



Cost-effective
heavy metal removal
and chelated metals
precipitant



Aquamet® T

Nouryon



Aquamet T sodium trithiocarbonate

Aquamet T is a sodium trithiocarbonate designed as an efficient metal precipitant. This product offers a cost efficient metal precipitation and has lower aquatic toxicity when compared to dithiocarbamate products.

Features and benefits

- Cost effective metal removal
- Precipitates complexed or chelated metals
- Lower aquatic toxicity than some dithiocarbamates
- Effective against all multivalent metal ions
- Reduces Chrome +6 to chrome +3 for precipitation
- Produces dense sludge
- Produces a low volume of sludge
- Forms easily dewatered, high solids sludge
- Functions over a wide range of pH and temperature
- Easily monitored by oxidation reduction potential

Technical properties

Aquamet T	Sodium trithiocarbonate
Solids, wt%	25
pH, as is	13.2
Density	1.2
Weight (lbs./US gallon)	9.8
Color	Clear red

Metal removal

Aquamet T reacts stoichiometrically with heavy metals in solution. Table 1 lists the active pounds of Aquamet product required to precipitate one pound of metal.

Table 1: Pounds active per pound of metal

Metal	Aquamet T	Aquamet E	Aquamet M
Cd ²⁺	1.4	3.0	2.5
Co ²⁺	2.6	5.8	4.9
Cr ³⁺	4.4	9.9	8.3
Cu ²⁺	2.4	5.4	4.5
Fe ²⁺	2.8	6.1	5.1
Hg ²⁺	0.8	1.7	1.4
Ni ²⁺	2.6	5.8	4.9
Pb ²⁺	0.7	1.7	1.4
Zn ²⁺	2.6	5.8	4.8

Figures 1, 2 and 3 demonstrate removal rates of metal from water. These results were obtained by measuring the residual metal in solution by atomic adsorption after filtration. For two of these metals; copper and nickel, a point is obtained where metal removal has stopped, and it appears that these metals are resolubilizing. At this point, the precipitate particles are forming at colloidal size and pass through the filter medium. This issue may be corrected by adding a small amount of flocculant, such as alumina.

Figure 1: Copper removal with Aquamet T (50 ppm copper)

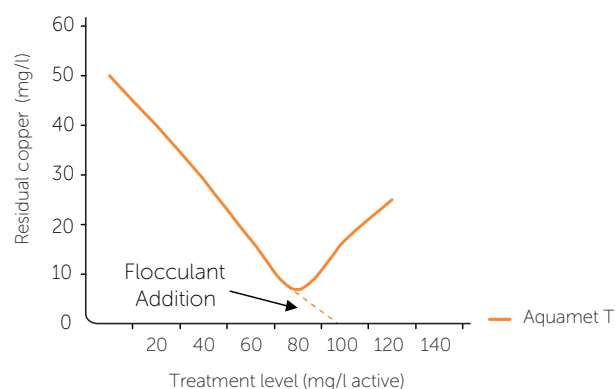
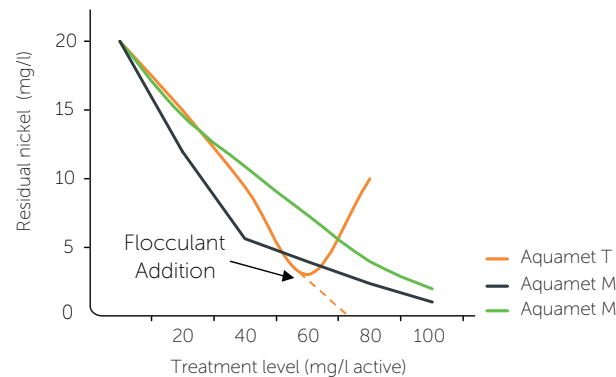
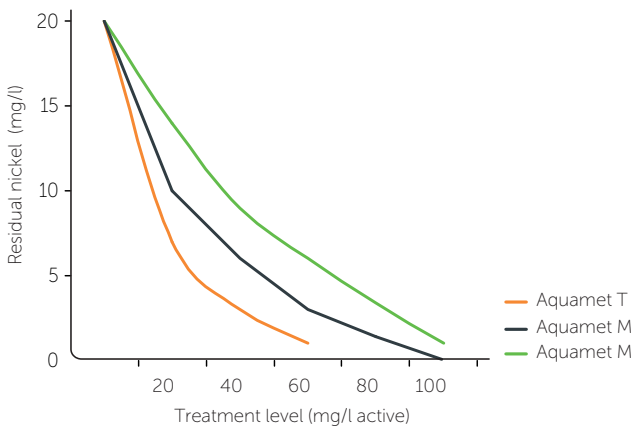


Figure 2: Nickel removal with Aquamet T, E and M (20 ppm nickel)



Aquamet T sodium trithiocarbonate produces low volumes of dense sludge that can be dewatered easily.

Figure 3: Zinc removal with Aquamet T, E and M (20 ppm zinc)



The Aquamet products will have a nearly stoichiometric reaction with solubilized heavy metals, while the reaction of chelated metals with the Aquamet line is not stoichiometric, but it is predictable. The Aquamet products will form an insoluble precipitate with both complexed and chelated metals. This precipitate may be removed by filtration, for disposal or recovery. Hence, it is advised to consider all three of the Aquamet products to determine the best product for your service.

Sludge disposal

Sludge disposal is an important factor in metal precipitation of waste water. The Aquamet products produce a sludge that weighs less per unit of metal, and is much lower in volume than common treatments of hydroxide and sulfide precipitation.

Aquamet T generates lower sludge volumes compared to Aquamet M or Aquamet E respectively (Table 2).

Table 2: Aquamet metal precipitation (sludge generation)

Precipitate per pound of Cu	Weight (lbs)	Volume (gals.)
Aquamet T	3.6	0.5
Aquamet E	5.9	0.7
Aquamet M	4.3	0.9



Packaging / weight

Aquamet T sodium trithiocarbonate is supplied in 55-gallon drums with a net weight of 525 pounds.

Storage and handling

This material should be shipped and stored in stainless steel, fiberglass or polyethylene. Certain phenolic linings are acceptable for bulk storage. Mild steel, copper, brass, and aluminum are not acceptable for storage or handling.

Aquamet T may be decomposed by acidification. This process will generate hydrogen sulfide, thus this acidification must be done in well ventilated areas.

Aquamet T exhibits toxicity to aquatic species and should not be discharged directly into the water supply (Table 3).

Table 3: Aquamet product aquatic toxicity LC50 as product, ppm

	Rainbow Trout	Daphnia Magna	Bluegill Sunfish
Aquamet T	7.5	38	NR ⁽¹⁾
Aquamet E	0.85	NR	3.3
Aquamet M	10.00	NR	9.5

NR⁽¹⁾ = Tests not completed

For complete information on how to handle and store Aquamet T sodium trithiocarbonate, please request a product Safety Data Sheet by contacting Nouryon customer service in North America at 1-800-906-9977.

Contact us directly for detailed product information and sample requests.

USA and Canada

Chicago, USA
T +1 800 906 9977

China

Shanghai, China
T +86 21 2220 5000

Europe

Stenungsund, Sweden
T +46 303 850 00

South America

Itupeva, Brazil
T +55 11 4591 8938

South East Asia

Singapore
T +65 6635 5183

Middle East

Dubai, United Arab Emirates
T +971 (0) 4 2471500

Central America and Caribbean

Mexico City, Mexico
T +52 55 5261 7895

India

Mumbai, India
T +91 22 6842 6700

Russia

Moscow, Russia
T +7 495 766 1606

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