Bagasse per Tonne Cane and Its Volume (Hugot)

Bagasse made per tonne cane from fibre, moisture and dissolved solids (Hugot eqns 41.9–41.11), hourly bagasse and its volume stacked and loose.

Method: Hugot; Handbook of Cane Sugar Engineering; ...

Input parameters

Unit system: SI

Parameter	Value	Unit
Crushing rate	100.00	t/h
Fibre % cane	14.000	%
Bagasse moisture	48.000	%
Dissolved solids % bagasse Hugot: 2–4 %.	3.0000	%
Bulk density stacked	200.00	kg/m³
Bulk density loose	120.00	kg/m³

Calculated results

Parameter	Value	Unit
Fibre % bagasse	49.000	%
Bagasse per tonne cane	285.71	kg/t
Bagasse	28.571	t/h
Volume stacked	142.86	m³/h
Volume loose (conveyors)	238.10	m³/h

Notes for this case

• Hugot: fibre % bagasse 46–53 %, bagasse 24–30 % of cane (about 275 kg/t). Stacked bagasse 160–240 kg/m³, loose 80–120 kg/m³.

Formula and method

$$f' = 1 - w - D, \quad B = \frac{f}{f'}, \quad \dot{m}_B = AB, \quad \dot{V} = \frac{\dot{m}_B}{\rho}$$

Variables

A	Crushing rate	kg/s
f	Fibre % cane	-
w	Bagasse moisture	-
D	Dissolved solids % bagasse	-
ρ_s	Bulk density stacked	kg/m³
ρ_l	Bulk density loose	kg/m³
f'	Fibre % bagasse	-
B	Bagasse per tonne cane	kg/kg
$\dot{m}_B$	Bagasse	kg/s
$\dot{V}_s$	Volume stacked	m³/s
$\dot{V}_l$	Volume loose (conveyors)	m³/s

Method and standards

Hugot's fibre balance.

Assumptions and limits

- Constant fibre through the mills.

References

- Hugot
- Handbook of Cane Sugar Engineering
- 3rd ed. (Elsevier, 1986)
- ch. 41
- bagasse
- eqns 41.9–41.11 and bulk densities
- pp. 909–912

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/sugar-ethanol/steam-power/bagasse-per-tonne-cane

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.