



**Hydrophobization
made easy**



Norac Additive's long-term expertise in the production of metallic stearates combined with Peter Greven's experience in construction industry makes us a strong partner for all your hydrophobization needs.

Because we offer a wide variety of non-reactive, reactive, and combination products, we have the ability to tailor a product to a specific hydrophobization requirement.



Non-Reactive Single Additives

Reactive Single Additives

Combination Products

NON-REACTIVE SINGLE ADDITIVES Metallic Soaps

Metallic soaps are effective hydrophobing agents. They do not react with the components of the building material. The high specific surface area and hydrophobic properties of metallic soaps provide excellent water repellency. They coat the inner surface of the building material providing a barrier against absorbing moisture.

- Immediate hydrophobing effect
- Effective, long-term hydrophobization
- Low interactions with other components
- Various combinations with other additives possible



COAD® 10 / LIGAPHOB CA 10

Produced by continuous COAD® production process this is a calcium stearate characterized by consistent quality and high purity. Calcium stearate is typically the lowest cost option to achieve hydrophobic protection.

LIGAPHOB CA 6 PLUS

This calcium soap is based on special fatty acids which results in outstanding hydrophobing properties. Particularly noteworthy are the low influence on the formation of air voids and benefits during preparation of dry mortar.

LIGAPHOB CA 6 PLUS is recommended for use in mineral plaster and stucco and particularly suitable for restoration plasters.



REACTIVE SINGLE ADDITIVES

Alkaline Soaps

Alkaline soaps are widely known as the most effective hydrophobing agents. Due to their solubility characteristics they act as reactive additives which means that the hydrophobization comes into effect after the alkaline soap reacts with the calcium from the building material forming a calcium soap.



- Highly effective, long-term performance after reaction with building material
- Excellent cold water solubility and improved wetting of the building material
- Outstanding distribution throughout the building material
- Synergistic combinations with other additives possible

LIGAPHOB N 90

LIGAPHOB N 90 sodium oleate is widely used throughout different applications of the building industry. It is characterized by excellent long-term hydrophobization.

LIGAPHOB N 90 PLUS

LIGAPHOB N 90 PLUS is based on a special fatty acid combination which results a considerable improvement over the standard sodium oleate properties. One of its major advantages is the prevention of air pockets within the building material.

As a high-performance product, it is preferably used for applications with more demanding hydrophobic requirements. LIGAPHOB N 90 PLUS provides a lower cost solution in applications where otherwise high levels of silane are required.



COMBINATION PRODUCTS

In order to take advantage of the properties of non-reactive and reactive additives, combination products were developed. They combine short mixing times, fast effectiveness and long-term hydrophobization in one product. Depending on the ratio the advantages of either non-reactive or reactive hydrophobing agents predominate.

- Consistent distribution throughout the building material is guaranteed
- Production process ensures energy efficiency and homogenous product quality
- Suitable for a wide variety of applications due to the combination of non-reactive and reactive elements
- Combinations with other additives possible

