Pentachem

SINCE 1994

# INNOVATIVE SUSTAINABLE SOLUTIONS

PRODUCT CATALOGUE 2025

PENTACHEM.IT

# Since 1994 in the heart of building

## Chemical additives and sustainable state-of-the-art technologies

**Pentachem** is an Italian company specialised in the production and sales of chemical additives for buildings, ranging from additives for masonry mortars and plasters to additives for self-levelling and repair mortars.

**Pentachem** currently works in Western Europe, Eastern Europe, and in Africa, both directly and through agents and distributors.

## 5 Good reasons to choose Pentachem

- DYNAMISM AND RESPONSIVENESS
- VAST EXPERIENCE IN ITALY AND ABROAD
- EFFECTIVE AND SPECIFIC SOLUTIONS
- SPEED OF SERVICE
- CONSTANT TOUCH BETWEEN TECHNICAL DEPARTMENTS

**CARLO LEARDINI**
SALES MANAGER

**CLAUDIO FRULLI**
TECHNICAL MANAGER

**RENZO LEARDINI**
GENERAL MANAGER

# From the Heart of Romagna to the World

The history of Pentachem began in 1994, in the heart of Romagna, where three technicians combined their skills and passion to create a center of excellence dedicated to chemical additives for the construction industry. Since then, the company has embarked on a path of constant growth based on innovation, research, and close technical collaboration with customers, becoming an international reference point in the sector.

Over more than thirty years of activity, Pentachem has expanded its product range, invested in new technologies and laboratories, and brought Italian quality to European and international markets, establishing itself as a reliable and skilled partner for manufacturers of dry-mix mortars, renders, and concretes.

Today, with its new line of additives for paints and coatings and a growing commitment to sustainability and advanced research, Pentachem continues its journey with the same curiosity and determination that inspired its beginnings.

From the heart of Romagna, every day our ideas and expertise travel across the world, helping to build a more innovative, high-performing, and responsible construction industry.

**1994**
Birth of Pentachem.

**1995**
Achievement of the first ten customers.

**2002**
Development of a new laboratory with modern equipments.

**2005**
Pentachem expands on the foreign market with its first international sale.

**2010**
Birth of NCT, a twin company focused on nanoparticle products and bio-compatible technologies.

**2014**
Development of new foreign markets (North Africa and Russia).

**2015**
First attendance to an international trade fair.

**2016**
Doubling of the laboratory and of the sales unit.

**2017**
Expansion in Spain, Greece, and Scandinavia.

**2019**
Development of new lines of raw materials.

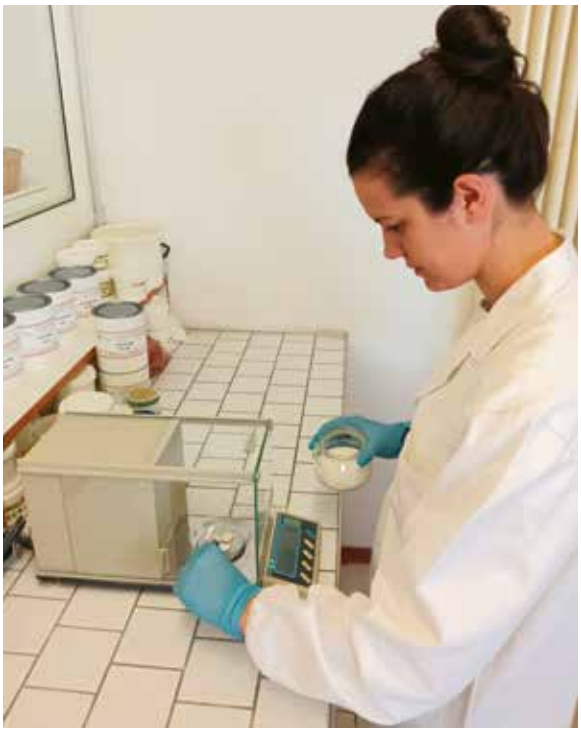
**2021**
Further expansion in Poland, Portugal, and South Africa.

**2023**
Further opening up to eco-sustainability with new products and new paletization plants.

**2024**
Development of new product lines dedicated to the new generation of cements.

**2025**
Inauguration of a second laboratory dedicated to additives for paints and coatings.

PENTA EC



# OUR PARTNERS

**International distributors:**

**POLAND**
Safic-Alcan Polska Sp z o.o.

**SOUTH AFRICA**
Safic Alcan Southern Africa

**TUNISIA**
Nadec

**ALGERIA, MOROCCO**
Transmare Chemie

**SCANDINAVIA**
Oy Finnpool AB

**GREECE, ALBANY, CYPRUS**
Chemical Net S. Kontari and Son Private Company

**TURKEY**
Dolder Kimya

**AUSTRIA, GERMANY, SWITZERLAND**
PERFECO GMBH

**SPAIN**
Midegasa

**PORTUGAL**
Dolder Portugal LDA

**MALTA**
Prochemical

**National distributors:**

**NORTH-WEST**
Ivan Calcaterra

**NORTH-EAST**
Mediochimica S.n.c.

**CENTER NORTH**
Adolfo Mondini

**ABRUZZO, UMBRIA AND MOLISE**
Michele De Petris

**LAZIO AND CAMPANIA**
Alberto Trapanese

**PUGLIA AND BASILICATA**
Pigment A.L.

**SICILY AND CALABRIA**
Prochemical

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# Defoamers

The air inside the mortars stems from mechanical agitation and from the use of specific chemical agents.
Without the full control of it, the technical and aesthetic characteristics of the product may be compromised.

**Defoamers** are chemical additives developed in order to keep the air under control and to reduce its content inside the mixtures.

They are made out of different types of molecules that destabilize the surface tension of the air bubbles. Depending on the molecule type and the peculiar formulation, the defoamers of **Pentachem** can primarily minimize the air content inside the system or reduce the bubbles' size by fragmenting them and homogeneously spread the mixture, in order to give a better stability to the structure and a better aesthetic effect to the surface.

BENEFITS OF USING A **PENTACHEM** DEFOAMER:

| | |
|---|---|
| Reduced air content | **Better wet density and higher mechanical strengths** |
| Reduced porosity | **Better waterproofness** |
| Dispersing effect | **Less viscosity** |
| Fragmentation of the big bubbles | **Better stability of the system and higher flows in fluid systems** |

**BETTER DURABILITY**
**BETTER PRODUCT AESTHETICS**
**COSTS REDUCTION**

| | ANTIFOAM PS 3 | ANTIFOAM PS 5 | ANTIFOAM PS 201 | ANTIFOAM GREEN P1 | ANTIFOAM PO 300 | ANTIFOAM L |
|---|---|---|---|---|---|---|
| COMPOSITION | silicone | | | natural oils | mineral oils | silicone |
| STATE | powder | | | | | liquid |

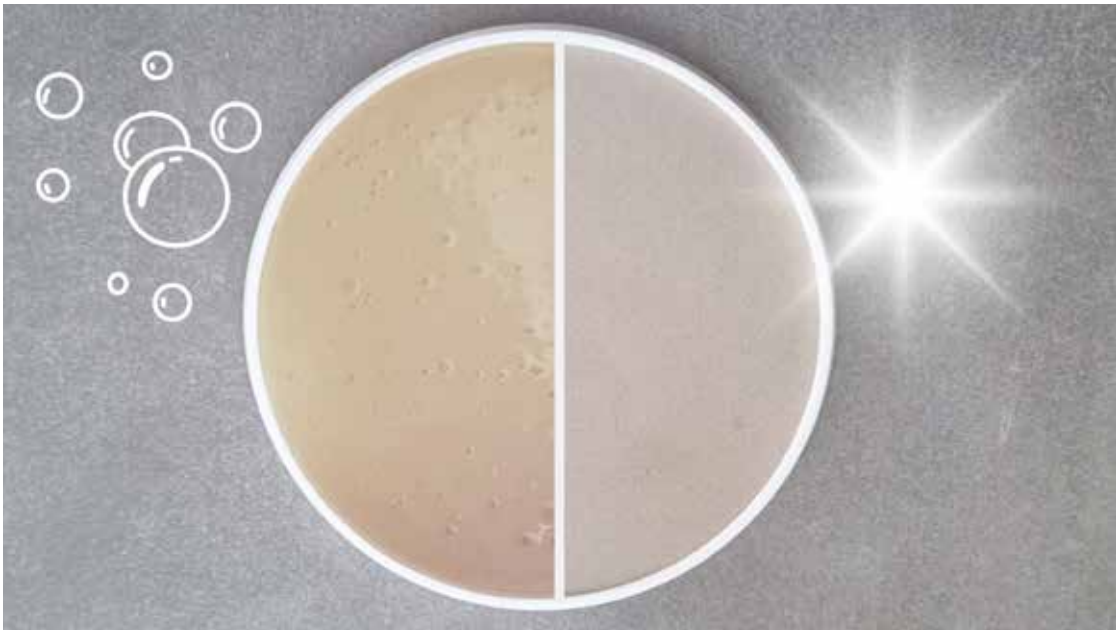
| FEATURES (MIN=1 MAX=4) | | | | | | |
|---|---|---|---|---|---|---|
| Antifoaming effect | 2 | 4 | 4 | 3 | 4 | 4 |
| Surface effect | 3 | 3 | 3 | 4 | 3 | 3 |
| Speed of solubilization | 3 | 3 | 3 | 3 | 4 | 4 |
| Compatibility with cement | 4 | 4 | 4 | 3 | 4 | 4 |
| Compatibility with gypsum | 4 | 3 | 3 | 4 | 3 | 4 |
| Development of mechanical strengths | 2 | 4 | 3 | 3 | 3 | 3 |

| SELF-LEVELLING | | | | | | |
|---|---|---|---|---|---|---|
| Underlayment | ⬟ | ⬟ | 🍃 | 🍃 | ⬟ | |
| Low thickness | ⬟ | ⬟ | 🍃 | 🍃 | ⬟ | |
| High thickness | ⬟ | ⬟ | 🍃 | 🍃 | ⬟ | |

| VERTICAL MORTARS | | | | | | |
|---|---|---|---|---|---|---|
| Structural repair mortars | ⬠ | ⬟ | 🍃 | 🍃 | ⬠ | |

