Safe use of crushing/ milling equipment.

Before starting to use any of the crushing / milling equipment in this room you must turn on the dust extractor, you do this by pressing the green button on the control box beside the extractor. Make sure that the extraction nozzles for the piece of equipment you are using are properly and appropriately placed in order to remove the maximum amount of rock dust.

When you are finished with the dust extractor press the blue button on the controller. This will stop the extractor fan and, after a short delay, start the shaker motor which cleans the dust filters automatically.

Before using any crushing or milling apparatus you should first clean the outside thoroughly with the shop vac and the crushing surfaces with a stiff bristle brush. Ideally you should also pre-contaminate the machine by running a portion of your sample through it and discarding the output. This makes sure that it only your sample which you get results from and not someone else’s.

These simple instructions should be your watchword and followed carefully every single time you change the samples. The importance of these procedures to the success or failure of your project cannot be over emphasised.

This is our biggest rock crusher, we also have a similar but smaller one for smaller sized rock samples. Before attempting to use the rock crushers for the first time you MUST be properly trained in the safe use of the equipment (please see Robert McDonald for training and to sign the relevant safety documentation). This applies to all staff, students and visitors without exception.

All users must use safety glasses, dust masks (there is a supply in the lab but get more from me if they are all used up) and hearing protection (iPod earphones don't count).

Before using the equipment the crushing surfaces should be washed down with alcohol and a scrubbing brush (this should already have been done by the last user but don't take chances with contamination when you are perhaps looking for a very few apatites or zircons in a large sample of rock). The rear jaw is removable, though it is extremely heavy, to assist in pre and post crushing cleaning. If in doubt, get help!
The material that you put into the hopper should already have been reduced to a maximum size of around 70mm (or three inches) by judicious use of a sledge hammer for bigger specimens. Please do not hammer in lab as fragments can fly all over the room and contaminate other people's samples and equipment, there is a cage built for this purpose at the rear of the Gregory Building, please contact Robert McDonald for access.

Depending on the material you are crushing it is often not best to feed in individual pieces and wait for them to pass through as a hard rock will very often just sit in the throat of the crusher moving up and down a little with the motion of the jaws and become warm and rounded which makes it more difficult to split fragments off.

Usually the best method is to 'choke feed' the crusher with a whole variety of sized pieces of rock this aids in mutual splitting of the material as gaps are filled and transmit the crushing force through the material rather than around individual pieces, which will just round the samples without breaking them.

With this method you can reduce rocks to less than 1mm (and often much finer) particles, you should end up with particles finer than 2mm.

Please remember to vacuum all the rock dust from on and around the outside, and as much of the inside as possible, when you are finished. Please the lab in the condition you would like to find it in.