WL01
Material Technical Data

Ceramics Consultancy Ltd

Ceramics Consultancy Ltd

Document Issue Information				
Document Reference:-	CCCLMTIWL01		Suitable Casting Applications:-	Aluminium Casting up to 935°C
Issue No:-	1		Suitable Casting Alloys:-	Aluminium
Issue Date:-	24 /09 /20		Typical Core Thickness:-	Min => 3mm / Max =< 100mm
Issued By:-	Mr Kevin Dawson		Typical Core Geometry:-	Any Complexity
Authorised By:-	Mr Dennis Dixon		Typical Core Features:-	Any Features

Ceramic Core Body Composition		Limits	Typical Result - % of Ceramic Core Body
Silica	SiO_2	+/- 0.50 %	64.58%
Zircozon	$ZrSiO_4$	+/- 0.50 %	22.92%
Leachability Additive	K_2SO_4 & $MgSO_4$	+/- 0.50 %	11.90%
Other(s)		+/- N/A %	0.60%

Trace Element Analysis		Limits	Typical Result
Bismuth	Bi	+/- 1 ppm	5 ppm
Iron	Fe	+/- 50 ppm	500 ppm
Lead	Pb	+/- 10 ppm	20 ppm
Silver	Ag	+/- 10 ppm	20 ppm
Tin	Sn	+/- 10 ppm	20 ppm
Zinc	Zn	+/- 15 ppm	50 ppm

The following information is typical result's that can be expected using Test Bars (Dimensions 100mm x 12mm x 4mm) produced at Clan Ceramics Consultancy Ltd

Physical Properties	Limits	Typical Result - Fired to 925°C
Apparent Porosity	+/- 2.50 %	30 %
True Porosity	+/- 2.50 %	35 %
Water Absorption	+/- 2.50 %	22 %
Apparent Bulk Density	+/- 0.50 %	1.98 gms/cm3
Bulk Density	+/- 0.50 %	2.58 gms/cm3
Creep Test	+/- 0.10 %	0.20 mm
Slump Test	+/- 0.10 %	0.25 mm
Thermal Expansion	+/- 0.10 %	N/A %
Loss on Ignition	+/- 0.50 %	16.00 %

Process Shrink - From Mould to Fired	Limits	Typical Result - Fired to 925°C
Free Linear Shrinkage (Tool to Fired)	+/- 0 %	0.00 %

Chemical Analysis	Limits	Typical Result - Fired to 925°C
Cristobalite - Post Process Fired	+/- 10 %	5 %
Leachability - Break Up Time (Cold water @ Ambient 20°C)	+/- 50 %	120 Minutes
Leachability - Break Up Time (Warm water 35°C)	+/- 50 %	60 Minutes
Leachability - Break Up Time (Water Jet Pressure to 2000 to 6000 Psi)	+/- 100 %	30 Seconds

Impregnation (Fired to 1200°C)	Limits	Modulus of Rupture - 3 Point Test @ 80mm Spacing			
		Psi	Mpa	Newtons	Deflection - mm
Injected (Green) Strength - Tested @ 20°C	+/- 20 %	1233	8.50	8.50	3.00
Fired @ 850°C & Tested @ 20°C - Not Impregnated	+/- 20 %	580	4.00	4.00	1.75
Fired @ 925°C & Tested @ 20°C - Not Impregnated	+/- 20 %	870	6.00	6.00	1.75
Cured @ 185°C & Tested @ 20°C - Vacuum Resin Impregnated	+/- 20 %	5803	40.00	40.00	2.50

Important Information

Test result's in this document are based upon the test's undertaken at External Test Facilities & Clan Ceramics Consultancy Ltd the results may vary due to:-

< The type and make of the equipment being used

< The environmental conditions within the facility where the tests are being undertaken

< The process settings and general maintenance on the equipment being used

< The operatives personal experience within the process environment

All test results and suggested limits are intended as a guideline only and do not form part of the basis for any inspection criteria as regards the pass or fail of any goods and / or services that are supplied - which in general would be determined by the customer's own particular requirements which would include testing of the materials prior to any purchase order being raised

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Issued By:-	Mr Kevin Dawson		Typical Core Geometry:-	Any Complexity
Authorised By:-	Mr Dennis Dixon		Typical Core Features:-	Minor Features

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Apparent Bulk Density	+/- 0.50 %	1.85 gms/cm3
Bulk Density	+/- 0.50 %	2.50 gms/cm3
Creep Test	+/- 0.10 %	0.20 mm
Slump Test	+/- 0.10 %	0.25 mm
Thermal Expansion	+/- 0.10 %	N/A %
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Cured @ 185°C & Tested @ 20°C - Vacuum Resin Impregnated	+/- 20 %	5803	40.00	40.00	2.50

Important Information

Test result's in this document are based on test's undertaken at Raw Material Suppliers / Test Facilities & Clan Ceramics Consultancy Ltd results may vary due to:-

< The type and make of the equipment being used

< The environmental conditions within the facility where the tests are being undertaken

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< The operatives personal experience within the process environment

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