

	MP04 Material Technical Data					
Document Issue Information						
Document Reference:-	CCCLMTIMP04		Suitable Casting Application's:-	Investment Casting - EQ / DS / SC		
Issue No:-	7		Suitable Casting Alloys / Steel:-	Nickel / Stainless / Carbon / Cobalt		
Issue Date:-	01 /02 /19		Typical Core Thickness - Fast	Min = > 0.45mm	Max = < 30mm	
Issued By:-	Mr Kevin Dawson		Typical Core Thickness - Slow	Min = > 0.45mm	Max = < 40mm	
Authorised By:-	Mr Dennis Dixon		Typical Core Shape:-	Any Complexity		
Process Application:-	Medium Pressure		Typical Core Features:-	Any Detail		
Ceramic Core Body Composition		Limits	Typical Result - % of Ceramic Core Body			
Silica	SiO ₂	+/- N/A %	88.91%			
Zircoson	ZrSiO ₄	+/- N/A %	3.49%			
Alumina	Al ₂ O ₃	+/- N/A %	3.53%			
Other(s)		+/- N/A %	4.07%			
Trace Element Analysis		Limits	Typical Result			
Bismuth	Bi	+/- 1 ppm	5 ppm			
Iron	Fe	+/- 50 ppm	250 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 1200°C			
Apparent Porosity		+/- 2.50 %	29 %			
True Porosity		+/- 2.50 %	31 %			
Water Absorption		+/- 2.50 %	20 %			
Apparent Bulk Density		+/- 0.50 %	1.75 gms/cm3			
Bulk Density		+/- 0.50 %	2.25 gms/cm3			
Creep Test		+/- 0.50 %	0.30 mm			
Slump Test		+/- 0.10 %	0.10 mm			
Thermal Expansion @ 1200°C		+/- 0.10 %	0.15 %			
Loss on Ignition		+/- 0.50 %	14.45 %			
Process Shrink - From Mould to Fired		Limits	Typical Result - Fired to 1200°C			
Free Linear Shrinkage (Tool to Fired)		+/- 10 %	1.00 %			
Chemical Analysis		Limits	Typical Result - Fired to 1200°C		Typical Result - Fired to 1500°C	
Cristobalite - Post Process Fired		+/- 5 %	25 %		75 %	
Leachability - Moderate Sludge		+/- N/A	100 %		100 %	
Leachability - Break Up Time		+/- 10 %	60 Minutes		90 Minutes	
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		+/- 10 %	1813	12.50	12.50	3.50
Fired @ 1200°C & Tested @ 20°C - Not Impregnated		+/- 10 %	2538	17.50	17.50	0.75
PVA Impregnated / Cured @ 120°C & Tested @ 20°C		+/- 10 %	5076	35.00	35.00	0.55
Fired & Tested @ 1500°C - Not Impregnated		+/- N/A %	N/A	N/A	N/A	N/A
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						