Sucrose Extracted % Cane and Bagasse Pol Check

Sucrose lost in bagasse and extracted per 100 cane (Hugot eqn 21.24), extraction, and the check of bagasse pol against last-roller juice pol (eqn 21.17).

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

Input parameters

Unit system: SI

Parameter	Value	Unit
Sucrose % cane	13.500	%
Sucrose % bagasse	1.8000	%
Fibre % cane	14.500	%
Fibre % bagasse	49.000	%
Pol % juice extracted by the last roller	2.6000	%

Calculated results

Parameter	Value	Unit
Sucrose in bagasse % cane	0.53265	%
Sucrose extracted % cane	12.967	%
Extraction c/R	96.054	%
Bagasse pol / last-roller juice pol	0.69231	

Notes for this case

• With well-mixed imbibition the bagasse pol would be half the last-roller juice pol (σ = s/2); about 0.7 s is usual, and σ ≥ s shows poor mixing.

Formula and method

$$\beta = \sigma \frac{f}{f'}, \quad c = R - \beta, \quad e = \frac{c}{R}$$

Variables

R	Sucrose % cane	-
σ	Sucrose % bagasse	-
f	Fibre % cane	-
f'	Fibre % bagasse	-
S	Pol % juice extracted by the last roller	-
β	Sucrose in bagasse % cane	-
C	Sucrose extracted % cane	-
e	Extraction c/R	-
σ/s	Bagasse pol / last-roller juice pol	-

Method and standards

Hugot's balance with constant fibre.

Assumptions and limits

- Constant fibre through the mills.
- Sucrose and pol are used interchangeably, as in factory control (apparent sucrose = pol); σ/s compares a sucrose with a pol figure on that basis.
- Sucrose in bagasse must stay below sucrose in cane.

References

- Hugot
- Handbook of Cane Sugar Engineering
- 3rd ed. (Elsevier, 1986)
- ch. 21
- eqns 21.17 and 21.24
- pp. 337–341

Report details

Report reference	FCC-KCQR-9471 (the same inputs always give the same reference)
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Calculator	Sucrose Extracted % Cane and Bagasse Pol Check
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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/milling/sucrose-extracted-percent-cane

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.