Molasses Requirement and Storage for a KLPD Distillery

Molasses needed per day and per year of operating days for a distillery capacity and yield, and the molasses tank volume for a number of days at its density.

Method: Mass balance; yield from the molasses yield calculator

Input parameters

Unit system: SI

Parameter	Value	Unit
Plant capacity (absolute alcohol)	100.00	kL/d
Yield	230.00	L/t
Operating days per year	330.00	d
Storage days	60.000	d
Molasses density	1,450.0	kg/m³

Calculated results

Parameter	Value	Unit
Molasses per day	434.78	t/d
Molasses per year	143,478	t
Storage volume	17,991	m³

Notes for this case

- Molasses is stored warm-limited: keep it below about 40 °C to avoid sugar loss and foaming.

Formula and method

$$\dot{m}_M = \frac{\dot{V}_e}{y}, \quad V = \frac{\dot{m}_M t_s}{\rho_M}$$

Variables

$\dot{V}_e$	Plant capacity (absolute alcohol)	m³/s
y	Yield	m³/kg
t_o	Operating days per year	s
t_s	Storage days	s
ρ_M	Molasses density	kg/m³
$\dot{m}_M$	Molasses per day	kg/s
M_a	Molasses per year	kg
V	Storage volume	m³

Method and standards

Mass balance.

Assumptions and limits

- Steady consumption.
- The storage volume is the molasses volume only: add ullage, dead volume below the outlet and room for foaming when sizing the tank.

References

- Mass balance; yield from the molasses yield calculator

Report details

Report reference	FCC-TNKC-E8AF (the same inputs always give the same reference)
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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/molasses-requirement-klpd

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.