

Ceramics

Uses and sources of clay

The most significant *ceramic* material is *clay*. That may seem obvious, but glass, plaster, and cement are also ceramic materials and they are also important. However, they are not as important as clay. A ceramic product is one made from a nonmetallic mineral by *firing* - exposing it to extreme heat.

Generally, most of us think of *pottery* when someone mentions clay or ceramics. However, pottery is a relatively small consumer of clay. Most clay is used in the manufacture of industrial products like plumbing fixtures, roofing and drainage tiles, and *refractory* (resistant to heat of melting) firebricks, sparkplugs, and electrical insulators, and in space age uses (electronics, rocket nose cones, nuclear reactor parts), tools for cutting metal, even toothpaste.

The *studio potter* is far down the list of clay users, and that's where we are. But pottery, from its most primitive forms to the superbly handled *porcelains*, was the beginning. The studio potter -- the individual potter -- is the continuing link that carries on the tradition. Studio pottery continues to be a product of people, by people, for people. It is through pottery that a great deal of human history has been recorded and documented. Pottery and clay sculpture are the liaison between peoples and cultures both past and present. No matter how sophisticated some ceramic products may become, the act of a potter pressing his or her will upon a lump of clay centuries ago is echoed when we do the same today in countries all over the earth. It brings us back to the concept that all of us are really the same. The more things change the more they remain the same.

Clay is the most universal material on earth. About 75 percent of the earth's surface is either clay or will be clay. There are numerous clay beds on virtually every land mass and island, but most contain either too many iron and/or alkaline impurities or too much foreign matter to be used without a little work. The iron clays (red clay) can be used, but their use is limited. They melt too soon and are usually used only for brick and tile. Some people use them for pottery, but it is often thick and porous pottery. It is thick to give the *ware* (pottery) strength that more heat would otherwise provide, and it is porous because it cannot be fired any hotter or it would melt.

Clay often contains too much rock, pebbles, sand, twigs, or branches. All of these must be sifted out before the clay can be used. After cleaning the clay, water is added, and the clay is kneaded (*wedged*) into a workable lump.

Long ago potters built their shops near rivers and streams where the water had uncovered clay deposits. The rivers were usually surrounded by trees or other vegetation that provided fuel for firing. And the water was used to clean the impurities from the clay. Today we buy the clay ready to use and pipe in gas or electricity for fuel.

Geologists instead of potters now look for clay, and clay is mined in the same way coal and iron. Clay mines now use heavy machinery like bulldozers or skip loaders to clear away the dirt and uncover clay deposits. In other cases a shaft must be sunk into the ground to reach the clay. The clay is then mined by branching out to follow the seam. From the mines it is taken to factories for shifting and packaging. Over 100 million tons of clay are mined in the United States each year.

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Uses and sources of clay - Reader's Quiz

Name _____

Supply the missing word to complete the statement below.

1. The most significant material used in ceramics is _____.
2. Three other important ceramic materials are _____.
_____, _____.
3. Most of us think of pottery when someone mentions clay of ceramics; however, _____ is really last on our list of clay uses.
4. Refractory is having resistance to thermal shock or melting. Name a refractory item in automobiles - _____.
5. Studio pottery is the product of individual _____.
6. The most universal material is _____.
7. How much of the earth's surface is clay or clayforming material? _____
8. The two impurities that limit the use of most clay beds to the manufacture of brick and tile are _____ and _____.
9. In ceramics the word "ware" means _____.
10. Damp clay is kneaded, or _____, to make a workable lump.
11. Iron-bearing clays are usually _____ in color.