Ethanol per Tonne of Cane and Distillery Size from a Sugar Mill

Ethanol per tonne of cane from final molasses % cane and the molasses yield, and the distillery capacity a sugar mill's crush supports.

Method: Mass balance; molasses yield from the molasses yield calculator

Input parameters

Unit system: SI

Parameter	Value	Unit
Molasses % cane	4.5000	%
Absolute ethanol per tonne of molasses	230.00	L/t
Cane crushed per day (season average)	5,000.0	t/d
Crushing season	150.00	d
Distillery operating days	330.00	d

Calculated results

Parameter	Value	Unit
Ethanol per tonne of cane	10.350	L/t
Ethanol per year	7,762.5	m³
Distillery capacity it supports	23.523	kL/d

Notes for this case

- Molasses is stored from the season to feed the distillery for its full operating year.

Formula and method

$$y_c = FM\, y_M, \quad \dot{V}_e = \frac{TCD\, t_s\, y_c}{t_d}$$

Variables

FM	Molasses % cane	-
y_M	Absolute ethanol per tonne of molasses	m³/kg
TCD	Cane crushed per day (season average)	kg/s
t_s	Crushing season	s
t_d	Distillery operating days	s
y_c	Ethanol per tonne of cane	m³/kg
V_a	Ethanol per year	m³
$\dot{V}_e$	Distillery capacity it supports	m³/s

Method and standards

Mass balance.

Assumptions and limits

- Molasses fully used.
- Ethanol in absolute (100 %) litres; for rectified spirit divide by its strength.
- The crush is TCD for every season day: use the season average including stoppages, or the season days actually crushed.

References

- Mass balance; molasses yield from the molasses yield calculator

Report details

Report reference	FCC-ZQSV-CVVS (the same inputs always give the same reference)
Generated	17 November 2026, 19:46 UTC
Calculator	Ethanol per Tonne of Cane and Distillery Size from a Sugar Mill
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/ethanol/ethanol-per-tonne-cane

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.