Mash Strike Water Temperature

Temperature of the strike water so that, mixed with the grist, the mash reaches the rest temperature, from grist and water masses and specific heats.

Method: Definitions and mass and energy balances: heat balance of grist and water to the mash temperature

Input parameters

Unit system: SI

Parameter	Value	Unit
Grist	10,000	kg
Strike water	30,000	kg
Grist temperature	18.000	°C
Target mash temperature	65.000	°C
Grist specific heat	1.6500	kJ/(kg·K)
Allowance for vessel heat loss	1.0000	K

Calculated results

Parameter	Value	Unit
Strike water temperature	72.174	°C
Liquor-to-grist ratio	3.0000	kg/kg

Notes for this case

- Mix strike water and grist well in a pre-masher to avoid dough balls and hot spots.

Formula and method

$$T_s = T_m + \frac{M_g c_g (T_m - T_g)}{M_w c_w} + \Delta T_l$$

Variables

M_g	Grist	kg
M_w	Strike water	kg
T_g	Grist temperature	K
T_m	Target mash temperature	K
c_g	Grist specific heat	J/(kg·K)
ΔT_l	Allowance for vessel heat loss	K
T_s	Strike water temperature	K
M_w / M_g	Liquor-to-grist ratio	kg/kg
c_w	Specific heat of water, 4.1868 kJ/(kg·K)	J/(kg·K)

Method and standards

Mixing heat balance.

Assumptions and limits

- No water absorption heat. c_w, the specific heat of water, is 4.1868 kJ/(kg·K).
- Strike water at or above 100 °C (at atmospheric pressure) is rejected.

References

- Definitions and mass and energy balances: heat balance of grist and water to the mash temperature

Report details

Report reference	FCC-MSYG-G2QX (the same inputs always give the same reference)
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Calculator	Mash Strike Water Temperature
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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/mash-strike-temperature

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.