COMPANY PROFILE

The work done by **MISTRAL Italia srl** has always focused on a constant striving for products created for a given process, formulated in step with technical innovation, energy efficiency and environmental sustainability.

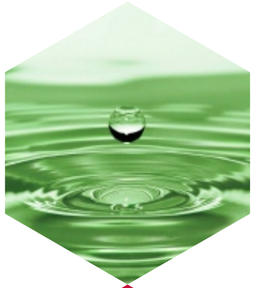
This is why **Mistral Italia** has introduced a **GREEN LINE** among its products. This aims constantly to improve the sustainability of the ceramic process through a timely study of each situation. The range comprises a selection of concentrated or powder products with a high active substance content. A step towards sustainability can be made both by using less impactful resources and by improving each step of production to reduce the use of water, energy and resources.

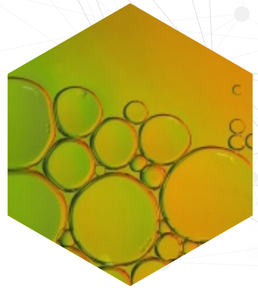
Mistral Italia seeks to be a building block in a circular economy that enhances the ceramic industry through a cross-sector network with products of natural origin, reducing the use of non-renewable raw materials.

The achievement of optimising individual additives leads to a reduction in emissions and an overall increase in the sustainability of an industry that aims to be less and less resource-hungry.

Constant investments in research and innovation are aimed at improving the products quality, the speed of response and the competitiveness. Furthermore, the ability to offer customized products based on the needs of the single production line makes us an authentic customer's partner.

Behind the quality of our products lives and works a proudly Italian company, recognized by the German Institute of Quality and Finance among the 300 Italian companies "Champion of Growth 2018".





CONTACTS

MISTRAL ITALIA srl
Via Tiziano, 12 Castellarano
42014 Reggio Emilia

Ph. (+39) 0536 813066

Customer for the order transmission
customer@mistralsrl.net

For information
info@mistralsrl.net

www.mistralsrl.net

Mistral ITALIA

CHEMICAL ADDITIVE FOR CERAMIC

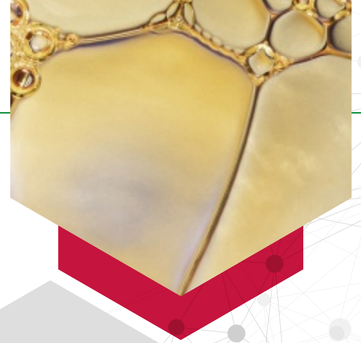
COMPANY PROFILE

Mistral ITALIA s.r.l.
Via Tiziano, 12 - C.P. 42014 Castellarano (RE) - Italy
Tel. +39 0536 813066 - P.IVA e C.F. 03854670365
info@mistralsrl.net - **www.mistralsrl.net**

Mistral was born in 2002 and today it is the reference company in the chemical auxiliaries sector for the ceramic sector.

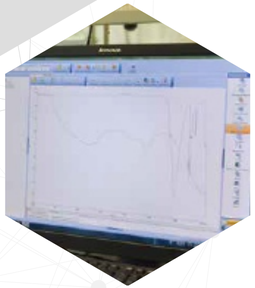
Our company is characterised by the creation of formulas tailored to the needs of each individual customer, with the help of expert and qualified technicians.

Our production sites are certified and have been operating for years in incoming quality control and on the finished product.



Mistral ITALIA

CHEMICAL ADDITIVE FOR CERAMIC



OUR PRODUCTS:

- LIQUID / SOLID FLUIDIFIERS FOR MIXTURE
- ADDITIVES FOR INCREASING THE BREAKING LOAD “IN GREEN AND DRIED”
- ADDITIVES FOR ELIMINATING OR REDUCING THE BLACK CORE OF OXY L
- SUB-BRAND ENGOBES
- SURFACTANTS AND LEVELING AGENTS
- ANTI-SETTLING AGENTS FOR GRITS
- GLUE FOR THE DRY APPLICATION OF GRITS
- CMC - CARBOXYMETHYLCELLULOSE
- ADDITIVES FOR THE GLAZE AND ENGOBES APPLICATION FOR DIGITAL MACHINES WITH WATER SYSTEM
- ADDITIVES FOR THE DECORATION IN THIRD FIRING
- CHEMICAL AUXILIARIES
- ANTI-STAIN PRODUCTS

