Paint Wet and Dry Film Thickness and Coverage

Wet film thickness for a specified dry film from volume solids and thinning, theoretical and practical spreading rates, and the paint volume for an area.

Method: WFT = DFT(1 + thinner)/VS; TSR = 10·VS(%)/DFT(µm) m²/L (coating practice; SSPC PA 2 measurement principle)

Input parameters

Unit system: SI

Parameter	Value	Unit
Dry film thickness	75.000	µm
Volume solids	60.000	%
Thinner added (by volume of paint)	10.000	%
Application loss	30.000	%
Area to coat	500.00	m²

Calculated results

Parameter	Value	Unit
Wet film thickness to apply	137.50	µm
Theoretical spreading rate	8.0000	m²/L
Practical spreading rate	5.6000	m²/L
Paint required (unthinned)	89.286	L

Notes for this case

- Losses: brush or roller 10–20 %, airless spray 20–40 %, conventional spray on steelwork 40–60 %. Surface profile from blasting also takes paint (about 10–20 µm of DFT equivalent).

Formula and method

$$WFT = \frac{DFT(1 + f_t)}{VS}, \quad TSR = \frac{VS}{DFT}, \quad V = \frac{A}{TSR(1 - f_l)}$$

Variables

DFT	Dry film thickness	m
VS	Volume solids	-
f_t	Thinner added (by volume of paint)	-
f_l	Application loss	-
A	Area to coat	m²
WFT	Wet film thickness to apply	m
TSR	Theoretical spreading rate (m²/L)	-
PSR	Practical spreading rate (m²/L)	-
V	Paint required (unthinned)	m³

Method and standards

Volume balance.

Assumptions and limits

- Uniform film.
- The spreading rates are shown in m²/L in every unit system; 1 m²/L = 40.7 ft² per US gallon.

References

• WFT = DFT(1 + thinner)/VS

• TSR = 10·VS(%)/DFT(µm) m²/L (coating practice; SSPC PA 2 measurement principle)

Report details

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Results are for engineering estimation. Verify critical designs against the referenced standards and your own data.

This calculator online

https://calc.firecad.com/materials/corrosion/paint-film-thickness-coverage

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.