

# GLAZE INFORMATION



All AMACO® glazes are labeled for safety in accordance with ASTM D-4236.

## AMACO® Glazes

The health labeling on many of the AMACO® products have been changed. This was the result of additional testing and review of products and ingredients for health exposure hazards by ACMI's toxicologist. You will find that many of the BLUE glazes and underglazes are now NON-TOXIC and carry the AP SEAL. Also all our NON-TOXIC glazes and underglazes have been approved for spray application including the Velvets, LUG, GDC etc. This means a wider selection of safe colors is now available not only for the Ceramist/Potter but also for school projects.

All AMACO® Glazes currently in production are labeled to indicate their suitability for use on food and drink containers. See the information below on this subject or refer to the individual catalog glaze listings for special information concerning lead and/or cadmium content and release. We are continually testing each and every formula in an effort to make each glaze the best and safest possible. When reformulation of a color is necessary or when new raw materials must be used due to new safety regulations, slight color variations may occur in the new formula. Every attempt is made to get an exact match.

**NOTE:** AMACO®, the leading manufacturer of lead-free glazes, has the advantage of many years of formulating experience. Unlike lead bearing glazes, where a little underfiring or overfiring may not make a difference, low fire lead-free glazes must reach Cone 05 to mature. The other fact to consider is that lead-free glazes do not flow as much in the firing as most lead bearing glazes will. Therefore, if application is made by brush, a criss cross brush pattern is recommended for even application. These minor adjustments are all that are necessary to use safe glazes with perfect results. The information on this page and throughout the glaze section of this catalog gives specific instructions for the use of AMACO® glazes for best results. Please read all of it very carefully.

**LIQUID AND DRY FORM.** AMACO® Glaze Series LG and HF are available in liquid form with some also available dry. AMACO® Glaze SE Series are available in dry form only.

AMACO® **LIQUID GLAZES** are supplied in non-breakable plastic jars and are homogenized to the correct consistency for easy brushing.

AMACO® **DRY POWDER GLAZES** are packaged in safe, convenient non-breakable plastic jars with plastic lids. Since they contain gum, only water need be added.

## General Information and Application Instruction for AMACO® Glazes

AMACO® glazes are available in a wide variety of colors and textures, all of which are perfectly compatible with AMACO® clays. All AMACO® glazes are accurately formulated and compounded from the finest raw materials available. Each batch is laboratory tested before packaging, assuring our customers of receiving only the highest quality dry and liquid glazes.

AMACO's liquid glazes are prepared by homogenizing to the correct consistency for brushing. Only stirring is necessary before application. For spraying, dipping and pouring, liquid glaze may be thinned with water.

**SPRAYING/AIRBRUSHING:** Make sure to use only AP Non-Toxic sprayable glazes for spraying and take the necessary ventilation precautions. We recommend the use of a respirator mask that is suitable for mist and dust when spraying glazes. See page 62 for important information on safe spraying or airbrushing of glazes.

To prepare AMACO® dry glazes, we recommend as a "basic recipe" a ratio by weight of three parts of glaze to two parts of water. (A one-pound jar of AMACO® dry glaze powder will make approximately one pint of liquid glaze). Add water gradually to the jar, stirring slowly and completely until desired consistency is achieved. Every glaze formula will have its own special water requirements. Various application techniques will dictate consistency for optimum application properties. Each craftsman has his own preference for glaze consistency.

When brushing, glaze consistency should be similar to that of latex house paint. Other techniques may require a thinner mixture and water may be added. Try not to let the glaze become thinner than needed, since the lower the viscosity, the greater the chance that heavy glaze particles will settle out. For instance, the very thin consistency required for spraying will need continual agitation to prevent settling.

AMACO® glazes should be applied to a thickness of about one millimeter. When brushing, 2 or 3 coats are usually required. The average coverage of AMACO® glazes applying three coats is between 8.5 sq. ft. and 9.5 sq. ft. per

pint depending on the glaze. The average coverage of AMACO® Versa Color applying two coats with firing after each coat: one 1/4 oz. tube will cover 1 1/4 6" x 6" tiles; 1 oz. of Versa Color will cover 1 1/4 sq. ft.

Slight variations in the color of glazes may result from: 1) thickness of application, 2) opacity or transparency of glaze, 3) color of clay body.

