

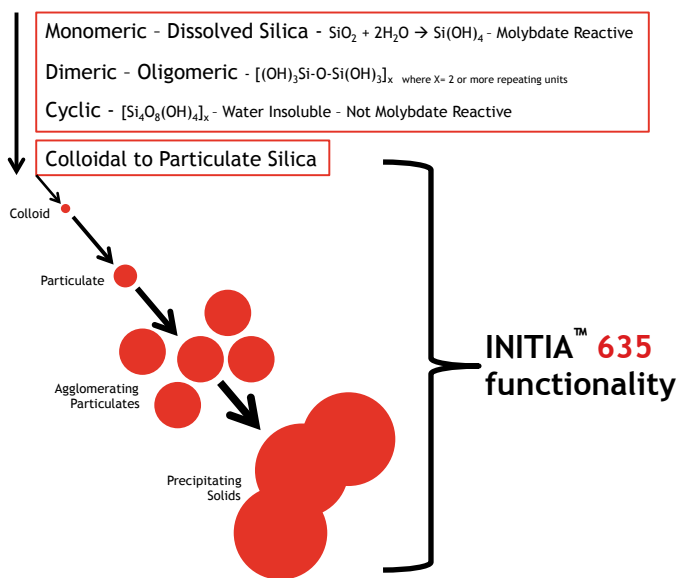
# INITIA™ 635

## silica and silicate stabilization

INITIA™ 635 is a product designed for control of silica and metal silicates in industrial water applications such as cooling water, reverse osmosis, and geothermal systems. INITIA™ 635 contains functional groups that are selected to specifically associate with polymerizing silica to stabilize forming colloids and reduce formation and bulk precipitation of large particulate silica precipitates.

The formation of silica and metal silicates and eventual development of deposited scale occurs via a multi-step process. This process is illustrated in figure 1. It can be observed that dissolved silica begins to form oligomers, which grow into amorphous polymers of SiO<sub>2</sub>. Such amorphous silica polymers are initially colloidal suspensions that transition into particulates that eventually form deposited scale.

figure 1: silica formation schematic



## specifications

appearance	slightly hazy amber liquid
solids content	46-51%
pH (as is)	<2.50
density at 20° C	1.18 ± 0.04 g/ml
solubility in water	complete
residual monomer	<0.1%

Silica and silicate scale can be particularly troubling for water treatment service companies as its occurrence is not limited to heat transfer surfaces and removal normally involves either exhaustive mechanical cleaning or use of exceptionally hazardous chemicals such as hydrofluoric acid.

INITIA™ 635 is designed to specifically act as a colloidal stabilizer and particulate dispersant for silica and metal silicates such as magnesium or calcium silicate. INITIA™ 635 is believed to adsorb onto forming silica oligomers and polymers to help reduce larger particulate formation and associated bulk precipitation that results in scale formation.

The control of other mineral scales is particularly important when attempting to control silica and metal silicates. Over the past several decades, field professionals have routinely observed silica and silicate precipitation and deposition that was induced by other scales such as calcium phosphate, calcium carbonate, and/or iron oxides and hydroxides.

INITIA™ 635 is specifically designed to provide effective control for common co-foulants, which can prematurely induce the precipitation and particulate formation of silica and metal silicates.

