

Firing Tips

MAKING FOODSAFE WARE

When making ware to contain food and beverages, it is very important to be sure it is foodsafe. Some of important considerations for mugs, serving pieces and dinnerware include:

- body composition
- design of the ware
- glaze selection
- decoration
- firing to maturity
- testing for lead safety
- government regulations

What Type of Ware?

The design of some pieces of ware have inherent problems which make them unsuitable to contain food and beverages.

Design-related cracks, rough areas, crevices and nooks and crannies are difficult to clean and might trap bacteria. They can also be difficult to thoroughly glaze. Pitchers with hollow handles can have the same problems.

Ware also needs to be serviceable - that is, it should be strong so it won't fail or break during service.

Making Smart Glaze Choices

While glazes are extremely durable, most are not completely insoluble. If attacked by acids in foods such as orange juice, vinegar and tomatoes, small amounts of the glaze may dissolve and pose a health hazard.

Acid resistant glazes have passed rigorous tests and are labeled as foodsafe. These should be selected for glazing food ware. Lead-free glazes may not be acid-resistant and should not be used unless labeled as foodsafe.

Homemade, altered, crackle, matte or specialty glazes also should be avoided for surfaces of containers that will contact food and beverages.

How to Decorate

When glazing, be sure to completely glaze the ware to ensure the entire body is sealed. Properly bisqued porcelain may be dry footed, but only if the porcelain has been fired to vitrification. Label the ware as foodsafe for future users.

China paints, decals and rim designs


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are a popular way to decorate plates and mugs, but may not be safe for food surfaces. Specific regulations exist for the location of rim decorations which must be followed.

Decals should be used on the outside of a piece where they will not be in contact with food or beverages. Use china paints on decorative items only.

Safe Firing

Proper glaze firing and the bisque firing are very important to insure ware is foodsafe. If the bisque is underfired, it may create problems with glaze and body fit that result in crazing of the glaze, or glaze surface defects such as pinholes. These would not be acceptable for ware used to contain food and beverages.

If the glaze is not properly matured, it will not meet the foodsafe standards under which it was tested and may craze while in service.

Using pyrometric witness cones on the kiln shelf is the only way to insure that a proper firing has occurred. For foodsafe ware, many prefer to fire their bisque to an 03 witness cone just to be sure it is fully mature. Read and follow the manufacturer's instructions for glazes for the best and safest results.

Regulations

There are several very specific regulations for ware which will contain or contact food and beverages. California has the most stringent rules for dinnerware and new standards have been set

by the FDA for rim decorations. These rules are available from state and federal agencies. If you are selling your dinnerware you may be subject to additional regulation.

How to Test for Lead Release

Several easy to use products are available on the market to test for lead release. These are primarily quantitative tests - that is, they tell you yes or no if the surface has lead above a certain level. The most commonly used kit is a thick cotton swab which turns pink if lead levels are exceeded. This test does not harm ware so if it tests too high in lead, the piece can still be used as decoration. These tests are a simple, economical way to feel confident that your ware is safe.

Want to learn more?

Read more about Making Foodsafe Ware in the Orton Firing Line and Technical Tips publications. Each issue is packed full of articles to help you learn more about firing. Members of the Orton Firing Institute receive these publications at no charge. Single copies are available to non-members at a per issue rate. Orton's 80 minute video, *Key Principles of Successful Firing*, is also an excellent resource on firing.

For information on Orton products, see your Orton dealer or distributor. For information on the Firing Institute or publications, contact

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