



1. Glaze composition and food contact Use

For the product series and references where applicable, we indicate that they are formulated without lead and cadmium in their composition.

Lead: Where lead is used, it is incorporated exclusively in the form of a **ceramic frit**, meaning that it has been previously melted into a glass matrix composed mainly of silica, alumina and other oxides. This vitrification process significantly reduces its solubility while providing additional technical benefits.

Cadmium: The cadmium used in our formulations is primarily **zircon, cadmium selenium pigment encapsulated**, which provides considerably greater chemical and thermal stability than non-encapsulated cadmium compounds.

2. Factors affecting the final suitability of the ceramic article

In addition to the initial chemical composition of the ceramic glaze, several manufacturing parameters influence the final performance of the finished article:

- **Single firing or double firing:** A properly controlled firing cycle ensures complete glaze maturation and a uniform surface finish.
- **Decoration or engobe application:** Only compatible materials free from lead and cadmium should be used.
- **Glaze application:** Uniform glaze thickness and coverage are essential to ensure water tightness.

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- **Firing process:**

- Lead may volatilize within the kiln atmosphere and contaminate other ceramic articles.
- Residual lead from previous firings may remain inside the kiln, causing cross-contamination.
- Firing lead glazes, particularly those containing copper, may weaken the chemical bonding of lead within the glaze matrix, increasing the risk of lead release.
- Attention should be paid to under-fired glazes and to lead glazes fire at excessively high temperatures.

3. Certification for food contact use

The suitability of ceramic articles for food contact can only be confirmed through lead and/or cadmium release testing performed by an accredited laboratory in accordance with the regulations applicable in the country where the product will be marketed or used.

Conclusion: The use of ceramic articles for food contact applications cannot be guaranteed without accredited laboratory certification.

4. Other properties to be verified for food contact ceramic articles

To ensure compliance for food contact applications, additional properties should be evaluated in accordance with the applicable national standards, including:

- Scratch resistance
- Acid resistance
- Alkali resistance

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5. Risks associated with crackle and poorly vitrified matt glazes

The use of the following glaze finishes for food contact applications is not recommended:

- Crackled glazes: The network of fine cracks may trap food residues, moisture and microorganisms, preventing adequate cleaning and hygiene.
- Matt glazes with open porosity or insufficient vitrification: These surfaces are more susceptible to scratching and wear, presenting hygiene risks like those associated with crackle glazes.

6. Importance of the coefficient of thermal expansion (TEC)

Proper compatibility between the coefficient of thermal expansion (TEC) of the glaze and that of the ceramic body is essential to ensure the long-term performance of the finished article.

The firing temperature and firing cycle recommended for both the biscuit body and the glaze should always be followed.

It is recommended to comply with the TEC values specified by the glaze manufacturer.

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