

# INITIA® 310

High Purity Sulfonated Copolymer

## overview

INITIA® 310 is a high actives and high purity sulfonated copolymer that is effective for control of calcium phosphate and iron and is highly effective for the dispersion of silt, sludge and other inorganic particulates in process water applications. INITIA® 310 is extremely effective for cooling water applications where phosphate, iron, and general scale and solids control are required. Additionally, INITIA® 310 can be utilized for iron transport, sludge conditioning, and solids control in low to medium pressure boiler water applications. INITIA® 310 complies with 21 CFR 173.310 for boiler water additives where steam may contact food and has been independently verified to be compliant with TSCA, NSF® G5, G6, G7 and Kosher requirements.

## typical properties

appearance	Slightly hazy, colorless / straw liquid
total solid content	47.0-49.0%
pH (as is)	2.5 – 4.0
Brookfield viscosity at 25° C	400 - 1,400 cPs

## INITIA® 310 DELIVERS

- highly effective control of calcium phosphate scale
- exceptional stabilization of transition metals
- superior dispersion of inorganics such as iron oxides, hydroxyapatite, and sludge
- outstanding thermal and hydrolytic stability

## SUGGESTED APPLICATIONS

- cooling towers
- boilers (<600 psi)
- industrial reverse osmosis
- mining
- oilfield and natural gas



**radical polymers**®

Radical Polymers 4138 South Creek Road, Chattanooga, TN 37406  
+1 423.316.9877 | www.radicalpolymers.com

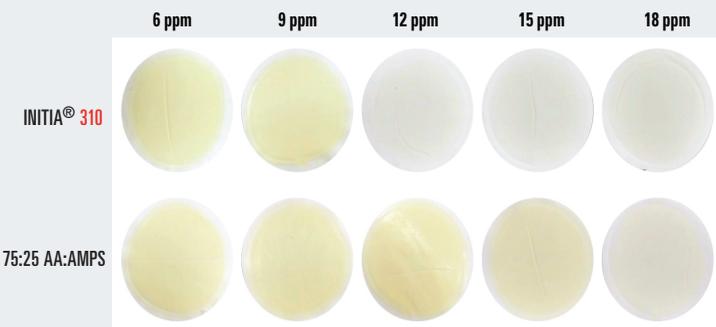
CONTINUED ON BACK

## regulatory compliance

<b>FDA</b>	Independently verified to comply with 21 CFR 173.310 Preparation of steam that will contact food. Total not to exceed 20 parts per million (active) in boiler feed water.
<b>TSCA</b>	Independently verified as a substance is listed on public portion of the TSCA Inventory, and is not currently subject to any chemical-specific rules or orders under sections 4, 5 or 6 of TSCA.
<b>NSF® G5</b>	Cooling and retort water treatment products- all food processing areas. Acceptable for treatment of cooling and retort water (G5) in and around food processing areas.
<b>NSF® G6</b>	Boiler treatment products – all food processing areas/food contact. Acceptable for treating boilers or steam lines where steam produced may contact edible products and/or cooling systems where the treated water may not contact edible products in and around food processing areas (G6)
<b>NSF® G7</b>	Boiler treatment products – all food processing areas/food contact. Acceptable for treating boilers, steam lines, and/or cooling systems (G7) where neither the treated water nor the steam produced may contact edible products in and around food processing areas.
<b>Kosher</b>	Produced under the Orthodox Rabbinical Supervision of the Atlanta Kashruth Commission and are accordingly Kosher and Pareve

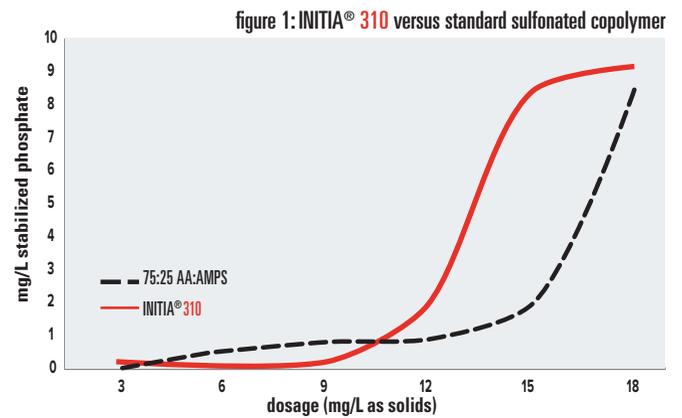
## iron stabilization

The increased level of sulfonate functionality in **INITIA® 310** and optimized molecular weight are key design characteristics for effective stabilization of transition metals such as iron. **INITIA® 310** was evaluated for iron stabilization using 2 ppm Fe<sup>2+</sup> at 70 °C for 18 hours.

