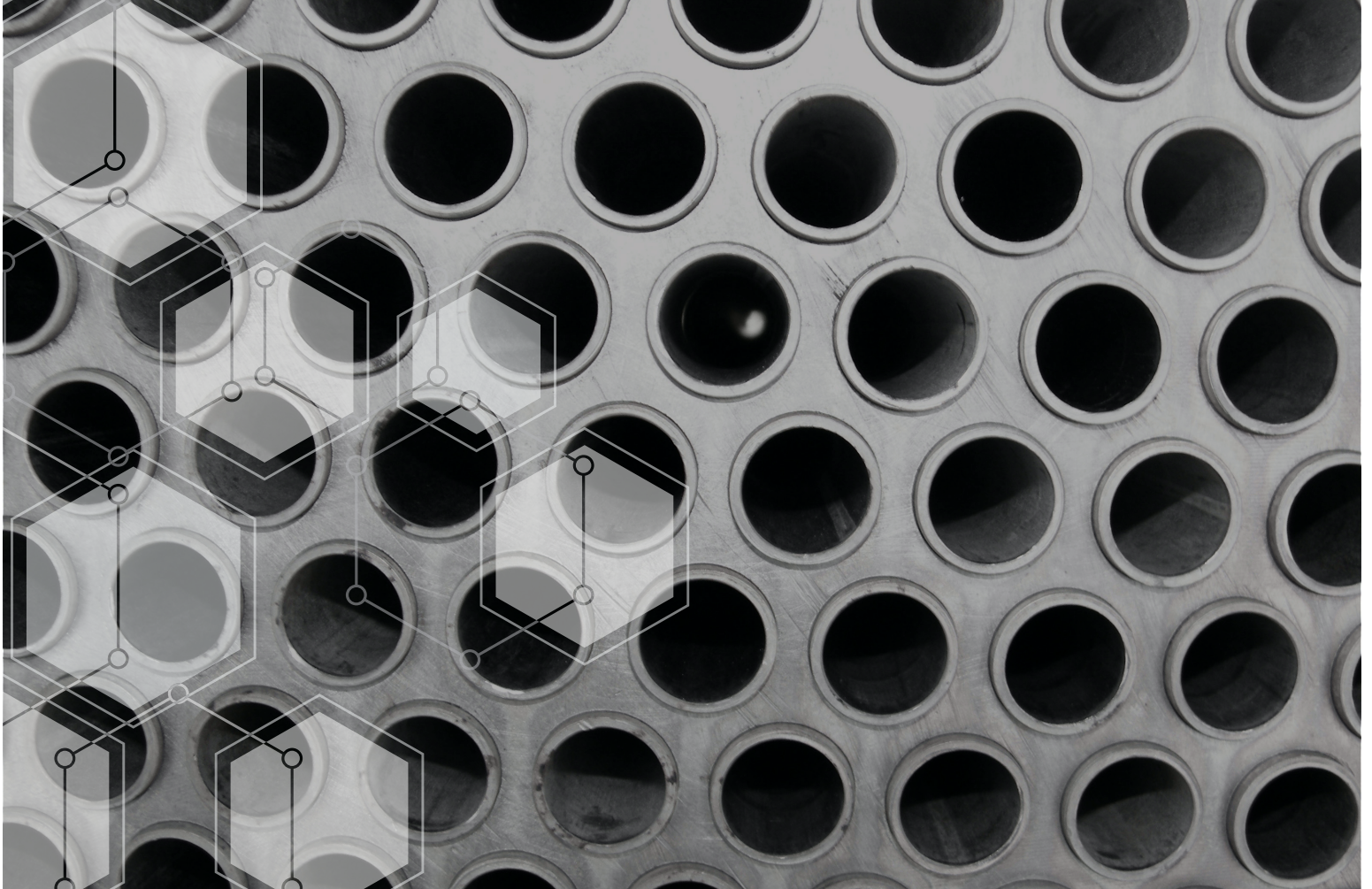


PARATENE® S1

Non-Toxic Silicate Dissolver

A safer, environmentally friendly and biodegradable alternative to hydrofluoric acid (HF).

