

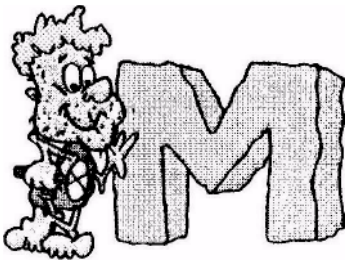
# Stone hardness

## What is Hard?

**Montoya**  
**Sculpture &**  
**Supply**  
Since 1973

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#### Special points of interest

- Use a stone hardness you are comfortable with
- Use carbide tools for marble. They last longer.
- See how much faster you can work; ask for a demonstration of our pneumatic hammer
- Always wear safety gear. Protect your health and eyes
- New stone arrives monthly. We maintain a large selection.
- If you need stone larger than 400lbs let us know and we will have it put into our next shipment

Not all stone is created equal. Selecting the right stone is an important step in the creation of sculpture.

All stone is not created equal. Selecting a stone appropriate for your experience and goal is an important first step and understanding the different grades and relative hardness's of stone will help you with your selection. In 1822, Austrian mineralogist Frederick Mohs proposed the rating of stone hardness on a scale. That scale, the MOHS HARDNESS SCALE, shown on the next page, is in common use today.

The scale is NOT linear That is to say that a stone with a rating of 4 is not twice as hard as a stone with a rating of 2.



### MOST COMMON SCULPTURE STONES

- **SOAPSTONE (steatite)**- Among the softest stone, Soapstone is commonly used by beginners because of its softness and color options. You can produce a work with concentration of form rather than how much work has to go into the stone. A quick test is to run your fingernail on the stone and, if that produces powder, it is Soapstone. Soapstone is generally cut because it is so soft that, if it is blasted, it sets up fractures that cause the stone to crumble. Soapstone does not hold up well outside. It's a very soft stone therefore don't use it if the sculpture will be handled much because rings and fingernails scratch it easily. The tools used on Soapstone can be used on Alabaster. Soapstone can easily be carved with a pocketknife and rasps. It's hard to include a lot of detail in Soapstone, as the stone is not very compact (tight). Sanding up to 600 grit is usually enough and a polish will really make it shine and bring out its color. A lot of Inuit and South African sculpture is made out of Soapstone
- **ALABASTER**- Alabaster is the best all around sculpture stone available. Alabaster comes in many colors and translucencies. Alabaster sculpture should not be left outside, as it will deteriorate over time. It's hard to scratch Alabaster with a fingernail. The edge of a penny will generally scratch Alabaster. Alabaster holds detail well since it is tight enough. You can quickly test the tightness of alabaster by tapping your ring, a chisel or a hammer lightly against the stone. This should generally

**Explore The Possibilities**

Continued on page 2

## Mohs Hardness Scale

| HARDNESS | NAME                                   | STONE CLASS | SCULPTURE USE |
|----------|--|-------------|---------------|
| 1        | Talc                                   |             | YES           |
| 2        | Soapstone                              |             |               |
| 3        | Alabaster.                             | METAMORPHIC | YES           |
|          | Wonderstone.                           | METAMORPHIC | YES           |
|          | Alberene                               |             |               |
| 4        | Limestone,<br>Sandstone,<br>Serpentine | SEDIMENTARY | YES           |
| 5        | Apatite                                |             |               |
| 6        | Marble, Travertine,<br>Onyx            | METAMORPHIC | YES           |
| 7        | Quartz                                 | METAMORPHIC | NO            |
| 8        | Granite                                | IGNEOUS     | YES           |
| 9        | Corundum                               | IGNEOUS     | NO            |
| 10       | Diamond                                |             | NO            |



Mount Rushmore S.D. started in 1927 by Gutzon Borglum took 14 years to complete

In 1822, Austrian mineralogist Frederick Mohs proposed the rating of stone hardness on a scale.

produce a nice ring or solid sound, indicating the lack of major cracks. The tools used on Alabaster can also be used on the softer Soapstone. Sanding up to 1200 grit is usually enough for polished areas. Apply a sealer and polish or buff with a buffing wheel and alabaster compound. Explore texturing along your polished areas to give interest.

- **MARBLE**- Marble is the traditional sculpture stone most commonly used by professional stone sculptors who want the ability to leave the finished work outside. Soft marbles may not be suited for extended exposures outside. There are 295 marbles in a wide range of colors available around the world. Marble usually comes in blocks, which can be ordered to your specifications. Marble usually weighs in the range of 150 lb/cf to 180 lb/cf. It takes a lot of effort to scratch marble, as it is usually very tight. There are soft marbles like Colorado Yule that many sculptors like to use and there are some very hard ones. When you are ready to try Marble, consider a soft one. Marble holds detail very well. Generally Marble requires a carbide tool. Carbide tools have a special coating or inserts in the chisel, which help them, hold an edge against this harder stone. Marble can be sanded up to 3500 grit. Explore different textures on your stone to give it interest.

### OTHER SCULPTURE STONES

- **WONDERSTONE**- Wonderstone is a consistent, uniform stone out of Africa. This fine-grained stone appears light gray but can be polished to yield a dark black silky shine. It carves easily.
- **LIMESTONE & SANDSTONE (grit-stone)**- These porous stones have a rougher texture than marble, because of their grain size. It is often relatively soft depending on the binding material. Only the varieties with a higher grain density can take a high polish. These stones require carbide tools. A mask/respirator is recommended when working with Sandstone because it generally has silicates, which pose a potential health problem.
- **TRAVERTINE**- This stone is formed during precipitation from springs and is usually quite porous. Its porous nature makes it hard to polish.

*Continued— Stone Hardness. What is Hard?*

- GRANITE- One of the hardest stones available to sculptors, Granite does not flake but requires a pulverizing action with the chisel held at a 90-degree angle to the stone. The tools used on Granite are usually more blunt and are carbide-tipped. Granite has silicates so a good respirator should be used when working this stone

NOTES

- Wet the stone with a spray bottle to get an idea of the finished polished color.
- Test the relative softness of each stone by running a rasp across the stone.
- Safety equipment should always be worn when working with stone. Wear eye protection, gloves and a respirator.
- Combining different stone colors and types, then laminating or pinning them together allows you to create interest.
- Some Soapstone contains asbestos so always wear a good respirator. We do not stock asbestos soapstone.
- Stone Class (see table above)
  - o Igneous-Formed during the cooling of molten masses as they move to the surface (Granite, Basalt, Obsidian, Gabbros).
  - o Sedimentary-Formed by sedimentary deposits resulting from gradual erosion (Limestone, Sandstone).
  - o Metamorphic-Formed during the application of heat and pressure (sometimes combined with chemical reactions) to igneous and sedimentary rocks (Marble, Soapstone, Quartzite, Slate, Alabaster).
- TEXTURE- Variety can be introduced into any stone sculpture with the use of texture. Texture ranges from the highly polished surface to the natural exposed surface of the stone. Interesting texture can be applied with a bush hammer, a frosting tool, a toothed chisel or a tooth chiseled surface with a sanded and polished final step. These textures reveal different stone colors and shading as well as reflective properties. Try experimenting with texture to add interest and color variations.

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