

**dalcon<sup>TM</sup> PHYSICAL PROPERTIES (Typical)**

<b>DESCRIPTION</b>	<b>PAGE</b>
Table of contents	1
dalcon <sup>TM</sup> 001	2
dalcon <sup>TM</sup> 006	4
dalcon <sup>TM</sup> 018	6
dalcon <sup>TM</sup> 020	8
dalcon <sup>TM</sup> 021	10
dalcon <sup>TM</sup> 025	12
dalcon <sup>TM</sup> 086	14



## dalcon™ 001

Issued 09/09/16		PHYSICAL PROPERTIES (Typical)		Page 1 of 2
<b>Ingredients:</b> 100% Virgin PTFE		<b>Filler/Pigment:</b> None		<b>Colour:</b> White (Natural)
MECHANICAL PROPERTIES		Value	Units	Standard
Tensile Strength	(Moulding Direction)	15 - 40	MPa	ASTM D638
Elongation at Break	(Moulding Direction)	150 - 400	%	ASTM D638
Density		2.13 – 2.19	g/cc	ASTM D792
Hardness		57 - 70	Shore D	ASTM D2240
Haze		80 - 85	%	ASTM D1003
Deformation under load	@ 1 Hr , 23°C, 14.2MPa @ 24 Hr , 23°C, 14.2MPa @ Permanent Deformation @ 1Hr, 150°C, 5MPa	11.8 14.3 7.9 10.0	% % % %	ASTM D621
Compressive Modulus	@ 0.2% Offset, 23°C	600 - 700	MPa	ASTM D621
Flexural Yield Strength	@ 0.2% Offset, 23°C	-	MPa	ASTM D790
Flexural Modulus	@ 23°C	690	MPa	ASTM D790
Compressive Strength	@ 0.2% Offset, 23°C @ 0.2% Offset, 150°C	- -	MPa MPa	ASTM D695
ELECTRICAL PROPERTIES		Value	Units	Standard
Dielectric Strength	@ Air (Tape) @ Oil (Extrusion/Moulding)	60 – 80 35/24	KV/mm KV/mm	ASTM D149
Proof Test	(Dielectric Strength)	24(Pass)	KV/mm	BS6564 (E)
Dielectric Constant	@ 60 Hz @ 10 <sup>6</sup> Hz	2.1 2.1	- -	ASTM D150
Dissipation	@ 60 Hz @ 10 <sup>6</sup> Hz	<0.0003 <0.0003	- -	ASTM D150
Resistivity	@ Surface @ Volume	10 <sup>17</sup> 10 <sup>18</sup>	Ω Ω cm	ASTM D257
THERMAL PROPERTIES		Value	Units	Standard
Point of Fusion DSC		327	°C	ASTM D3417
Max. Working Temperature		260	°C	-
Max. Working Temperature	@ Short Periods	300	°C	-
Min. Working Temperature		-200	°C	-
Thermal Conductivity	@ Moulding Direction (MD)	0.24	W/(m.K)	ASTM C177
Coefficient of Linear Thermal Expansion TMA(23 - 200°C)	@ Moulding Direction (MD)	12	10 <sup>-5</sup> /°C	ASTM D696
Flammability		None	-	UL94V(0)
Flash Point		530	°C	ASTM D1929
Limiting Oxygen Index		>95	%	ASTM D2863
WEAR PROPERTIES		Value	Units	Standard
Coefficient of Friction	@ Dry sliding @ Static @ Dynamic	- 0.08 0.06	- - -	ASTM D1894

**The above properties are typical and are only intended to be used as a guide**



## dalcon<sup>TM</sup> 001

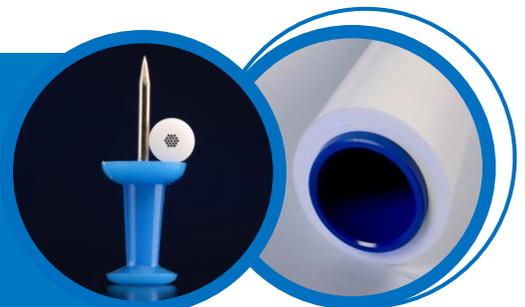
<i>Issued 09/09/16</i>	<b>PHYSICAL PROPERTIES (Typical)</b>	Page 2 of 2
<b>Ingredients:</b> 100% Virgin PTFE	<b>Filler/Pigment:</b> None	<b>Colour:</b> White (Natural)
<b>CHEMICAL RESISTANCE</b>		
<p>The strength of the carbon – fluorine bond and the shielding of the carbon chains by the fluorine atoms result in a chemical inertness which is virtually universal, except alkali metals, fluorine under certain conditions, and some fluorine compounds at elevated temperatures.</p> <p>Some Fluorinated Hydrocarbons (refrigerants) cause reversible swelling i.e. Tetrafluorodichloroethane Frigen 21, giving a 9.6% weight increase.</p>		
<b>APPLICATIONS &amp; INDUSTRIES</b>		
<p><b>General:</b> The static and dynamic friction coefficient are numerically equal, Consequently no “Stick Slip” occurs.</p> <p><b>Chemical:</b> Dynamic &amp; shaft seals. Pipes &amp; tubing for carrying chemicals. Seats &amp; gaskets. Flat gaskets are used to seal flanges in pipelines.</p> <p><b>Construction:</b> Bridge bearings. Slide bearings.</p> <p><b>Electrical:</b> Communications, radio &amp; television engineering, cable insulation. Electrical plant construction &amp; electronics industry (connectors &amp; terminals). General electrical equipment (PTFE excellent electrical insulating material). Power plant installations (switchgear).</p> <p><b>Engineering:</b> Anti-friction bearing cages &amp; bearing plates. Bearing and bushes. Diaphragm pumps, Film bearings, Multi-layer composite bearings. Fabric bearings. Laboratory equipment. Measuring &amp; control technology. Pipe supports. Expansion bellows. Glandless valves &amp; pumps, valves &amp; pumps, valve seats. Piston rings in hydraulic systems. Piston rod packing used in compressor plunger pumps &amp; valves.</p> <p><b>Food:</b> Dynamic &amp; shaft seals (used in the food processing industry). Linings &amp; coatings (fertiliser plant &amp; food industry line equipment).</p>		
<b>The above properties are typical and are only intended to be used as a guide</b>		



