Expanded Polystyrene

For Concrete Industry

Ori-cell BEADS (SPHERE)

Expanded Polysterene Beads Aggregate
The aggregate is made from raw Styropor, which consists of spherical beads of polystyrene containing an expanding agent.

Cement
All Standard types of cement can be used for Orient bead concrete.

Sand
All form of fine aggregate are suitable for Styropor-concrete.

Admixtures
Admixtures modify the properties of Ori-cell concrete in the same way as those of normal dense concretes.

Manufacture
Mix Design
Ori-cell concrete is made by mixing the light weight aggregate - expanded **Ori-cell** beads with cement, sand and water in a conventional force mixer. Its density can be adjusted within close limits to anywhere in the range 200-2000 kg/m^3, non-loadbearing and loadbearing components, and thermally resistance loadbearing courses of pavements.

Other applications
Ori-cell concrete has been used extensively for the following:
a) External rendering b) Industrial insulation when strength and fire-resistance are also required. c) Insulating screed for factories, dwellings, and farm buildings. d) Precast hollow building blocks, formwork and sanitary-cell components.

Ori-cell concrete is a lightweight - aggregate concrete that can be made with any density from about 200 kg/m^3 to 1600 kg/m^3 or more. In this range its strength is good (in relation to its density), and precast components have well balanced mechanical properties. It is a good thermal insulant.

Below is the design mix of light weight screed for 1000-1100 kg/m^3 and 700-750 kg/m^3.

	1000-1100	700-750
Cement	50kgs	50kgs
Sand	200kgs	150kgs
Ori-cell Beads	75Ltrs	125Ltrs
Febbond SBR/SIKABOND LA	600ml	1Ltr
Water/Cement Ratio	0.5 to 0.5 (25Ltr)	
Concrete	0.25 m^3	0.25 m^3
Wet Density	1375 kg/m^3	1050 kg/m^3
Dry Density after 28 days	1000-1100 kg/m^3	700-750 kg/m^3

Mechanical Properties of Ori-cell Concrete

Density 1/kg/m^3	Compressive Strength a/MPa max.	Mean[b]	Flexural Strength a/MPa max.	Mean[b]	Elastic Modulus[c] E/Mpa
200	0.3	0.3	-	-	-
400	1.0	1.0	0.7	0.5	0.8 x 10^3
600	2.5	2.2	0.9	0.7	1.0 x 10^3
800	4.4	3.9	1.1	0.9	1.3 x 10^3
1000	8.3	5.9	1.5	1.5	2.9 x 10^3
1300	-	8.8	-	2.5	-
1600	-	17.7	-	2.9	-

[a] *Measured accordance with DIN 1048.* [b] *Typical for production from mixes formulated for minimum thickness.* [c] *In Compression.*

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