles out over time, try adding a little more **Cellu-gum**. If you find that the viscosity is too high to allow effective dipping or spraying, then try moving to a lower viscosity grade. **Cellu-gum** is also a dispersing agent, but you may find that, in glazes with high contents of fine solids, you may need to add a supplementary dispersant. If you need help with this, please ask. Our lab faciities are at your disposal.

Preparation method :

Glazes - Add the **Cellu-gum** slowly to the water, stirring all the time. A mechanical stirrer is the recommended option – the higher the speed, the better – but it is possible to mix by hand. **Cellu-gum** grades are generally in granular form to make mixing easier. Once the **Cellu-gum** granules are dispersed in the water, carry on mixing for at least 20 minutes to allow the polymers to hydrate properly. Any lumps formed by too fast addition, should break up and dissolve in this time. Now add the other glaze components, whilst continuing to stir the mixture to disperse these insoluble components.

It is possible to add **Cellu-gum** to ready mixed liquid glazes, but you need to take more care in dissolving it, and the effect you gat may be different, since a lot of the available water may already be "bound" by the fine solids.

Papier Maché – Make up a thin solution of **Cellu-gum** to act as an adhesive and binder, using the preparation method detailed above, then add enough dry fibre to this, to make a stiff dough. **Cellu-gum** grade MVP at a concentration of 1% to 2% based on the weight of the water – that is 10 to 20 gms of **Cellu-gum** per litre of water – will generally give good results. In use, apply thin layers if you can. The thicker the layer, the longer it will take to dry out.

Many other adhesives and binders have traditionally been used for this application:

1) standard wall paper adhesive from your local DIY store. This is easy to make up, but generally contains a fungicide to prevent mould growth behind the wallpaper, and thus may not be suitable for use by children.
2) Basic starch. This needs boiling before it will work, and is not really practical, unless you can find any pregelatinised material. Generally, these do not contain any fungicide or biocide, and will start to ferment quite quickly at room temperature.
3) "white" PVA wood glue. Easily available from your DIY store, but relatively expensive, and very difficult to remove if it gets anywhere it shouldn't. (your hands!) A small amount added to **Cellu-gum** will give a degree of water resistance to the Papier Maché. Alternatively, paint it on to the surface of the finished dry article, to give a similar effect.

Recyled fibres are popular for this application, but generally require collection, storage, shredding, soaking and pulping. They may also contain inks, dyes, coating residues, and cationic wet strength additives. As an alternative, we recommend that you try **Cellu-fiber**, manufactured from 100% virgin wood pulp, from managed renewable resources.

Caution : **Cellu-gum** solutions are generally resistant to biological contamination, if you use clean mixing equipment and keep the mixture tightly covered, but, if you plan to keep your glaze formulation or Papier Maché mix in the wet state for longer than a few days, you should consider adding a commercial biocide

Safety : **Cellu-gum** grades are derived from managed renewable resources, and are characterised by a very low order of toxicity. A detailed safety data sheet is available separately. You are recommended to use a dust mask when handling fine powder grades of **Cellu-gum**.

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