STABILIZERS & DISPERSING AGENTS **FOR SILICATE EMULSION PAINTS**

As a leading global chemical manufacturer, ICL's R&D team is continuously developing industrial solutions to manufacture safe, high-quality products for the paints and coatings industry.

ICL developed stabilizers, co-stabilizers and dispersing agents specially designed for silicate emulsion paints.

Impact for a sustainable future

SILICATE PAINTS

Silicate paints only contain mineral binders based on potassium silicate (aka water glass). The high alkalinity of the binding agent inhibits the growth of mold, fungi and algae, thus making it possible to remove in-can preservatives from the formulation.

By intentionally avoiding solvents and plasticizers, silicate paints are not only environmentally friendly, but also ideal for allergy sufferers. Coating longevity is due to the chemical reaction with mineral substrates, known as silicification.

High water vapor permeability ensures that moisture is released quickly and unhindered to the outside.

All these advantages contrast with a challenge in handling as mixing the two component systems is very labor-intensive and requires expert knowledge. As soon as the two components are mixed, the silicification process begins. Therefore, a silicate paint only offers a very small working window, typically 1-2 days.

Silicate paints offer protection against UV radiation, have good water resistance and are resistant to environmental influences such as acids, algae and bacteria.

SILICATE EMULSION PAINTS

The addition of suitable organic binders enables the production of ready-to-use and stable emulsion silicate paints.

For these emulsion silicate paints ICL offers special additives: stabilizers, co-stabilizers and dispersing agents.

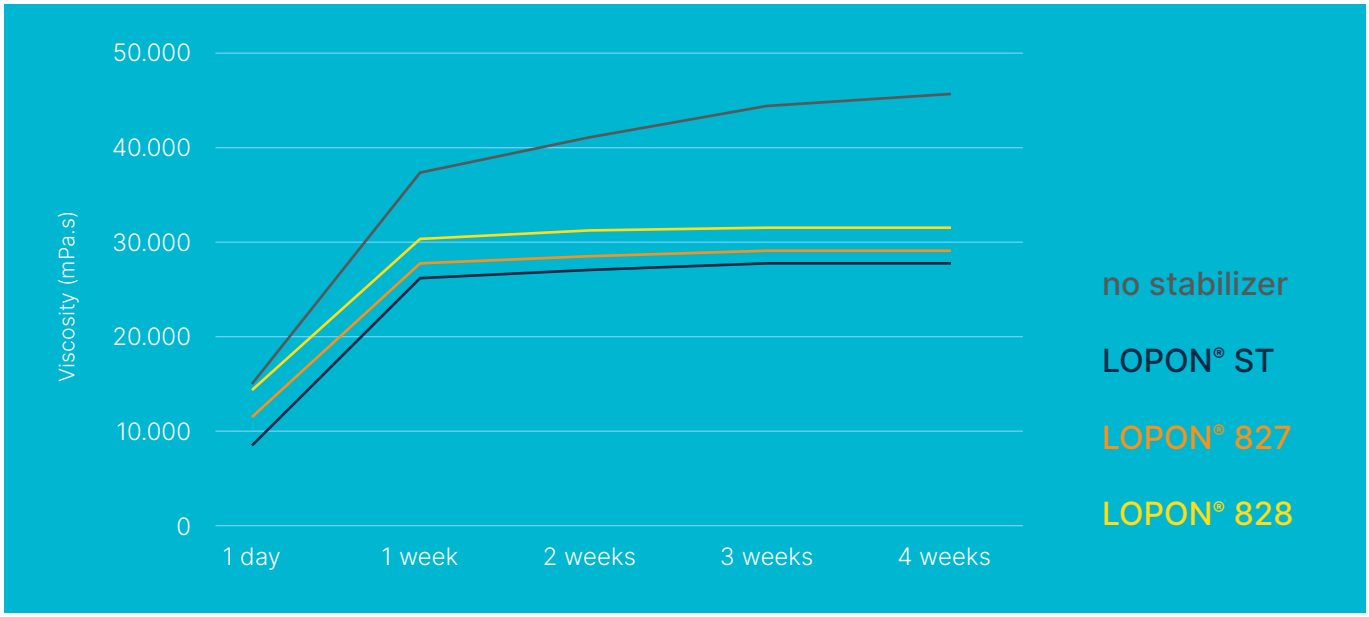
ICL STABILIZERS FOR SILICATE EMULSION PAINTS

ICL has developed highly effective additives that prevent the silicate groups in water glass from building up a polymeric network during storage and thus prevent the paints from thickening.

