

Properties of CEMATRIX™ Cellular Concrete - Metric

The following data is based on average mix designs for CEMATRIX cellular concrete, using PROVOTON foaming agent, Type 10 or Type 30 cement and class C fly ash. These values are representative only and may vary depending on mix designs, foaming agents and reinforcements, customised to your application. For project specific information, please consult your CEMATRIX representative.

Cast Density (kg/m³) ¹	400	475	600	700	800
Dry Density (kg/m³) ²	300	350	440	520	600
Compressive Strength, Typical 28 days (MPa) ³	0.4	0.7	1.2	1.5	2.0
Compressive Strength, Attainable (MPa)	0.6	1.2	2.1	3.0	4.0
Flexural Strength, 28 days (MPa) ⁴	0.07	0.13	0.25	0.35	0.45
Modulus of Elasticity, E, Typical (MPa) ⁵	300	650	1200	1850	2200
Thermal Conductivity, dry (W/mK) ⁹	0.09	0.1	0.12	0.14	0.17
Thermal Conductivity, 70% R.H. (W/mK)	0.11	0.13	0.15	0.18	0.22
Water Absorption (kg/m²) ⁶	75	50	33	22	15
Permeability, k (m/s) @ P_c = 17 kPa ⁷	4 x 10 ⁻⁶	1 x 10 ⁻⁶	1 x 10 ⁻⁹	8 x 10 ⁻¹⁰	4 x 10 ⁻¹⁰
Permeability, k (m/s) @ P_c = 125 kPa	1 x 10 ⁻⁶	3 x 10 ⁻⁷	9 x 10 ⁻¹⁰	3 x 10 ⁻¹⁰	1 x 10 ⁻¹⁰
Freeze/Thaw Resistance, P (E_d % at n F/T cycles) ⁸					
at 36 cycles	96	97	98	98	99
at 100 cycles	92	94	97	97	98
at 200 cycles	88	90	94	95	97
at 300 cycles	81	84	86	87	91
at 330 cycles	78	81	83	84	88

1. Cast density determined according to ASTM C 796.
2. Dry density determined according to ASTM C 796.
3. Strength determined according to ASTM C 495.
4. Flexural strength determined according to ASTM C 78.
5. Elastic modulus determined according to ASTM C 469.
6. The guide value indicates the total quantity of water (in kg), that permeates a 1 m² cellular concrete surface over ten years, if this surface is constantly exposed to (ground) water with the same pressure as a 1-meter water column.
7. Permeability determined according to ASTM D 5084, method B "falling head" using cell pressures or confining pressures of P_c=17 kPa / 125 kPa.
8. Freeze/thaw resistance determined according to ASTM C666, procedure B, modified for longer freeze/thaw cycle due to insulating properties of cellular concrete. E_d - Relative Dynamic Modulus of Elasticity.
9. Thermal Conductivity determined according to NEN 1068.

Properties of CEMATRIX™ Cellular Concrete - Imperial

The following data is based on average mix designs for CEMATRIX cellular concrete, using PROVOTON foaming agent, Type 10 or Type 30 cement and class C fly ash. These values are representative only and may vary depending on mix designs, foaming agents and reinforcements, customised to your application. For project specific information, please consult your CEMATRIX representative.

Cast Density (pcf) ¹	25	30	37	44	50
Dry Density (pcf) ²	19	22	28	32	37
Compressive Strength, Typical 28 days (psi) ³	58	102	174	218	290
Compressive Strength, Attainable (psi)	87	174	305	435	580
Flexural Strength, 28 days (psi) ⁴	10	19	36	51	65
Modulus of Elasticity, E, Typical (psi) ⁵	4.35 x 10 ⁴	9.42 x 10 ⁴	17.4 x 10 ⁴	26.8 x 10 ⁴	31.9 x 10 ⁴
Thermal Conductivity, dry (R-Value per inch) ⁹	1.6	1.44	1.2	1.03	0.85
Thermal Conductivity, 70% R.H. (R-Value per inch)	1.31	1.11	0.96	0.8	0.66
Water Absorption (lb/ft²) ⁶	15.3	10.2	6.7	4.5	3.1
Permeability, k (m/s) @ P_c = 2.5 psi ⁷	4 x 10 ⁻⁶	1 x 10 ⁻⁶	1 x 10 ⁻⁹	8 x 10 ⁻¹⁰	4 x 10 ⁻¹⁰
Permeability, k (m/s) @ P_c = 18 psi	1 x 10 ⁻⁶	3 x 10 ⁻⁷	9 x 10 ⁻¹⁰	3 x 10 ⁻¹⁰	1 x 10 ⁻¹⁰
Freeze/Thaw Resistance, P (E_d % at n F/T cycles) ⁸					
at 36 cycles	96	97	98	98	99
at 100 cycles	92	94	97	97	98
at 200 cycles	88	90	94	95	97
at 300 cycles	81	84	86	87	91
at 330 cycles	78	81	83	84	88

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3. Strength determined according to ASTM C 495.
4. Flexural strength determined according to ASTM C 78.
5. Elastic modulus determined according to ASTM C 469.
6. The guide value indicates the total quantity of water (in lb), that permeates a 1 ft² cellular concrete surface over ten years, if this surface is constantly exposed to (ground) water with the same pressure as a 40-inch water column.
7. Permeability determined according to ASTM D 5084, method B "falling head" using cell pressures or confining pressures of P_c=2.5 psi / 18 psi.
8. Freeze/thaw resistance determined according to ASTM C666, procedure B, modified for longer freeze/thaw cycle due to insulating properties of cellular concrete. E_d - Relative Dynamic Modulus of Elasticity.
9. Thermal Conductivity determined according to NEN 1068.