CleanHarbors®





Let us clean your scale!

Why do we need silicate scale dissolver?

Wherever silicate scale is present, its removal is crucial due to the fact that it decreases thermal conductivity and fluid flow rates. The accepted “industry standard” for dissolving a silicate deposit is HF. Although, this approach is effective, it also requires meticulous attention to issues such as hazard potential (generation of HF in-situ) and acid-driven metallic corrosion (since cleanings must be done at low pH).

Paratene® S1

Solutions of hydrofluoric acid (HF) are highly corrosive and extremely toxic, often not showing symptoms until irreparable damage has occurred. In comparison, Paratene® S1 is a safer, environmentally friendly and biodegradable alternative, which is easy to use in the field.

Features of Paratene® S1

- Effective
- Non-flammable
- Non-toxic
- Easy to handle and dispose
- Water soluble

Standing up to toxic HF

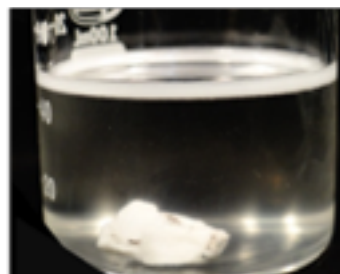
Paratene® S1 was tested and compared to various solvents including Hydrofluoric acid (HF) and Caustic Soda (NaOH) on various samples acquired from refineries and pulp mills.

Although HF is effective on simple silicates, such as those observed in samples 1 and 2, where significant Ca^{2+} ions are present the F- ions are sequestered and the dissolution is limited, as is the case in sample 3. Therefore, Paratene® S1 is the ultimate solvent to be used against silicates, particularly where divalent ions, such as Ca^{2+} and Mg^{2+} are prevalent.

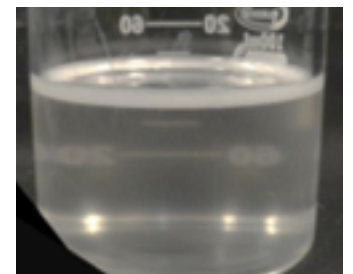
Case Study

Pulp & Paper Mill (Sample 1)