With our stabilizers LOPON® ST, LOPON® 827 and LOPON® 828, the viscosity of the paint levels off quickly and remains stable over a long period of time.

LOPON® 827 and LOPON® 828 are particularly low in VOC, which makes them attractive for decorative wall paints for indoor living spaces.

Product	VOC
LOPON® ST	~ 8%
LOPON® 827	< 0.1%
LOPON® 828	< 0.1%

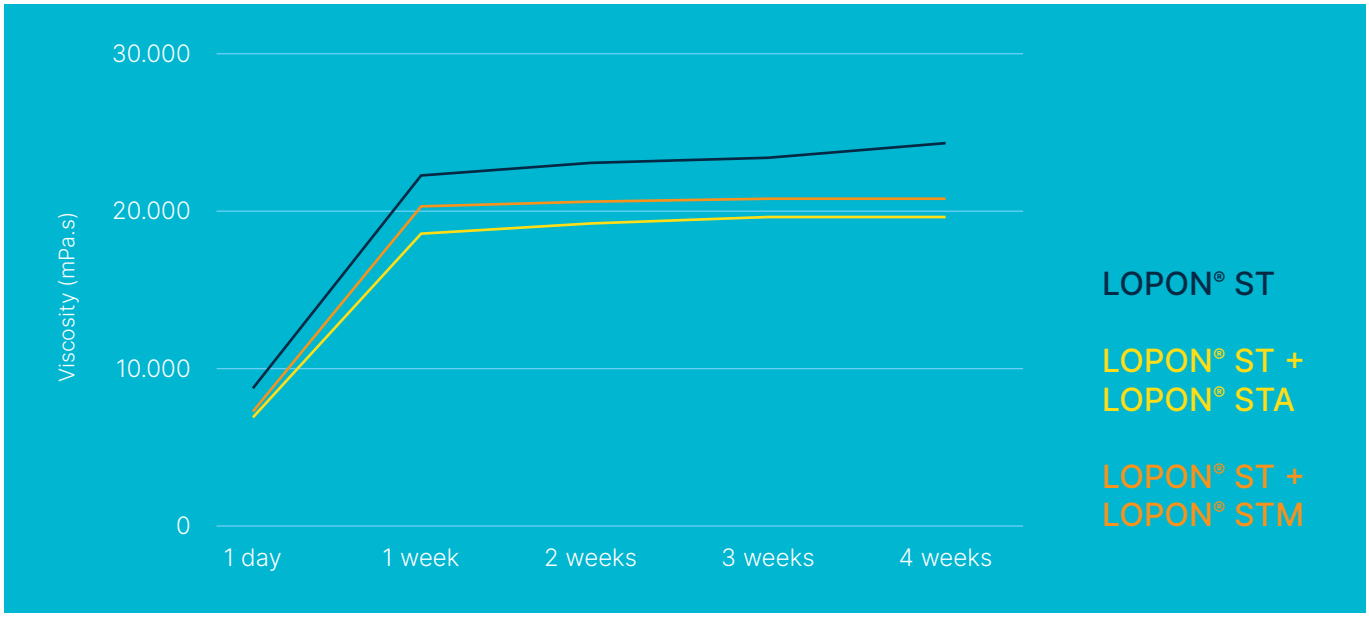


Storage stability of different silicate emulsion paints using styrene acrylic binder. With each of our stabilizers a stable viscosity is reached after a short period of time.

ICL CO-STABILIZERS FOR SILICATE EMULSION PAINTS

To enhance the performance of silicate emulsion paints, co-stabilizers LOPON® STA and LOPON® STM are recommended. Both co-stabilizers can only be used in combination with LOPON® ST, LOPON® 827 and LOPON® 828.

Where conformity to Ecolabel is desired, LOPON® STM is the proper choice as it is EDTA free. Both LOPON® STA and LOPON® STM add additional stabilization and have a positive influence on leveling behavior.



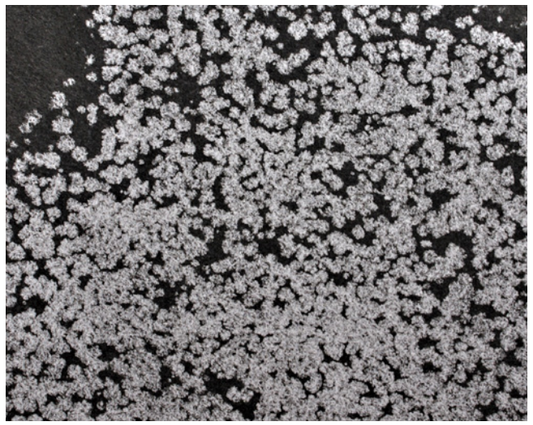
Storage stability of different silicate emulsion paints with additional co-stabilizers. By adding LOPON® STA or LOPON® STM the thickening is further suppressed, and an even lower viscosity is obtained.

