



# Smaltochimica's products

## Description and solutions



- 1) **BINDER FOR BODY**
- 2) **GLAZE PREPARATION**
  - a) **Binder in powder : CMC**
  - b) **Deflocculant agents**
  - c) **Antibacterial**
  - d) **Suspending agents**
- 3) **GLAZE APPLICATION**
  - a) **Liquid binders**
  - b) **Levelling agents**
  - c) **Anti-foaming agents**
- 4) **TRADITIONAL DECORATION**
  - a) **Colours Medium**
  - b) **Relief Medium**
  - c) **Third firing Medium**
- 5) **DIGITAL PRIMERS**  
**Anti-Steam & drying time**
- 6) **DIGITAL DECORATION**  
**Inks and Effects**
- 7) **MICRO-GRIT DECORATION**
  - a) **Traditional glues ( Vela-Airless-Bell )**
  - b) **Digital glues**
- 8) **TOP GLAZE APPLICATION**
  - a) **Liquid binders**
  - b) **Levelling agents ( hydro repellence )**
  - c) **Defloculants agents**
  - d) **Anti-foaming agents**
- 9) **HOT MELT AND WAX**
- 10) **SURFACE TREATMENT**  
**Post polish treatment**
- 11) **INKS FOR CARTON BOX**
  - a) **Water base**
  - b) **Solvent base**

## 1. BINDER FOR BODY

Smaltochimica can develop efficient and innovative solutions to meet the needs of the Customer with a tailored binder.

Normally, the wanted aspects are the use of local raw materials, improve energy efficiency, reduce thickness or increase the productivity.

Some examples :

- **SMALTOTEN 106 ( powder )**
- **FC 4657 ( powder )**
- **FC 3592 (liquid)**
- **FC 1456 ( liquid )**

## 2. GLAZE AND ENGOBE PREPARATION

### a) Binder for glazes and engobes: the CMC

CMC are polymers obtained by the chemical reaction of cellulose, caustic soda and chloroacetic acid.

CMC are used as binders and thickening agents. In fact, they give more plasticity to the glaze, improve its spreading and avoid glaze shrinkage during firing.

The use of these binders improves also the adherence of the glaze to the support and its resistance to chipping during subsequent phases of the production process.

The various types of CMC are different in purity and in viscosity levels.

- **RESICOL C20** - Low viscosity CMC (2-10 cps) with good binding actions on the glaze and also a low deflocculating power, a feature that allows glazes to be milled with a smaller amount of water, thus maintaining the viscosity level unaltered. Useful to reduce the micro-crack defects and TV effect.
- **RESICOL S50 – RESICOL C30 and RESICOL FC 4198** - Medium viscosity CMC (20-50 cps) stabilizes the glaze without modifying its rheology. Useful to reduce the micro-crack defects.
- **RESICOL C400** - High viscosity CMC (300-600 cps) have a good binding power as well as excellent thickening and suspending properties.

### b) Deflocculants for glazes and engobes

Deflocculating agents are modifiers of rheology. The amount of necessary additive to obtain the maximum effectiveness has to be detected through tests and depends on many parameters, such as liquid-solid ratio and glaze granulometry.

Amongst the many advantages of a correct use of deflocculating agents, we mention some of the most important, like: optimization of milling times and less quantity of water during milling process.

Same examples:

- **K11** and **FC 4080** in powder
- **MB 10, MB 15, K233, FC1133, FC3399, FLUID 238** and **FC 565** (liquid)
- **FC 4158** it's a ready one, a mix of CMC and STPP ( powder ).

#### **c) Antibacterial Agents**

To preserve the glaze from any bacteria, moulds and yeast it can be added an antibacterial as **SB 62** liquid. Available also in powder as **SB 93** (ADR).

#### **d) Suspending Agents**

They are used to avoid sedimentation.

- **Sospensivante SM (liquid)**
- **KERAFLU K100 (powder)**

### **3. GLAZE AND ENGOBE APPLICATION**

#### **a) Liquid binder for glazes and engobes**

In order to meet all the different needs of ceramic tile companies for the preparation and application of glazes, Smaltochimica has developed specific products in liquid form that are suitable as corrective additives to be used during production.

Some examples:

- **RESICOL FC 3986**
- **RESICOL FC 4774**
- **RESICOL CM 8**

#### **b) Levelling Agents**

Levelling agents are additives made to reduce surface tension. For every single levelling agent there is a specific “range of effectiveness”, that identifies the exact and necessary percentage of product to obtain the best results.

Some examples:

- **FC 4352** eliminates hydro-repellence on the digital decor, for disk, airless or Vela
- **SE 57** and **SE 69** into engobes and glazes for double disk or airless application

#### **c) Anti-Foaming and De-Aerating Agents**

Foam is an undesired event that often affects ceramic glazes and screen-printing pastes. Foam formation is due to milling and/or glaze application caused by mechanical stress undergone by the glaze.

Foam causes application defects such as bumps and spillages, incorrect spreading of the glaze; and it does not facilitate the control of density levels during manufacturing. Anti-foaming agents are used to prevent the formation of foam or to remove it as quickly as possible once already present.