At conditions : 24 h and 70°C

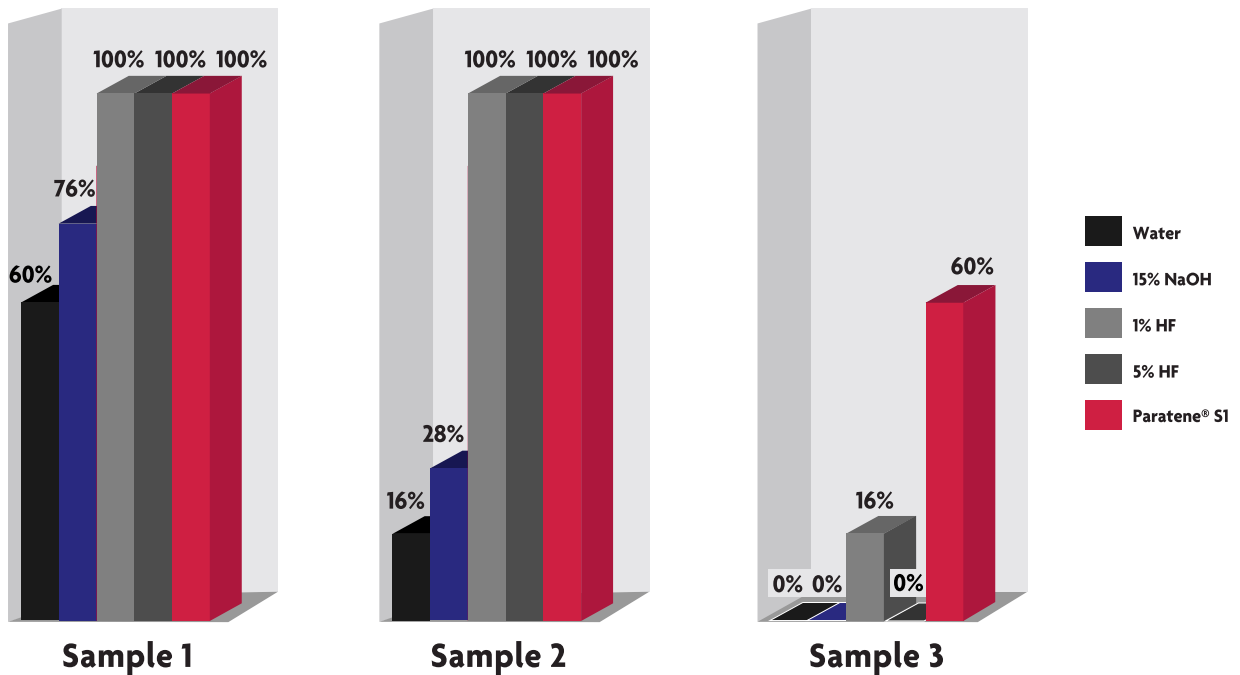


Initial photo of the sample in 7% Paratene® S1 and 15% NaOH



Final photo of the sample being entirely dissolved

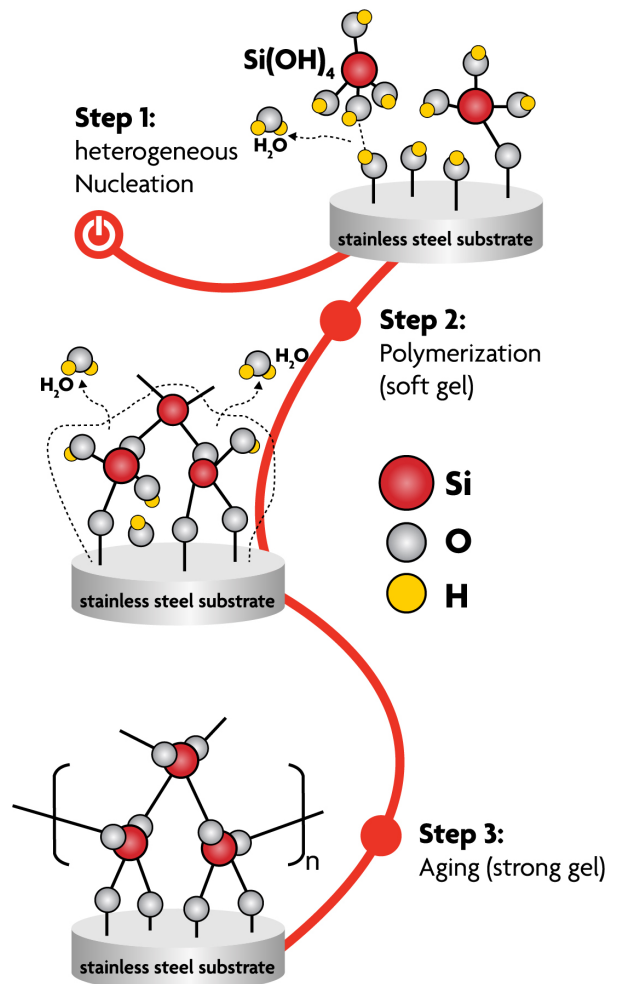
Dissolution of scale samples in different blends



How does silica form?

Silica formation is complicated and not understood until today.

Scaling in industrial water systems is caused by the precipitation of sparingly soluble salts dissolved in the feed water. During water system operation, the deposition of these salts will cause scaling.





PARATENE® SI **Non-Toxic Silicate Dissolver**
Clean Harbors, Inc.

15715 121A Ave NW, Edmonton, AB T5V 1B1, Canada

www.paratene.com

www.cleanharbors.com

+1 (780) 451-6969