WAM® AL II - Technical Data

		WAM® AL II Castable	WAM® AL II HD High Density	WAM® AL II G Gun Mix	WAM® AL II LW Lightweight
General Technical Data	Classification	Special Cement Castable		Gun Mix	Sp.Cm. Castable
	Placement Method	Vibration Casting		Dry Gunning	Vibration Casting
	Available Application Packs	These products are designed specifically for aluminum contact applications			
	Typical Water Req. % (wt.)	22%	8%	0-5%	30%
	Material Required For Estimating	115 (lb/ft^3)	168 (lb/ft^3)	121 (lb/ft^3)	66 (lb/ft^3)
		1842 (kg/m^3)	2691 (kg/m^3)	1938 (kg/m^3)	1057 (kg/m^3)
	Max. Recommended Service Temperature	2600 (°F)	3100 (°F)	2600 (°F)	2800 (°F)
		1427 (°C)	1700 (°C)	1427 (°C)	1538 (°C)
Chemical Analysis: Calculated wt.% Based on Common Oxides	Aluminum Oxide (Al_2O_3)	64.9%	78.6%	64.9%	77%
	Silicon Dioxide (SiO_2)	0.3%	0.7%	0.3%	0.3%
	Titanium Dioxide (TiO_2)	0.1%	<0.1%	0.1%	0.1%
	Iron(III) Oxide (Fe_2O_3)	0.1%	0.1%	0.1%	0.1%
	Calcium Oxide (CaO)	24.3%	10.5%	24.3%	11.9%
	Magnesium Oxide (MgO)	0.2%	<0.1%	0.2%	0.2%
	Combined Alkali Oxides ($Na_2O + K_2O$)	0.2%	0.1%	0.2%	0.3%
	Other	10%	10%	10%	10%
Thermal Conductivity	(BTU-in/ft^2-hr-°F) 750 (°F)	5.3	11.8	5.3	2.6
	(BTU-in/ft2-hr-°F) 1470 (°F)	4.8	10.8	4.8	2.3
	(BTU-in/ft2-hr-°F) 2200 (°F)	5.3	10.1	5.3	2
	(W/m K) 400 (°C)	0.76	1.70	0.76	0.38
	(W/m K) 800 (°C)	0.69	1.56	0.69	0.33
	(W/m K) 1200 (°C)	0.76	1.46	0.76	0.28
Density	After 230 (°F)	130 (lb/ft^3)	174 (lb/ft^3)	138 (lb/ft^3)	72 (lb/ft^3)
	After 1500 (°F)	115 (lb/ft^3)	168 (lb/ft^3)	121 (lb/ft^3)	66 (lb/ft^3)
	After 110 (°C)	2082 (kg/m^3)	2787 (kg/m^3)	2211 (kg/m^3)	1153 (kg/m^3)
	After 815 (°C)	1842 (kg/m^3)	2691 (kg/m^3)	1938 (kg/m^3)	1057 (kg/m^3)
Modulus of Rupture	After 230 (°F)	1520 (psi)	3950 (psi)	1320 (psi)	200 (psi)
	After 1500 (°F)	740 (psi)	3470 (psi)	560 (psi)	110 (psi)
	After 2500 (°F)	680 (psi)	3520 (psi)	n/a	n/a
	After 110 (°C)	10.5 (MPa)	27.2 (MPa)	9.1 (MPa)	1.38 (MPa)
	After 815 (°C)	5.1 (MPa)	23.9 (MPa)	3.9 (MPa)	0.76 (MPa)
	After 1370 (°C)	4.7 (MPa)	24.3 (MPa)	n/a	n/a
Cold Crushing Strength	After 230 (°F)	9530 (psi)	11,340 (psi)	8990 (psi)	960 (psi)
	After 1500 (°F)	4790 (psi)	11,070 (psi)	3870 (psi)	510 (psi)
	After 2500 (°F)	4610 (psi)	11,450 (psi)	n/a	n/a
	After 110 (°C)	65.7 (MPa)	78.2 (MPa)	62 (MPa)	6.62 (MPa)
	After 815 (°C)	33 (MPa)	76.3 (MPa)	26.7 (MPa)	3.52 (MPa)
	After 1370 (°C)	31.8 (MPa)	78.9 (MPa)	n/a	n/a
Permanent Linear change (%)	After 230 (°F) or 110 (°C)	n/a	n/a	n/a	n/a
	After 1500 (°F) or 815 (°C)	-0.1%	-0.1%	-0.1%	-0.1%
	After 2500 (°F) or 1370 (°C)	-0.3%	-0.2%	n/a	n/a