Juice Purity Rise in Clarification

Purity of mixed and clear juice from brix and pol, the purity rise in clarification and the share of non-sucrose removed, assuming sucrose passes unchanged.

Method: Definitions: purity = pol/brix; non-sucrose per unit pol

Input parameters

Unit system: SI

Parameter	Value	Unit
Mixed juice brix	15.200	%
Mixed juice pol	12.800	%
Clear juice brix	15.000	%
Clear juice pol	12.750	%

Calculated results

Parameter	Value	Unit
Mixed juice purity	84.211	%
Clear juice purity	85.000	%
Purity rise	0.78947	%
Non-sucrose removed (per unit pol)	5.8824	%

Notes for this case

- A rise of under one purity point is usual for defecation.

Formula and method

$$P = \frac{Pol}{B}, \quad \Delta P = P_C - P_M, \quad \eta_{NS} = 1 - \frac{(B_C - Pol_C)/Pol_C}{(B_M - Pol_M)/Pol_M}$$

Variables

B_M	Mixed juice brix	-
Pol_M	Mixed juice pol	-
B_C	Clear juice brix	-
Pol_C	Clear juice pol	-
P_M	Mixed juice purity	-
P_C	Clear juice purity	-
ΔP	Purity rise	-
η_{NS}	Non-sucrose removed (per unit pol)	-

Method and standards

Definitions.

Assumptions and limits

- Sucrose passes clarification unchanged. A purity fall gives a negative rise and a negative removal (non-sucrose added, for example lime salts); a note then flags it.

References

- Definitions: purity = pol/brix; non-sucrose per unit pol

Report details

Report reference	FCC-KNGQ-8367 (the same inputs always give the same reference)
Generated	17 November 2026, 19:46 UTC
Calculator	Juice Purity Rise in Clarification
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/chemical-control/juice-purity-rise

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.