

APPLICATION RECOMMENDATIONS

Endeka Ceramics' Oncefire Body Application Recommendations

Introduction

The sample(s) of body accompanying this sheet is from Endeka Ceramics'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 a conventional vitreous china (VC) Sanitaryware body. It is suggested to maximise results, that this product is used in association with Endeka Ceramics's **ThermECO** range of Sanitaryware glazes.

1) Sample Preparation

a) For samples supplied in casting slip form – Generally Endeka Ceramics supplies casting slip samples suitable for the customer receiving the sample. It is recommended that the rheology of the casting slip be as follows before casting:

Slurry density (S.D.) = 1.804 – 1.821 kgs/L

Fluidity (torsion viscometer) = 280 – 310° (17.46mm bob)

Thixotropy (1 Minute) = 20 – 35° (dependant on precise customer requirements)

b) For samples supplied in plastic form – Samples received in plastic form need to be blunged into casting slip in the same manner, on the same equipment used for traditional Sanitaryware casting slip preparation. Suggested approximate casting recipe:

Plastic clay body = 100 parts

Water = 10.1 parts

Deflocculant = 0.2% defloc (2 parts 140s sil, 1 part ash) added as 20% solution.

The casting slip should then be allowed to age (for at least 16 hours) before having its final slip rheology set. The recommended final fluid properties of the casting slip are as follows:

Slurry density (S.D.) = 1.804 – 1.821 k gs/L

Fluidity (torsion viscometer) = 280 – 310° (17.46mm bob)

Thixotropy (1 Minute) = 20 – 35° (dependant on precise customer requirements)

For best results the resultant casting slip should then be screened through a coarse –0.250mm nominal aperture mesh (BS 60's mesh).

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2) Sample Application

After preparing the casting slip, as described above, it is then ready for use and can be used to produce the full range of traditional vitreous china Sanitaryware by traditional Sanitaryware casting techniques (e.g. bench casting, battery casting etc). Should the casting technician wish to modify the fluid properties of the slip, at any point, this can be done in the normal industry manner. Further advice is available from Endeka Ceramics on request but as a general guide, additions of:

Water – reduce slurry density, increase fluidity and slightly reduce thixotropy.

Clay body – increase slurry density, decrease fluidity and increase thixotropy.

Inorganic deflocculants – have little impact on slurry density, increase fluidity and decrease thixotropy.

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. 1100°C – 1130°C (nominal green No.27 bullers ring values of 17 – 22). 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 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 1130°C down to 1090°C. It is also suggested initially to keep the segmented firing rate and dwell fixed (as per onefire cycle currently in use) but these parameters too can eventually be optimised, to yield best possible product performance.



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