## dalcon<sup>TM</sup> 006

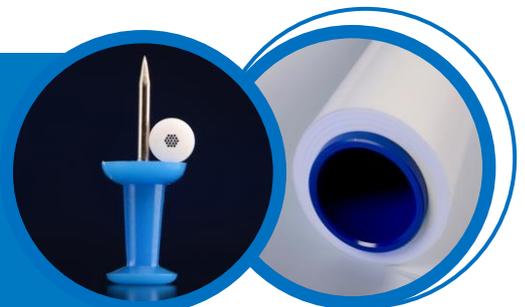
<i>Issued 25/09/97</i>		<b>PHYSICAL PROPERTIES (Typical)</b>		<i>Page 1 of 2</i>
<b>Ingredients:</b> 75% Virgin PTFE <b>Filler/Pigment:</b> 25% Glass Fibre (by weight) <b>Colour:</b> Off White				
<b>MECHANICAL PROPERTIES</b>		<b>Value</b>	<b>Units</b>	<b>Standard</b>
Tensile Strength	(Moulding Direction)	11 - 15	MPa	BS2782:Pt3
Elongation at Break	(Moulding Direction)	120 - 270	%	BS2782:Pt3
Density		2.19 – 2.27	g/cc	BS2782:Pt6
Hardness		64 - 68	Shore D	ASTM D2240
Deformation under load	@ 1 Hr , 23°C, 14.2MPa @ 24 Hr , 23°C, 14.2MPa @ Permanent Deformation @ 1Hr, 150°C, 5MPa	9.0 12.4 6.4 9.2	% % % %	ASTM D621
Flexural Yield Strength	@ 0.2% Offset, 23°C	5.5	%	ASTM D790
Flexural Modulus	@ 23°C	1000	MPa	ASTM D790
Compressive Strength	@ 0.2% Offset, 23°C @ 0.2% Offset, 150°C	7.2 1.8	MPa MPa	ASTM D695
<b>ELECTRICAL PROPERTIES</b>		<b>Value</b>	<b>Units</b>	<b>Standard</b>
Dielectric Strength	@ Air @ Oil	12.9 34.2	KV/mm KV/mm	ASTM D149
Proof Test	(Dielectric Strength)	-	KV/mm	BS6564 (E)
Dielectric Constant	@ 60 Hz @ 10 <sup>6</sup> Hz	2.63 2.85	- -	ASTM D150
Dissipation	@ 60 Hz @ 10 <sup>6</sup> Hz	0.0718 0.0028	- -	ASTM D150
Resistivity	@ Surface @ Volume	>10 <sup>16</sup> >10 <sup>17</sup>	Ω Ω cm	ASTM D257
<b>THERMAL PROPERTIES</b>		<b>Value</b>	<b>Units</b>	<b>Standard</b>
Point of Fusion DSC		327	°C	ASTM D3417
Max. Working Temperature		260	°C	-
Max. Working Temperature	@ Short Periods	300	°C	-
Min. Working Temperature		-200	°C	-
Thermal Conductivity	@ Moulding Direction (MD)	0.41	W/(m.K)	ASTM C177
Coefficient of Linear Thermal Expansion TMA(23 - 200°C)	@ Moulding Direction (MD) @ Right Angles to MD	136 84	10 <sup>-6</sup> /°C 10 <sup>-6</sup> /°C	ASTM D696
Flammability		-	-	UL94V(0)
Flash Point		630	°C	ASTM D1929
Limiting Oxygen Index		98 - 100	%	ASTM D2863
<b>WEAR PROPERTIES</b>		<b>Value</b>	<b>Units</b>	<b>Standard</b>
Coefficient of Friction	@ Dry sliding @ Static @ Dynamic	- - -	- - -	ASTM D1894

