LIST OF FIGURES

Figure 1.1.1 Porous ceramics	2
Figure 1.2.1 Application leaky ceramics in Engineering	3
Figure 1.2.2 Task in Pearmeable ceramics in industry	4
Figure 1.3.1 Spinel	5
Figure 1.4.1 Thermal Heat Flux	6
Figure 1.4.2 Insulation Airoplane	6
Figure 1.5.1 Biomaterial Implant	8
Figure 1.5.2 Tissue response to porous material	9
Figure 1.6.1 Porous Refractory Bricks	10
Figure 1.7.1 Electrochemical porous gas sensor	11
Figure 1.7.2 Alumina porous gas sensor	
Figure 1.8.1 Porous alumina Energy storage Devices	12
Figure 1.9.1 Heat passes through the absorbent material	13
Figure 1.10.1 Ceramic Membrane	14
Figure 3.1 XRD of Porous MgO firing temp 1100 °C	34
Figure 3.2 SEM of Porous MgO firing temp 1100°C	35
Figure 3.3. pore size distribution of Porous MgO firing temp 1100°C (SP 1 h)	36
Figure 3.4. TGA of Porous MgO firing temp 1100 °C	37
Figure 4.1 Thermal Conductivity of Spongy MgO with different number of elucidation treatment.	43

Figure 4.2 XRD Pattern of Spongy MgO with different number of elucidation	11
Figure 4.3 Percentage corrosion of Spongy MgO with diverse number of elucidation treatment	45
Figure 4.4 Archimedies principle used for bulk density measurement	49
Figure 4.5 . Bulk density of Spongy MgO with different number of elucidation treatments	50
Figure 4.6 AP of spongy MgO with different number of elucidation treatments	50
Figure 4.7. SEM of spongy MgO with first number of elucidation treatment	51
Figure 4.8 SEM of spongy MgO with 5 number of elucidation treatment	51
Figure 4.9 Thermal gravimetric analysis curve of PMS5	52
Figure 4.10 DTA of Spongy MgO with 5 number of elucidation healing	52
Figure 4. 11 Water Falling Head Test Method	53
Figure 4.12 Pearmeability of spongy MgO with different number of elucidation treatment	54
Figure 4.13 Relative density of spongy MgO with diverse number of elucidation dealing.	55
Figure 4.14 True Porosity of Spongy MgO with diverse number of elucidation treatment	56
Figure 4.15 Thermal shock Measurement of spongy MgO with different number of elucidation treatment by compressive strength.	57
Figure 4.16 Thermal shock measurement of spongy MgO with different number of elucidation treatment at temp 1400°C SP 5 min.	58
Figure 4.17 Residual Compressive strength of spongy MgO with diverse number of elucidation treatment at temp 1400°C Figure 4.18 Thermal shock measurement of Spongy MgO with dissimilar number of elucidation treatment at temp 1420°C	59
Figure 4.19 Residual Compressive strength of spongy MgO with different number of elucidation treatment at temp 1420°C	60
Figure 4.20. Thermal shock measurement of Spongy MgO with diverse quantity of elucidation treatment at temp 1440°C	61 62
Figure 4.21. Residual Compressive strength of spongy MgO with diverse number of elucidation treatment at temp 1440°C Figure 4.22. Thermal Exp of Spongy MgO with different number of elucidation	63
treatment at temp 1440 °C	64

Figure 5.1 Micrometrics Porositymeter	66
Figure 5.2 Normal curve for pore size distribution	67
Figure 5.3 Pore size distribution of Porous MgO without solution treatment	68
Figure 5.4. Pore size distribution of Porous MgO First solution treatment	69
Figure 5.5. Pore size distribution of Porous MgO second solution treatment	69
Figure 5.6. Pore size distribution of Porous MgO third solution treatment	70
Figure 5.7 Pore size distribution of Porous MgO fourth solution treatment	70
Figure 5.8 Pore size distribution of Porous MgO fifth solution treatment	71
Figure 5.9. Kinetics of Pore size distribution of Porous MgO fifth solution treatment	71
Figure 5.10 Porous Material in Recuperators/Regenerators in Glass tank furnance	72
Figure 5.11 Chain of porous Material in Recuperators/Regenerators in Glass tank furnance	73
Figure 5.12. Response of NO_X in porous spinel on temperature 1100°C	75
Figure 5.13. Water mobility of porous MgO with different solution treatment	78
Figure 5.14. Percentage of IL water of porous MgO different solution treatment,	78
Figure 5.15. Volume fraction of porous spinel with Cl addition.	79
Figure 5.16. IL pore volume of porous MgO after 5 solution treatment	80
Figure 5.17. Failure mechanism for analysis of failure	81
Figure 5.18. Failure lessening instrument for analysis of failure reduction	85
Figure 5.19. Failure possibility for different measurement	86
Figure 6.1 Measurement cycle of transient time response.	89
Figure 6.2 Graphical Response of temperature and time in porous spinel.	90
Figure 6.3. Graphical response derivative of temperature and time in porous spinel.	91
Figure 6.4.1 Fractal Response of temperature and time in porous spinel when D=3	92
Figure 6.4.2 Fractal Response of temperature and time in porous spinel when D=2	93
Figure 6.5.1 Laser Pulse passes through the porous media	94
Figure 6.5.2 Response of Laser pulse passes through the porous	94

