Milk Fat Standardisation: Cream or Skim to Add

Cream (or skim milk) to add to whole milk to reach a target fat content, and the standardised milk volume, by a fat balance (Pearson square).

Method: Mass and energy balances (definitions): fat balance (Pearson square)

Input parameters

Unit system: SI

Parameter	Value	Unit
Whole milk	10,000	kg
Fat in the milk	4.2000	%
Fat in the stream to add (cream or skim)	0.050000	%
Target fat	3.0000	%

Calculated results

Parameter	Value	Unit
Stream to add	4,067.8	kg
Standardised milk	14,068	kg
Fat in the product	422.03	kg

Formula and method

$$M_a = M\frac{f_m - f_t}{f_t - f_a}$$

Variables

M	Whole milk	kg
f_m	Fat in the milk	-
f_a	Fat in the stream to add (cream or skim)	-
f_t	Target fat	-
M_a	Stream to add	kg
M_t	Standardised milk	kg
F	Fat in the product	kg

Method and standards

Fat balance.

Assumptions and limits

- Fat only; no losses. Adding skim or cream also changes SNF and protein, which are not balanced here; check them against the product standard.

References

- Mass and energy balances (definitions): fat balance (Pearson square)

Report details

Report reference	FCC-GCDG-8W1M (the same inputs always give the same reference)
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Calculator	Milk Fat Standardisation: Cream or Skim to Add
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/chemical/food-dairy/milk-fat-standardisation

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.