

# Versa-TL 4

## Sulfonated styrene maleic acid copolymer

Designed for use in chemical treatment of boilers and cooling towers, prevents the build up of scale and sludge

### Specifications

Color	≤ 8 (1963) Gardner
pH	6.5-8
Solid content	24-26 %
Sulfur, as is	2-4 %
Viscosity	20-40 cps

#### Notes:

Typical Data are based on our own measurements or derived from the literature. They do not constitute part of the delivery specification.

## Applications

The performance of VERSA-TL 4 was demonstrated in a 250 psi industrial boiler with a history of extreme sludge problems. The plant had four boilers each rated at 35,000 lbs. per hour, steam generation. The feedwater was composed of softened water and return condensate. The quality of the feedwater was controlled, but occasionally changed rapidly, when the demand for water in the plant was high. When this surging occurred, the capacity of the zeolite softener system was exceeded. The hardness in the feedwater increased to as high as 100 ppm (80 ppm calcium and 19 ppm magnesium) contributing to the sludging problems. The sludge was soft and sticky. All feed water was deaerated to 20-40 ppb of oxygen. Chemical treatment included sodium hydroxide, sulfite and phosphate. Conductivity was monitored and maintained below 2600. Blowdown throughout the operating period was maintained at 10-12%. Treatment of the water using sodium lignosulfonate showed no promise. Addition of sodium carboxymethyl cellulose (CMC) or sodium acrylate at 2-5 ppm showed some tendency to reduce the scale but the heavy sludge remained a problem. From the elemental analysis of the sludge, it appeared to be composed of silicate, iron oxide, hydroxyapatite and magnesium hydroxide as the predominant components and a low concentration of copper oxide. Since none of the common additives were effective it was decided to try the VERSA-TL 4. One of the boilers was treated with 3 ppm of VERSA-TL 4 while a second boiler was maintained on 5 ppm of sodium acrylate. All conditions remained comparable. Immediately after the start of the feed of the VERSA-TL 4, the suspended solids visibly increased in the boiler water. After two months of operation, both boilers were shut down and were opened for inspection. The examination revealed that the boiler treated with sodium acrylate had shown no improvement and had about 1/16 of an inch of soft sticky sludge throughout the boiler. On the other hand, the VERSA-TL 4 treated system not only kept the boiler sludge free, but re-dispersed the old sludge that was in the system when the treatment was initiated. The generating tube ends, the steam and mud drum walls were free of sludge. Iron control in systems up to 1,000 psi. Ultra high temperature stable deflocculants for contaminated and high density salt muds. Excellent dispersant for stressed conditions, anti-static agent.

## Additional information

1. Effective sludge dispersant.
2. Effective scale control.
3. Effective at low feed levels.
4. Effective with calcium and magnesium scale.
5. Dispersant for iron oxide.
6. Lowers chemical treatment cost.
7. Maintains efficiency of heat transfer.
8. Compatible with most commonly used water treatment chemicals.
9. Highly anionic.
10. Thermally stable.
11. Chemically stable.
12. Low order of toxicity.

VERSA-TL 4 is provided as a 25% solids solution to eliminate the need for dissolving and to facilitate feeding to systems being treated. Feed rates can be controlled by common metering systems.

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