Spent Wash Pollution Load: COD, BOD and Solids

Daily COD, BOD and total solids load of spent wash from its flow and concentrations, and the load per kilolitre of alcohol.

Method: Load = flow × concentration

Input parameters

Unit system: SI

Parameter	Value	Unit
Spent wash	1,000.0	m^3/d
COD	110,000	mg/L
BOD_5	50,000	mg/L
Total solids	120.00	g/L
Alcohol produced (absolute)	100.00	kL/d

Calculated results

Parameter	Value	Unit
COD load	110.00	t/d
BOD load	50.000	t/d
Solids load	120.00	t/d
COD per volume of alcohol (kg/L = t per kL)	1.1000	kg/L

Formula and method

$$L = \dot{V} c$$

Variables

$\dot{V}$	Spent wash	m^3/s
COD	COD	kg/m^3
BOD	BOD_5	kg/m^3
TS	Total solids	kg/m^3
$\dot{V}_e$	Alcohol produced (absolute)	m^3/s
L_{COD}	COD load	kg/s
L_{BOD}	BOD load	kg/s
L_{TS}	Solids load	kg/s
$L_{COD}/\dot{V}_e$	COD per volume of alcohol (kg/L = t per kL)	kg/m^3

Method and standards

Mass balance.

Assumptions and limits

- Daily averages.
- COD per alcohol is shown in kg/L, which is the same number as tonnes of COD per kL of alcohol.

References

- Load = flow × concentration

Report details

Report reference	FCC-8SGX-703Q (the same inputs always give the same reference)
Generated	17 November 2026, 19:50 UTC
Calculator	Spent Wash Pollution Load: COD, BOD and Solids
Method last reviewed	13 November 2026
Software release	FireCAD Calc, release of 17 November 2026
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/sugar-ethanol/spent-wash-zld/spent-wash-pollution-load

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.