



Stabilizers & Dispersing Agents for Silicate Emulsion Paints

As a leading global chemical manufacturer, ICL's R&D team is continuously developing innovative solutions which enable the manufacturing of sustainable, high-quality paints and coatings.



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

What are Silicate Paints?

Silicate paints offer protection against UV radiation. They are resistant to water and other environmental factors such as acids, algae and bacteria.

Silicate paints contain mineral-based binders made from potassium silicate (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.

Due to the silicification process (a chemical reaction with mineral substrates), silicate paints provide a durable,

long-lasting coating. Along with longevity, their high water vapor permeability ensures that moisture is released quickly and unhindered to the outside. The advantages come 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.

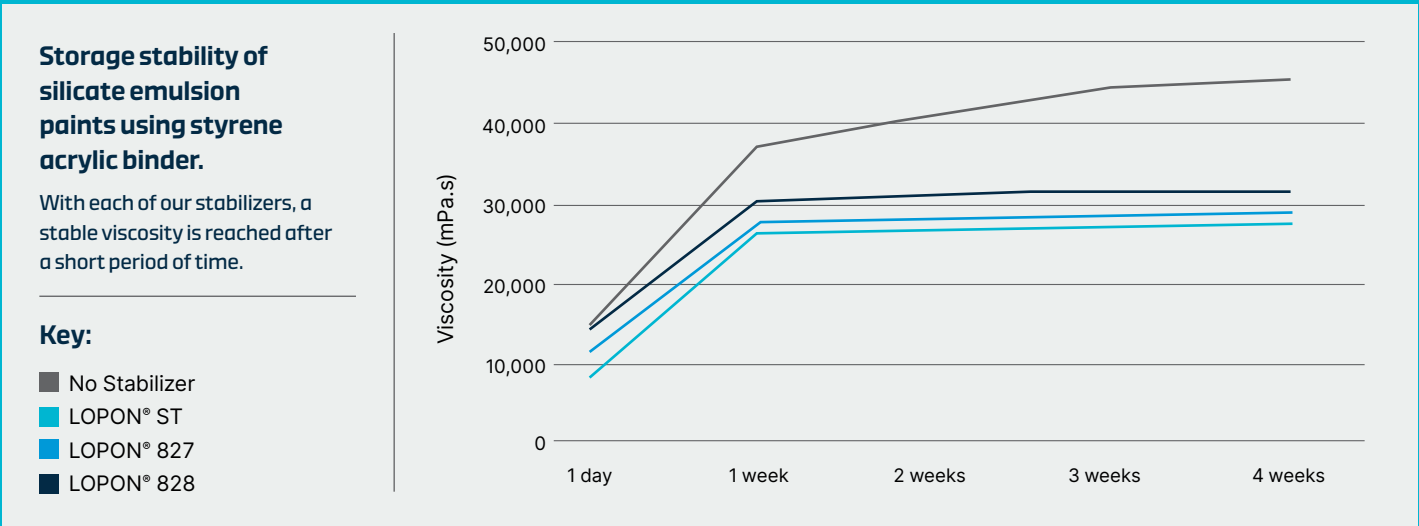
Stabilizers for Silicate Emulsion Paints

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

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

With 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 ideal for decorative wall paints for indoor living spaces.

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



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.

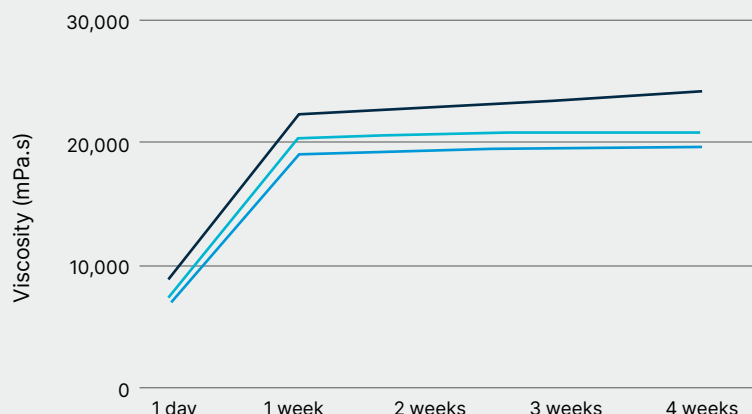
Where conformity to Ecolabel is desired, LOPON® STM is the proper choice as it is EDTA-free. Both LOPON® STA and LOPON® STM add additional stabilization and have a positive influence on leveling behavior.

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.

