Lamberti ceramics

Technical data sheet
September 2024

Tixolam 1271

Chemical Description

Product based on polysaccharide and silicate.

Main Use

Rheology modifier and binder for ceramic glazes.

Typical Values

Appearance: Homogeneous powder

pH (6% solution): 8.5 - 11

Viscosity (6% solution, Brookfield RVT @ 20 °C, 20 rpm): 400 – 2500 cP

Product Properties

TIXOLAM 1271 is a binder and a rheology modifier very similar to CMC, so it can be used as a replacement of a low viscosity carboxymethyl cellulose without losing adhesion towards the support and fluidity during the grinding of glaze slips.

The main difference between TIXOLAM 1271 and traditional "glues" such as CMC is drying time: with this new product drying times are very quick; i.e. a tile glazed with a slip prepared with TIXOLAM 1271 dries in nearly half time of another one glazed with the same slip prepared with low viscosity CMC.

For this peculiarity TIXOLAM 1271 is suitable and recommended in many situations:

- When the glazing line is very short or short drying time is requested
- When big quantities of glaze must be applied
- When the "TV screen" defect is present (the glaze tends to concentrate at the edges of the tiles)
- When pinholes and dimples are present before firing
- When glaze (or engobe) is rich in plastic materials such as clays or kaolin, and doesn't stand normal CMC.

Applications

Standard dosages are from 0,2 to 0,5% on dry material.

The following data, coming from lab tests using a monoporosa frit, may help to explain and visualise the above mentioned concepts.

	TEST 1	TEST 2	TEST 3	TEST 4
Frit	90	90	90	90
Kaolin	10	10	10	10
Water	35	35	35	35
CMC (Carbocel MM3)	0.2	-	-	-
Tixolam 1271	-	0.2	0.4	0.2
STPP	0.3	0.3	0.3	0.1
Slip density (g/l)	1.86	1.86	1.86	1.86

Comparing viscosity and drying time graphs we can underline that maintaining the same viscosity is possible to use a double quantity of TIXOLAM 1271 achieving lower drying times than using a 30 cPs (2 % water solution) low viscosity CMC. On the other hand is possible to use the same quantity of TIXOLAM 1271 reducing dramatically the quantity of deflocculant (STPP) achieving the shortest drying time.

Fig 1 Viscosity diagram Test 1 – 4

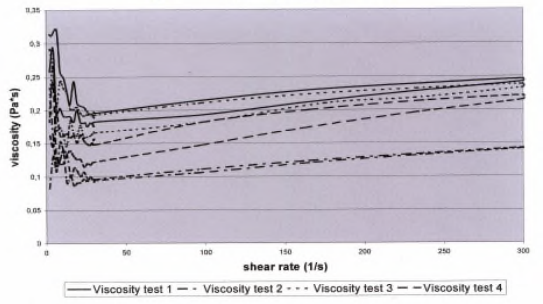
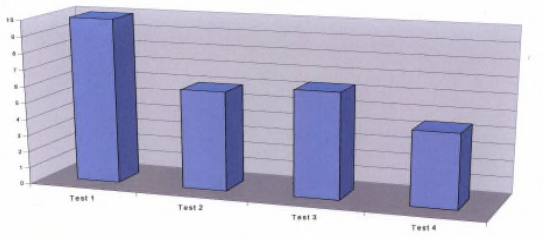


Fig 1 Drying time Test 1 – 4



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The addition of TIXOLAM 1271 can be done in different ways according to glaze feature, plant organisation and habits:

- Total or partial addition in powder form directly into the ball mill. To reduce grinding time, it is also possible to add TIXOLAM 1271 only in the last hour of grinding.
- Addition of TIXOLAM 1271 into the glaze slip unloaded from the mill is very often done with a predispersed paste composed by 4 - 8 parts of Tixolam 1271 and 96 - 92 parts of water, obtained through a high speed stirrer (standard mixing time: 5-10 minutes). This paste is then kept at rest for 12-24 hours before addition.
  The addition to the glaze slip requires a "high speed" stirring, and a time between 20 minutes and 1 hour.
- Addition of TIXOLAM 1271 in powder form directly into the glaze which has to be made carefully to get a complete and homogeneous dispersion of the binder without formation of clots

TIXOLAM 1271, due to its chemical composition, can be prone to bacterial attacks that can cause sudden changes of rheological characteristics of the glaze; then we recommend the use of antibacterial agents (i.e Carbosan from Lamberti) during glaze preparation to improve its consistency.

Storage and Handling

TIXOLAM 1271 is stable to prolonged storage under condition where extreme moisture does not occur. The shelf life is at least twelve months if this condition is observed.

Packaging

25 kg five-ply multiwall paper bag having two plies coated with polyethylene.

Material Safety

" Detailed health and safety information can be found in our safety data sheet, available according to ECC Directive."

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