Stock Storage Tower: Hours of Storage

Hours of storage and fibre inventory in a stock or pulp storage tower from its working volume, stored consistency and the production it supplies.

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

Input parameters

Unit system: SI

Parameter	Value	Unit
Working volume	2,000.0	m³
Storage consistency	12.000	%
Stock density	1,000.0	kg/m³
Pulp production (oven-dry)	500.00	t/d

Calculated results

Parameter	Value	Unit
Fibre in storage (OD)	240.00	t
Hours of storage	11.520	h

Formula and method

$$M_{OD} = V\rho C, \quad t = \frac{M_{OD}}{\dot{m}_{OD}}$$

Variables

V	Working volume	m³
C	Storage consistency	-
ρ	Stock density	kg/m³
$\dot{m}_{OD}$	Pulp production (oven-dry)	kg/s
M_{OD}	Fibre in storage (OD)	kg
t	Hours of storage	s

Method and standards

Fibre inventory.

Assumptions and limits

- Uniform consistency.

References

- Smook
- Handbook for Pulp & Paper Technologists
- 3rd ed. (Angus Wilde, 2002)
- ch. 9.8 (stock storage)

Report details

Report reference	FCC-7T2S-4XNT (the same inputs always give the same reference)
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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/storage-tower-retention

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.