As knowledge and skill in working with glazes increases, experimentation may produce many new and special glaze effects. When experimenting, be sure to test glazes on tiles before using them on pottery. It is also a good idea to keep records of experimental procedures for future reference. Some suggestions for experimenting with the AMACO® glazes follow:

◆ Mix glazes together. Glazes within a series usually mix well. Mixing high fire with low fire glazes can change the maturing temperature of the glaze; may increase or decrease temperature depending on percentage of each glaze used.

◆ Pour one glaze over another. Pouring gloss over matt or vice versa may produce a variegated effect. If glosses and matts are first mixed, then poured on bisque, the effect may be a semi-matt without variegation.

◆ Add underglazes to change the color. An average of 3-5% may be added according to intensity desired.

◆ Add AMACO® Velvets or AMACO® Liquid Underglaze Decorating Colors to glaze to change color. See an instruction book when adding oxides, as they vary greatly in strength and intensity and require careful use to control good results.

◆ If you are experiencing underfiring when using a Kiln-Sitter® during the firing of AMACO® clays and AMACO® glazes, use one cone higher than recommended.

**CAUTION:** Intermixing ANY or overlapping ANY dinnerware glazes, whether leaded or lead free, will not assure that they will remain dinnerware safe. Also, additions of underglazes or oxides may alter the composition of the glaze and disrupt the formula balance thus making it unsafe for dinnerware. Only testing for lead release will determine if they are dinnerware safe.

## Firing of Brilliant AMACO® Glazes

Brilliant Red, Orange, and Yellow glazes belong to a family of ceramic products which are traditionally temperamental. To insure the ultimate in color development from AMACO® LG-53, LG-66 and LG-56, be very careful that these glazes are not overfired. Their limit is cone 06, preferably by cone observation. If other means of end-point measurement are used, please verify the accuracy of such devices by comparing them to cones.

This type of glaze must be applied quite heavily—about twice as thick an unfired coat as is usually necessary for more conventional glazes. These products must be applied to bisque-fired ware rather than greenware.

An important factor in the success of these glazes is the need for fast firing and their requirements of a generous air supply during firing. The kiln should be stacked with plenty of air space around the pieces to permit circulation. Do not crowd the kiln. Fire with peep holes left open during the entire firing cycle. Sometimes the door of the kiln may be left ajar — anything to assure a plentiful amount of oxygen.

Finally, the proximity of copper green glazes will adversely affect the red glazes. Pieces with green-colored glaze applied should be kept as far removed as possible from the red glazes.

When all of these points of advice are carefully observed, we are confident that the beautiful brilliant results expected of AMACO® products will be achieved.

## Health and Safety

AMACO® is dedicated to an ongoing program of safety research and awareness. All AMACO® glazes, overglazes and underglazes have been evaluated by a toxicologist and are properly labeled for safe use, according to the guidelines established by The Art and Creative Materials Institute, Inc. AMACO® glazes and underglazes are labeled for safety in accordance with ASTM D-4236.

## Product Labeling

All AMACO® glazes are either AP (Non-Toxic) or CL (Cautions Required).



NONTOXIC

Conforms to ASTM D-4236



Conforms to ASTM D-4236  
CAUTIONS REQUIRED

## Lead and/or Cadmium Content and Release Information for all AMACO® Glazes

The following is a key to all individual glaze listings:

(1) **Dinnerware safe. Contains no lead or cadmium bearing ingredients.**

(2) **Dinnerware safe. Contains some lead and/or cadmium compounds but passes test for lead and cadmium release.**

(3) **Contains some lead and/or cadmium compounds and does not pass test for lead and cadmium release. Not recommended for surfaces which come in contact with food or drink.**

(4) **Contains no lead or cadmium bearing ingredients. We do not recommend these glazes on surfaces which come in contact with food or drink due to the soft or crackle nature of the glaze, even though they pass tests for lead and cadmium release.**

(5) **Contains no lead or cadmium bearing ingredients but does not pass test for lead and cadmium release due to the soft crackle nature of the glaze. Not recommended for surfaces which come in contact with food or drink.**

**CAUTION:** None of these products should be taken internally. Contain ingredients not suitable for ingestion or inhalation.

**Note:** In order for glazes labeled (1) and (2) to be dinnerware safe they must be fired to recommended firing temperature.

Tableware producers must have all finished ware tested and approved as safe for dinnerware through a certified laboratory due to possible variations in firing temperature and possible contamination.

