Equivalent Standard Granulated (ESG) Sugar

Equivalent standard granulated sugar from raw sugar by the SJM formula with S = 100, from the raw sugar's purity and brix and the final molasses purity.

Method: SJM formula with S = 100 % (pure crystal); as used for ESG; ...

Input parameters

Unit system: SI

Parameter	Value	Unit
Raw sugar	1,000.0	t
Raw sugar brix (dry substance)	99.000	%
Raw sugar purity	98.500	%
Final molasses purity	36.000	%

Calculated results

Parameter	Value	Unit
SJM factor with S = 100	99.143	%
Equivalent standard granulated	981.52	t

Formula and method

$$f_{ESG} = \frac{J - M}{J(1 - M)}, \quad ESG = M_r \, Bx_r \, f_{ESG}$$

Variables

M_r	Raw sugar	kg
Bx_r	Raw sugar brix (dry substance)	-
J	Raw sugar purity	-
M	Final molasses purity	-
f_{ESG}	SJM factor with S = 100	-
ESG	Equivalent standard granulated	kg

Method and standards

SJM with S = 100.

Assumptions and limits

- Apparent purities.

References

- SJM formula with S = 100 % (pure crystal)
- as used for ESG
- Sugar factory chemical control (daily manufacturing report) definitions
- as compiled in SugarProcessTech
- Formulas for calculating sugar industry DMR

Report details

Report reference	FCC-D2Z1-YGGG (the same inputs always give the same reference)
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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/chemical-control/equivalent-standard-granulated

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.