Sludge Volume Index (SVI) and Settleability

Sludge volume index from the 30-minute settled volume and MLSS, with the settleability band and the return ratio that the settled volume implies.

Method: SVI = SV_{30} (mL/L) × 1000 / MLSS (mg/L) (Standard Methods 2710 D)

Input parameters

Unit system: SI

Parameter	Value	Unit
Settled volume after 30 min (mL/L)	300.00	
Mixed liquor suspended solids	3,000.0	mg/L

Calculated results

Parameter	Value	Unit
Sludge volume index (mL/g)	100.00	
Settleability (1 good < 100, 2 fair 100–150, 3 poor > 150)	2.0000	
Return ratio implied SV/(1000 − SV)	42.857	%

Notes for this case

- Bands are a common rule of thumb; dilute the sample if SV_{30} exceeds about 250–300 mL/L.

Formula and method

$$SVI = \frac{SV_{30} \times 1000}{MLSS}, \quad R = \frac{SV_{30}}{1000 - SV_{30}}$$

Variables

SV_{30}	Settled volume after 30 min (mL/L)	-
$MLSS$	Mixed liquor suspended solids	kg/m³
SVI	Sludge volume index (mL/g)	-
band	Settleability (1 good < 100, 2 fair 100–150, 3 poor > 150)	-
R	Return ratio implied SV/(1000 − SV)	-

Method and standards

Definitions.

Assumptions and limits

- 30-minute settling test; SV_{30} below 1 000 mL/L (at 1 000 nothing has settled and the implied return ratio is infinite).

References

- SVI = SV_{30} (mL/L) × 1000 / MLSS (mg/L) (Standard Methods 2710 D)

Report details

Report reference	FCC-QTXJ-S79P (the same inputs always give the same reference)
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Release checks	3 reference cases of this calculator, computed independently, are checked on every release

Results are for engineering estimation. Verify critical designs against the referenced standards and your own data.

This calculator online

https://calc.firecad.com/environmental/wastewater/sludge-volume-index

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.