

## Ceramics

### Types of Clay

Clays, based mostly upon their ability to vitrify (become hard) but also to some extent on plasticity and porosity, can be divided into three general groups: **earthenware**, **stone ware**, and **porcelain-type** clay.

### **EARTHENWARE**

**Earthenware** is usually red clay (lots of iron) used to make flower pots, red bricks, roofing tile, and similar products. Earthenware is a low-fire (low-firing temperature) clay. It only partly vitrifies before it melts. The potter knows this and turns off the kiln when the clay is still very porous. You have probably noticed that red clay flower pots get wet all the way through when plants are watered. They absorb water sort of like a sponge. If a red clay flower pot were completely vitrified, it would have turned into a glass pancake. Earthenware pottery has to be glazed to be waterproof. (*Glaze* is a glassy layer melted onto a pot to seal the pores or decorate the ware.) Earthenware is also soft and not very strong.

White earthenware clay bodies seldom, if ever, occur naturally. They have to be manufactured. White earthenware bodies usually contain large amounts of talc. Earthenware clay has a firing range of 1750°F to 2000°F or from cone 06 to cone 2.

### **STONEWARE**

**Stoneware** clays are often bluff (light yellow) or grey; sometimes they are red in color, but never pure white. Stoneware clays become semivitreous or vitreous, depending on when the potter turns off the kiln. At about 2100°F (cone 5), stoneware is semi-vitreous. This means that the clay will absorb a little water, but not enough so that most people would notice. At about 2350°F (cone 10), the same clay becomes, in potter's terms, vitreous. Absorption is almost zero. The clay is harder than steel (but more brittle), and a pot will ring if tapped on the lid.

Stoneware clay has a firing range of 2000°F to 2400°F or from cone 5 to cone 12.

### **PORCELAIN-TYPE**

**Porcelain-type** clays are white or off white. They, like stoneware, are vitreous. Porcelain is fired in a range from 2250°F to 2600°F (cone 8 to cone 16). When fired, porcelain is very hard.

Earthenware and stoneware clays are plastic and easy to work with. Porcelain is usually a nonplastic clay body and somewhat difficult to handle.

You've probably figured out by now that "clay" isn't just clay, or even a special kind of dirt. And you're right. Earthenware, stoneware and porcelain are the general groups, but there are hundreds of subgroups. Plasticity, porosity, and the ability to vitrify are necessary properties, but they are properties relative to each subgroup. There are hundreds of subdivisions in each area discussed.

*Supply the missing word to complete the statement below.*

1. Plasticity, porosity, and \_\_\_\_\_ are the three essential properties a useful clay must possess.
2. Vitrification is the process of becoming \_\_\_\_\_.
3. Based partly upon their differing ability to withstand heat, there are three different groups of clay. They are: \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
4. Earthenware is usually a red clay because it has lots of \_\_\_\_\_.
5. White earthenware clay usually contains a lot of \_\_\_\_\_.
6. Because the low-fire earthenware pots are \_\_\_\_\_ they have to be glazed to be waterproof.
7. The color of stoneware clays is often \_\_\_\_\_ or grey and sometimes red.
8. Porcelain-type clays are usually \_\_\_\_\_ or off-white in color.