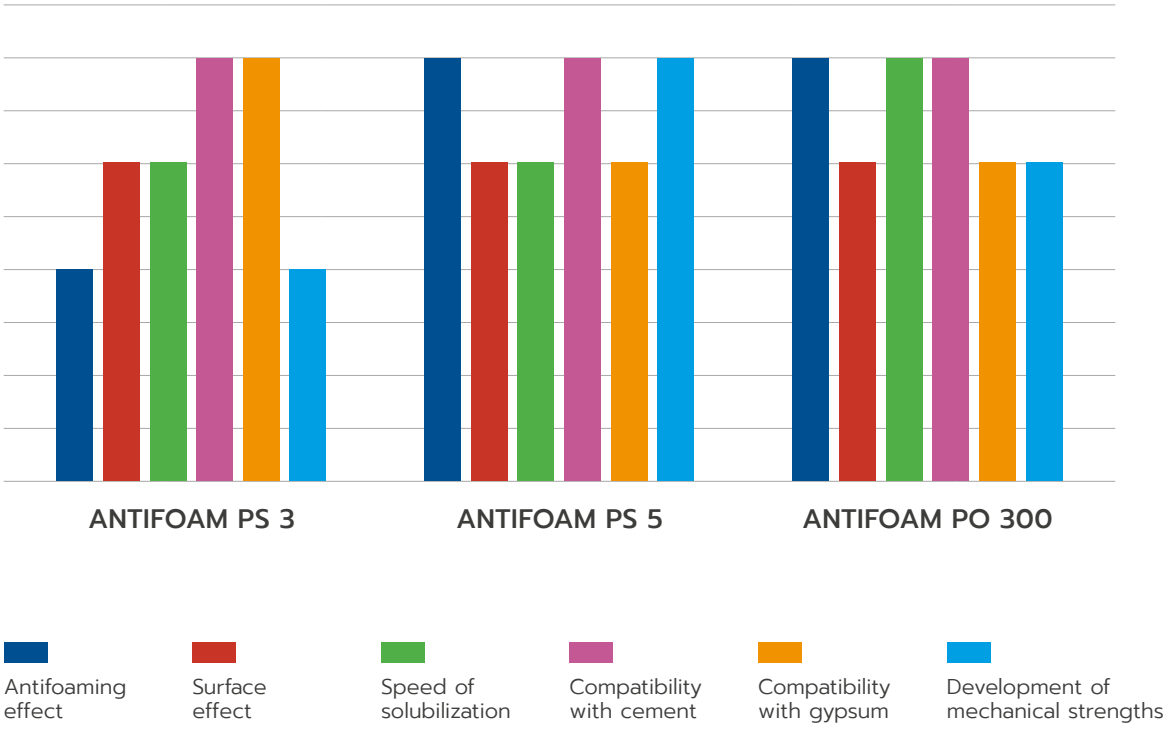
| FLUID / HORIZONTAL MORTARS | | | | | | |
|---|---|---|---|---|---|---|
| Anchoring mortars | | ⬟ | 🍃 | 🍃 | ⬟ | |
| Repair mortars | | | 🍃 | 🍃 | ⬟ | |
| Tile grouts | ⬟ | ⬟ | | 🍃 | | |
| Concretes | | | | | | ⬟ |

⬠ suggested ⬟ recommanded 🍃 VOC free



Depending on technical and formulation characteristics, **Pentachem's** defoamers have, at different levels, all the following features:

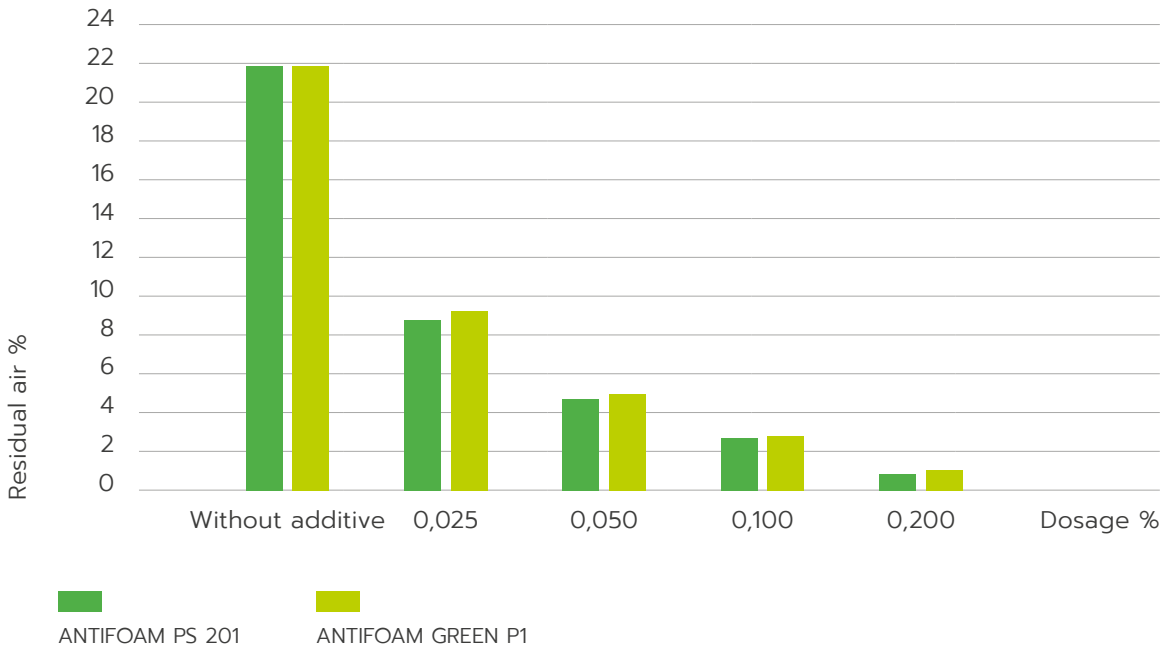
- **Antifoaming effect:** ability to quickly blow up the bubbles in the surface and those inside of the mortar and prevent the formation of others.
- **Surface effect:** ability to break apart the bubbles in order to obtain a homogeneous dispersion and a better aesthetic effect, free of craters and spots.
- **Speed of solubilization:** the velocity of dispersion of the particles in order to start the micro-fragmentation action of the additive.
- **Compatibility with cement and gypsum:** ability to effectively work with the binders.
- **Development of strengths:** ability to withstand static stresses.



# Antifoam PS 201

It is an extremely effective defoamer in powder form, capable of combining a quick air minimization with a strong fragmenting effect in order to make the finished product's surface homogeneous and without any craters and stains.

ANTIFOAMING EFFECT OF **ANTIFOAM PS 201** AND **ANTIFOAM GREEN P1** ON A PLASTER MORTAR FOR INTERNAL USE AT DIFFERENT DOSAGES



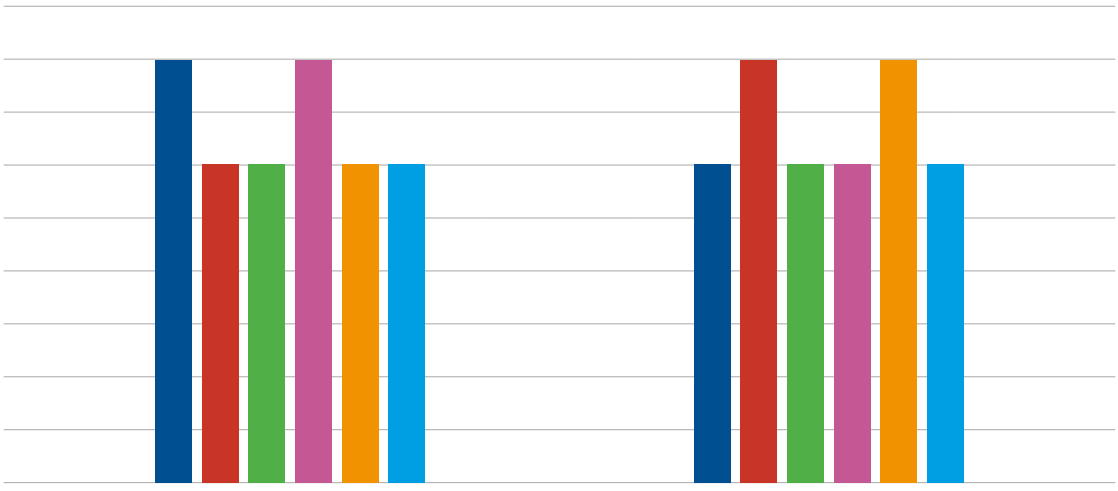

**DUE TO PREVIOUS AGREEMENTS WITH THE SUPPLIERS OF RAW MATERIALS, THIS ADDITIVE IS NOT AVAILABLE IN THE FOLLOWING COUNTRIES:**

• Benelux • Austria • Switzerland • Germany • France • United Kingdom • Poland
• South Africa • United States • Canada • India • Brazil • Mexico

# Antifoam GREEN P1

It is a new generation of powder defoamer, composed of a mixture of natural oils and environmentally sustainable surfactant polymers on a mineral support.
The action of the active ingredients begins immediately on the wet mortar, reducing the size of the largest bubbles even under strong mechanical agitation.

Both products are environmentally friendly, developed to meet the most demanding VOC emission regulations such as Emicode EC 1 Plus and French VOC Regulation A+.



ANTIFOAM PS 201 ANTIFOAM GREEN P1

Antifoaming effect
Surface effect
Speed of solubilization
Compatibility with cement
Compatibility with gypsum
Development of mechanical strengths

# Anti-shrinkage agents

By "shrinkage", we mean the volume reduction that occurs in all the cement-based mortars both in the plastic and hardening phase. Such reduction is caused by a variation in the water content inside the mortar.

### THIS SHRINKAGE IS DIVIDED INTO:

**PLASTIC:** the contraction that happens shortly after the application, when the product is still plastic.

**HYDRAULIC:** the contraction that happens due to the evaporation of the water inside the cement mixture in the first few months after the application.

The most noticeable consequences of this event are the formation of cracks, deformations, and the reduction of adhesion to the underlayer, which affect enormously the durability of the final product.
In order to avoid these problems, **Pentachem** developed an entire line of shrinkage reducing and compensating agents.

### BENEFITS OF A SHRINKAGE REDUCING AGENT FROM THE **PENTAMIX EX** LINE:

**REDUCTION OF CAPILLARY PRESSURE AND TENSION INSIDE THE POROUS STRUCTURE**

- Minimization of the hydraulic and plastic shrinkage
- Greater waterproofness and better resistance to freeze and thaw cycles
- Compensation of shrinkage

**HIGHER DURABILITY**
**OPTIMIZATION OF THE PRODUCTION COSTS**

| | PENTAMIX EX 3 | PENTAMIX EX 4 | PENTAMIX EX 5 | PENTAMIX EX 6 | PENTAMIX EX 9 | PENTAMIX EX 35 L | FIBERCHEM 6 mm |
|---|---|---|---|---|---|---|---|
| **COMPOSITION** | npg | | | glyco-lethers | polyfunctional alcohols | glyco-lethers | fibres |
| **STATE** | powder | | | | | liquid | solid |

| **FEATURES (MIN=1 MAX=4)** | | | | | | | |
|---|---|---|---|---|---|---|---|
| Anti-shrinkage effect | 4 | 4 | 3 | 4 | 4 | 4 | 4 |
| Shrinkage compensating effect | 3 | 3 | 4 | 3 | 3 | 3 | 4 |
| Resistances conservation | 4 | 4 | 3 | 4 | 4 | 4 | 2 |

| **SELF-LEVELLING** | | | | | | | |
|---|---|---|---|---|---|---|---|
| Underlayment | | ⬟ | ⬠ | ⬟ | ⬟ | | |
| Low thickness | | ⬟ | ⬠ | ⬟ | ⬟ | | |
| High thickness | | ⬠ | ⬟ | ⬠ | ⬠ | | ⬠ |

| **VERTICAL MORTARS** | | | | | | | |
|---|---|---|---|---|---|---|---|
| Structural repair mortars | | ⬠ | ⬠ | ⬟ | ⬟ | | ⬟ |

| **FLUID / HORIZONTAL USE** | | | | | | | |
|---|---|---|---|---|---|---|---|
| Anchoring mortars | | ⬠ | ⬟ | ⬠ | ⬠ | | |
| Repair mortars | | ⬠ | ⬠ | ⬠ | ⬠ | | ⬟ |
| Tile grouts | | | | ⬟ | ⬟ | | |
| Coloured mortars | | | | ⬟ | ⬟ | | |
| Concretes | | | ⬠ | | | ⬟ | |