**The above properties are typical and are only intended to be used as a guide**



## dalcon<sup>TM</sup> 006

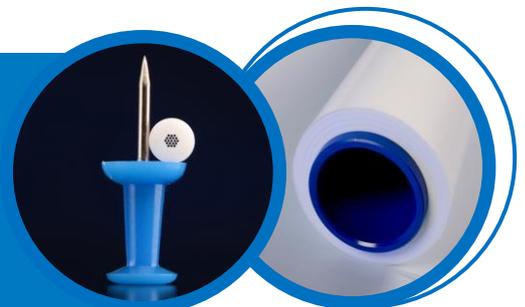
<i>Issued 25/09/97</i>	<b>PHYSICAL PROPERTIES (Typical)</b>	Page 2 of 2
<b>Ingredients:</b> 75% Virgin PTFE <b>Filler/Pigment:</b> 25% Glass Fibre (by weight) <b>Colour:</b> Off White		
<b>CHEMICAL RESISTANCE</b>		
<p>The strength of the carbon – fluorine bond and the shielding of the carbon chains by the fluorine atoms result in a chemical inertness which is virtually universal, except alkali metals, fluorine under certain conditions, and some fluorine compounds at elevated temperatures. Resistant to organic solvents.</p> <p><b>This Compound has a fair resistance to the following chemicals:</b> Ammonium hydroxide, Bromine, Cromic acid, Hydroboric acid, Hydrochloric acid, Hydrocyanic acid, Nitric acid (0 – 50%), Phenol, Sodium hydroxide.</p> <p><b>This compound has an unsatisfactory resistance to the following chemicals:</b> Fluorosilicic acid, Hydrofluoric acid, Hydrogen sulphide (solution), Sodium silicate.</p>		
<b>APPLICATIONS &amp; INDUSTRIES</b>		
<p><b>General:</b> 25% Glass fibre is the most widely used filter. It improves the creep resistance, compressive strength, rigidity, and wear of PTFE, both at low &amp; high temperatures. It is chemically stable (except to strong alkalis &amp; hydrochloric acid – HF). 25% glass filter improves the wear resistance properties of PTFE.</p> <p><b>Chemical:</b> Dynamic &amp; shaft seals. Seals &amp; gaskets. Flat gaskets are used to seal flanges in pipelines.</p> <p><b>Construction:</b> Bridge bearings. Slide bearings.</p> <p><b>Electrical:</b> None</p> <p><b>Engineering:</b> Anti-friction bearing cages &amp; bearing plates. Bearing, bushes, shaft bearings / seals (in combustion engines). Chain tension slide bearings, Film bearings, Multi-layer composite bearings. Laboratory equipment. Measuring &amp; control technology. Pipe supports, Glandless valves &amp; pumps, valve seats. Piston rings in hydraulic systems. Piston rod packings used in compressor plunger pumps &amp; valves.</p> <p><b>Food:</b> None.</p>		
<b>The above properties are typical and are only intended to be used as a guide</b>		



## dalcon<sup>TM</sup> 018

Issued 01/07/16		<b>PHYSICAL PROPERTIES (Typical)</b>		Page 1 of 2
<b>Ingredients:</b> 85% Virgin PTFE <b>Filler/Pigment:</b> 15% Graphite (by weight) <b>Colour:</b> Dark Grey				
<b>MECHANICAL PROPERTIES</b>		<b>Value</b>	<b>Units</b>	<b>Standard</b>
Tensile Strength	(Moulding Direction)	13.5 - 25	MPa	BS2782:Pt3
Elongation at Break	(Moulding Direction)	120 - 250	%	BS2782:Pt3
Density		2.10 – 2.18	g/cc	BS2782:Pt6
Hardness		65 - 67	Shore D	ASTM D2240
Deformation under load	@ 1 Hr , 23°C, 14.2MPa @ 24 Hr , 23°C, 14.2MPa @ Permanent Deformation @ 1Hr, 150°C, 5MPa	- - - -	% % % %	ASTM D621
Flexural Yield Strength	@ 0.2% Offset, 23°C	-	MPa	ASTM D790
Flexural Modulus	@ 23°C	-	MPa	ASTM D790
Compressive Strength	@ 0.2% Offset, 23°C	-	MPa	ASTM D695
<b>ELECTRICAL PROPERTIES</b>		<b>Value</b>	<b>Units</b>	<b>Standard</b>
Dielectric Strength		1-2	KV/mm	AST D149
Proof Test	(Dielectric Strength)	-	KV/mm	BS6564 (E)
Dielectric Constant	@ 60 Hz @ 10 <sup>6</sup> Hz	- -	- -	ASTM D150
Dissipation	@ 60 Hz @ 10 <sup>6</sup> Hz	- -	- -	ASTM D150
Resistivity	@ Surface @ Volume	10 <sup>12</sup> 10 <sup>11</sup>	Ω Ω cm	ASTM D257
<b>THERMAL PROPERTIES</b>		<b>Value</b>	<b>Units</b>	<b>Standard</b>
Point of Fusion DSC		327	°C	ASTM D3417
Max. Working Temperature		260	°C	-
Max. Working Temperature	@ Short Periods	300	°C	-
Min. Working Temperature		-200	°C	-
Thermal Conductivity	@ Moulding Direction (MD)	0.78	W/(m.K)	ASTM C177
Coefficient of Linear Thermal Expansion TMA(23 - 200°C)	@ Moulding Direction (MD) @ Right Angles to MD	- -	10 <sup>-6</sup> /°C 10 <sup>-6</sup> /°C	ASTM D696
Flammability		-	-	UL94V(0)
Flash Point		630	°C	ASTM D1929
Limiting Oxygen Index		-	%	ASTM D2863
<b>WEAR PROPERTIES</b>		<b>Value</b>	<b>Units</b>	<b>Standard</b>
Coefficient of Friction	@ Dry sliding @ Static @ Dynamic	- - -	- - -	ASTM D1894

