

USING PLASTER OF PARIS

A serious accident occurred recently in another LA resulting in severe injuries to a pupil. During an art and design lesson the pupil submerged her hands in Plaster of Paris as it was setting, so that she could make a cast of her hands. When it started to get hot she tried to pull her hands out but the plaster had set too much to allow them to be freed. She suffered third degree burns and the injuries required amputation.

This follows a similar incident elsewhere a few years ago in which a pupil lost two fingers. The safety data sheet supplied with this product does not warn against making casts of the hand. Plaster of Paris is used for the setting of fractured bones, but in such cases is never put in direct contact with the skin. In addition, it is used in relatively thin layers so the heat can dissipate. In bulk the temperature created by the hardening reaction can reach 600C or so.

Schools may want to review their use of Plaster of Paris and associated products such as Mod-Roc (plaster impregnated bandage) to ensure policies and practice clearly state that these products will not be used for the making of casts of any body parts and not left in contact with the skin. Teachers will need to complete a Risk Assessment for activities where they or technicians will be using Plaster of Paris/calcium sulphate (sulfate) with pupils, despite this material being described as low-hazard on the 2007 CLEAPSS CD-ROM.

See CLEAPSS entry below:

Substance	Hazard	Comment
Calcium Sulfate	LOW HAZARD	Used as Plaster of Paris, for setting broken bones: the $\text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O}$ absorbs water, becomes hot and expands slightly forming $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ (gypsum). Unlike magnesium sulfate, calcium sulfate is only sparingly soluble. Commonly used as blackboard chalk. A cause of permanently hard water. It is an approved food additive, E516.

Pupils of all ages will need careful supervision when mixing and pouring Plaster of Paris in slop form to make casts, e.g. in forensic science activities or creative and design activities to make small blocks for shaping or casting forms in either formed clay or plastic moulds.

The use of Mod-Roc is similarly restricted and should not be left in contact with the skin for the making of casts of e.g. the hand, foot or face. When carefully supervised, it can be handled safely by dipping sheets of the dry material into cold water to make it wet prior to applying to a structure of paper, wire or other inert material. Mod-Roc is often used for the purpose of creating masks, sculptures and three-dimensional forms using thin layers of the product, which is safe when body parts are not enclosed or left in contact with the skin as it hardens.

Schools can seek further information from the CLEAPSS helpline on **01895 251496** or visit <http://www.nsead.org/hsg/index.aspx>