

APPLICATION RECOMMENDATIONS

Endeka Ceramics' Refire Glaze Application Recommendations

Introduction

The sample(s) of glaze accompanying this sheet is from Endeka Ceramic's ThermECO range of products, which have been designed to reduce firing cycles and thereby energy costs for their end users.

In order to achieve optimal performance, it is suggested that the recommendations outlined below are considered before product use. These technical recommendations are designed to serve as guidelines for customers, occasionally individual customer requirements or conditions may necessitate some deviation from these guidelines.

Recommended Use

Articles to be tested can be prepared in the same way as with conventional repair glazes. This product may be used to 'patch' repair a previously once-fired reject piece or to 'all over' spray an article to enhance its lustre and gloss.

1) Sample Preparation

a) For samples supplied in liquid form – Generally Endeka Ceramics supplies liquid glaze samples with a level of organic glaze binder and preservative contained, which should be optimal for the customer receiving the sample. It is recommended that this glaze be set up as follows before application to the test article:

Slurry density (S.D.) = 1.72 – 1.76 Kgs/L

Fluidity (torsion viscometer) = 220 – 260 (6.35mm bob)

b) For samples supplied in dry form – Samples received in dry form should be reconstituted by either; high-speed mixing (for approximately 30 minutes) or ball milling (for no more than 1 hour) with water.

Recommended glaze powder : water ratio = 100 : 38.

For best results the resultant liquid glaze should then be screened through a –0.112mm nominal aperture mesh (BS 140's mesh) and magnetted, to remove any agglomerates that result from the glaze drying process.

It is then recommended that the screened liquid glaze is high-speed mixed (for another 30 minutes), with a suitable cellulose-based glaze binder and preservative (generally 0.2 – 0.4% of dry glaze, dependant on desired rheology characteristics required).

The recommended fluid properties of this glaze are:

Slurry density (S.D.) = 1.72 – 1.76 Kgs/L

Fluidity (torsion viscometer) = 220 – 260 (6.35mm bob)

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2) Sample Application

After preparing the glaze sample, as described above, it can be applied to traditional Sanitaryware by traditional Sanitaryware spraying techniques. Should the spray technician wish to modify the fluid properties of this glaze, at any point, this can be done in the normal industry manner. Further advice is available on request but as a general guide, additions of;

Water – reduce slurry density, increase fluidity and slightly increase drying times.

Organic binders – no impact on slurry density, decrease fluidity and increase drying times.

3) Sample Firing

This **ThermECO** product(s) has been developed and tested, both in the laboratory and through factory-scale trials, to operate through a wide temperature range i.e. 1050°C – 1110°C (nominal green No.27 bullers ring values of 10 – 20). The optimum firing conditions for this product(s) for any one customer will differ. This is due to the variable conditions existing from one factory to another e.g. specific kiln type, kiln dimensions, kiln loading, kiln energy source, size/shape of fired articles, once-fire glaze formulation and internal quality requirements.

In order to establish the optimum performance for any given set of conditions, it is recommended that test samples are prepared and fired initially at a laboratory or small trial scale, ranging from a peak firing temperature of 1110°C down to 1050°C. It is also suggested initially to keep the firing rate and dwell fixed (as per refire cycle currently in use) but these parameters too can eventually be optimised, to yield best possible product performance.

If the intention is to use this product solely to ‘patch’ repair, care should be afforded to assess the performance of both the repaired area (refire glaze) and an unrepaired area (original once-fire glaze). This is to ensure that the current once-fired glaze in use is sufficiently robust enough to cope with the newly defined refire cycle.

(Note: Endeka Ceramic’s standard Sanitaryware once-fire glazes have been tested and found to be acceptable – BS3402 approved - through this lower firing refire cycle)



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