⬠ suggested ⬟ recommanded VOC free

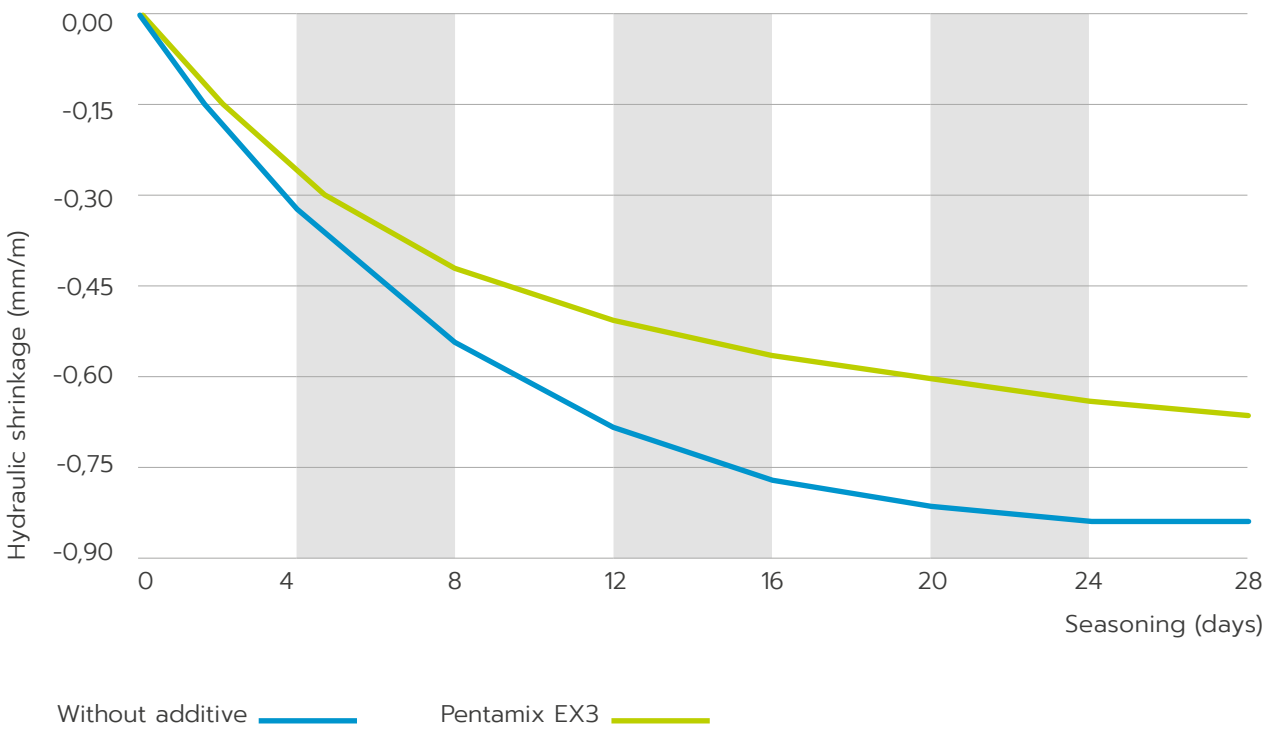
# Pentamix EX 3

It is a shrinkage reducing agent in powder form that lowers the transition tensions between the plastic and the early hardening phases, which always occur in the cementbased admixtures.

It is a good ally for solving the problem of the shrinkage in all the cement-based systems and it is an extremely versatile product, easy to put in the mixture.

Moreover, **Pentamix EX 3** stands out for being a low VOC emission product, capable of respecting the parameters of the most demanding regulations such as the French VOC Regulation A+.

ACTION OF **PENTAMIX EX 3** ON THE HIDRAULIC SHRINKAGE OF A STANDARD CEMENT MORTAR

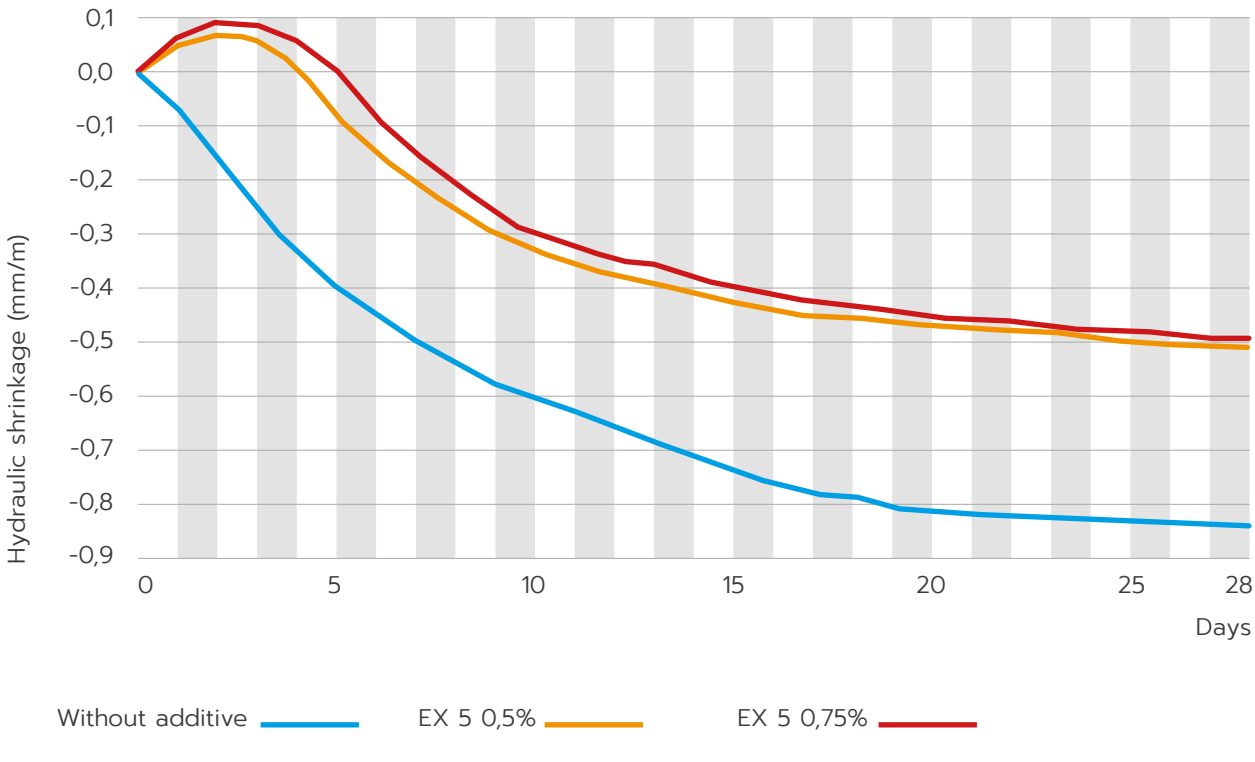


# Pentamix EX 5

It is a shrinkage-compensating and reducing additive in powder form. Within the first few hours, depending on the dosage, it balances the plastic shrinkage through a controlled and non-violent expansion, while in the second phase it reduces the hydraulic shrinkage and the mortar's dimensional stress. With the right dosage, it is possible to avoid the shrinkage completely.

The additive has a light accelerating effect on alumina cement and this can bring to a reduction of its dosage. It is recommended for all the cases requiring a light and checked initial expansion, like structural mortars of class R3 and R4.

TRENDS OF SHRINKAGES AT DIFFERENT DOSAGES ON A STANDARD MORTAR OF **PENTACHEM**



# Superplasticizers

Superplasticizers are used in order to increase the flow and reduce the dosage of water in cement and/or gypsum-based mixtures, thus improving rheological properties, incrementing the mechanic resistances, and preventing cases of segregation.

## BENEFITS OF THE USE OF SUPERPLASTICIZERS FROM THE PENTAFLOW PC LINE:

DISPERSING EFFECT → **HIGH REDUCTION OF WATER DEMAND** →

- BETTER FLOW
- BETTER WORKABILITY
- HIGHER MECHANICAL STRENGTHS
- HIGH DISPERSION OF THE FINE COMPONENTS
- LONGER DURABILITY

| | PENTAFLOW | | | |
|---|---|---|---|---|
| | PC 5 | PC 6 | PC 20 F | PC 22 F |
| **COMPOSITION** | polycarboxylates | | | |
| **STATE** | powder | | | |

| FEATURES (MIN=1 MAX=4) | | | | |
|---|---|---|---|---|
| Flow in gypsum | 2 | 2 | 4 | 4 |
| Flow in cement | 3 | 4 | 4 | 4 |
| Development of mechanical strengths | 4 | 3 | 3 | 3 |
| Delay of setting time | 2 | 2 | 3 | 4 |
| Creation of air | 3 | 4 | 3 | 3 |
| Speed of solubilisation | 2 | 2 | 4 | 4 |
| Thermostability | 2 | 2 | 3 | 3 |

| CEMENT-BASED SELF-LEVELLING | | | | |
|---|---|---|---|---|
| Underlayments | ⬠ | ⬟ | ⬟ | ⬟ |
| Low thickness | ⬠ | ⬟ | ⬟ | ⬟ |
| High thickness | ⬟ | ⬟ | ⬠ | ⬠ |
| High thickness lightweigth | ⬠ | ⬟ | ⬟ | ⬟ |

| GYPSUM-BASED SELF-LEVELLING | | | | |
|---|---|---|---|---|
| Anhydrite-based self-levelling | ⬠ | ⬠ | ⬟ | ⬟ |
| Ceramic gypsum | ⬠ | ⬠ | ⬟ | ⬟ |

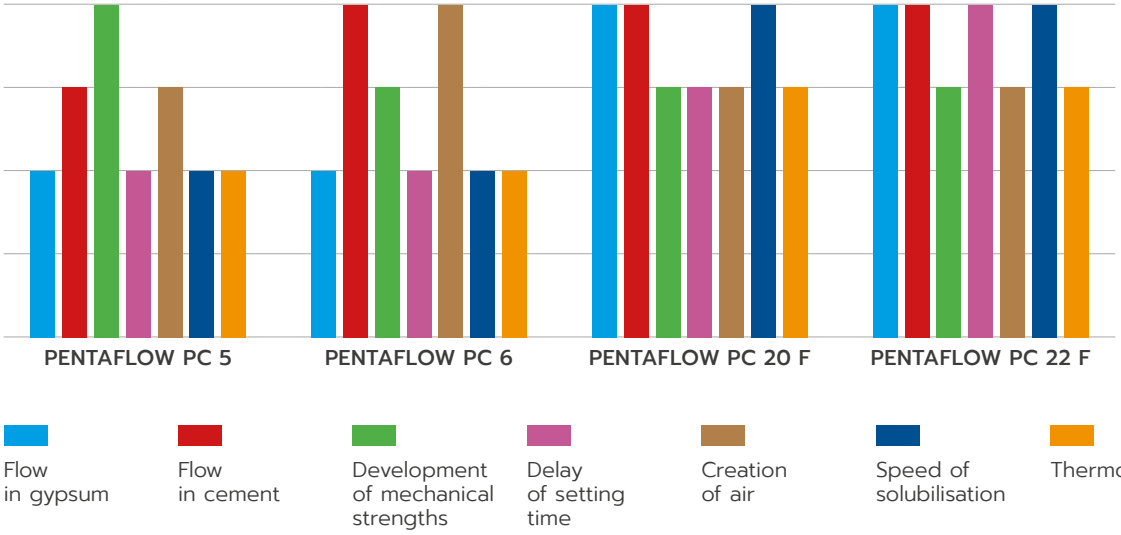
| FLUID / HORIZONTAL USE | | | | |
|---|---|---|---|---|
| Anchoring mortars | ⬟ | ⬟ | ⬠ | ⬠ |
| Repair mortars | ⬟ | ⬠ | ⬟ | ⬟ |