**The above properties are typical and are only intended to be used as a guide**



## dalcon<sup>TM</sup> 018

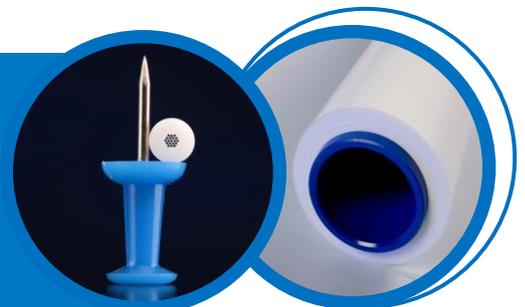
<i>Issued 01/07/16</i>	<b>PHYSICAL PROPERTIES (Typical)</b>	Page 2 of 2
<b>Ingredients:</b> 85% Virgin PTFE <b>Filler/Pigment:</b> 15% Graphite (by weight) <b>Colour:</b> Dark Grey		
<b>CHEMICAL RESISTANCE</b>		
The strength of the carbon – fluorine bond and the shielding of the carbon chains by the fluorine atoms result in a chemical inertness which is virtually universal, except alkali metals, fluorine under certain conditions, some fluorine compounds & halogen gases at elevated temperatures.		
<b>APPLICATIONS &amp; INDUSTRIES</b>		
<p><b>General:</b> Graphite filler improves the sliding properties &amp; thermal conductivity of PTFE and has one of the lowest coefficient of frictions. It has low wear in water and is a good bearing material on soft metals &amp; in high speed contact.</p> <p><b>Chemical:</b> Dynamic &amp; shaft seals.</p> <p><b>Construction:</b> Bridge bearings. Slide bearings.</p> <p><b>Electrical:</b> None</p> <p><b>Engineering:</b> Anti-friction bearing cages &amp; bearing plates. Bearing, bushes, shaft bearings / seals (in combustion engines). Film bearings, Multi-layer composite bearings. Fabric bearings. Laboratory equipment. Measuring &amp; control technology. Pipe supports. Expansion bellows. Glandless valves &amp; pumps, valves &amp; pumps, valve seats. Piston rings in hydraulic systems. Piston rod packings used in compressor plunger pumps &amp; valves.</p> <p><b>Food:</b> None.</p>		
<b>The above properties are typical and are only intended to be used as a guide</b>		



## dalcon™ 020

Issued 25/09/97		PHYSICAL PROPERTIES (Typical)		Page 1 of 2
Ingredients: Virgin PTFE Filler/Pigment: Carbon (Anti-Static) Colour: Black				
MECHANICAL PROPERTIES		Value	Units	Standard
Tensile Strength	(Moulding Direction)	20 - 35	MPa	ASTM D638
Elongation at Break	(Moulding Direction)	150 - 350	%	ASTM D638
Density		2.13 - 2.19	g/cc	ASTM D792
Hardness		57 - 64	Shore D	ASTM D2240
Deformation under load	@ 1 Hr , 23°C, 14.2MPa @ 24 Hr , 23°C, 14.2MPa @ Permanent Deformation @ 1Hr, 150°C, 5MPa	Similar to dalcon™ 001	% % %	ASTM D621
Flexural Yield Strength	@ 0.2% Offset, 23°C	-	MPa	ASTM D790
Flexural Modulus	@ 23°C	dalcon™ 001	MPa	ASTM D790
Compressive Strength	@ 0.2% Offset, 23°C @ 0.2% Offset, 150°C	- -	MPa MPa	ASTM D695
ELECTRICAL PROPERTIES		Value	Units	Standard
Dielectric Strength	@ Air (Tape) @ Oil (Extrusion/Moulding)	- -	KV/mm KV/mm	ASTM D149
Proof Test	(Dielectric Strength)	-	KV/mm	BS6564 (E)
Dielectric Constant	@ 60 Hz @ 10 <sup>6</sup> Hz	- -	- -	ASTM D150
Dissipation	@ 60 Hz @ 10 <sup>6</sup> Hz	- -	- -	ASTM D150
Resistivity	@ Surface @ Volume	- -	Ω Ω cm	ASTM D257
Conductivity:				
Electrical Resistance	per 50mm	0 - 50	K Ω	
Electrical Conductivity	per 25.4 x 254mm	0 - 40	M Ω	
THERMAL PROPERTIES		Value	Units	Standard
Point of Fusion DSC		327	°C	ASTM D3417
Max. Working Temperature		260	°C	-
Max. Working Temperature	@ Short Periods	300	°C	-
Min. Working Temperature		-200	°C	-
Thermal Conductivity	@ Moulding Direction (MD)	0.24	W/(m.K)	ASTM C177
Coefficient of Linear Thermal Expansion TMA(23 - 200°C)	@ Moulding Direction (MD) @ Right Angles to MD	142 152	10 <sup>-6</sup> /°C 10 <sup>-6</sup> /°C	ASTM D696
Flammability		-	-	UL94V(0)
Flash Point		530	°C	ASTM D1929
Limiting Oxygen Index		>95	%	ASTM D2863
WEAR PROPERTIES		Value	Units	Standard
Coefficient of Friction	@ Dry sliding @ Static @ Dynamic	- 0.08 0.06	- - -	ASTM D1894

The above properties are typical and are only intended to be used as a guide



## **dalcon™ 020**

<i>Issued 25/09/97</i>	<b>PHYSICAL PROPERTIES (Typical)</b>	Page 2 of 2
<b>Ingredients:</b> Virgin PTFE <b>Filler/Pigment:</b> Carbon (Anti-Static) <b>Colour:</b> Black		
<b>CHEMICAL RESISTANCE</b>		
<p>The strength of the carbon – fluorine bond and the shielding of the carbon chains by the fluorine atoms result in a chemical inertness which is virtually universal, except alkali metals, fluorine under certain conditions, and some fluorine compounds at elevated temperatures.</p> <p>Some Fluorinated Hydrocarbons (refrigerants) cause reversible swelling i.e. Teirafuorodichloroethane Frigen 21, giving a 9.6% weight increase.</p>		
<b>APPLICATIONS &amp; INDUSTRIES</b>		
<p><b>General:</b> The static and dynamic friction coefficient are numerically equal, consequently no 'Stick Slip' occurs.</p> <p><b>Chemical:</b>  None.</p> <p><b>Construction:</b>  None.</p> <p><b>Electrical:</b>  Ideal for Anti-Static applications. Anti-Static Hose Linings. Anti-Static Diaphragms.</p> <p><b>Engineering:</b>  None.</p> <p><b>Food:</b>  None.</p>		
<b>The above properties are typical and are only intended to be used as a guide</b>		



