BOD_5 from Dilution Bottle Readings (Seeded or Unseeded)

Five-day BOD of a sample from initial and final dissolved oxygen of the diluted sample and seed blank, the dilution fraction and the seed correction.

Method: $BOD_5 = [(D_1 - D_2) - (B_1 - B_2)f]/P$ (Standard Methods 5210 B)

Input parameters

Unit system: SI

Parameter	Value	Unit
Initial DO of the diluted sample (mg/L)	8.6000	
DO after 5 days (mg/L)	4.1000	
Sample share of the bottle (volume fraction)	2.0000	%
Initial DO of the seed blank (mg/L)	8.7000	
Final DO of the seed blank (mg/L)	7.9000	
Seed in sample bottle / seed in blank (0 if unseeded)	20.000	%

Calculated results

Parameter	Value	Unit
BOD_5 (mg/L)	217.00	
Oxygen depletion in the sample bottle (mg/L)	4.5000	

Formula and method

$$BOD_5 = \frac{(D_1 - D_2) - (B_1 - B_2)f}{P}$$

Variables

D_1	Initial DO of the diluted sample (mg/L)	-
D_2	DO after 5 days (mg/L)	-
P	Sample share of the bottle (volume fraction)	-
B_1	Initial DO of the seed blank (mg/L)	-
B_2	Final DO of the seed blank (mg/L)	-
f	Seed in sample bottle / seed in blank (0 if unseeded)	-
BOD_5	BOD_5 (mg/L)	-
ΔDO	Oxygen depletion in the sample bottle (mg/L)	-

Method and standards

Standard Methods.

Assumptions and limits

- 20 °C incubation, 5 days.
- Only the sample bottle's depletion and residual DO are checked; the seed-control and dilution-water blank acceptance criteria of Standard Methods 5210 B are not.
- A negative BOD_5 (seed correction larger than the depletion) is flagged as invalid.

References

- $BOD_5 = [(D_1 - D_2) - (B_1 - B_2)f]/P$ (Standard Methods 5210 B)

Report details

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Release checks	2 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/bod5-dilution

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.