Bagacillo for Mud Filters: Screen and Air

Fine bagasse (bagacillo) needed for mud filters per tonne cane, the screen area to separate it and the pneumatic conveying air and duct (Hugot ch. 31).

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

Input parameters

Unit system: SI

Parameter	Value	Unit
Crushing rate	100.00	t/h
Bagacillo per tonne cane Hugot: generally 3–6 kg/t cane.	5.0000	kg/t
Screen loading Hugot: 60–75 kg/(m²·h) on 32-mesh-per-dm gauze without suction; 820 with suction on 16 mesh.	65.000	kg/(m²·h)
Air per kg bagacillo Hugot: about 6.25 m³ of air (at ambient conditions) per kg of bagacillo as collected, for a 75 m duct with three bends at 25 m/s.	6.2500	m³/kg
Duct air velocity	25.000	m/s

Calculated results

Parameter	Value	Unit
Bagacillo	500.00	kg/h
Screen area	7.6923	m²
Conveying air	3,125.0	m³/h
Duct diameter	210.26	mm

Notes for this case

- Hugot: 25–35 % of the bagasse passes over the screen with compound imbibition; 90 % of good bagacillo passes 0.8 mm.

Formula and method

$$\dot{m}_b = bA, \quad S = \frac{\dot{m}_b}{g_s}, \quad \dot{V}_a = q\dot{m}_b, \quad D = \sqrt{\frac{4\dot{V}_a}{\pi v}}$$

Variables

A	Crushing rate	kg/s
b	Bagacillo per tonne cane	kg/kg
g_s	Screen loading	kg/(m²·s)
q	Air per kg bagacillo	m³/kg
v	Duct air velocity	m/s
$\dot{m}_b$	Bagacillo	kg/s
S	Screen area	m²
$\dot{V}_a$	Conveying air	m³/s
D	Duct diameter	m

Method and standards

Hugot's rules for bagacillo screens and fans.

Assumptions and limits

- Practice figures from Hugot. The air figure is m³ of ambient air per kg of bagacillo as collected (moist), for a 75 m duct with three

bends at 25 m/s; longer ducts need more.

References

- Hugot
- Handbook of Cane Sugar Engineering
- 3rd ed. (Elsevier, 1986)
- ch. 31
- bagacillo
- pp. 481–484

Report details

Report reference	FCC-7G0A-71Y1 (the same inputs always give the same reference)
Generated	17 November 2026, 19:35 UTC
Calculator	Bagacillo for Mud Filters: Screen and Air
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/clarification/bagacillo-for-filters

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.