Figure 7.1. Nomenclature of porous media	96
Figure 7.2.1 . Adsorption and desorption isotherm or corresponding analogous sample –PMS0	98
Figure 7.2.2. Adsorption and desorption isotherm or corresponding analogous o sample –PMS1	f 99
Figure 7.2.3 . Adsorption and desorption isotherm or corresponding analogous sample –PMS2	100
Figure 7.2.4. Adsorption and desorption isotherm or corresponding analogous sample –PMS3	of 101
Figure 7.2.5 . Adsorption and desorption isotherm or corresponding analogous sample –PMS4	102
Figure 7.2.6. Adsorption and desorption isotherm or corresponding analogous sample –PMS5	us of 103
Figure 8.1 Coefficient of thermal expansion for zircon porous spinel	106
Figure8.2 Thermal Conductivity for zircon porous spinel	107
Figure 8.3 Compressive strength for ZPSP	107
Figure 8.4 Comparatively study of fractal structure of PSP and ZPSP	108
Figure 8.5 Pore Size distribution of ZPSP	109
Figure 8.6 Kinetics pore size distribution of ZPSP	110
Figure 8.7 Adsorption and desorption isotherm and corresponding pore distribution of sample –ZPSP	size 111
Figure 8.8 Volume fraction by addition of Cl in ZPSP	112
Figure 8.9 IL Pore volume of ZPSP	113
Figure 8.10 Relationship between IL Water and Time in minutes.	114
Figure 8.11 Direc thermal pulse response curve on ZPSP and porous MgO different solution treatments	with 115
Figure 8.12 Measurement of compressive strength for thermal shock.	116
Figure 8.13 Coverage of compressive strength for thermal shock in singular exting rotation	guish 116
Figure 8.14 Residual compressive strength for different quenching cycle	117

Figure 9.1.1 Comparetively BD of SP,ZSP,PSP,ZPSP	119
Figure 9.1.2 Comparetively AP of SP,ZSP,PSP,ZPSP	119
Figure 9.2 Corrosion behavior of SP,ZSP.PSP.ZPSP	120
Figure 9.3.1 Derivative Behavior of Dirac Thermal Pulse SP,ZSP.PSP.ZPSP	121
Figure 9.3.2 Co-eff of Thermal expansion of SP,ZSP.PSP.ZPSP	122
Figure 9.3.3 Comparatively study of compressive strength of SP,ZSP.PSP.ZPSP	123
Figure 9.3.4 Measurement of Thermal shock by Compressive strength in SP,PSP,ZS	SP ZPSP
Figure 9.3.5 Residual strength for different cycle	124
Figure 9.3.6 Compressive strength strength for different shoaking period	125
Figure 9.4 failure probability for different measurement cycle.	126

LIST OF BIOCK DIAGRAM

Block Diagram 3.1 40 % Porous MgO firing temp 1100 °C at Soaking period 1 hour (M1) 22 Block Diagram 3.2 30% Porous MgO firing temp 1100 °C at Soaking period 1 hour (M2) 22 Block Diagram 3.3 40 % Porous MgO firing temp 1200 °C at Soaking period 1 hour (M3) 23 Block Diagram 3.4 30% Porous MgO firing temp 1200 °C at Soaking period 1 hour (M4) 23 Block Diagram 3.5 40 % Porous MgO firing temp 1300 °C at Soaking period 1 hour (M5) 24 Block Diagram 3.6 30% Porous MgO firing temp 1300 °C at Soaking period 1 hour (M6) 24 Block Diagram 3.7 40 % Porous MgO firing temp 1100 °C at Soaking period 2 hour (M7) 25 Block Diagram 3.8 30% Porous MgO firing temp 1100 °C at Soaking period 2 hour (M8) 25 Block Diagram 3.9 40 % Porous MgO firing temp 1200 °C at Soaking period 2 hour (M9) 26 Block Diagram 3.10 30% Porous MgO firing temp 1200 °C at Soaking period 2 hour (M10) 26 Block Diagram 3.11 40 % Porous MgO firing temp 1300 °C at Soaking period 2 hour (M11) 27 Block Diagram 3.12 30% Porous MgO firing temp 1300 °C at Soaking period 2 hour (M12) 27 105 Block diagram 8.1 Zircon Porous Spinel