## **dalcon<sup>TM</sup> 021**

<i>Issued 25/09/97</i>		<b>PHYSICAL PROPERTIES (Typical)</b>		Page 1 of 2
<b>Ingredients: 75% Virgin PTFE Filler/Pigment: 25% Carbon Coke (by weight) Colour: Black</b>				
<b>MECHANICAL PROPERTIES</b>		<b>Value</b>	<b>Units</b>	<b>Standard</b>
Tensile Strength	(Moulding Direction)	12- 25	MPa	BS2782:Pt3
Elongation at Break	(Moulding Direction)	50 - 250	%	BS2782:Pt3
Density		2.05 - 2.13	g/cc	BS2782:Pt6
Hardness		70 - 72	Shore D	ASTM D2240
Deformation under load	@ 1 Hr , 23°C, 14.2MPa	4.8	%	ASTM D621
	@ 24 Hr , 23°C, 14.2MPa	6.6	%	
	@ Permanent Deformation	-	%	
	@ 1Hr, 150°C, 5MPa	6.6	%	
Flexural Yield Strength	@ 0.2% Offset, 23°C	10.3	MPa	ASTM D790
Flexural Modulus	@ 23°C	1090	MPa	ASTM D790
Compressive Strength	@ 0.2% Offset, 23°C	9.16	MPa	ASTM D695
	@ 0.2% Offset, 150°C	2.3	MPa	
<b>ELECTRICAL PROPERTIES</b>		<b>Value</b>	<b>Units</b>	<b>Standard</b>
Dielectric Strength	@ Air	-	KV/mm	ASTM D149
	@ Oil	-	KV/mm	
Proof Test	(Dielectric Strength)	-	KV/mm	BS6564 (E)
Dielectric Constant	@ 60 Hz	-	-	ASTM D150
	@ 10 <sup>6</sup> Hz	-	-	
Dissipation	@ 60 Hz	-	-	ASTM D150
	@ 10 <sup>6</sup> Hz	-	-	
Resistivity	@ Surface	-	Ω	ASTM D257
	@ Volume	-	Ω cm	
<b>THERMAL PROPERTIES</b>		<b>Value</b>	<b>Units</b>	<b>Standard</b>
Point of Fusion DSC		327	°C	ASTM D3417
Max. Working Temperature		260	°C	-
Max. Working Temperature	@ Short Periods	300	°C	-
Min. Working Temperature		-200	°C	-
Thermal Conductivity	@ Moulding Direction (MD)	0.58	W/(m.K)	ASTM C177
Coefficient of Linear Thermal Expansion TMA(23 - 200°C)	@ Moulding Direction (MD)	-	10 <sup>-6</sup> /°C	ASTM D696
	@ Right Angles to MD	-	10 <sup>-6</sup> /°C	
Flammability		-	-	UL94V(0)
Flash Point		630	°C	ASTM D1929
Limiting Oxygen Index		98 - 100	%	ASTM D2863
<b>WEAR PROPERTIES</b>		<b>Value</b>	<b>Units</b>	<b>Standard</b>
Coefficient of Friction	@ Dry sliding	-	-	ASTM D1894
	@ Static	-	-	
	@ Dynamic	-	-	
<b>The above properties are typical and are only intended to be used as a guide</b>				



## **dalcon<sup>TM</sup> 021**

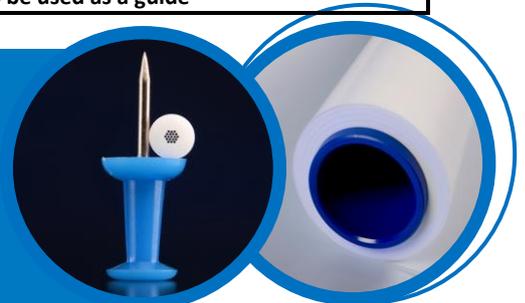
<i>Issued 25/09/97</i>	<b>PHYSICAL PROPERTIES (Typical)</b>	Page 2 of 2
<b>Ingredients:</b> 75% Virgin PTFE <b>Filler/Pigment:</b> 25% Carbon Coke (by weight) <b>Colour:</b> Black		
<b>CHEMICAL RESISTANCE</b>		
<p>The strength of the carbon – fluorine bond and the shielding of the carbon chains by the fluorine atoms result in a chemical inertness which is virtually universal, except alkali metals, fluorine under certain conditions, and some fluorine compounds halogen glass at elevated temperatures.</p> <p>Carbon/Coke is a good inert filter, except in oxidising environments where glass performs better.</p> <p>Resistant to hydrofluoric acid.</p>		
<b>APPLICATIONS &amp; INDUSTRIES</b>		
<p><b>General:</b> Carbon/Coke (soft) filler is good in dry running conditions, adds to the creep resistance, increases the hardness and raises the thermal conductivity of PTFE. Carbon/Coke (soft) compounds have good wear properties, but has low tool wear during machining, thus allowing machining to very close tolerances. Carbon/Coke (soft) compounds have some electrical conductivity and are therefore antistatic. Carbon filled compounds when combined with graphite, have excellent wear properties. The combination of the above properties make carbon/graphite compounds the preferred material for non-lubricated piston rings.</p> <p><b>Chemical:</b> Dynamic &amp; shaft seals. Seals &amp; gaskets. Flat gaskets are used to seal flanges in pipelines.</p> <p><b>Construction:</b> Bridge bearings. Slide bearings.</p> <p><b>Electrical:</b> None</p> <p><b>Engineering:</b> Anti-friction bearing cages &amp; bearing plates. Bearings, bushes, shaft bearings / seals ( in combustion engines). Film bearings. Multi-layer composite bearings. Fabric bearings. Laboratory equipment. Measuring &amp; Control technology. Pipe supports. Expansion bellow. Glandless valves &amp; pumps. Valve seats. Piston rings in hydraulic systems and compressors. Piston rod packing used in compressor plunger pumps &amp; valves.</p> <p><b>Food:</b> None.</p>		
<b>The above properties are typical and are only intended to be used as a guide</b>		