## INITIA™ 635

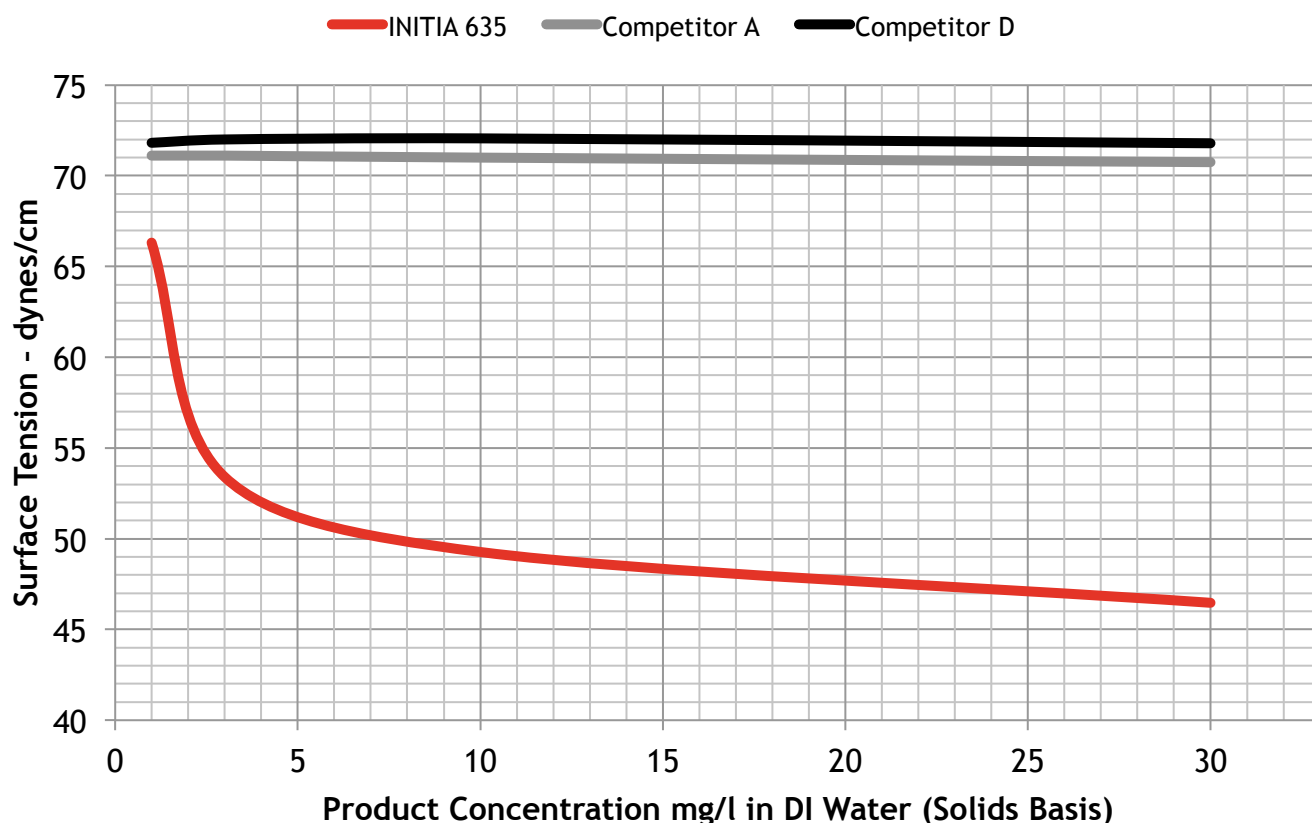
specificly designed to associate with silica and metal silicates

multi-functional properties for control of co-foulants

effective control of colloids, particulates, and solids

## hydrophobic particulate interaction

INITIA™ 635 is engineered to have a significant functional effect upon surface tension and wetting. It is believed that this property of the INITIA™ 635 provides the basic functional mechanism which allows the material to effectively interact with the highly hydrophobic surfaces observed on polymeric silica and metal-silicate crystalline salts. In order to demonstrate this property, INITIA™ 635 was evaluated versus industry leading silica inhibitors available from two primary suppliers of water treatment additives. The results show INITIA™ 635 to clearly have increased functionality in the reduction of the surface tension of water under common product dosage concentrations.



## safety use and handling

Consult the Safety Data Sheet (SDS) for further information regarding the safe handling and use of INITIA™ 635. This product should be stored in a cool/dry place and must be protected from freezing. Avoid storage at high temperatures (>90°F), direct sunlight, and exposure to surface, airborne or other common environmental contaminants such as debris, bacteria, yeast, and mold.



56 north crest road  
chattanooga, tn 37404  
+1 423.316.9877  
[www.radicalpolymers.com](http://www.radicalpolymers.com)

IT IS THE RESPONSIBILITY OF THE BUYER TO INDEPENDENTLY DETERMINE SUITABILITY OF THE SELLER'S PRODUCTS FOR BUYER'S USE. Buyer agrees that Seller will not have control over the design, testing or labeling of any product produced using Seller's Products, and that Buyer is not relying on any representation or statement made by, or on behalf of, Seller with respect to the suitability of any Product for any purpose, or on any advice, recommendation or information obtained from Seller's product literature or web sites, including any design aid or other service made available by Seller. Buyer has tested and investigated the Products enough to form an independent judgment concerning their suitability for the use, conversion or processing intended by Buyer and will not make, and hereby waives, any claim against Seller based on Seller's advice, statements, information, services or recommendations.