Paper Machine Production Rate

Paper machine production in tonnes per day from basis weight, trim (reel) width, machine speed, time efficiency and saleable share, with the dry-end output per hour.

Method: Smook; Handbook for Pulp & Paper Technologists; ...

Input parameters

Unit system: SI

Parameter	Value	Unit
Basis weight (grammage)	80.000	g/m²
Trim width at the reel	8.5000	m
Machine (reel) speed	1,200.0	m/min
Time efficiency	92.000	%
Saleable share (after broke)	94.000	%

Calculated results

Parameter	Value	Unit
Reel production while running	48.960	t/h
Net saleable production	1,016.2	t/d
Annual production (365 days)	370,904	t

Notes for this case

- Tonnes are as-made paper at reel moisture (the basis weight as produced), not oven-dry.

Formula and method

$$P_h = BW \cdot W \cdot v, \quad P_d = P_h\,\eta_t\,\eta_s, \quad P_a = P_d \times 365\ \mathrm{d}$$

Variables

BW	Basis weight (grammage)	kg/m²
W	Trim width at the reel	m
v	Machine (reel) speed	m/s
η_t	Time efficiency	-
η_s	Saleable share (after broke)	-
P_h	Reel production while running	kg/s
P_d	Net saleable production	kg/s
P_a	Annual production (365 days)	kg

Method and standards

Production definition.

Assumptions and limits

- Basis weight as produced (with moisture): the tonnes are as-made paper at reel moisture, not oven-dry. Convert with the moisture content to compare with an oven-dry (OD) figure.

References

- Smook
- Handbook for Pulp & Paper Technologists
- 3rd ed. (Angus Wilde, 2002)
- ch. 16 and 21 (paper machine operation; production = basis weight × width × speed)

Report details

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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/chemical/pulp-paper/paper-machine-production

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.