TECHNICAL GUIDANCE // CUSTOMER FIELD GUIDELINE

SulfaTrapp®

Initial conditioning before first service

Installation • one-time caustic conditioning • rinsing • first service



≥ 800 mm	2 BV · 5% NaOH	≈ 4 BV	pH < 10
MINIMUM BED DEPTH	ONE-TIME · ≈ 2 H FLOWING	INITIAL RINSE · 2–3 BV/H	INDICATIVE · < 50 µS/cm

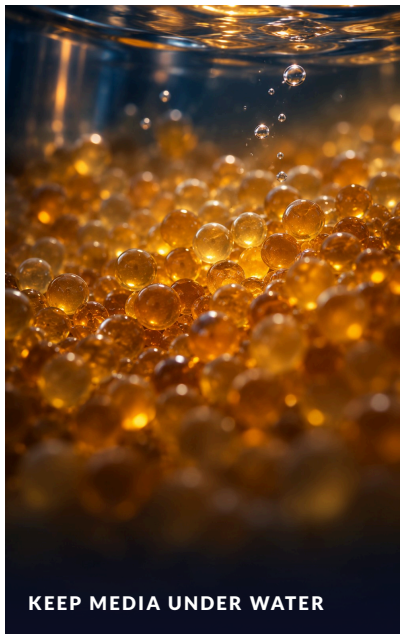
PURPOSE

Prepare newly installed SulfaTrapp® media for safe and controlled entry into first service. Follow this initial conditioning procedure **once** after the bed has been loaded.

01 // CONFIRM THE MATERIAL AND PREPARE THE VESSEL

Supplied form. SulfaTrapp® product information describes a Free Base (FB) form and lists FB / hydroxide as ionic forms. Confirm the delivered form against the actual batch or shipping documents before starting. Outlet pH must always be verified in practice; do not infer it from the stated form alone.

- ☐ **Clean & flush.** Clean and flush the vessel, associated piping and distributors. Remove construction debris, welding particles, dust and any residues from previous chemical cleaning.
- ☐ **Inspect internals.** Inspect the upper distributor, lower collector, screens, drains and valves for integrity. Provide a safe route for backwash, caustic solution and initial rinse wastewater.
- ☐ **Load under water.** Part-fill the vessel with clean water (about one-third of the vessel) before loading. Add SulfaTrapp® carefully, maintain water coverage, vent trapped air and do not allow the media to dry out.
- ☐ **Check depth & freeboard.** Check the installed bed depth (minimum 800 mm) and sufficient freeboard for the intended backwash expansion. Define 1 BV as the actual settled volume of SulfaTrapp® installed in the vessel.



02 // PRE-SERVICE CONDITIONING SEQUENCE — AT A GLANCE

01 STEP	02 STEP	03 STEP	04 STEP	05 STEP
Fill, wet and inspect	**Initial backwash**	**Alkaline conditioning**	**Initial water rinse**	**Ready for service**
FLOODED BED	≈ 30 MIN · 50–75%	2 BV · 5% NaOH	≈ 4 BV · 2–3 BV/H	pH · µS/cm · SO_4^{2-}
Vent trapped air; water must cover the media before upflow.	Clean-water upflow until discharge clarity stabilizes.	Approx. 2 h at about 1 BV/h. Flowing, no static soak.	Softened water until residual caustic has been cleared.	Accept on treated-water quality and site discharge permits.

DISCLAIMER The beads shown in the images are for illustrative purposes only. Their colors, sizes, shapes, and other characteristics may differ from those of the actual product.

02 PRE-SERVICE CONDITIONING SEQUENCE

STEP BY STEP

From first fill to first service. Each step closes with a control point.



STEP 01

Fill, wet and inspect

FLOODED BED

Completely wet the installed SulfaTrapp® bed with clean water and release trapped air using the vessel's approved venting arrangement. Confirm that the water level covers the media before starting upward flow.

CONTROL POINT No dry operation; no air binding or visible media carryover.

STEP 02

Initial backwash

≈ 30 MIN · 50–75% EXPANSION

Backwash upward using clean water to remove fines and settle the bed evenly. For first commissioning, continue for approximately 30 minutes and until discharge clarity stabilizes. Inspect the outlet for beads; stop if significant media loss is observed. Adjust backwash flow to the actual bed and water temperature rather than applying a fixed m^3/h figure.

