2601 Cannery Avenue
Baltimore, MD 21226
410-354-0100

Coagulant Water Balance Calculator

RAW Sulfate mg/L	6.67
RAW Chloride mg/L	3.21
Incumbent Coagulant	Aluminum Sulfate
Incumbent Avg. Dose ppm	30
Incumbent Sulfate (% as Decimal)	0.231
Incumbent Chloride (% as Decimal)	0
Incumbent CSMR	0.236

RAW Sulfate mg/L	6.67
RAW Chloride mg/L	3.21
Proposed Coagulant	Aluminum Chlorohydrate
Proposed Avg. Dose ppm	11
Proposed Sulfate (% as Decimal)	0
Proposed Chloride (% as Decimal)	0.083
Proposed CSMR	0.618

To forecast a Chloride-Sulfate-Mass Ratio, we calculate the incoming raw sulfate and chloride and then add the calculated contribution of the current and proposed coagulant to determine each program's CSMR. The CSMR will be used on the *next page* to calculate the potential for impacting scale.

Coagulant	% Chloride (Cl)	% Sulfate (SO_4)
Aluminum Sulfate	0	23.1
Aluminum Chlorohydrate	8.3	0
Ferric Chloride 40%	25.9	0
Ferric Sulfate 12%	0	30.8

(Continue to page 2 to complete balance calculations)

For more Chloride and Sulfate information contact a USALCO Water Treatment Specialist.

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Coagulant Water Balance Calculator

This Larson-Skold index measures the ability of scale to prevent lead and copper corrosion. Alkalinity in distribution water is key to providing the necessary buffer when chlorides are present.

The table below incorporates the incumbent and proposed chloride and sulfate figures from the previous page.

Index Formula Ls = $(Cl^- + SO_4^{2-}) / Alkalinity$

Finished Alkalinity	57
Incumbent Coagulant	Aluminum Sulfate
Anticipated Chloride	3
Anticipated Sulfate	14
Alkalinity in Distribution	57
Incumbent LS Index	0.3

Proposed Coagulant	Aluminum Chlorohydrate
Anticipated Chloride	4
Anticipated Sulfate	7
Alkalinity in Distribution	57
Proposed LS Index	0.2

The Larson-Skold index may be interpreted by the following guidelines:

Index < 0.8	Chlorides and sulfate likely do not interfere with natural film formation
0.8 < index < 1.2	Chlorides and sulfates may interfere with natural film formation
1.2 or Higher	Chlorides and sulfates may cause higher than desired corrosion rates

The index may not correlate well when low or high alkalinity is present

For more information contact a USALCO Water Treatment Specialist.

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