## dalcon<sup>TM</sup> 025

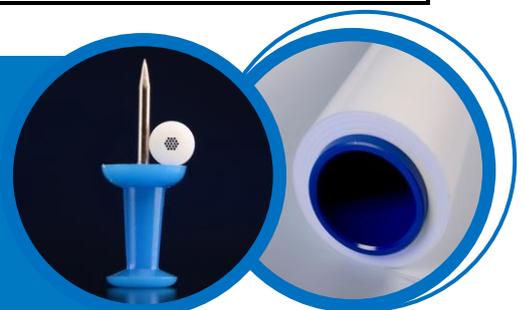
<i>Issued 25/09/97</i>		<b>PHYSICAL PROPERTIES (Typical)</b>		Page 1 of 2
<b>Ingredients:</b> 75% Virgin PTFE <b>Filler/Pigment:</b> 25% Glass Fibre, Blue (by weight) <b>Colour:</b> Blue				
<b>MECHANICAL PROPERTIES</b>		<b>Value</b>	<b>Units</b>	<b>Standard</b>
Tensile Strength	(Moulding Direction)	11- 15	MPa	BS2782:Pt3
Elongation at Break	(Moulding Direction)	120 - 270	%	BS2782:Pt3
Density		2.19 - 2.27	g/cc	BS2782:Pt6
Hardness		64 - 68	Shore D	ASTM D2240
Deformation under load	@ 1 Hr , 23°C, 14.2MPa @ 24 Hr , 23°C, 14.2MPa @ Permanent Deformation @ 1Hr, 150°C, 5MPa	9.0 12.4 6.4 9.2	% % % %	ASTM D621
Flexural Yield Strength	@ 0.2% Offset, 23°C	5.5	MPa	ASTM D790
Flexural Modulus	@ 23°C	1000	MPa	ASTM D790
Compressive Strength	@ 0.2% Offset, 23°C @ 0.2% Offset, 150°C	8.64 1.8	MPa MPa	ASTM D695
Gasket Constants	@ 23°C (1.5mm Thick) Gb a Gs	13.97 0.157 1.04	MPa - MPa	Proposed ASTM Draft N°9
Gasket Constants obtained from ROTT test procedure documented in the proposed ASTM Draft N°9 of the "Standard Test Method for Gasket Constants to Bolted Joint Design".				
<b>ELECTRICAL PROPERTIES</b>		<b>Value</b>	<b>Units</b>	<b>Standard</b>
Dielectric Strength	@ Air @ Oil	12.9 34.2	KV/mm KV/mm	ASTM D149
Proof Test	(Dielectric Strength)	-	KV/mm	BS6564 (E)
Dielectric Constant	@ 60 Hz @ 10 <sup>6</sup> Hz	2.63 2.85	- -	ASTM D150
Dissipation factor	@ 60 Hz @ 10 <sup>6</sup> Hz	0.0178 0.0028	- -	ASTM D150
Resistivity	@ Surface @ Volume	10 <sup>16</sup> 10 <sup>17</sup>	Ω Ω cm	ASTM D257
<b>THERMAL PROPERTIES</b>		<b>Value</b>	<b>Units</b>	<b>Standard</b>
Point of Fusion DSC		327	°C	ASTM D3417
Max. Working Temperature		260	°C	-
Max. Working Temperature	@ Short Periods	300	°C	-
Min. Working Temperature		-200	°C	-
Thermal Conductivity	@ Moulding Direction (MD)	0.41	W/(m.K)	ASTM C177
Coefficient of Linear Thermal Expansion TMA(23 - 200°C)	@ Moulding Direction (MD) @ Right Angles to MD	136 84	10 <sup>-6</sup> /°C 10 <sup>-6</sup> /°C	ASTM D696
Flammability		-	-	UL94V(0)
Flash Point		630	°C	ASTM D1929
Limiting Oxygen Index		98 - 100	%	ASTM D2863
<b>WEAR PROPERTIES</b>		<b>Value</b>	<b>Units</b>	<b>Standard</b>
Coefficient of Friction	@ Dry sliding @ Static @ Dynamic	- - -	- - -	ASTM D1894