CONTROL POINT Target approximately 50–75% bed expansion without losing media.

STEP 03

Initial alkaline conditioning

2 BV · 5% NaOH · ≈ 2 H

Introduce 2 BV of a freshly prepared 5% sodium hydroxide (NaOH) solution, distributed evenly through the full bed over approximately 2 hours. Maintain a flooded bed and an even, controlled flow throughout the treatment. For 2 BV in 2 hours, the average feed rate is about 1 BV/h.

CONTROL POINT One-time initial treatment: 2 BV at 5% NaOH over approximately 2 hours. This is a flowing contact-time instruction; it does not specify a static soak.

STEP 04

Initial water rinse

≈ 4 BV · 2–3 BV/H

After caustic conditioning, rinse the media with approximately 4 BV of softened water at 2–3 BV/h (typically around 2–3 hours). If softened water is unavailable, tap water may be used, but initial performance can be affected. Continue rinsing as necessary until residual caustic has been cleared. Collect the alkaline initial rinse for controlled handling.

CONTROL POINT Initial rinse guidance: approximately 4 BV at 2–3 BV/h. Indicative rinse endpoints are pH below 10 and conductivity below 50 µS/cm, subject to rinse-water quality; these do not override any stricter site discharge limits.

STEP 05

Confirm readiness for first service

pH · µS/cm · SO_4^{2-}

Measure pH and conductivity at the vessel outlet during the final rinse and on initial treated water. Verify a stable pH and inspect for any media carryover, abnormal pressure drop or colour. If the local discharge limit is pH 6–9, do not route water to that discharge until that range is achieved; divert off-specification rinse water to an approved collection or treatment route. Confirm initial sulfate performance before normal discharge.

CONTROL POINT The final acceptance criteria are determined by actual treated-water quality and site discharge permits, not by completion of a fixed rinse volume alone.

03 // PRACTICAL DOSAGE EXAMPLE

INSTALLED SULFATRAPP® BED

1,000 L = 1 BV

1,000 L = 1 BV, the actual settled volume of media installed in the vessel.

NaOH INITIAL CONDITIONING

2,000 L = 2 BV

2 BV = 2,000 L at 5% NaOH over approximately 2 hours.

INITIAL WATER RINSE

4,000 L ≈ 4 BV

Approx. 4 BV = 4,000 L; rinse further if quality targets are not reached.

Dosage is based on installed media volume. Prepare and verify the final working concentration in accordance with the site chemical-handling procedure; nominal chemical mass estimates depend on solution density.

04 // GRAVITY-FED AND SITE-SPECIFIC ARRANGEMENTS

⚠ **Gravity-fed conditioning may be used only if** the available head, distributors and valves provide a steady, even flow through the complete media bed. The specified 2 BV contact time is approximately 2 hours under controlled flow. A proposed 1 BV + static soak + 1 BV + static soak method has not been established as equivalent by the available first-use instructions; therefore no general soak duration can be assigned.

05 // START-UP SAFEGUARDS AND COMMISSIONING RECORDS

Collect and manage caustic-rich backwash and rinse effluents. Do not discharge water outside the permitted pH range; verify pH at the actual discharge point.

Use suitable chemical PPE and appropriate NaOH dilution controls. Add NaOH to water under controlled mixing; **never add water directly to concentrated caustic.**

Log installed bed volume, 5% NaOH concentration and total volume, approximately 2-hour dosing duration, rinse volumes, inlet/outlet pH and conductivity, and the first sulfate measurement.



COMMISSIONING RECORD SITE / VESSEL _____ DATE _____

PARAMETER TO LOG	GUIDANCE IN THIS DOCUMENT	RECORDED VALUE
Installed bed volume (1 BV)	Actual settled volume of installed media; bed depth ≥ 800 mm	 L
NaOH concentration & total volume	5% NaOH · 2 BV	..... % · L
Dosing duration	Approx. 2 hours (average feed about 1 BV/h)	..... h
Rinse volumes	Approx. 4 BV at 2–3 BV/h; more if targets not reached	 L
Inlet / outlet pH and conductivity	Indicative rinse endpoints: pH < 10 and < 50 µS/cm; site discharge limits prevail	..... pH · µS/cm
First sulfate measurement	Confirm initial sulfate performance before normal discharge	..... mg/L

COMMISSIONED BY _____ SIGNATURE _____

SULFATRAPP

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