

# Material Data Sheet

## Porous Ceramics

Mantec Filtration, a division of Mantec Technical Ceramics Ltd, has over a quarter of a century of manufacturing experience and is an acknowledged leader in the field of industrial porous ceramics.

Mantec has a range of standard ceramic materials, each having its own unique characteristics and capabilities. The materials are **CORALITH**, **PYROLITH**, **MICROLITH** and **CELLOTON**. This data sheet details the main physical properties for each.

### CORALITH

Grade	Filtration Nominal (microns)		Pore Diameter (microns)		Porosity (%)	Permeability (Darcies)	Strength (Mpa)
	Air/Gas	Liquid	Average	Maximum			
<b>C0</b>	0.3	1	16	20	35 - 45	0.5 - 1.2	25.5
<b>C9</b>	1	2	20	25	35 - 45	1.8 - 3.4	23.5
<b>C8</b>	3	6	30	35	35 - 45	3.7 - 6.7	20.5
<b>C6</b>	10	20	50	70	35 - 45	16.6 - 31.0	15.5
<b>C5</b>	20	40	90	110	35 - 45	38.3 - 71.1	12.0
<b>C5B</b>	20	40	90	110	45 - 55	38.3 - 71.1	8.0
<b>C4</b>	30	60	155	200	35 - 45	119 - 223	10.0
<b>C3</b>	50	150	300	400	35 - 45	227 - 423	7.5
<b>C2</b>	100	230	525	650	35 - 45	373 - 693	5.0

Aluminosilicate particles bonded by glass. Coralith can withstand hot and cold acids (not hydrofluoric acid or acid fluorides), alkaline solutions up to pH9 and hot gases up to 900° C.

### Chemical Composition

SiO<sub>2</sub>                    10%  
 Al<sub>2</sub>O<sub>3</sub>                    85%  
 Trace Elements

Average Coefficient of Thermal Expansion for Coralith is 5 x 10<sup>-6</sup>  
 Average Bulk Density for Coralith is 2.0 g/cm<sup>3</sup>

## PYROLITH

Aluminosilicate particles bonded by glass. Pyrolith can withstand hot and cold acids (not hydrofluoric acid or acid fluorides), alkaline solutions up to pH9 and hot gases up to 900° C.

Average Coefficient of Thermal Expansion for Pyrolith is  $7 \times 10^{-6}$   
Average Bulk Density for Pyrolith is  $1.5 \text{ g/cm}^3$

### Chemical Composition

SiO <sub>2</sub>	57%
Al <sub>2</sub> O <sub>3</sub>	36%
Trace Elements	

Grade	Filtration Nominal (microns)		Pore Diameter (microns)		Porosity (%)	Permeability (Darcies)	Strength (Mpa)
	Air/Gas	Liquid	Average	Maximum			
P9	1	2	20	25	35 - 45	1.5 - 3.4	15.0
P8	3	6	30	35	35 - 45	3.0 - 6.7	10.5
P6	10	20	50	70	35 - 45	13.8 - 31.0	8.0
P5	20	40	90	110	35 - 45	38.4 - 71.1	6.5
P4	30	60	155	200	35 - 45	119 - 223	6.5
P3	50	150	300	400	35 - 45	227 - 423	5.0
P2	100	230	525	650	35 - 45	373 - 693	3.5

## MICROLITH

Porous Siliceous Porcelain. Microlith's extremely fine pore structure can be utilised for various applications, such as controlled impregnant release and bleed valves in gas analysers.

### Chemical Composition

SiO <sub>2</sub>	68%
Al <sub>2</sub> O <sub>3</sub>	24%
Trace Elements	

Grade	Average Pore Size (micron)	Porosity (%)	Flexural Strength (Mpa)	Bulk Density (g/cm <sup>3</sup> )
B9L	0.35	30 - 40	14.3	1.78

## CELLOTON

Porcelain Mullite. Reaction bonded micro porous mullite media. Designed for resistance to acids and alkalis at high temperature. Suitable for use as a permeable membrane in soil science or geology studies.

### Chemical Composition

SiO <sub>2</sub>	37%
Al <sub>2</sub> O <sub>3</sub>	60%
Trace Elements	

Grade	Max. Pore Size (micron)	Air Entry Value (bar)	Porosity (%)	Flexural Strength (Mpa)	Thermal Coefficient of Expansion	Bulk Density (g/cm <sup>3</sup> )
V1	1	2	35 - 45	34.0	$6 \times 10^{-6}$	1.7
V3	3	1	35 - 45	28.0	$6 \times 10^{-6}$	1.7

**NB:** The chemical resistance for ceramic media is dependent on the 'in-situ' conditions and should be checked for each application. The material data sheet has been compiled as a guide to material selection and in some cases is the 'average' for any one grade or physical size / dimension.