⬠ suggested ⬟ recommanded

# Pentaflow PC Line

These are polycarboxylic superplasticizers in powder form with active matter exceeding 95%. They are extremely versatile and effective products offering the following benefits:

- **High dispersion ability.**
- **Extreme effectiveness in water reduction.**
- **Application both in premixed cement-based and/or gypsum-based mortars and in concrete.**
- **Very high performances at lower dosages than the competitors' products.**




Depending on the technical and formulation specifics, the different products of the Pentaflow PC line have all the following features, albeit at different degrees:

- **Flow:** capacity to develop high and homogeneous flow.
- **Development of strengths:** capacity to improve the mechanical strengths.
- **Preservation of the workability:** capacity to preserve over time the developed flow.
- **Speed of solubilisation:** capacity to take action as soon as they are dispersed in the admixture.
- **Thermostability:** capacity to remain stable under thermal stress.

## ALTHOUGH THESE ARE EXTREMELY VERSATILE PRODUCTS, EVERY ADDITIVE IS SPECIFIC FOR A CERTAIN TYPE OF APPLICATION.

### PENTAFLOW PC 5

PCE for high resistances at short and long seasonings; suggested for cement-based products.

### PENTAFLOW PC 6

PCE for high flows; recommended for cement-based products.

The superplasticizers Pentaflow PC 5 and Pentaflow PC 6 develop peak fluidity after about 15 minutes, making them more suitable for fluid mortars and traditional horizontal restoration products not intended for machine application.

**In particular, Pentaflow PC 5 has a lower initial fluidity, but allows high mechanical strength to be achieved both initially and after 28 days.**

### PENTAFLOW PC 20 F

PCE for high flows, even with very fine granulometries, and excellent strengths at short seasonings.

### PENTAFLOW PC 22 F

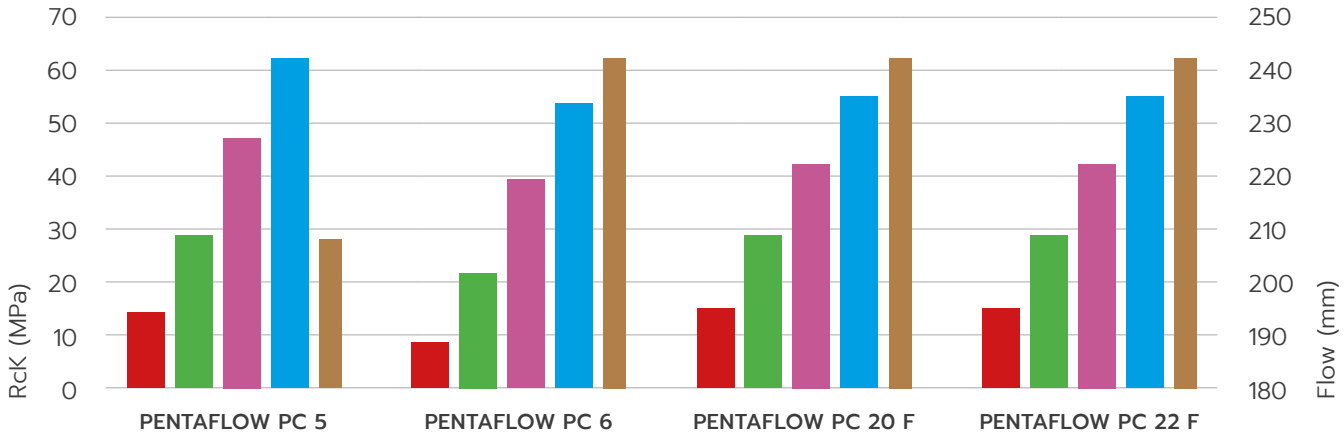
PCE for high flows and no additional delay in setting time.

The superplasticizers Pentaflow PC 20 F and Pentaflow PC 22 F are particularly suitable for self-leveling systems and highly fluid mortars, which also can be applied by machine, thanks to their immediate peak fluidity and reduced open time.

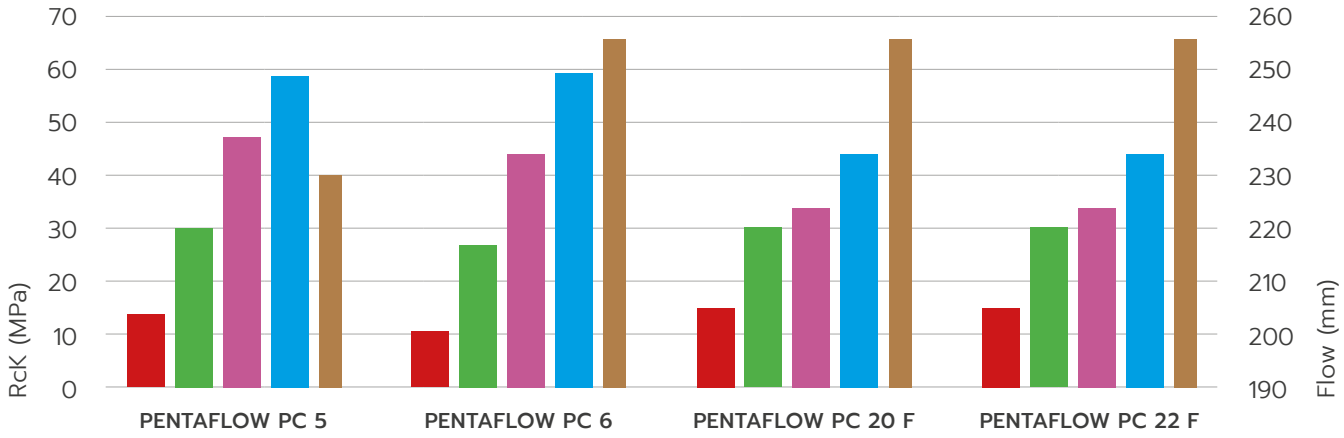
**Pentaflow PC 20 F guarantees higher workability, while Pentaflow PC 22 F offers greater versatility in combination with setting retarders.**

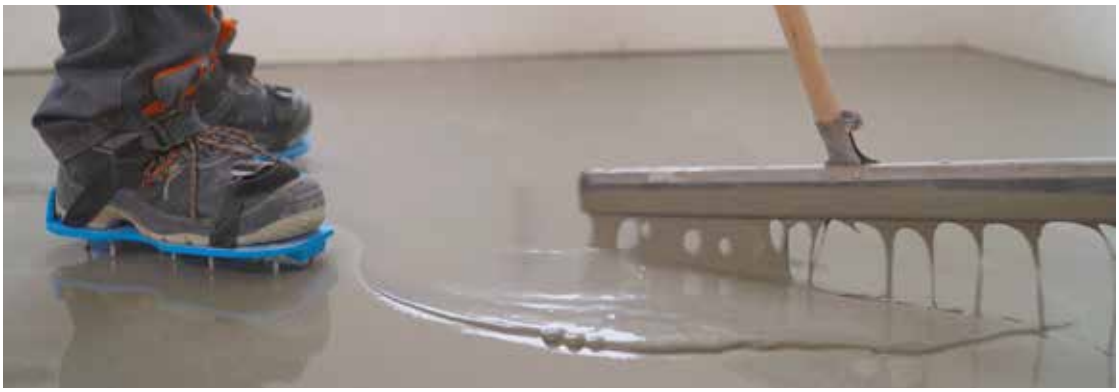
# Pentaflow PC Line

FLOW AND MECHANICAL STRENGTHS ON A STANDARD MORTAR WITH **0.10%** DOSAGE ON CEMENT




FLOW AND MECHANICAL STRENGTHS ON A STANDARD MORTAR WITH **0.15%** DOSAGE ON CEMENT





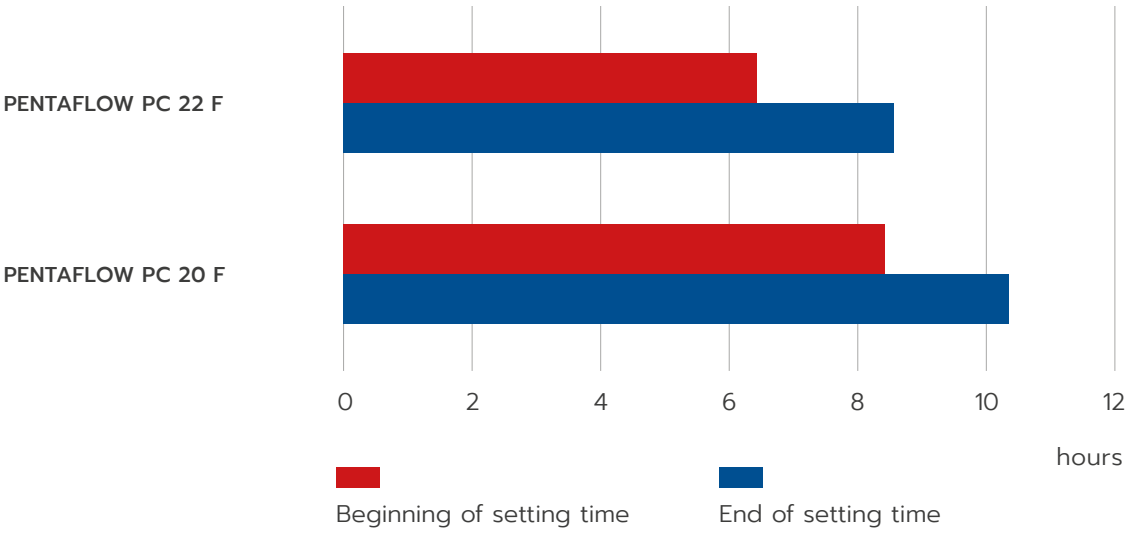
**Pentaflow PC 20 F** and **Pentaflow PC 22 F** deliver high and immediate performance, with very similar characteristics:

- **Rapid solubilization:** both products quickly reach their maximum flow right after water is added to the mix.
- Stable flow: they ensure wide and consistent workability for about 30 minutes, followed by a gradual and linear decrease.

The main difference lies in the setting time:
- **Pentaflow PC 22 F** provides a faster setting start, without additional delays.
- **Pentaflow PC 20 F**, on the other hand, is ideal for formulations without set retarders, offering greater flexibility in applications.

With these features, the **Pentaflow PC** range represents a reliable solution to optimize mix performance, combining efficiency and versatility.