DISPERSING AGENTS FOR SILICATE EMULSION PAINTS

With LOPON® DA 201, LOPON® DA 401 and LOPON® 826 ICL developed dispersing agents specially designed for silicate emulsion paints.

This type of ionic dispersing agents contains potassium as cation, this means no further cations are brought into the system.

More important, with potassium polymeric dispersants no efflorescence will be obtained during the drying process like it can happen through the formation of sodium carbonate.



During the drying process of silicate emulsion paints carbonate salts are formed. While sodium carbonate can form white stains (left), potassium carbonate appears colorless (right).

OUR PORTFOLIO

Product	Chemical basis	Solid Content [%]	Solvent	pH value	Dosage [%]	Low VOC	Ecolabel conform
Stabilizer for emulsion silicate paints							
LOPON® ST	Quartenary ammonium compound	~20	water	> 12	0.5-1.0		
LOPON® 827	Tertiary ammonium compound	~20	water	10-12	0.5-1.0	✓	✓
LOPON® 828	Tertiary ammonium compound	~30	water	11.5-13	0.5-1.0	✓	✓
Co-Stabilizer for emulsion silicate paints							
LOPON® STA	Preparation with EDTA	~50	water	> 13	1.5		
LOPON® STM	Preparation, EDTA free	~50	water	> 13	1.5		✓
Dispersing agents for emulsion silicate paints							
LOPON® DA 201	Potassium polyacrylate - low molecular weight	40-45	water	7.8	0.2-0.5	✓	✓
LOPON® DA 401	Potassium polyacrylate - middle molecular weight	40-45	water	7.8	0.2-0.5	✓	✓
LOPON® 826	Preparation	52-54	water	> 13	0.2-0.5	✓	✓

FURTHER PRODUCTS

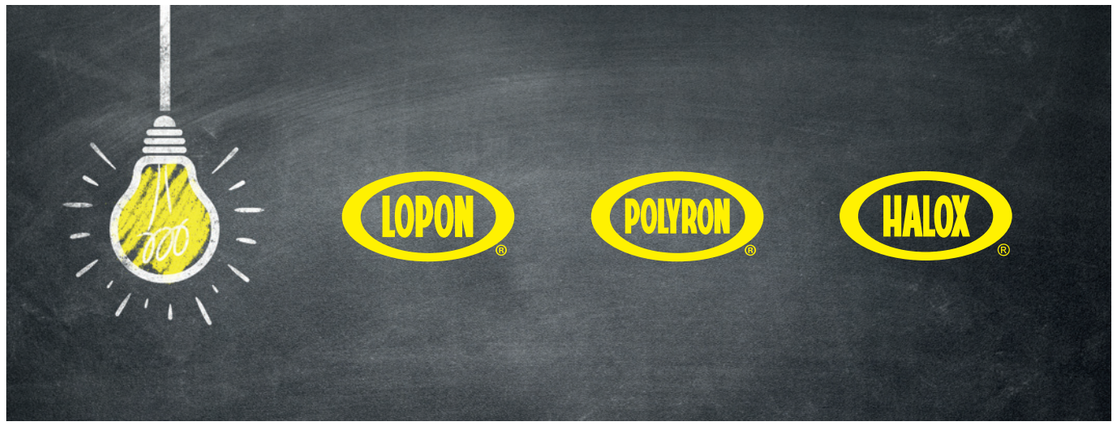
In addition to stabilizers for silicate emulsion paints, we also offer **dispersing agents and defoamers** under the brand names, **LOPON®** and **POLYRON®**. We would be glad to advise you here as well.

You can find our versatile additive selection for the construction industry under the brand name **TARGON®**.

ICL also has an extensive portfolio of organic and inorganic corrosion inhibitors as well as flash rust inhibitors. The **HALOX®** product line is supplemented by tannin stain inhibitors.

For more information please visit our website **www.halox.com** or contact us directly at **coatings@icl-group.com**

We look forward to helping you!



This information is based on our present state of knowledge and is intended to provide general notes on our products and their uses. It should not therefore be construed as guaranteeing specific properties of the products described or their suitability for a particular application. No legal liability shall be derived from it. Any existing industrial property rights must be observed. The quality of our products is guaranteed under our terms and conditions.

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