- **PCS:** quick elimination of the foam on the surface (0.05-0.1%). The use of this product is particularly suitable for water depuration plants.
- **PL 610:** excellent de-aerating power, it helps the agglomeration of small foam bubbles creating bigger bubbles that emerge more quickly to the surface.
- **SE 47:** silicone-based anti-foaming additive with low surface tension properties. It is particularly suitable for airless applications.

## 4. TRADICIONAL DECORATION

### a) Colours Medium

Specific medium for silicon rollers to be used directly in the preparation of the serigraphic pastes.

In case of tintometric system the milling process is made with a concentrate medium, which is **SPM 3229**, and then **HYFIX 10556** can be used as a dilution medium.

### b) Relief Medium

Specific medium made for the roller application of high thickness glazes on extended surfaces or for relief decorations across the entire surface.

The medium for this type of application must allow for the spreading of a glaze at high density, must have perfect suspending properties and have long-drying times of the screen-printing, in order to obtain the maximum uniformity and compactness of the surface.

- **ROLLFIX 309**            1650/1750 g/l        50-70g
- **SPM 1732**             1700/1800 g/l        60-80g
- **SPM 3474**             1650/1750 g/l        50-70g
- **SPM 2741**             1650/1750 g/l        50-70g

### c) Third Firing Medium

Specific medium for third firing used directly in the preparation of the serigraphic pastes. Some example:

- SM 1151**    medium for low number of wires (relief decoration)  
**TF 45**        medium for high number of wires (colour decoration)

## 5. DIGITAL PRIMERS

### Anti-Steam & drying time

The product range for digital printers is enriched with the following special additives:

- **DIGIFIX 2861** can be applied to avoid condensation by airless before digital decoration.
- To decrease drying time in order to improve digital INKS absorption and avoid matt surface due to the extra quantity of colors simply add to the glaze **FC 2886**, useful for double disk and Vela

## 6. DIGITAL DECORATION

### Inks and Effects

Smaltochimica has already developed its own complete series of digital inks and effects:

REACTIVE SDM 1001	LUSTER SDM 4001
CE WHITE SDM 2001	MATT SDM 5001
ZR WHITE SDM 3001	GLOSSY SDM 6001
MATT TRAS SDM 7001	CARVING SDM 8001

Cyan NIK 21223	Blue Royal NIK 21220
Blue Wall NIK 21222	Blue NIK 21221
Blue Floor NIK 21224	Blue Floor NIK 21226
Red Brown NIK 11112	Red Brown NIK 11113
Coffe Brown NIK 11117	Brown NIK 11118
Beige Odra NIK 11114	Beige Orange NIK 11115
Golden Yellow NIK 41448	Beige Orange NIK 11116
Yellow GOLD NIK 41448/1	
Yellow GOLD NIK 41448/2	Mango Yellow NIK 41444
Yellow NIK 41446	Lemon Yellow NIK 41447
Pink NIK 51557	Pink NIK 51555
Black Wall NIK 31306	BLACK NIK 31301
Black Floor NIK 31307	BLACK NIK 31300
Green NIK 61671	Green NIK 61672

## 7. MICRO-GRIT DECORATION

### a) Suspending agents for Microgrits

To handle the application of micro-grits is necessary an application of adhesive.

All our glues have to be mixed with water and glaze in powder. Thanks to the fine particle size dimension of the micro-grits, the grains can be directly mixed with the adhesive/water and then applied on the piece with standard glazing procedures, like double disk, airless, Vela and bell.

- **FC 2295** for airless and double disk application
- **FC 3891** mostly for Vela, bell and airless

### b) Digital Glues

The new family of digital glues is suitable for any kind of machine (DryFix Projecta, System, Kerajet etc).

This method allows an application of glues following a graphic and not only an entire application of micro-grit all over the tiles.

- **DIGICOL 2891**
- **DIGICOL 3325**

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## 8. TOP GLAZE APPLICATION

- a) Liquid binders
- b) Levelling agents
- c) Deflocculants agents
- d) Anti-foaming agents

All the additives used for the glaze and engobes application can be used also in the TOP GLAZE APPLICATION, in particular the levelling agents.

## 9. HOT MELT AND WAX

### FC 2379

Wax-based hot melt adhesives with anti-scratching function. It can be applied either on the back of the tile (biscuit body) or on the fired surface of the tile to protect it from scratching during packaging operations. It can be easily removed from the tile surface during installation and do not leave residue. FC 2379 is particularly suitable for the so called "spirobond" application.

### HM 4217

Quick-setting metallocene-based hot melt adhesive used during the packaging phase to close paper and carton boxes. The top quality of the raw materials makes the adhesive particularly stable and resistant to hot temperatures.

## 10. SURFACE TREATMENT

### Post polish treatment

Products to be applied after polish on glazed or unglazed porcelain stoneware to avoid staining. These products can work alone, or combined with acid, before applying the protection.

Some examples:

- **Smaltoclean 4543**
- **Smaltoclean 3769**

## 11. INKS FOR CARTON BOXES

- a) **BLACK DT 90**                      solvent base
- b) **BLACK DTA 102**                water base