

CerDeCoat

Ceramic Frits and Glazes for application onto Bone China, Vitreous China, Earthenware, Hotelware, Porcelain and Stoneware.

Ferro Corporation has been producing Ceramic Coatings for over 80 years and is the world's leading supplier. This brochure contains just a few of the many Frits and Glazes developed and produced by Ferro Corporation at its worldwide locations.

Ceramic Frits and Glazes are complex Silicate Glasses, designed to impart a vitreous coating to a ceramic substrate.

Glazes are required to fulfil a number of conditions: -

- Compatibility with the substrate.
- Compatibility with the prevailing application and firing conditions of the end-user.
- Compatibility with the decoration products used in combination with the glaze
- Resistance to physical and chemical damage
- Low solubility in water and acids and alkalis likely to be encountered during normal use.

Frits are required for most glazes where the firing temperature falls below 1150°C. Frits are themselves glasses that have been designed to safely introduce those compounds, which in their naturally occurring state would be soluble or harmful. With the introduction of ever-faster firing cycles, the use of frit in ceramic glazes is becoming more common, even at elevated firing temperatures.

This catalogue contains information about Ferro's most popular frits and glazes for fine ceramics and it is designed to offer a choice to the ceramicist of either using frits and developing their own glazes based upon them, or taking one of the many "ready-to-use" glaze preparations available.

In addition to the standard product range, Ferro can also offer products designed to suit individual customer requirements, although there may be a minimum order quantity for these customised products. Most of the frits and glazes for our larger clients are developed around specific customer requirements and our expert technical team would be able to offer this individual service to others, if required.

The product information tables provide data about: recommended firing temperature, melting temperature, coefficient of thermal expansion and a guide to the oxides present in the composition.

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Consistency

When you purchase a product from the **CerDeCoat** range you can be assured that it would have been produced at a modern location using up-to-the-minute manufacturing techniques designed to deliver product consistency while at the same time paying due regard to the environment. Ferro Corporation strongly believes that safeguarding the environment for future generations is of paramount importance and all of their manufacturing sites are subject to rigorous and regular auditing.

Quality

CerDeCoat products are manufactured only at locations with full ISO 9001: 2000 accreditation.

CerDeCoat products have quality “designed-in” to ensure optimum performance and batch-to-batch consistency. Each production batch has full traceability back to the manufacturing location and has undergone the most rigorous quality control and quality assurance checks. In addition to the usual thermal characteristic measurements all **unleaded** products are subjected to lead-content determination on each and every batch to ensure they do not contain more than the Ferro permitted **maximum lead content of 0.1% PbO**.

Your attention is drawn to the fact that “Metal-Release” is dependant upon an end-user’s firing conditions and, therefore, no guarantee can be given as to the likely performance of **CerDeCoat** products for this characteristic.

Application

CerDeCoat glazes can be applied by a variety of methods: Hand-dipping, Hand-spraying (Aerographing) and Automated Dipping and Spraying techniques.

To obtain the optimum conditions for particular application requirements, the use of flocculants and deflocculants may be required. Your local Ferro Technical Services staff can advise you of the best products to use.

Processing

Process methods depend upon the choice of frit or glaze. Powder frits and glazes can be re-constituted by either milling in a ball mill for a short time or even under a high-speed, high-shear mixer. Granular frits will require milling for longer periods and precise timings will depend upon factors such as the other materials present, mill speeds, etc.

Over-milling should be avoided to prevent quality problems such as glaze-crawl. Ferro recommend that re-constituted frits and glazes be put through a sieve and magnetic separator prior to application.

Your local Ferro Technical Services personnel can offer detailed advice regarding processing queries with any **CerDeCoat** product.

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Storage

CerDeCoat products should be stored in dry conditions and extreme cold should be avoided.

Provided that the material is adequately stored and good standards of housekeeping are observed, the shelf life of the **CerDeCoat** products should be indefinite, when packed in their original packaging.

Contact the nearest Ferro location for specific technical advice on the correct storage of **CerDeCoat** products.

Material Safety Data Sheets

Safety Data Sheets are available for each **CerDeCoat** product and these can be supplied in most languages.

Abbreviations shown in the catalogue

Chemical information	
***	High content (over 8%
**	Medium content (between 2 and 8%
*	Low content (under 2%

Product reference	
CE	Ceramic material
V	Glaze sold in powder form (spraydried packed in 25Kg bags
F	Granular frit for glaze composition, packed in 25Kg bags or big-bags
FM	Ground spraydried frit for multiple application, packed in 25Kg bags

Characteristics and Physical Properties	
COE	Cubic coefficient of thermal expansion, measured at 400C (*10E ⁻⁷ /C)
TT	Medium content (between 2 and 8%
TW	Low content (under 2%

CerDeCoat**Definitions****Leadless**

The term "leadless" is used in this catalogue in accordance with the Chemicals (Hazard Information and Packaging for Supply) Regulations 2002 (CHIP 2002) and the Control of Lead at Work Regulations 2002 (CLAW 2002).

A "leadless glaze" means a glaze which does not contain more than 0.5% of its dry weight of a lead compound calculated as lead monoxide.

Unleaded

The term "Unleaded" in relation to frits and glazes is not defined by any specific set of regulations.

However Ferro use the term "Unleaded" to describe a product that contains less than 0.1% by weight of lead expressed as PbO.

Low Solubility

A "Low Solubility" inorganic lead compound is a compound which does not yield to dilute hydrochloric acid more than 5% of its dry weight as soluble lead compound, calculated as lead monoxide, when determined in the manner described in the CLAW 2002 Regulations (Appendix1).

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