Key:

- LOPON® ST
- LOPON® ST + LOPON® STA
- LOPON® ST + LOPON® STM

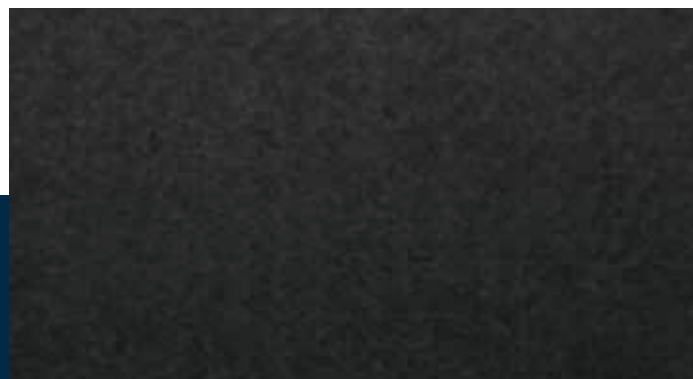
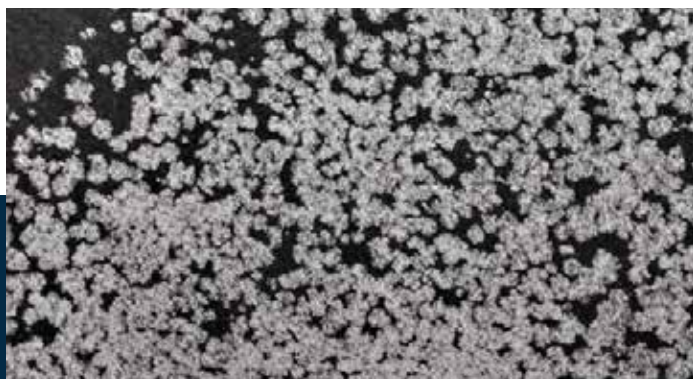


Dispersing Agents for Silicate Emulsion Paints

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

This type of ionic dispersing agent contains potassium as cation, meaning no further cations are brought into the system.

More importantly, with potassium polymeric dispersants, no efflorescence will be obtained during the drying process as it can 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

Products	Chemical Basis	Solid Content (%)	Solvent	pH Value	Dosage (%)	Low VOC	Ecolabel Conform
Stabilizer for Emulsion Silicate Paints							
LOPON® ST	Quaternary 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	✓	✓





REACH



ICL is one of the world's leading fertilizer and specialty chemicals producers committed to fulfilling humanity's ever-evolving needs. Our major production activities are located in Israel, Europe, the US, South America and China, and are supported by major global marketing and logistics networks.

Our Commitment: Successful relationships begin at the product development planning stage and extend through plant trials and product launch. Customers come to us with challenges, and we are dedicated to providing them with solutions. For manufacturers who rely on quality coatings, ICL offers proven performance, long-term corrosion and tannin stain protection, and protection of the world around us.

Technical Service: Our technical support capabilities allow us to help customers achieve better products. We are committed to building our product portfolio and continually exploring and expanding the frontiers of today's coatings technologies. This includes delivering timely assistance on coating formulation questions, aiding formulators in achieving total system compatibility and identifying an optimum inhibitor package to address individual cost and performance targets. We take the problem, analyze the parameters, work jointly with company product experts and create solutions that exceed customer expectations.

Quality / REACH Statement / Responsible Care: As a responsible international supplier of specialty chemicals, ICL is committed to advancing the principles of sustainability in the industries in which we operate. We incorporate quality, health, safety and environment management systems into all phases of the chemical life cycle. We pledge continuous improvement to provide the highest quality of products while protecting the safety of our people, our business partners, and the environment.

ICL is ISO 9001, ISO 14001:2004 and RC 14001:2014 certified. We are committed to our Responsible Care® initiatives and are consistent with the Responsible Care® code of Product Stewardship. We remain fully engaged in the implementation of the European Union's Registration, Evaluation, Authorization and Restriction of Chemicals legislation (REACH). The impact it will have on the future availability of chemicals is of vital importance for ICL, our customers and the entire global chemical industry.

To learn more, visit: www.halox.com

techservice@halox.com | +49 6203 77 0 (International) | +1 (219) 933-1560 (US)

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. © 2023 ICL Specialty Products Inc. All rights reserved. All information is protected under international copyright conventions. BK Giulini is a wholly owned subsidiary of ICL Group. **ICL HALOX 0224**

Additional Product Lines

HALOX®: An extensive portfolio of organic and inorganic corrosion and flash rust inhibitors, supplemented by tannin stain inhibitors.

LOPON® & POLYRON®: Dispersing agents and stabilizers specially formulated for silicate and biocide-free paints.

TARGON®: Versatile additives for the construction industry.