The above properties are typical and are only intended to be used as a guide



## dalcon™ 025

<i>Issued 25/09/97</i>	<b>PHYSICAL PROPERTIES (Typical)</b>	Page 2 of 2
<b>Ingredients:</b> 75% Virgin PTFE <b>Filler/Pigment:</b> 25% Glass Fibre, Blue (by weight) <b>Colour:</b> Blue		
<b>CHEMICAL RESISTANCE</b>		
<p>The strength of the carbon – fluorine bond and the shielding of the carbon chains by the fluorine atoms result in a chemical inertness which is virtually universal, except alkali metals, fluorine under certain conditions, and some fluorine compounds at elevated temperatures. Resistant to organic solvents.</p> <p><b>This compound has a fair resistance to the following chemicals:</b>          Ammonium hydroxide, Bromine, Chromic acid, Hydroboric acid, Hydrochloric acid, Hydrocyanic acid, Nitric acid (0- 50%), Phenol, Sodium hydroxide.</p> <p><b>This compound has an unsatisfactory resistance to the following chemicals:</b>          Fluorosilicic acid, Hydrofluoric acid, Hydrogen sulphide (solution). Sodium silicate.</p>		
<b>APPLICATIONS &amp; INDUSTRIES</b>		
<p><b>General:</b>          25% Glass fibre the most widely used filler. It improves the creep resistance, compressive strength, rigidity, and wear of PTFE, both at low &amp; high temperatures. It is chemically stable (except to strong alkalis &amp; hydrochloric acid – HF). 25% glass filler improves the wear resistance properties of PTFE.</p> <p><b>Chemical:</b>          Dynamic &amp; shaft seals.          Seals &amp; gaskets. Flat gaskets are used to seal flanges in pipelines.</p> <p><b>Construction:</b>          Bridge bearings. Slide bearings.</p> <p><b>Electrical:</b>          None</p> <p><b>Engineering:</b>          Anti-friction bearing cages &amp; bearing plates.          Bearings, bushes, shaft bearings / seals ( in combustion engines).          Chain tension slide bearings, Film bearings. Multi – layer composite bearings.          Laboratory equipment. Measuring &amp; Control technology.          Pipe supports. Glandless valves &amp; pumps. Valve seats.          Piston rings in hydraulic systems.          Piston rod packing used in compressor plunger pumps &amp; valves.</p> <p><b>Food:</b>          None.</p>		
<b>The above properties are typical and are only intended to be used as a guide</b>		



### dalcon<sup>TM</sup> 086

<i>Issued 21/04/16</i>		<b>PHYSICAL PROPERTIES (Typical)</b>		Page 1 of 2
<b>Ingredients:</b> 100% Virgin PTFE Modified Polymer <b>Filler/Pigment:</b> None <b>Colour:</b> White (Natural)				
<b>MECHANICAL PROPERTIES</b>		<b>Value</b>	<b>Units</b>	<b>Standard</b>
Tensile Strength	(Moulding Direction)	25- 35	MPa	ASTM D638
Elongation at Break	(Moulding Direction)	345 – 505	%	ASTM D638
Density		2.15 - 2.19	g/cc	ASTM D792
Hardness		57 – 64	Shore D	ASTM D2240
Haze	0.125mm Thick	60 – 75	%	ASTM D1003
Light Transformation	0.125mm Thick	90 – 94	%	ASTM D791
Deformation under load	@ 24 Hr , 23°C, 13.7MPa	4.5 – 6.5	%	ASTM D621
	@ Permanent Deformation	1.5 – 2.0	%	
	@ 24Hr, 100°C, 5MPa	3.1 – 3.6	%	
Compressive Modulus	@ 0.2% Offset, 23C	650 – 750	MPa	ASTM D621
Flexural Yield Strength	@ 0.2% Offset, 23°C	-	MPa	ASTM D790
Flexural Modulus	@ 23°C (Transverse direct)	700	MPa	ASTM D790
Compressive Strength	@ 0.2% Offset, 23°C	-	MPa	ASTM D695
	@ 0.2% Offset, 150°C	-	MPa	
<b>ELECTRICAL PROPERTIES</b>		<b>Value</b>	<b>Units</b>	<b>Standard</b>
Dielectric Strength	@ Air (0.125mm Thk Tape)	90 - 105	KV/mm	ASTM D149
	@ Oil (0.125mm Thk Tape)	110 - 130	KV/mm	
Proof Test	(Dielectric Strength)	24 (Pass)	KV/mm	BS6564 (E)
Dielectric Constant	@ 60 Hz	2.014	-	ASTM D150
	@ 1KHz	2.100	-	
Dissipation Factor	@ 60 Hz	<10 <sup>-4</sup>	-	ASTM D150
	@ 1 KHz	<5x10 <sup>-4</sup>	-	
Resistivity	@ Surface	10 <sup>17</sup>	Ω	ASTM D257
	@ Volume	10 <sup>18</sup>	Ω cm	
<b>THERMAL PROPERTIES</b>		<b>Value</b>	<b>Units</b>	<b>Standard</b>
Point of Fusion DSC		327	°C	ASTM D3417
Max. Working Temperature		260	°C	-
Max. Working Temperature	@ Short Periods	300	°C	-
Min. Working Temperature		-200	°C	-
Thermal Conductivity	@ Moulding Direction (MD)	0.35	W/(m.K)	ASTM C177
Coefficient of Linear Thermal Expansion TMA(23 - 200°C)	@ Moulding Direction (MD)	12	10 <sup>5</sup> /°C	ASTM D696
Flammability		None	-	UL94V(0)
Flash Point		None	°C	ASTM D1929
Limiting Oxygen Index		>95	%	ASTM D2863
<b>WEAR PROPERTIES</b>		<b>Value</b>	<b>Units</b>	<b>Standard</b>
Coefficient of Friction	@ 23°C Dry sliding	-	-	ASTM D1894
	@ Static	0.08	-	
	@ Dynamic	0.06	-	
Coefficient of Wear	@ 23°C	2.2 x 10 <sup>-4</sup>	cm <sup>3</sup> min/(kg m h)	