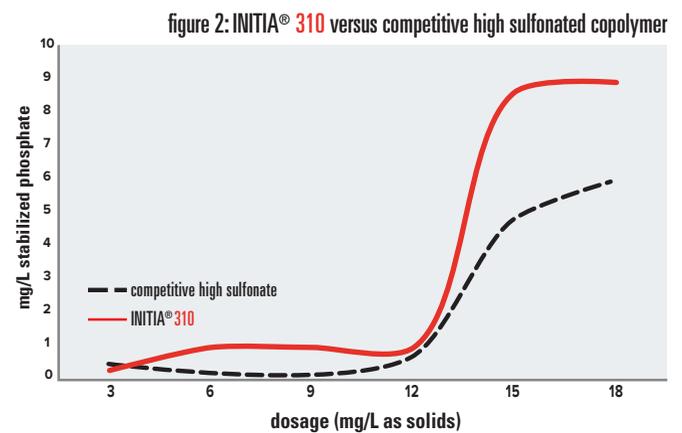


## calcium phosphate stabilization

**INITIA® 310** contains a high level of sulfonate functional groups which provide more effective stabilization of calcium phosphate than competitive polymers. Compared to standard copolymers, **INITIA® 310** contains 80% more sulfonate functionality. This is evidency by comparative phosphate stabilization laboratory tests as shown in figure 1.

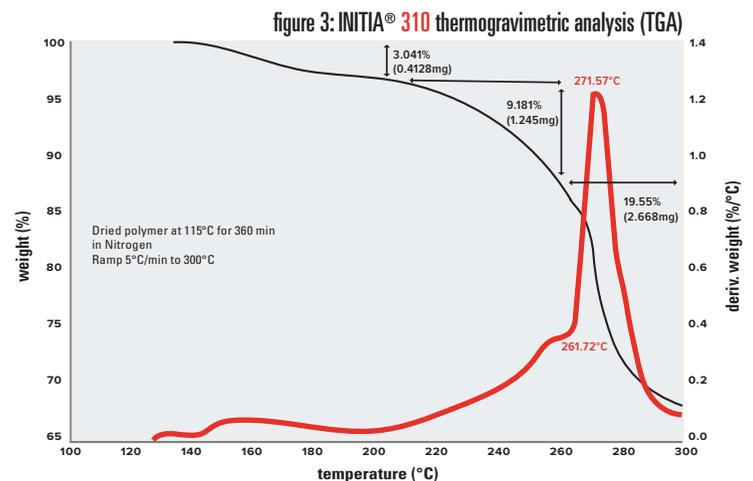


Further, **INITIA® 310** is produced by a process that yields a high purity and active polymer. Because of this, **INITIA® 310** yields improved performance versus polymers that also contain high levels sulfonate functional groups. Figure 2 below shows **INITIA® 310** compared to a competitive polymer with the same molar concentration of sulfonated monomer but with lower activity and purity.



## thermal stability

**INITIA® 310** is an effective tool for use in boiler applications for iron transport, hydroxyapatite control, and general solids dispersion. **INITIA® 310** was evaluated using Thermogravimetric analysis (TGA) to demonstrate the thermal stability of the polymer. Figure 3 shows that **INITIA® 310** substantially retains its integrity up to 270° C which equates to about 800 psi in boiler applications. Based upon traditional uses of similar copolymers, it is recommended that the use of **INITIA® 310** is limited to 600 psi or below.



## safety use and handling

Consult the Safety Data Sheet (SDS) for further information regarding the safe handling and use of **INITIA® 310**. 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.

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.

©2019 RADICAL POLYMERS, LLC  
ALL RIGHTS RESERVED  
TDS 310-09042019