

PUMICE CONCRETE IS A CONVENTIONAL CONCRETE ALTERNATIVE. Pumice concrete is composed of Portland cement, pumice rock, pumice sand, and water. Compared to regular concrete, pumice concrete offers roughly a one-third reduction in weight and four times the R-Value. Proportioning, mixing and placing are done in a similar manner to that of conventional concrete and pumice concrete is used in the same applications as sand-and-gravel concrete. It is also placed, screed, troweled and finished with the same equipment. Due to its unique properties, pumice concrete is an appropriate material for varying climates.

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Properties of Hess Pumice Aggregates

PROPERTY	TEST	SPECIFICATION	HESS PUMICE
Organic Impurities	ASTM C 40	Hellige #3	Lighter than #1
Staining	ASTM C 641	No Staining	Stain Index = 0
Loss on Ignition	ASTM C 114	5% Max	5%
Clay Lumps and Friable Particles	ASTM C 142	5% Max	0%
Bulk Density of Loose, Coarse Aggregate	ASTM C 29	55 lbs/cf Max	43 lbs/cf
Bulk Density of Loose, Fine Aggregate	ASTM C 29	70 lbs/cf Max	49 lbs/cf
Concrete Density	ASTM C 567	100 lbs/cf Max	89 lbs/cf
Compressive Strength	ASTM C 39	2500 PSI Min	2454 PSI
Splitting Tensile Strength	ASTM C 496	290 PSI Min	290 PSI
Drying Shrinkage	ASTM C 157	0.07% Max	0.01%
Popouts	ASTM C 151	No Popouts	No Popouts
Alkali Reactivity (6 months)	ASTM C 227	0.1% Max	0.05%
Hardness	Mohs Scale	–	5.5
pH	–	–	7.2
Radioactivity	–	–	0

Other Physical Properties of Hess Pumice Aggregates

PROPERTY	3/4" Agg	5/16" x #8 Agg	5/16" Fines	1/8" Fines
Adsorption (Percent)	17	16	15	17
Dry Loose Unit Weight (lbs/cf)	44	48	54	49
Bulk Specific Gravity	1.22	1.44	1.64	1.59
S.S.D. Specific Gravity	1.43	1.66	1.85	1.84

Aggregate Grading Requirements per ASTM C 330

PERCENT PASSING SIEVES

SIZE DESIGNATION	3/4"	1/2"	3/8"	No. 4	No. 8	No. 16	No. 50	No. 100
ASTM Fine Aggregate	–	–	100	85-100	–	40-80	10-35	5-25
Hess 5/16" Fines	–	–	100	82	60	47	26	16
Hess 1/8" Fines	–	–	–	100	93	73	38	20
ASTM Course Aggregate	–	–	–	–	–	–	–	–
ASTM 3/4" Aggregate	100	90-100	40-80	0-20	0-10	–	–	–
Hess 3/4" Aggregate	100	–	47	15	13	–	–	–
Hess 5/16" x No. 8 Aggregate	–	–	100	60	13	16	9	8