

Engineering Information

Useful Notes on Cement

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USEFUL NOTES ON CEMENT

- 1 Ton of Portland Cement = 20 Bags.
- 1 Cubic foot of port land Cement weights 90 to 94 lbs. when loosely filled. Average weight of 1:2:4 concrete; Crokebreexe aggregate 100 lbs. per cubicfoot; Clinker aggregate 110 lbs. per cubic foot.; Brick aggregate 125 lbs per cubic foot; Ballast aggregate 145 lbs. per cubic foot.
- Average weight of 1:2:4 reinforced concrete, 150 lbs. per cubic foot.
- 1 Cubic foot of loose Portland Cement paste will make about
 - 4.1 cu. ft. of concrete mixed 1:2:4
 - 5.1 cu. ft. of concrete mixed 1:2 1/2:5
 - 5.8 cu. ft. of concrete mixed 1:3:6
 - 7.5 cu. ft. of concrete mixed 1:4:8
- 1 Cubic foot of loose Portland Cement neat as Cement Paste will cover about 9.5 sq. feet 1 inch thick.
- 1 Cubic foot of loose portland Cement to 2 of sand will cover 16.8 sq. feet, 1 inch thick.
- 1 Cubic foot of loose portland Cement to 2 of sand will cover about 29 sq. feet, 1 inch thick.
- 1 Cubic foot of loose portland Cement to 3 of sand will cover about 35.7 sq. feet, 1 inch thick.
- 1 Cubic foot of loose portland Cement to 6 of sand will lay about 410 bricks with 3/9 Inch joints, and 527 bricks with 1/4 inch joints.

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APPROXIMATE QUANTITY OF SURFACE WATER CARRIED BY AVERAGE AGGREGATES*

Year wet sand	3/4 to 1 gal. per c. ft.
Moderately wet sand	About 1/2 gal. per c. ft.
Moists and	About 1/4 gal. per c. ft.
Moist gravel or crushed rock	About 1/4 gal. per c. ft.

Approximate Absorption of Aggregate

Average sand	1.0 per cent. by weight
Pebbles and crushed limestone	1.0 per cent. by weight
Trap rock and granite	0.5 per cent by weight
Porous sandstone	7.0 per cent by weight
Very light and porous aggregate may be as high as 25 percent by weight.	

Strength of Ordinary Portland Cement Concrete at Various Ages

Approximate percentage of strength of ordinary Portland cement concrete at different ages in comparison with the strength at 1 year :

21 days old	60 per cent.
3 months old	85 per cent.
6 months old	95 per cent.
1 year old	100 per cent

Strength of Rapid-Hardening Portland Cement Concrete (Laboratory cubes)

Age 3 days	3,853,1lbs. per sq. in.
Age 7 days	5,360 lbs. per sq. in.
Age 28 days	6,810 lbs. per sq. in.
12 month	7,490 lbs. per sq. in.

*The coarser the aggregate, the less free water in will carry.

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