The above properties are typical and are only intended to be used as a guide



## dalcon<sup>TM</sup> 086

<i>Issued 21/04/16</i>	<b>PHYSICAL PROPERTIES (Typical)</b>	Page 2 of 2
<b>Ingredients:</b> 100% Virgin PTFE <b>Filler/Pigment:</b> None <b>Colour:</b> White (natural)		
<b>CHEMICAL RESISTANCE</b>		
<p>The strength of the carbon – fluorine bond and the shielding of the carbon chains by the fluorine atoms result in a chemical inertness which is virtually universal, except alkali metals, fluorine under certain conditions, and some fluorine compounds at elevated temperatures.</p> <p>Some Fluorinated Hydrocarbons (refrigerants) cause reversible swelling i.e. Tetrafluorodichloroethane Frigen 21, giving a 9.6% weight increase.</p>		
<b>APPLICATIONS &amp; INDUSTRIES</b>		
<p><b>General:</b>          The static and dynamic friction coefficient are numerically equal, consequently no ‘Stick Slip’ occurs. Modified PTFE has an advantage over Homopolymer (Normal PTFE), in that it has the following features:          Remarkable lower deformation under load and permanent deformation.          Higher elongation at break. Higher flex life. Higher dielectric strength.          Higher transparency. Lower permeability. Better heat sealability.</p> <p><b>Chemical:</b>          Dynamic &amp; shaft seals.          Pipes &amp; tubing for carrying chemicals.          Seals &amp; gaskets. Flat gaskets are used to seal flanges in pipelines.</p> <p><b>Construction:</b>          Bridge bearings. Slide bearings.</p> <p><b>Electrical:</b>          Communications, radio &amp; television engineering, cable insulation.          Electrical plant construction &amp; electronics industry (connectors &amp; terminals).          General electrical equipment (PTFE excellent electrical insulating materials).          Power plant installations (switchgear).</p> <p><b>Engineering:</b>          Anti-friction bearing cages &amp; bearing plates.          Bearings, bushes.          Diaphragm pumps. Film bearings. Multi-layer composite bearings. Fabric bearings.          Laboratory equipment. Measuring &amp; Control technology.          Pipe supports. Expansion bellows. Glandless valves &amp; pumps. Valve seats.          Piston rings in hydraulic systems.          Piston rod packings used in compressor plunger pumps &amp; valves.</p> <p><b>Food:</b>          Dynamic &amp; shaft seals (used in the food processing industry).          Linings &amp; coatings (fertiliser plant &amp; food industry line equipment).</p> <p><b>Weldability:</b>          This material is weldable to <b>itself</b>, at melt temperature using applied pressure without bonding aids.</p>		
<b>The above properties are typical and are only intended to be used as a guide</b>		



## dalcon<sup>TM</sup> Ultra

<i>Issued 21/04/16</i>	<b>MATERIAL SPECIFICATION N° 900 ✓</b>	Page 1 of 1
<b>Product: Natural/Virgin PTFE (products codes suffixed 205)</b>		
<b>Extruded Rod</b>	<b>Moulded Rod/Tube</b>	
<b>Supplied in:</b> Diameters 6.35mm to 51mm, and lengths up to 2m	<b>Supplied in:</b> Diameters 25mm & above, and lengths up to 480mm	
<p><b>These Products have had additional processing to increase their physical and dimensional properties above normal grades of PTFE Products. The high dimensional stability allows tight tolerances to be achieved when machining. The high Dielectric Strength provides additional insulation in electrical applications. These Products have been approved by Underwriters Laboratories to UL94V(0).</b></p>		
<b>MECHANICAL PROPERTIES &amp; ELECTRICAL PROPERTIES</b>		
<b>Elongation:</b>	200	% (minimum)
<b>Tensile Strength:</b>	20.0	MPa (minimum)
<b>Density:</b>	2.14	g/cc (minimum)
<b>Dielectric Constant (@ 1MHz):</b>	1.95 to 2.15	
<b>Dielectric Strength:</b>	31.5	KV/mm (minimum)
<b>Dimensional Stability:</b>		
Diameter:	0.5	% (maximum)
Length:	1.5	% (maximum)
<b>CHEMICAL RESISTANCE</b>		
<p>The strength of the carbon-fluorine bond and the shielding of the carbon chains by the fluorine atoms result in a chemical inertness which is virtually universal, except alkali metals, fluorine under certain conditions, and some fluorine compounds at elevated temperatures.</p> <p>Some Fluorinated Hydrocarbons (refrigerants) cause reversible swelling i.e. Tetrafluorodichloroethane Frigen 21, giving a 9.6% weight increase.</p>		
<b>APPLICATIONS &amp; INDUSTRIES</b>		
<b>General:</b>	The static and dynamic friction coefficient are numerically equal, consequently no 'Stick Slip' occurs.	
<b>Chemical:</b>	Dynamic & shaft seals. Pipes & tubing for carrying chemicals. Seals & gaskets. Flat gaskets are used to seal flanges in pipelines.	
<b>Construction:</b>	Bridge bearings. Slide bearings.	
<b>Electrical:</b>	Communications, radio & television engineering. Electrical plant construction & electronics industry (connectors & terminals). General electrical equipment (PTFE excellent electrical insulating material). Power plant installations (switchgear).	
<b>Engineering:</b>	Anti-friction bearing cages & bearing plates. Bearings, bushes. Laboratory equipment. Measuring & Control technology. Pipe supports. Expansion bellows. Glandless valves & pumps. Valve seats. Piston rings in hydraulic systems. Piston rod packings used in compressor plunger pumps & valves.	
<b>Food:</b>	Dynamic & shaft seals (used in the food processing industry). Linings (fertiliser plant & food industry line equipment).	
<b>The above properties are typical and are only intended to be used as a guide</b>		