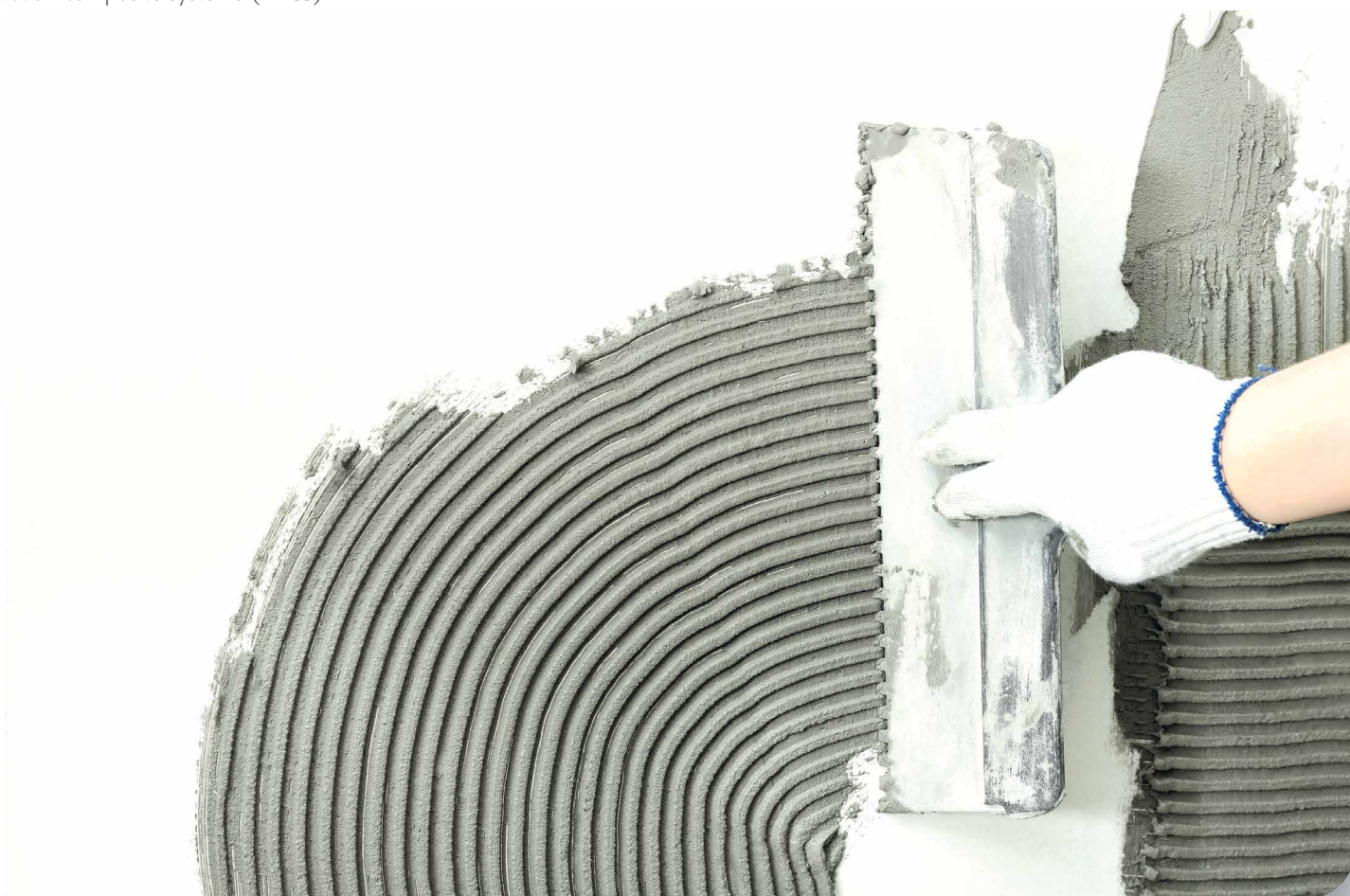


LIGAPHOB CN 50

A well-balanced combination of non-reactive and reactive compounds makes the product useful for a variety of applications. It is characterized by easy distribution throughout the building material while showing only low interaction with other components. These properties make LIGAPHOB CN 50 particularly suitable for external thermal insulation composite systems (ETICS).

LIGAPHOB CN 25

LIGAPHOB CN 25 has a higher ratio of non-reactive to reactive components. It is used to provide a boost to using only a non-reactive product. In particular it is recommended for use in grout.