LIQUID / SOLID FLUIDIFIERS FOR MIXTURE

The proposal of a **FLUIDIFIER** for liquid or solid mixture must necessarily go through an accurate **rheological study** that requires specialized and highly experienced staff, who is able to develop a large and organic work that takes into account the specifiic peculiarities of the mixture and the waters that are intended to be used in the process.
Mistral has been on the market for 20 years and it is able to propose the best offers both from a professional and quality point of view of the finished product.
For a correct study of the fluidification, the following materials is required:
• 5 kgs of mixture (for each type of mixture)
• 3 lts of grinding water (the water that goes directly to the mill)
• 0,5 kgs of fluidifying agent currently used.
The data of fluidification also are required:
• Type of mill (continuous or batch)
• Density of the slip at the exit of the mill
• Viscosity at the exit of the mill
• Residual (specifying how it is calculated and at what value of µm).

ADDITIVES FOR INCREASING THE BREAKING LOAD “IN GREEN AND DRIED”

The choice of a **BINDER**, like a ffluidization study, requires scrupulous research in the laboratory, the development of a performing product depends on a careful measurement and an evaluation of different variables that can’t be quantitiffied priorly. Only a statistical analysis on many samples is able to provide a series of reliable data on which studying and developing the mixtures of raw materials able to provide the best performance with a view to the best cost / benefifit ratio.
Mistral has a fully equipped laboratory and has the skills to guarantee effective and reproducible results for its customers.
For the study, the following material is required:
• 10 kgs of liquid or spray-dried slip (without addition of binders).

ADDITIVES TO ELIMINATE OR REDUCE BLACK CORE

The solution to the recurring problem of the black core can be found in the **OXY L** product range. This typical defect occurs when the organic matters in the raw materials does not come into contact with sufficient oxidising substances; under these conditions, the carbon has a reducing action against various elements, including sulphur, which remains trapped inside the ceramic product, giving rise to the classic dark grey central swelling. **OXY L** products provide components that promote the oxidation of carbon into carbon dioxide (CO_2), thus allowing it to be easily dispersed within the kiln atmosphere. The product is in the form of a colourless to yellowish liquid and can be injected into the spray drier feed line prior to atomisation of the slip.
Through laboratory tests, **Mistral Italia** is available to find the most suitable additive for the mixture and its correct dosage.
Required: • 5 kg of atomised or industrial slip.

SUB-BRAND ENGOBES

Mistral has gained a valuable experience in the **SUB-BRAND ENGOBES** sector and has contributed to examine in depth and to solve the various problem arising on these products. **Mistral** is able to offer diversified and targeted solutions, based on the different production needs and based on the different choices of the sintering process of the ceramic material. We are able to offer specifiic formulations for in medium grinding or solutions for grinding directly in the water. The various options are generally related to the type of application system and related design features.
The main characteristics of our products are:
• DO NOT contain calcium sulphate (chalk) or magnesium carbonate (magnesite)
• They are chemically neutral
• They do not dust
• They have high thermal stability
• They have high sintering temperatures.

SURFACTANTS AND LEVELING

The applications in digital require a perfect surface. Our **SURFACTANTS** help to reduce the surface tension of the glazes, favoring the elimination of air bubbles and favoring the application. To deal with the various application issues, **Mistral** proposes two different series of surfactants. The first series has been developed to optimize the application of glazes applied with airless, their use allows to obtain perfectly leveled surfaces and free from typical defects such as glaze putting and cissing. The use of these additives allows to optimize the flatness of the glazes, preparing them in the best way for the next digital decoration.
The second series of surfactants has been developed for end-of-line airless applications. They are very energetic surfactants and their use allows you to wet very difficult surfaces such as those originating from digital decorations.
The use of these surfactants allows to obtain a correct application and a good leveling of the glazes and crystallines, which for production needs we go to superimpose on the decorations obtained with inkjet machines.