SETTING TIMES ON STANDARD MORTAR WITH A DOSAGE OF 0.15% ON CEMENT



# Waterproofing agents

Water is one of the main causes of buildings decay. Infiltrations and the recurring exposures to water and the salts contained in it can cause many damages like delamination, swelling, cracks, separations, and a general deterioration of the building. Finally yet importantly, they can create an ideal place for the proliferation of mold, moss and seaweed.

In order to contrast these threats, **Pentachem** developed a line of waterproofing additives capable of giving a protection durable and stable over time.

BENEFITS OF THE USE OF A WATERPROOFING AGENT OF THE **PENTAPROOF** LINE:

| | | |
|---|---|---|
| Reduction of the mortar's natural porosity (without affecting the transpiration) | Less water and salts uptake | **GREATER DURABILITY** |
| | Less carbon dioxide absorption (Higher resistance to carbonation) | |
| Less internal moisture | Block of organic material proliferation | **HIGHER SALUBRITY** |
| Greater surface's waterproofness | Higher cleaning | **BETTER AESTETHIC** |
| | No change in colors | |

| | PENTAPROOF | | | | | |
|---|---|---|---|---|---|---|
| | 20 P | 30 P | 50 P | CA | GS 43 | GSP 65 |
| COMPOSITION | stearates | silicone | salts* | mix | silicone | |
| STATE | powder | | | | liquid | powder |

| FEATURES (MIN=1 MAX=4) | | | | | | |
|---|---|---|---|---|---|---|
| Waterproofing under pressure | 4 | 3 | 4 | 2 | n.a. | n.a. |
| Capillary waterproofing | 1 | 3 | 2 | 4 | 3 | 3 |
| Preservation of RcK | 4 | 4 | 4 | 2 | 4 | 4 |
| Durability of the effect | 3 | 3 | 3 | 4 | 4 | 4 |
| Wettability of the mortar | 2 | 4 | 1 | 3 | 3 | 3 |
| Resistance to salt aggression | 2 | 3 | 1 | 4 | 3 | 3 |
| Beading effect | 2 | 4 | 2 | 3 | 4 | 4 |

| VERTICAL MORTARS | | | | | | |
|---|---|---|---|---|---|---|
| Structural repair mortars | ⬠ | ⬟ | ⬠ | | | |

| FLUID / HORIZONTAL USE | | | | | | |
|---|---|---|---|---|---|---|
| Concretes | ⬟ | | ⬟ | | | |
| Tile grouts | | ⬟ | | ⬠ | | |

| CEMENT BASED MORTARS | | | | | | |
|---|---|---|---|---|---|---|
| Plasters | | ⬠ | ⬠ | ⬠ | | |
| Rough finishes | | ⬟ | ⬟ | ⬟ | | |
| Skim coatings | | ⬠ | ⬠ | ⬠ | | |
| Screeds | ⬟ | | | ⬠ | | |

| GYPSUM BASED MORTARS | | | | | | |
|---|---|---|---|---|---|---|
| Plasters | | ⬠ | ⬠ | ⬠ | | ⬟ |
| Skim coatings and putties | | ⬟ | ⬟ | ⬟ | | ⬟ |
| Screeds | | ⬠ | ⬠ | | | ⬟ |
| Plasterboards | | ⬠ | ⬠ | | ⬟ | ⬟ |

| HYDRAULIC LIME BASED MORTARS | | | | | | |
|---|---|---|---|---|---|---|
| Plasters | | ⬠ | ⬠ | ⬠ | | |
| Finishes ≤ 0.8 mm | | ⬟ | ⬟ | ⬟ | | |



⬠ suggested ⬟ recommanded

* Fatty acid salts

# WATERPROOFING AGENTS FOR CEMENT

## PENTAPROOF 20 P / 30 P / 50 P / CA

They are mass waterproofing agents based on mix of fatty acids of metal salts and silicones with high dispersing capacity.

The vast range of waterproofing agents allows selecting the optimal product able to answer to the most varied needs.

**PENTAPROOF 20 P**

Suggested for construction mortars and concrete.

**PENTAPROOF 30 P**

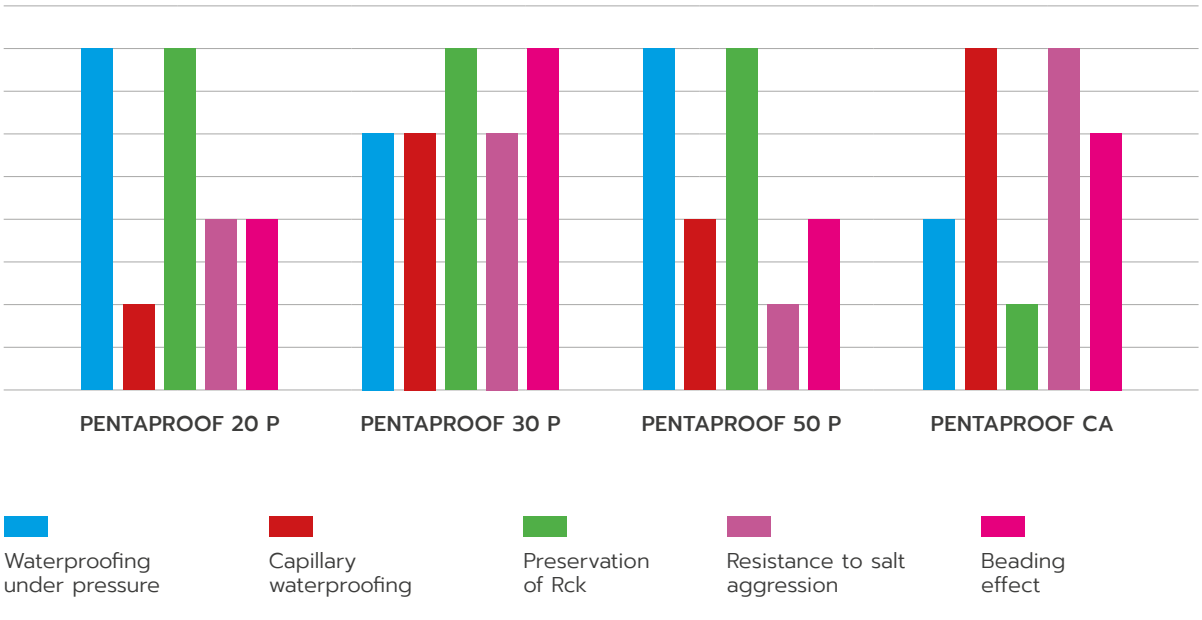
Suggested for colored tile grouts, skim coatings, and mortars subjected to water in positive and negative thrust.

**PENTAPROOF 50 P**

Suggested for external plasters and repair mortars subjected to high-pressure water.

**PENTAPROOF CA**

Suggested for plasters, skim coatings, tile grouts, and mortars exposed to salty water.

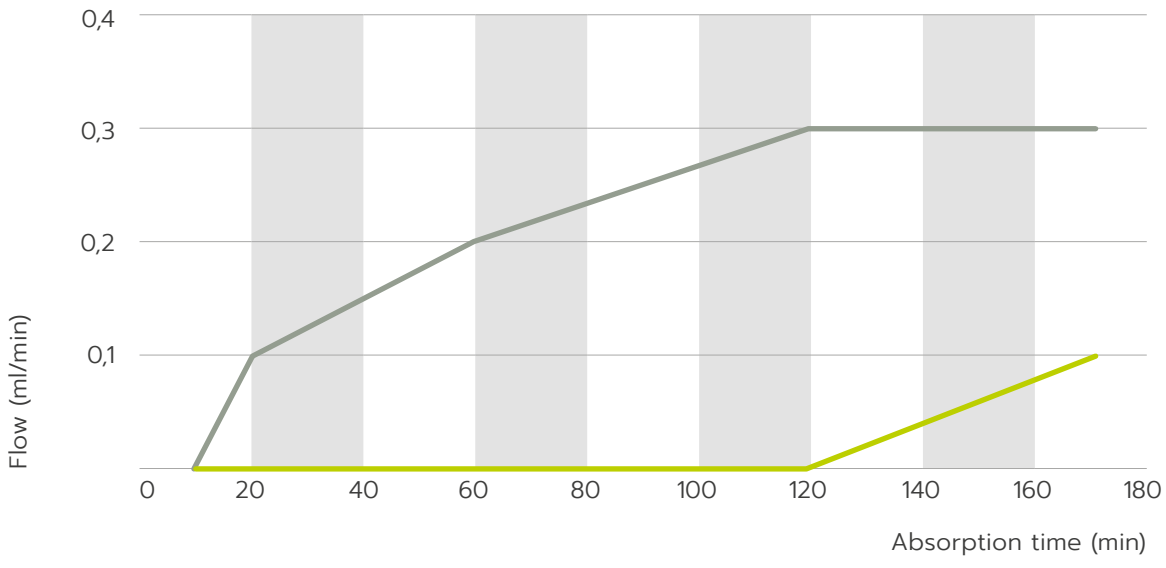


# WATERPROOFING AGENTS FOR GYPSUM

**PENTAPROOF GS 43 / GSP 65**

| PENTAPROOF GS 43 | PENTAPROOF GSP 65 |
|---|---|
| liquid; suggested for gypsum blocks and plasterboards. | powder; suggested for gypsum-based premixed. |

## PENETRATION TEST WITH KARSTEN TUBE



# Cellulose ethers

Cellulose ethers are additives used to increase water retention and to enhance the viscosity of the admixtures without affecting their ease of application.

- **Water retention characterization** - proper water retention helps maintain adequate binder hydration, reducing internal stresses and preventing the formation of microcracks during the setting and hardening phases. This leads to improved setting kinetics and final mechanical strengths.
- **Increase in viscosity and rheological stability** of the mixtures, resulting in a reduction of bleeding and aggregate segregation phenomena, while at the same time improving the overall homogeneity of the admixture.
- **Optimization of workability**, maintaining excellent smoothness and ease of application, even at low dosage levels.

