

Using Plaster of Paris

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A Risk Assessment is required by law for the handling of Plaster of Paris which is classified as a hazardous substance. The Health and Safety Executive risk management site and your own work place will provide practical steps to follow when writing a risk assessment: www.hse.gov.uk

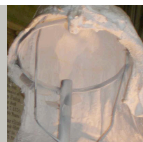
Think what you want it for and then how you are going to do use it



Plaster is a useful mineral material with several particular properties. **It is not dangerous if worked responsibly** and should be used with great respect but not fear.

Small volumes of plaster will always be safer and cleaner. Larger quantities should only be used with experienced groups or when prepared by a teacher or technician.

Body Casting with layered plaster

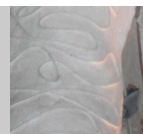


Do not use a mass of plaster alone as this will form a block and become hot through an exothermic reaction. For body casts only use fabric e.g. scrim dipped in plaster or ModRoc (plaster impregnated gauze). Small casts will need **two layers** and larger areas may need one more. Allow sufficient time for each layer to cool before applying the next layer.

Never cast faces using plaster.

Always ensure the model can escape at every stage, some people are unexpectedly affected by the casting sensation and can panic.

Best Practice



The best way to make a cast of a limb is to place a plastic bag (or cling-film) over the limb (which can be smoothed to retain definition).

The bag should be fixed with a few tabs of masking tape.

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Health and Safety when using plaster

Make sure that a bucket of fresh cold water, a sponge and towel is available all the times for rinsing off plaster splashes

- ✓ Always wear goggles. If Plaster of Paris is in contact with eyes, first rinse with plenty of water for several minutes (remove contact lenses if easily possible), then go to a doctor
- ✓ Always wear dust masks while mixing dry powder indoors
- ✓ Always wear gloves when using plaster
- ✓ Never cast body parts with raw skin or allow hair to be in contact with the plaster
- ✓ Never cast faces using plaster
- ✓ Always use a cloth dipped in plaster (or ModRoc) rather than a direct bath of raw plaster (the latter can heat up to a dangerous temperature)
- ✓ Do not leave plaster in prolonged contact with skin – temperatures as low as 45°C can burn. There is also slight shrinkage upon setting which can increase pressure and temperatures as high as 60°C can be achieved
- ✓ Never cast body parts in a cast that cannot be lifted away at any stage (i.e. undercuts should be negligible)
- ✓ Always use flexible containers in which to mix and carry plaster so that they can be easily separated from set plaster

Preparation for Limb Casting



- **All pupils and staff must wear gloves when handling plaster** – barrier creams are useful to use before using plaster and after washing.
- **Pupils work in pairs, a model and a modeller** – this can provide moral support as some may feel the process infringes their personal boundaries.
- **Use sheet plastic or bin bags** to protect clothing – do not place bags over the model's head.
- **Everyone working with plaster must always wear goggles to protect eyes.**
- **Cut the sheeting (or ModRoc) in advance and allow a teacher or technician to mix the plaster (or water if using ModRoc) in a bucket** – demonstrate the process if possible. **Never leave large quantities of plaster unattended.**
- **Check models are positioned comfortably** – they will have to keep still for about 10 minutes.
- **Teacher carries the bucket around to the pairs** – teacher dips the sheet and makes the initial placement thus ensuring that all is safe and protected. The teacher remains in charge of the bucket at all times – this enables setting to be anticipated and the bucket to be emptied of plaster before it sets.
- **Modellers get working** – there is about 10 minutes until the set is complete so don't delay!
- **Models can be released once the plaster has set.**
- The fabric allows for a slight flexing of the edges, which may be repaired afterwards.
- Keep any remaining unused plaster or ModRoc dry and locked away.

Warnings for students and users of plaster:

The teacher will need all students to behave responsibly - otherwise the whole session should be aborted.

No one should try to set their self or another person in liquid plaster or to make a cast that prevents the limb from being extracted at any stage of the process.



REMEMBER:

NEVER ATTEMPT TO CAST A LIMB OR ANY BODY PART IN A CONTAINER OF WET PLASTER OF PARIS

In the event of someone becoming trapped in setting plaster:

Time is of the utmost importance

1. Keep calm and keep the model calm – you need them to work with you. Provide a buddy, explain what you are doing and give lots of reassurance. Ask them to tell you if something hurts. A calm model will have the easiest rescue.
2. If the plaster layer is thin, as advised, try to cut the plaster away with blunt nosed scissors. If this does not work, you can try using a pad saw (or key hole saw) to cut away the plaster by sliding the blade between plaster and skin and cutting from inside to outside. Take care not to cause damage to the body part inside. Using a hammer and chisel is not advised as it is almost certain to cause further damage unless very carefully controlled.
3. If cutting is not possible after a very short time, then call emergency services and say what has happened so that they may be able to bring suitable cutting equipment.
4. If possible ask the class to vacate the classroom.
5. Don't wait for the emergency services to come. Immerse the whole limb (and plaster container if appropriate) in copious amounts of cold water. Water may act as a coolant and possibly soften the plaster making it easier to remove.
6. Focus on keeping cold water running over the skin and plaster until emergency help arrives.

It is important to note that the information on this site must be used with a degree of caution: it is not *guaranteed* to be error free or to serve a specific purpose and its use is entirely at the users own risk. To the extent permitted by the law, neither the author nor the NSEAD are liable for any loss, injury, damage claim or expenses resulting from any use of this information.

Making plaster moulds

If a school wishes to make a 'mould' or impression of an object or body-part the safest, fastest, most accurate method is to use an alginate (a flexible compound sometimes used in dentistry). Alternatively use a clay press mould. Plaster is then poured into the mould to make the cast. Fine Casting Plaster will provide more detail. A layer of no more than 5mm will suffice with two layers of plaster bandage or gauze then used to secure and hold the plaster together.



Front and back casts made from Modroc, joined together with Modroc and a papier-mache coating

Cleanliness in the classroom

It is essential to clear away carefully and thoroughly – Plaster of Paris dust needs to be controlled as it is an irritant that can cause usually mild breathing difficulties.

Protect clothing, skin and hair with overalls, protect furniture and floor with newspaper and bin bags.

Never pour wet plaster down the sink as it will set and block the sink. Ensure that sinks are fitted with a plaster trap. Even plaster used for washing equipment has particles that will settle so, pouring is best done with running water. Check with the premises staff how they want the plaster of Paris and water cleared away.

Lightly spray the plaster and newspaper with water to help prevent plaster dust from spreading. Try to gather up plastic containers and newspaper without shedding plaster fragments.

Place all plaster fragments in a rubbish bag.

Clean/scrape tables and floor. Clean and dry soles of shoes.

Avoid getting plaster anywhere near clay or clay tools - metal will rust quickly with plaster and if Plaster of Paris is introduced into a clay body that is subsequently fired in a kiln, the clay explodes.

Checklist for Equipment

Access to a phone that works

Goggles

Masks

Gloves disposable

Gloves rubber

Overalls

Wellingtons

Buckets – a good flexible, smooth bucket can be flexed clean once dry

Disposable plastic containers e.g. recycled flexible plastic food trays

Newspapers

Water sprayer

Towels

Sponges

Plastic bags

Swing bin liners

Bin bags

Plaster, ModRoc or scrim

Paint scraper

Rubber spatula for scraping off wet plaster

Floor mop and bucket

Nailbrushes

Floor scrubbing brushes

Plastic dustpan and brush

Washing up brushes

Blunt nosed but strong scissors or snips

Pad saw

Masking Tape

Flexible rubber plaster mixing pots (available from Tiranti)