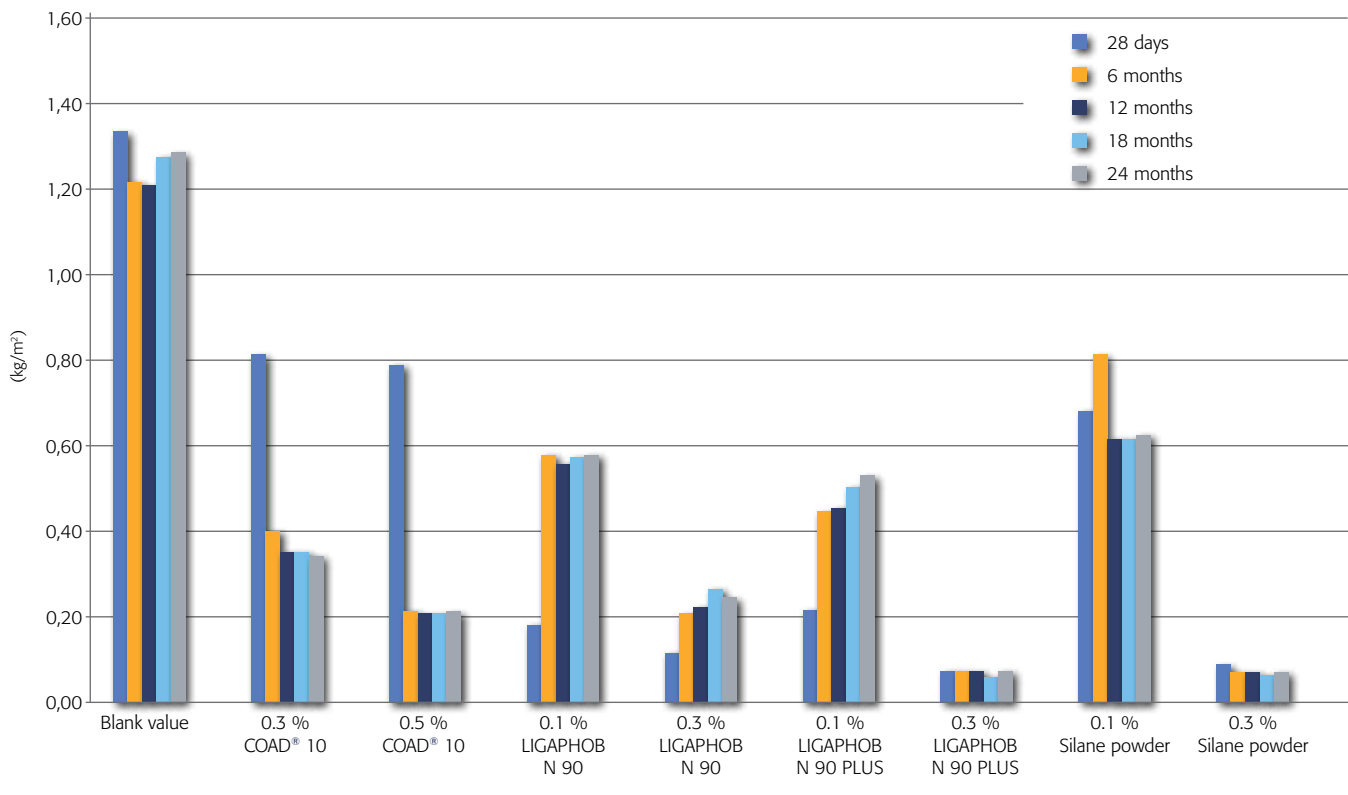
PERFORMANCE DATA Long-term Stability

Calcium stearate and silanes are commonly used hydrophobing agents for construction products. Peter Greven has studied the effectiveness of COAD® 10, calcium stearate, and silanes compared to the reactive products, LIGAPHOB N 90 and LIGAPHOB N 90 PLUS. The study is at the two year mark and is continuing.

The water absorption test is run using standard DIN EN 15148. The first measurement was made at the 28 day mark, according to the standard. The 28 day time period allows time for the test sample to cure.

All of the hydrophobing agents showed significant improvement over the blank. The reactive products have equal or better performance than the silanes at equal treatment levels, but at a lower cost. Calcium stearate at a higher treatment level is more effective than lower levels of silane, at a lower treatment cost.

Figure 1: Total water absoption (w24)



Note: The immediate hydrophobing effect of calcium stearate vs reactive additives is observed in the first days after mixing of the product. By 28 days the reactive product has a better effect than calcium stearate.

APPLICATION RECOMMENDATION

More than one product can be useful in a particular building material. Based on our experience, general recommendations can be made for where a product is most suited. The following table gives recommendations for the products in this brochure.

The formulation of each building material is unique, so these are just general guidelines. Our technical staff can make product recommendations based on your specific formulation.

Product	Mortar	Stucco	Plaster	Grout
COAD® 10 / LIGAPHOB CA 10	***	*	**	*
LIGAPHOB CA 6 PLUS	***	***	***	**
LIGAPHOB N 90	***	**	***	*
LIGAPHOB N 90 PLUS	**	***	***	*
LIGAPHOB CN 50	*	***	**	***
LIGAPHOB CN 25	**	***	**	***

Evaluation scale:

* beneficial ** recommended *** highly recommended





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