Cheese Yield from Milk Fat and Casein (Van Slyke)

Theoretical yield of Cheddar-type cheese per 100 kg of milk from milk fat and casein and the cheese moisture, by the Van Slyke formula.

Method: Tetra Pak; Dairy Processing Handbook (Tetra Pak Processing Systems, Lund)

Input parameters

Unit system: SI

Parameter	Value	Unit
Milk fat	3.6000	%
Milk casein	2.5000	%
Cheese moisture	37.000	%
Milk processed	10,000	kg

Calculated results

Parameter	Value	Unit
Cheese yield (kg per 100 kg milk)	9.9450	
Cheese from the milk processed	994.50	kg
Milk per kg of cheese	10.055	

Notes for this case

• Van Slyke's formula Y = (0.93F + C − 0.1) × 1.09/(1 − W) assumes 93 % of the milk fat is retained, 0.1 % of casein is lost in the whey, and 1.09 accounts for salt and other solids, with F and C in per cent and W the cheese moisture. It is used to compare actual yield with the theoretical: shortfalls point to fat loss to whey or moisture control. It was developed for Cheddar; other varieties need adjusted factors.

Formula and method

$$Y = \frac{(0.93F + C - 0.1) \times 1.09}{1 - W}$$

Variables

F	Milk fat	-
C	Milk casein	-
W	Cheese moisture	-
M	Milk processed	kg
Y	Cheese yield (kg per 100 kg milk)	-
m_c	Cheese from the milk processed	kg
M/m_c	Milk per kg of cheese	-

Method and standards

Van Slyke.

Assumptions and limits

- Cheddar-type cheese; standard retention factors.

References

Tetra Pak, Dairy Processing Handbook (Tetra Pak Processing Systems, Lund)

Report details

Report reference	FCC-WDY5-3DG2 (the same inputs always give the same reference)
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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/cheese-yield-van-slyke

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Reopens the calculator with the inputs of this report.