## VISCOSITY AT 20°C (2% SOLUTION, BROOKFIELD RV)

| MODIFIED CELLULOSE ETHERS FOR FLUID MORTARS | | |
|---|---|---|
| Penta EC 03 | 300 ÷ 400 mPa.s | Spindle 1, 15 rpm |
| Penta EC 06 | 2.000 ÷ 2.500 mPa.s | Spindle 3, 20 rpm |

| MODIFIED CELLULOSE ETHER FOR SKIM COATS AND PLASTERS | | |
|---|---|---|
| Penta EC 25 M | 20.000 ÷ 28.000 mPa.s | Spindle 6, 20 rpm |
| Penta EC 33 | 35.000 ÷ 40.000 mPa.s | Spindle 6, 15 rpm |
| Penta EC 52 G | 4.000 ÷ 6.000 mPa.s | Spindle 5, 20 rpm |
| Penta EC 6120 | 35.000 ÷ 40.000 mPa.s | Spindle 6, 20 rpm |
| Pentagel RS 619 | 20.000 ÷ 25.000 mPa.s | Spindle 6, 20 rpm |

| | PENTA EC 03 | PENTA EC 06 | PENTA EC 6120 | PENTAGEL RS 619 | PENTA EC 25 M | PENTA EC 33 | PENTA EC 52 G |
|---|---|---|---|---|---|---|---|
| **COMPOSITION** | modified hpmc | | | | | | |
| **STATE** | powder | | | | | | |
| **CEMENT BASED** | | | | | | | |
| Plasters | | | | | ● | | |
| Fine skim coatings | | | ● | | | | |
| Rough skim coatings | | | | ● | | | |
| Tile grouts | ● | ● | | | | | |
| Repair mortars | | ● | | | | | |
| Fluid and self-levelling mortars | ● | ○ | | | | | |
| Mono/ bi-component membranes | | ● | | | | | |
| **GYPSUM BASED** | | | | | | | |
| Plasters | | | ○ | | ● | ● | |
| Skim coats | | | ● | | | | ● |
| Smooth finishes | | | ● | | | | ● |
| **HYDRAULIC LIME BASED** | | | | | | | |
| Plasters | | | | | ● | | |
| Skim coats | | | ● | | | | |
| Smooth finishes | | | ● | ● | | | |

○ suggested ● recommanded

LOW VISCOSITY MODIFIED CELLULOSE ETHERS:

- **Penta EC 03** - Recommended for fluid and self-leveling mortars, it effectively counteracts segregation and bleeding. It is particularly suitable for the formulation of tile grout mortars.
- **Penta EC 06** - Recommended for mono-component and bi-component cement-based membranes and for joint mortars. It is particularly suitable for repair mortars, as its balanced water retention prevents excessive moisture while maintaining proper binder hydration.

MODIFIED CELLULOSE ETHERS FOR SMOOTH FINISHES, SKIM COATINGS AND PLASTERS:

- **Penta EC 6120** - Recommended for fine and very fine cement and gypsum-based skim coats.
- **Pentagel RS 619** - Recommended for cement, gypsum, and hydraulic lime-based rough skim coats.
- **Penta EC 25 M** - Recommended for cement, gypsum, and hydraulic lime-based plasters.
- **Penta EC 33** - Recommended for gypsum-based plasters.
- **Penta EC 52** - Recommended for gypsum-based skim coatings and finishes.

# Cellulose ethers for cement-based adhesives

The increasing complexity of contemporary construction materials requires high-performance additives with properties precisely calibrated for each specific application. **Pentachem** has developed a new generation of **modified celluloses** that stand out for:

- **High quality consistency,** guaranteed by controlled and reproducible production processes.
- **High efficiency of use,** allowing optimized dosage levels according to the formulation requirements.
- **Specific properties** in terms of viscosity, water retention, and rheological behavior, tailored to different product types.

## VISCOSITY AT 20°C (2% SOLUTION, BROOKFIELD RV)

| MODIFIED CELLULOSE ETHERS | | |
|---|---|---|
| Penta EC 4119 | 30.000 ÷ 40.000 mPa.s | Spindle 6, 20 rpm |
| Penta EC 4120 | 17.000 ÷ 21.000 mPa.s | Spindle 6, 20 rpm |
| Penta EC 4125 | 12.000 ÷ 16.000 mPa.s | Spindle 6, 20 rpm |
| Penta EC 4130 | 35.000 ÷ 40.000 mPa.s | Spindle 6, 20 rpm |
| Penta EC 4135 | 10.000 ÷ 15.000 mPa.s | Spindle 5, 20 rpm |

| | PENTA EC 4119 | PENTA EC 4120 | PENTA EC 4125 | PENTA EC 4130 | PENTA EC 4135 |
|---|---|---|---|---|---|
| **COMPOSITION** | modified hpmc | | | | |
| **STATE** | powder | | | | |

| FEATURES (MIN=1 MAX=4) | | | | | |
|---|---|---|---|---|---|
| Open time | 4 | 3 | 4 | 4 | 4 |
| Vertical thixotropy | 2 | 3 | 3 | 3 | 4 |
| Adhesion strengths | 4 | 3 | 4 | 4 | 3 |
| Water absorption | 2 | 3 | 3 | 2 | 4 |
| Workability | 2 | 3 | 3 | 3 | 4 |

MODIFIED CELLULOSE ETHERS FOR CEMENT-BASED ADHESIVES:

- **Penta EC 4119** - Recommended for all types of class C1 cement-based adhesives with low polymer content.
- **Penta EC 4120** - Recommended for all types of cementitious adhesives from C1 to C2TES1 with prevalence of calcareous aggregates and amount of polymers less than 3%. Excellent also for ETICS.
- **Penta EC 4125** - Recommended for all types of cement-based adhesives from C1 to C2TES1 with both calcareous and siliceous aggregates and polymer amounts up to 8%.
- **Penta EC 4130** - Recommended for all types of cement-based adhesives from C1 to C2TES1 with a prevalence of limestone aggregates, for high adhesion resistance and excellent open time.
- **Penta EC 4135** - Recommended for all types of cement-based adhesives and particularly for those containing high percentages of polymers and prevalence of siliceous aggregates, classes C2 to C2TES2.

# Cellulose ethers for cement-based adhesives

New generation tiles, characterized by low water absorption and large formats, require high-performance cement-based adhesives to ensure compliance with current regulations and meet the needs of customers and applicators.

| | |
|---|---|
| **TILE ADHESIVES**<br>Resistance to initial adhesion ≥ 0.5 N/mm²<br>Resistance to adhesion after 20' ≥ 0.5 N/mm² | **C1** |
| **TILE ADHESIVES**<br>Resistance to initial adhesion ≥ 1,0 N/mm²<br>Resistance to adhesion after 20' ≥ 0,5 N/mm² | **C2** |
| **FAST SETTING**<br>Resistance to adhesion after 24 h ≥ 0,5 N/mm²<br>Resistance to adhesion after 10' ≥ 0,5 N/mm² | **F** |
| **VERTICAL SLIP**<br>≤ 0,5 mm | **T** |
| **EXTENDED OPEN TIMES**<br>Resistance to adhesion after 30' ≥ 0,5 N/mm² | **E** |
| **DEFORMATION**<br>Transverse deformation ≥ 2,5 mm and < 5 mm | **S1** |
| **HIGH DEFORMATION**<br>High transverse deformation ≥ 5 mm | **S2** |

Thanks to its consolidated experience in the field of additives for the building industry, Pentachem has developed a range of high-performance modified celluloses, specifically designed for the formulation of superior quality cement-based adhesives.

The use of these celluloses allows the creation of admixtures with excellent application and mechanical properties, providing:

- **HIGH ADHESION STRENGTHS,** BOTH IN THE SHORT AND LONG SEASONING
- **EXTENDED OPEN TIME,** FOR GREATER FLEXIBILITY DURING INSTALLATION
- **EXCELLENT THIXOTROPY** EVEN WITH LARGE QUANTITIES OF RDP
- **HOMOGENEOUS, PLASTIC AND EASY TO APPLY ADMIXTURE**

Thanks to these features, Pentachem modified celluloses are an excellent solution for the production of cement-based adhesives compliant with classifications C1 and C2 according to UNI EN 12004, ensuring consistent performance and reliability over time.

| | PENTA EC 4119 | PENTA EC 4120 | PENTA EC 4125 | PENTA EC 4130 | PENTA EC 4135 |
|---|---|---|---|---|---|
| **COMPOSITION** | modified hpmc | | | | |
| **STATE** | powder | | | | |

| **CLASSES** | | | | | |
|---|---|---|---|---|---|
| C1 | ⬟ | ⬟ | ⬠ | ⬟ | ⬠ |
| C 1 T | ⬟ | ⬟ | ⬠ | ⬟ | ⬠ |
| C 2 | ⬟ | ⬟ | ⬟ | ⬟ | ⬠ |
| C 2 T | ⬟ | ⬟ | ⬟ | ⬟ | ⬠ |
| C 2 E | ⬠ | ⬟ | ⬟ | ⬟ | ⬟ |
| C 2 TE | ⬠ | ⬟ | ⬟ | ⬟ | ⬟ |
| C 1 F | | ⬠ | ⬟ | ⬟ | ⬟ |
| C 1 FT | | ⬠ | ⬟ | ⬟ | ⬟ |
| C 2 F | | ⬠ | ⬟ | ⬟ | ⬟ |
| C 2 FT | | ⬠ | ⬟ | ⬟ | ⬟ |
| C 2 FE | | ⬠ | ⬟ | ⬟ | ⬟ |
| C 2 TE S1 | | ⬠ | ⬟ | ⬠ | ⬟ |
| C 2 TE S2 | | | ⬟ | ⬠ | ⬟ |
| GEL | | | ⬟ | ⬠ | ⬟ |
| ETICS | | ⬟ | ⬠ | | |

⬠ suggested ⬟ recommanded

# Redispersible resins in powder

The resins in powder of **Pentachem** are products redispersible in water used to increase the adhesion and the flexural strengths of the admixtures, as well as to enhance their resistance to abrasion.

| | PENTARESIN | | |
|---|---|---|---|
| | P 3 | P 104 | RP 1011 |
| **COMPOSITION** | v.v.a. | p.v.a. | p.v.v.a. |
| **STATE** | powder | | |

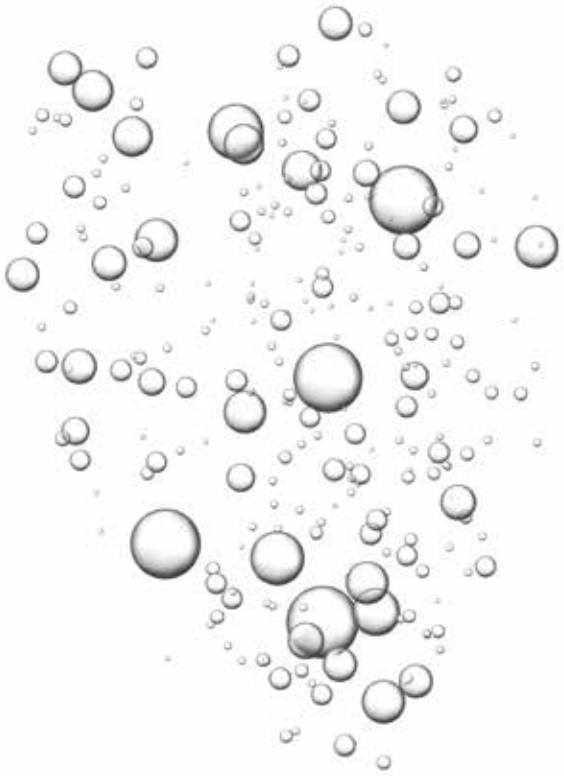
| FEATURES (MIN=1 MAX=4) | | | |
|---|---|---|---|
| Adhesion | 3 | 4 | 3 |
| Flexibility | 2 | 3 | 2 |
| Heat resistance | 4 | 4 | 3 |
| Water resistance | 2 | 4 | 2 |

| CEMENT BASED | | | |
|---|---|---|---|
| Plasters | ⬠ | | |
| Smooth finishes | ⬟ | | ⬠ |
| Tile adhesives C1 | ⬟ | ⬟ | ⬠ |
| Tile adhesives C2 | ⬠ | ⬟ | ⬠ |
| Deformable tile adhesives | | ⬟ | |
| Monocomp. cementitius sleaths | ⬟ | | |

| GYPSUM BASED | | | |
|---|---|---|---|
| Plasters | ⬟ | | ⬠ |
| Smooth finishes | ⬟ | | ⬟ |
| Skim coatings | ⬟ | ⬠ | ⬟ |
| Joint fillers | ⬠ | | ⬟ |

⬠ suggested ⬟ recommanded

v.v.a. = vinyl versatate acrylic
p.v.v.a. = polyvinyl versatate acetate
p.v.a. = polyvinyl acetate



# Air entraining agents

Air entraining agents are additives able to influence and modify the density in a mortar by creating stable and homogeneously distributed air bubbles.

