

## Transferring (handling) solid chemicals

### Why 'transferring' and not 'handling'

It is better to use the word 'transferring' as opposed to 'handling' because 'handling', if taken literally, means 'using your hands' (or fingers). Many chemicals are toxic, corrosive or irritant to the skin so directly 'handling' such chemicals is never a good idea.

### Should I wear gloves?

The use of chemically resistant gloves should always be considered but wearing gloves reduces manual dexterity, gives rise to an environmental issue (because they do not degrade very quickly in the waste) and are expensive for the school.

More importantly, if a chemical is on the gloves, wearers may not realise it is there and so may wipe that chemical on other parts of the body (eg, by rubbing their eyes).

However, if there are cuts which cannot be covered, or other skin issues on the hand, then gloves should be worn.

For a small number of chemicals which are corrosive but do not immediately produce a sensation of burning (eg, phenol) they should also be worn.

### Transferring solids

When transferring solid chemicals, the main risk is of spilling a hazardous solid.

A spatula is the correct tool for transferring solids from one container to another. Always check that the spatula is clean, and do not use the same spatula for different solids, unless cleaned in water and dried. Spatulas come in various shapes and sizes so beware of instructions that simply say "use a spatula-full".

#### Nuffield spatula

This is the most common spatula used by students in schools, about 14 cm long. But with either end available for use, care must be taken in using the same end. The spatula must be cleaned and dried before changing to another chemical. The 'curved' end is the most suitable to use.



#### Chattaway spatula

This is available in different sizes. Students should use the small size version, about 10 cm long; teachers and technicians may use larger versions, about 20 cm long, in the preparation of solutions. There are also micro-sized versions.



#### Trulla (trowel spatula) and Spoon Spatulas

This is usually only used by technicians or teachers for transferring larger quantities of solids.



#### DIY spatula - use a wooden splint

If you have used a wooden splint to transfer one solid chemical, the end can then be cut off with scissors and another chemical can be transferred with the same splint. It can be cut to a point to transfer tiny amounts of solids.



### Mixing solids

The solids to be mixed should each be placed on separate pieces of paper (or in plastic weighing boats) and the solids then poured gently from one onto the other, back and forth. Repeat the pouring action about 10 times so that there is thorough mixing. This is the only safe way of preparing explosive mixtures (which might explode if stirred with a metal spatula) and is good practice for all solid mixtures.