## Lead and/or Cadmium Content and Release Information on all AMACO® Glazes

Not all ceramic glazes contain lead compounds and extremely few contain cadmium. Whether or not such glazes could be used on food containers is listed on their individual labels. Over 40 years ago, American Art Clay Co., Inc. developed AMACO® F-Series lead-free glazes specifically for use on dinnerware. A well formulated glaze like the F-Series will result in a stable surface which will not dissolve in contact with foods. American Art Clay Co., Inc. subjects all of its glazes to lead release testing by an independent, approved laboratory to establish the dinnerware status of each glaze by passing the guide-

lines established by the FDA for dinnerware glazes. However, in view of the new reduced guidelines established by the FDA in November, 1991 and due to the many variables that can affect lead leachability in finished ware (exact firing temperature, contamination from other ware being fired in the kiln, etc.), AMACO® recommends that the producer of any for sale dinnerware have it tested for leachable lead by an approved laboratory to determine whether or not it meets FDA guidelines in its own category BEFORE IT IS PUT ON THE MARKET.

Some glazes are not suitable for use on food-contact surfaces. AMACO® SP Snowfluff glaze, LG-2 and LG-27, and LT-22 glazes are very soft and will be seriously corroded if extensively used.

It is impossible for any glaze manufacturer to guarantee the finished properties of its products, since application and firing are critical factors over which the supplier has no control. Tableware producers are responsible for complying with FDA guidelines for lead release. Any statements concerning dinnerware safety must be confirmed by the producer of the products through lead release testing by an approved laboratory.

We're taking these steps at American Art Clay Co., Inc. because our customers' safety and confidence in our product is always our prime concern.

## "Product Encyclopedia & Safety Manual"



Our 7th Edition includes:

- ◆ Safety information for contemporary studios
- ◆ Over 20 pages of AMACO® product information
- ◆ Kiln firing guidelines

This booklet is provided **FREE** to anyone desiring to use ceramic art materials safely. To request your copies, contact American Art Clay Co., Inc. and ask for item number 11979R.

Experts in art and education stress that three-dimensional clay activities are crucial to the proper development of a child's small motor skills and creative potential. Everyone should know that a safe and healthy ceramic program is available. This booklet has been prepared to help answer questions about safety in the art room and ceramic studio.

With the information presented here along with good common sense and a total AMACO® program, ceramics can continue to be safe for young children as well as adults.

Knowledge of the products being used is the first measure in instituting a safe art program. This booklet will give you the information you need to know about the ceramic materials you are choosing.

AMACO® has voluntarily submitted all of its clay and glaze formulas to the Art and Creative Materials Institute, Inc. Certified Products Bureau for evaluation by an independent toxicologist for chronic and acute health hazards. AMACO® products are properly labeled in conformance to the American Society for Testing and Materials' Chronic Hazard Labeling Standard (ASTM D-4236) and bear the AP Seal (Approved Product, Non-toxic), or CL cautions required (proper labeling of ingredients for health and safety).

82% of all AMACO® glazes, 97% of all underglazes and 33% of all overglazes are certified non-toxic and as such are authorized by The Art & Creative Materials Institute, Inc. to carry the AP Approved Products Non-toxic seal. In addition, 465 AMACO® glazes are certified to be dinnerware safe. All AMACO® glazes that carry the AP Non-toxic seal in liquid form carry the same seal in the dry form, but instructions on the label should be followed to keep from producing dust. Some of these glazes will indicate that they are not for spray application.

All the clays in moist form are AP Non-toxic which is 95% of all clays we produce. Follow information inside the box on how to use clay safely and keep from producing dust. Some of the clays in dry form carry the CL label for their silica content and precautions should be taken in order not to produce dust and label instructions should be followed.

We recommend that you keep this booklet on hand as a constant reference in the classroom and when ordering. And we urge you to share a copy with administrators and parents so that everyone concerned will understand that with the proper equipment, supplies and housekeeping, ceramics is just as safe as it is rewarding.

Material Safety Data Sheets are available for all AMACO® products and can be referred to whenever there is a question on the safe use of a product. Most information you need from the Material Safety Data Sheet is on the label itself.

**NOTE:** Every effort has been made to insure that the representation of individual colors shown on this website are accurate. Factors such as room lighting and the accuracy of your monitor will determine how the colors are represented. Please use these colors for general comparison only. For glazes and underglazes, actual fired glazed ceramic chip boards are available from AMACO® for exact color matches.