OUR PRODUCTS

ANTI-SETTLING AGENTS FOR GRITS

The current production standards of porcelain stoneware provide for the frequent use of glossy finishes that are obtained by wet application of microgrits. To ensure correct yield, the choice of suitable medium assumes a fundamental importance. This particular type of products must ensure both excellent leveling of the glass component and, at the same time, adequate suspension. **Mistral** considers essential to carry out preliminary laboratory tests, calibrated directly on the compound that you intend to apply in order to maximize each component.
It is necessary: • 3 kgs of grit with technical information on its application.

GLUE FOR THE APPLICATION OF DRY GRITS

A valid alternative to suspension in medium, are **DRY APPLICATION** of micro-grits on a bed of previously applied glue. It is an old technology recently reproposed as it allows to reduce the water supply with the same weight of grit applied and given the ever faster firing cycles or the very specifiic needs of large slabs is a type of application that is taking more and more space within the sector.

CMC - CARBOXYMETHYLCELLULOSE

Sodium Carboxymethyl cellulose, commonly known as CMC, is produced by reacting cellulose with chloroacetic acid in an alkaline environment.
The reaction produces a salified organic polymer of plant origin, which is non-toxic and highly soluble in water.
The numerous uses of CMC in the ceramic sector derive from its hydrophilic character, able to act as a glue, rheological modifier and protective colloid, thanks to its marked stabilising properties towards suspended mineral micelles.

Carboxymethyl cellulose is normally used in ceramics as a binder for slips and glazes at a rate of 0.15% to 0.30%.
At **Mistral** Italia you will find high and low viscosity CMC in technical and purified grades.

ADDITIVES FOR THE APPLICATION OF GLAZES AND SLIPS FOR DIGITAL MACHINES WITH WATER-BASED SYSTEMS

The digital application of water-based glazes and engobes slips comes with numerous technological advantages, in particular zero waste, no variation in glaze preparation, reduced environmental pollution, drastic reduction in wash water consumption.
The design/application specifications of digital glazing require glazes with specific chemical-physical parameters, which only the use of a suitable additive system can guarantee.

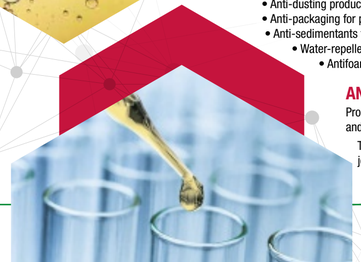
Mistral Italia is able to offer a complete range of products, called Tecno S, which ensure excellent and constant production yield. Before proceeding to the industrial phase, it is always advisable to carry out laboratory tests on the glazes to optimise application performance.
This requires: • 5 kg milled glaze + dilution water

ADDITIVES FOR THE DECORATION IN THIRD FIRING

Mistral is able to offer products aimed at different specifiic production situations of the third fire, with materials made for both ceramic decoration and glass decoration. Screen printing mediums, for high thicknesses for white glazes and crystallines, screen printing mediums for high deffinition for colors, adhesives for glass and grits in general, gels for the application of metallized and mediums for airbrush.

CHEMICAL AUXILIARIES

Our range of products is completed by **ADDITIVES** of various uses, such as:
• Carboxy methyl cellulose for glazes and engobes, purifified or technical
• Fluidifying and sequestering agents, polycarboxylates, phosphates and phosphonates
• Anti-dusting products, liquid adhesives based on natural polymers and synthetic polymers
• Anti-packaging for powders, pyrogenic silicas or hydrophilic and hydrophobic precipitates
• Anti-sedimentants for glassy suspensions, based on natural and synthetic polymers
• Water-repellent and waterproofifing, latex in emulsion with different degree of water repellency
• Antifoam for glazes and antifoam for purifification plants, based on mineral oil or silicone.



ANTI-STAIN PRODUCTS

Products studied to reduce the surface microporosity that originates after the smoothing and lapping treatments, generally used to improve the appearance of ceramic materials.

The application of these products allows easier removal of cement residues (materials joints, concrete splashes...) and dirt due to the resulting trampling from implementation.