Sweetened Condensed Milk Sugar Ratio

Sugar ratio (sugar in the water phase) of sweetened condensed milk from its sugar and total solids, and the sugar to add for a target ratio.

Method: Sugar ratio of sweetened condensed milk; Tetra Pak; ...

Input parameters

Unit system: SI

Parameter	Value	Unit
Added sugar in the product	44.000	%
Total solids of the product (including sugar)	73.000	%
Target sugar ratio	62.500	%

Calculated results

Parameter	Value	Unit
Water content	27.000	%
Sugar ratio S/(S + W)	61.972	%
Sugar content for the target ratio (same water)	45.000	%
Sugar ratio at least the target (1 = yes)	0	

Notes for this case

- Sweetened condensed milk keeps because the sugar dissolved in its water raises the osmotic pressure enough to stop microbial growth. The sugar ratio S/(S + W) should be at least about 62.5 %; much above about 64.5 % sugar crystallises out. The sugar content for a target ratio at the same water content is SR·W/(1 − SR).

Formula and method

$$SR = \frac{S}{S+W}, \quad W = 1 - TS, \quad S_t = \frac{SR_t W}{1 - SR_t}$$

Variables

S	Added sugar in the product	-
TS	Total solids of the product (including sugar)	-
SR_t	Target sugar ratio	-
W	Water content	-
SR	Sugar ratio S/(S + W)	-
S_t	Sugar content for the target ratio (same water)	-
safe	Sugar ratio at least the target (1 = yes)	-

Method and standards

Sugar ratio.

Assumptions and limits

- Sucrose as the added sugar.

References

Sugar ratio of sweetened condensed milk, Tetra Pak, Dairy Processing Handbook (Tetra Pak Processing Systems, Lund)

Report details

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Release checks	3 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/chemical/food-dairy/condensed-milk-sugar-ratio

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.