## ADVANTAGES OF THE USE OF AN AIR ENTRAINING AGENT OF THE LINE PENTAMIX AER:

**BETTER CONSISTENCY**

Better workability and greater yield.

**MORE STABLE AND MORE HOMOGENEOUS AIR BUBBLES**

Better thermal insulation and dehumidifying performances, better capillarity.

Greater durability of the final products.

**OPTIMIZED PRODUCTION COSTS**

**Pentamix AER** line regroups air-entraining agents in liquid and powder form. They are suggested for cement and gypsum-based mortars, plasters, and for cellular concretes.

**Pentamix AER 205** and **Pentamix AER 206** are products in powder form that can develop highly stable and homogeneous air bubbles. Thanks to their chemical characteristics, they improve the workability and the pumpability of the mortar.

**Pentamix AER 228** is a semi-synthetic wetting/air-entraining agent in powder form that develops micro air bubbles to improve the consistency of the mortars and to prevent the appearance of lumps in the gypsum-based mixtures.

**Pentamix AER 905** is a liquid foaming agent, not of animal origin, which enables the production of particularly homogeneous mixtures free from segregation for a long time after mixing.

**Pentamix AER 906** is a semi-synthetic liquid air-entraining agent particularly suitable for use with cements processed with new generation grinding aids.

**Pentamix AER 907** is a liquid product suggested for high quality cellular concrete. It allows developing a stable and performing product, even at very low densities.

| | PENTAMIX | | | | | |
|---|---|---|---|---|---|---|
| | AER 205 | AER 206 | AER 228 | AER 905 | AER 906 | AER 907 |
| **COMPOSITION** | sls | | semi synthetic | synthetic | semi synthetic | proteic |
| **STATE** | powder | | | liquid | | |
| **FEATURES (MIN=1 MAX=4)** | | | | | | |
| Air development | 3 | 4 | 2 | 4 | 4 | 4 |
| Stability of the air bubble | 3 | 4 | 4 | 4 | 4 | 4 |
| **CEMENT-BASED SELF-LEVELLING** | | | | | | |
| Blocks in cellular concrete | | | | ⬟ | ⬟ | ⬟ |
| High thickness lightweight | ⬠ | | | ⬟ | ⬟ | ⬟ |
| **VERTICAL MORTARS** | | | | | | |
| Masonry mortars | ⬟ | | ⬟ | | | |
| Rendering mortars | ⬟ | | ⬟ | | | |
| **FLUID / HORIZONTAL USE** | | | | | | |
| Cellular cement | | | | ⬟ | ⬟ | ⬟ |
| Lightweight concrete | ⬠ | | | ⬟ | ⬟ | ⬟ |
| Traditional grouts | | | ⬟ | | | |
| **CEMENT BASED PLASTERS** | | | | | | |
| Plasters with hydrated lime | ⬟ | | | | | |
| Plasters without hydrated lime | ⬟ | | ⬠ | | | |
| Dehumidifying plasters | | ⬟ | | | | |
| Skim coatings | | | ⬟ | | | |
| **GYPSUM BASED PLASTERS** | | | | | | |
| Plasters with hydrated lime | ⬟ | ⬟ | ⬠ | | | |
| Plasters without hydrated lime | ⬟ | ⬟ | ⬠ | | | |
| Skim coatings | | | ⬟ | | | |
| Blocks in gypsum | | | | | | ⬟ |
| **HYDRAULIC LIME BASED** | | | | | | |
| Plasters | ⬟ | | | | | |

⬠ suggested ⬟ recommanded

# Set accelerators and retarders

Set **accelerators** and **retarders** are additives allowing the correction and management of setting and hardening times in cement and/or gypsum-based admixtures.

Set accelerators of **Pentachem** speed up setting and hardening times, improving mechanical strengths and thus allowing working at very low temperatures.

Set retarders of **Pentachem**, on the other side, extend setting times, thus prolonging working times without affecting the final strengths.

# Set accelerators

| | LEGARAPID 2H | PENTARAPID CR 1001 | PENTARAPID AG 3 | PENTARAPID AG 4 |
|---|---|---|---|---|
| **COMPOSITION** | mix of salts | aluminates | salts | |
| **STATE** | powder | | | |

| **FEATURES (MIN=1 MAX=4)** | | | | |
|---|---|---|---|---|
| Setting-time acceleration | 4 | 4 | 4 | 4 |
| Fast development of strenghts | 3 | 3 | 1 | 4 |

| **CEMENT-BASED SELF-LEVELLING** | | | | |
|---|---|---|---|---|
| Low thickness | ⬟ | ⬟ | | |
| High thickness | ⬟ | ⬟ | | |

| **VERTICAL MORTARS** | | | | |
|---|---|---|---|---|
| Structural repair mortars | ⬟ | ⬟ | | |

| **FLUID / HORIZONTAL USE** | | | | |
|---|---|---|---|---|
| Repair mortars | ⬟ | ⬟ | | |

| **CEMENT BASED PLASTERS** | | | | |
|---|---|---|---|---|
| Plasters with hydrated lime | ⬠ | ⬟ | | |
| Plasters without hydrated lime | ⬟ | ⬠ | | |
| Thermal plasters | | ⬟ | | |

| **GYPSUM BASED PLASTERS** | | | | |
|---|---|---|---|---|
| Plasters with and without hydrated lime | | | ⬟ | ⬟ |
| Skim coatings and putties | | | ⬟ | ⬟ |

⬠ suggested ⬟ recommanded

# Set retarders

| | PENTATARD | | |
|---|---|---|---|
| | AT | AC | G3 |
| COMPOSITION | tartaric | citric | proteic |
| STATE | powder | | |
| **CEMENT-BASED SELF-LEVELLING** | | | |
| Low thickness | ⬟ | ⬟ | |
| High thickness | ⬟ | ⬟ | |
| High thickness lightweight | ⬠ | | |
| **VERTICAL MORTARS** | | | |
| Structural repair mortars | ⬟ | ⬠ | |
| **FLUID / HORIZONTAL USE** | | | |
| Repair mortars | ⬠ | ⬠ | |
| **CEMENT BASED** | | | |
| Plasters with hydrated lime | ⬟ | | |
| Thermal plasters | ⬠ | | |
| Skim coatings and putties | ⬠ | | |
| **GYPSUM BASED** | | | |
| Plasters with hydrated lime | ⬟ | | |
| Plasters without hydrated lime | | ⬟ | ⬟ |

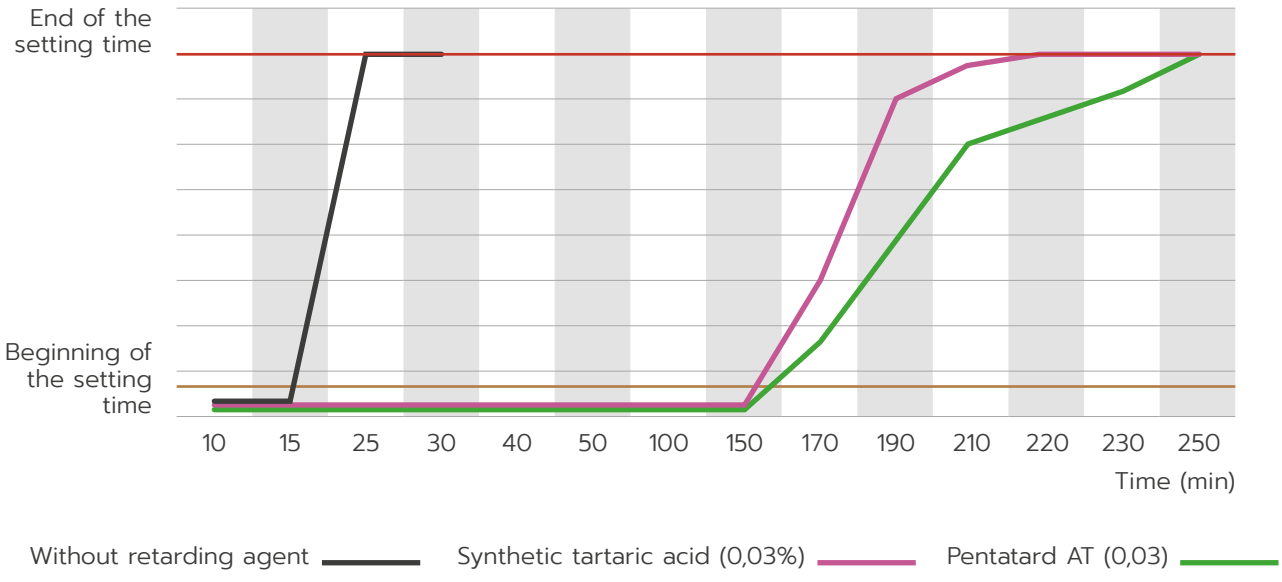
⬠ suggested ⬟ recommanded

# Pentatard AT

**Pentatard AT** is a set retarder based on very fine 100% natural tartaric acid, which is produced according to an industrial processing cycle that pays attention to the environment and to energy saving.

Thanks to its composition, the additive develops a more stable and manageable time lapse between the start and the end of the setting time than the time lapse developed by synthetic tartaric acid, thus allowing a better control of the delay.

EFFECTS OF **PENTATARD AT** ON THE SETTING TIME IN A GYPSUM-BASED PLASTER



# Additives for repair mortars

For the rehabilitation of damaged concrete, **Pentachem** provides a list of additives, both raw materials and solution additives, to prepare and modify repair mortars specific for the technical and application requirements of the customers.

| | PENTA EC 06 | PENTAMIX EX 3 / EX 4 / EX 6 / EX 9 | PENTAMIX EX 5 | PENTARESIN P 3 | ANTIFOAM PS 5 / PS 201 | FIBERCHEM | PENTAGEL S2/M | PENTAMIX IT.1 |
|---|---|---|---|---|---|---|---|---|
| **TYPE** | m.p. | | | | | | add. | |
| **STATE** | polvere | | | | | solido | polvere | |

| VERTICAL MORTARS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Structural repair mortars | ⬟ | ⬟ | ⬠ | ⬟ | ⬟ | ⬟ | | ⬟ |
| Masonry mortars | | | | ⬠ | | | ⬟ | |
| Rendering mortars | | | | ⬠ | | | ⬟ | |

| FLUID / HORIZONTAL USE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Anchoring mortars | ⬟ | ⬟ | ⬟ | ⬠ | ⬠ | ⬠ | | |

⬠ suggested ⬟ recommanded

r.m. = raw material
add. = additive

**PENTAMIX IT.1**
It is a solution additive in powder form suggested for thixotropic repair mortars. It regroups in one additive all the different chemical components necessary for a basic repair mortar and it gives to the final products the following features:

- **High thixotropy**
- **Anti-shrinkage**
- **High strengths**
- **Low scraps during the application**

Depending on the needs of the customers and on the kind of application, the thixotropic mortar prepared with **Pentamix IT.1** can be further modified with the following additives.

| PENTAMIX IT.1 | |
|---|---|
| Waterproofness | **Pentaproof 30 P**<br>**Pentaproof 50 P** |
| Higher strengths | **Pentaflow PC 5**<br>**Fiberchem** |
| Better adhesion | **Pentaresin P 3** |
| Acceleration / Delay | **Pentarapid CR 1001**<br>**Pentatard AT** |
| Shrinkage compensation | **Pentamix EX 3**<br>**Pentamix EX 5**<br>**Pentamix EX 9**<br>**Fiberchem** |
| Workability | **Pentaflow PC 5**<br>**Penta EC 06** |

# Additives for self-levelling mortars

Fluid and self-levelling mortars are admixtures that, thanks to their composition, can reach autonomously the features of fluidity and self-levelling.

Depending on their thickness and their application, they can be divided into different products.

| | Thickness (cm) | Binders | Applications |
|---|---|---|---|
| UNDERLAYMENT OR EXPOSED FLOOR | 0 - 1 | · Portland cement<br>· Alumina cement<br>· Hemihydrate gypsum<br>· Sulphoaluminate cement | Regularization of screeds and substrates |
| LOW-THICKNESS SCREED | 0.5 - 3 | · Portland cement<br>· Alumina cement<br>· Anhydrite gypsum<br>· Hemihydrate gypsum<br>· Sulphoaluminate cement | Regularization of screeds and underlayments |
| HIGH-THICKNESS SCREED | 3 - 10 | · Portland cement<br>· Alumina cement<br>· Anhydrite gypsum<br>· Hemihydrate gypsum<br>· Sulphoaluminate cement | Covering of floor heating |
| LIGHT SCREED | Variable | · Portland cement | Insulation fo the floorings |
| ANCHORING MORTAR | > 1 | · Portland cement<br>· Alumina cement<br>· Sulphoaluminate cement | Concrete repair |
| INDUSTRIAL FLOORING | 15 - 20 | · Portland cement<br>· Alumina cement<br>· Hemihydrate gypsum<br>· Sulphoaluminate cement | Floorings subjected to high levels of traffic and high abrasion |

**PENTACHEM** DEVELOPED A COMPLETE RANGE OF CHEMICAL ADDITIVES FOR THESE KINDS OF SELF-LEVELLING SCREEDS. IN PARTICULAR, IT OFFERS:

**1. Raw materials such as:**

- **Defoamers to modify density, mechanical strengths, and aesthetic.**
- **Shrinkage reducing and compensating agents to avoid cracks and breaks.**
- **Superplasticizers to increase the fluidity and reduce the water.**
- **Air entraining agents to modify density and thermal performances.**
- **Additives that counteract segregation to avoid bleeding effect.**

**2. Solution additives** (mixtures of active materials carefully mixed and calibrated among themselves, regrouped in one single additive). Depending on the needs of the customers and on the kind of application, the fluid or self-levelling mortars can be further modified with the following additives:

| | |
|---|---|
| Higher RcK | **PENTAFLOW PC 5**<br>**ANTIFOAM PS 5 / PS 201** |
| Better flow | **PENTAFLOW PC 5 / PC 20 F** |
| Better aesthetic | **ANTIFOAM PS 5 / PO 300** |
| Variation of density | **PENTAMIX AER 907**<br>**LINEA ANTIFOAM** |
| Better adhesion to concrete | **PENTARESIN RP 1011** |
| Better homogeneity | **PENTA EC 03** |
| Check of setting and hardening times | **PENTATARD AT** |

| | PENTAMIX AER 906 | PENTAMIX AER 907 | LINEA ANTIFOAM | PENTA EC 03 | PENTAFLOW PC 5 | PENTAFLOW PC 20 F |
|---|---|---|---|---|---|---|
| **TYPE** | r.m. | | | | | |
| **STATE** | liquid | | powder | | | |

| **CEMENT BASED SELF-LEVELLING** | | | | | | |
|---|---|---|---|---|---|---|
| Low thickness | | | ⬟ | ⬟ | ⬟ | ⬟ |
| High thickness | | | ⬟ | ⬟ | ⬟ | ⬟ |
| High thickness lightweight | ⬟ | ⬟ | | ⬠ | | |

| **GYPSUM BASED** | | | | | | |
|---|---|---|---|---|---|---|
| High thickness anhydrite | | | ⬠ | ⬟ | | ⬟ |
| High thickness hemihydrate | | | ⬠ | ⬟ | | ⬟ |

⬠ suggested ⬟ recommanded r.m. = raw material

| | PENTAFLOW PC 22 F | PENTAMIX EX 5 | PENTAMIX EX 3 / EX 6 / EX9 | PENTAFLOW SA.2 |
|---|---|---|---|---|
| **TYPE** | r.m. | | | add. |
| **STATE** | powder | | | |

| CEMENT BASED SELF-LEVELLING | | | | |
|---|---|---|---|---|
| Low thickness | ⬟ | ⬟ | ⬟ | ⬠ |
| High thickness | ⬟ | ⬟ | ⬟ | ⬟ |
| High thickness lightweight | | | | |

| GYPSUM BASED | | | | |
|---|---|---|---|---|
| High thickness anhydrite | ⬟ | | | |
| High thickness hemihydrate | ⬟ | | | |

⬠ suggested ⬟ recommanded

r.m. = raw material
add. = additive

# Additives for mortars and plasters

**Pentachem** offers a complete range of additives for the preparation of plasters, finishes, and skim coatings based both on cement and gypsum.

Depending on their thickness and their purposes, these products are divided into:

| | |
|---|---|
| PLASTERS | 1.5/2 CM |
| FINISHES AND MONOLAYERS | 1/1.5 CM |
| SKIM COATINGS | 1/3 MM |
| PUTTIES | 3/4 MM |
| | THICKNESS |

**Pentagel** line is the result of a ten-year research, which was carried out focusing on the choice of the best raw materials for producing additives stable in time and efficient in every situation.

THE ADVANTAGES OF THE USE OF **PENTAGEL** ADDITIVES IN PREMIXED PLASTERS ARE:

- Better thixotropy
- Better adhesion
- Easy levelling
- Easy application
- Less waste
- Elimination of problems related to cracking and segregation

| | PENTAMIX ADX 125 | PENTAMIX AER 205 | PENTAGEL RS 619 | PENTA EC 6120 | PENTA EC 25 M | PENTA EC 33 | PENTASTUC GS 52 | PENTAGEL IGM 807 sr | PENTAGEL I 100/N M |
|---|---|---|---|---|---|---|---|---|---|
| **TYPE** | r.m. | | | | | | add. | | |
| **STATE** | powder | | | | | | | | |

| **CEMENT BASED** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Plasters | ● | ● | | | ● | | | | ● |
| Fine skim coatings ≤ 0,3 mm | ● | ● | | ● | | | | | |
| Rough skim coatings | | | ● | | | | | | |
| Finishes | | | ○ | ● | | | | | |

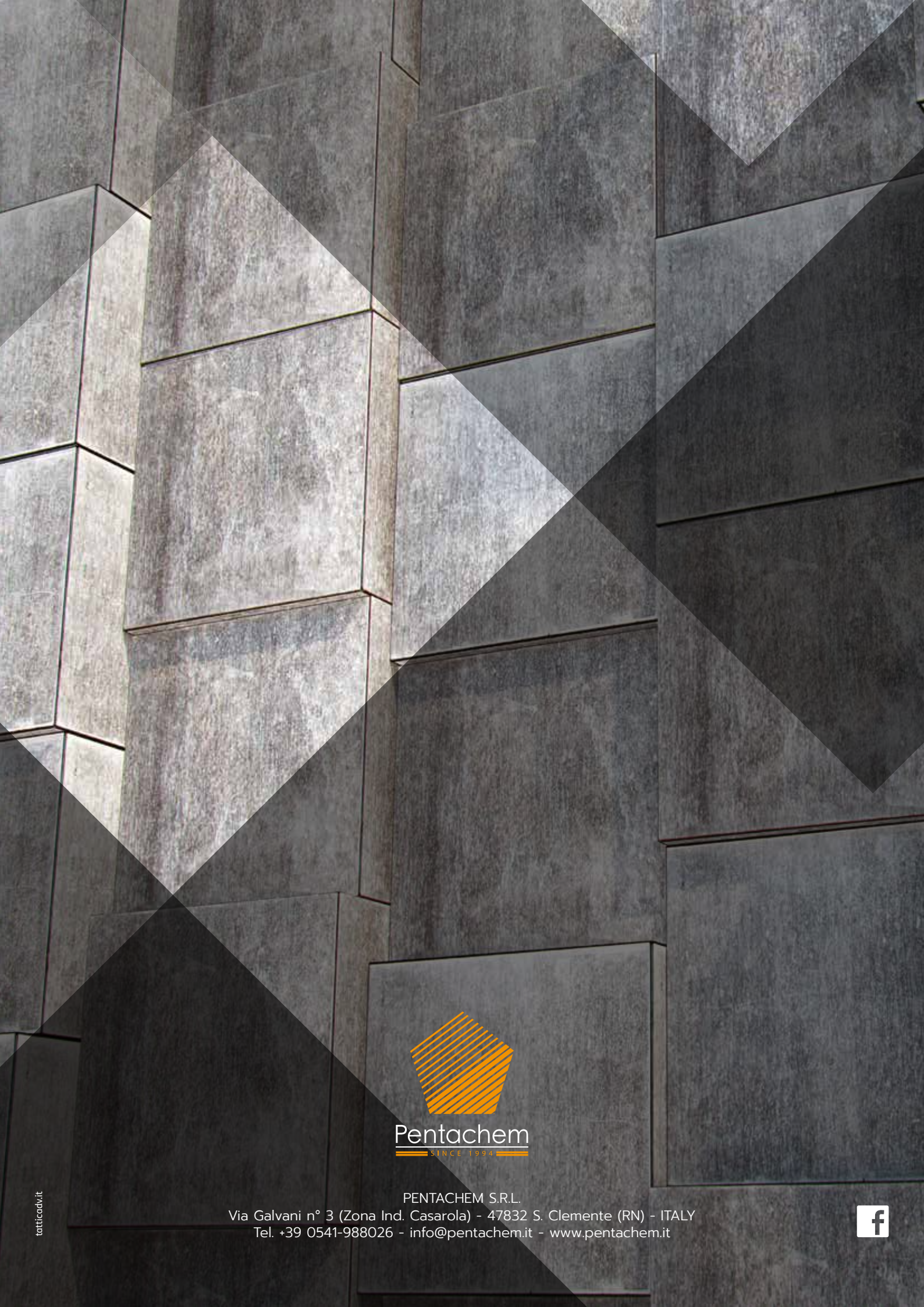
| **GYPSUM BASED** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Plasters | ● | ● | | | ● | ● | | ● | |
| Finishes | ● | ● | | ● | | | | | |
| Putties | ● | ● | | | | | ● | | |

| **HYDRAULIC LIME BASED** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Plasters | ● | ● | | | | | | | ● |
| Skim coatings and putties | ● | ● | ● | ● | | | | | |

○ suggested ● recommanded

r.m. = raw material
add. = additive

# Notes



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