

521.152 to 425

## Polypropylene

DSM EPP

A versatile, low weight material which combines temperature and chemical resistance with excellent flexural properties.

- High flexural fatigue resistance
- Good impact strength
- Resists steam cleaning
- Natural white colour
- Continuous working temperature 80°C (max 100°C)
- Excellent chemical resistance (pH 4 - 11)
- Limited UV resistance
- Excellent electrical resistance

Application: Chemical tank/vesel lining, integral hinges, tool handles

### Rod 1m long

Diameter (mm)	Farnell Order Code	Quantity per pack
20	521 - 309	3
30	521 - 310	2
40	521 - 322	1

### Sheet

Sheet size (mm)	Farnell Order Code	Quantity per pack
3 x 495 x 995	521 - 334	3
4.5 x 495 x 995	521 - 346	2
6 x 495 x 995	521 - 358	2
9 x 495 x 995	521 - 360	1
10 x 495 x 995	521 - 371	1
15 x 495 x 995	521 - 383	1

### Technical Data

Property	ASTM Test Method	Units	Polypropylene
Colour	-	-	Trans./White
Specific Gravity	D792	-	0.9
Water Absorption			
Saturation in water	D570	%	<0.1%
Tensile Strength	D638	N/mm <sup>2</sup>	42
Tensile Modulus	D638	N/mm <sup>2</sup>	1050
Elongation	D638	%	<600
Flexural Strength	D790	N/mm <sup>2</sup>	45
Flexural Modulus	D790	N/mm <sup>2</sup>	2000
Hardness	Rockwell Shore D	-	80D
Melt Point	D2117	°C	160
Max allowable service temp in air for short periods <sup>(1)</sup>	-	°C	110
continuously for 20000hrs <sup>(2)</sup>	-	°C	80
Minimum Service Temperature	-	°C	-60
Linear thermal expansion coefficient	D696	K <sup>-1</sup> x 10 <sup>-5</sup>	18
Thermal Conductivity	C117	W/K.m	0.10
Flammability	D635	-	Slow Burning
UL (thickness in mm)	UL-94	-	-
Volume Resistivity	D257	Ohm.cm	>10 <sup>15</sup>
Dielectric Strength <sup>(3)</sup>	D148	kV/mm	>30
Outside applications - UV resistance	-	-	A
Acids - Strong (pH < 3)	-	-	A
Alkalis - Strong (pH > 11)	-	-	A
Chlorinated Hydrocarbons	-	-	C
Hot Water	-	-	A

- (1) Only a few hours, with little or no load applied  
 (2) After these periods mechanical properties reduce by approx 50%.  
 Note, however, that service temperatures are load and time dependent.  
 (3) Test specimen 1.6mm thick unless otherwise stated.

- 'A' No attack  
 'B' Mild attack by absorption  
 'C' Dimensional change due to absorption  
 'D' Decomposition in short time  
 'E' In steam - at 160°C, decomposition after short time

# ERTACETAL® C

## Acetal Copolymer

**DSM EPP**

This proven engineering material has a good combination of all round properties, distinguished by its low moisture absorption and excellent machinability:

- High rigidity
- Good impact resistance
- Low moisture absorption
- Natural white colour
- Continuous working temperature 100°C (max 140°C)
- Good chemical resistance (pH 5-11)
- Excellent dimensional stability
- Ideal for close tolerance parts

Application: pump housings, impellers, gears, bearings, valves, valve seats, domestic appliances, electrical components

### Rod 1m long

Diameter (mm)	Farnell Order Code	Quantity per pack
6	520 - 986	5
10	520 - 998	5
15	521 - 000	3
20	521 - 012	2
25	521 - 024	2

### Sheet

Sheet size (mm)	Farnell Order Code	Quantity per pack
8 x 500 x 305	521 - 036	2
10 x 500 x 305	521 - 048	1
16 x 500 x 305	521 - 050	1
25 x 500 x 305	521 - 061	1

### Technical Data

Property	ASTM Test		ERTACETAL® C
	Method	Units	
Colour	-	-	White
Specific Gravity	D792	-	1.41
Water Absorption			
Saturation in water	D570	%	0.8
Tensile Strength	D638	N/mm <sup>2</sup>	62
Tensile Modulus	D638	N/mm <sup>2</sup>	2795
Elongation	D638	%	>60
Flexural Strength	D790	N/mm <sup>2</sup>	90
Flexural Modulus	D790	N/mm <sup>2</sup>	2585
Hardness	Rockwell	-	R120
	Shore D	-	-
Melt Point	D2117	°C	165
Max allowable service temp in air			
for short periods <sup>(1)</sup>	-	°C	140
continuously for 20000hrs <sup>(2)</sup>	-	°C	100
Minimum Service Temperature	-	°C	-50
Linear thermal expansion coefficient	D696	K <sup>-1</sup> x 10 <sup>-3</sup>	12.5
Thermal Conductivity	C117	W/K.m	0.23
Flammability	D635	-	Slow Burning
UL (thickness in mm)	UL-94	-	-
Volume Resistivity	D257	Ohm.cm	>10 <sup>14</sup>
Dielectric Strength <sup>(3)</sup>	D149	kV/mm	>16
Outside applications - UV resistance	-	-	D
Acids - Strong (pH < 3)	-	-	D
Alkalis - Strong (pH > 11)	-	-	C
Chlorinated Hydrocarbons	-	-	A
Hot Water	-	-	C

- (1) Only a few hours, with little or no load applied  
 (2) After these periods mechanical properties reduce by approx 50%.  
 Note: however, that service temperatures are load and time dependent.  
 (3) Test specimen 1.8mm thick unless otherwise stated.

- A' No attack  
 B' Mild attack by absorption  
 C' Dimensional change due to absorption  
 D' Decomposition in short time  
 E' In steam - at 160°C, decomposition after short time

The data are typical values and are not intended to represent specifications. Their aim is to guide the user toward a material choice.

# AXXIS® PC-111

## Polycarbonate

**DSM EPP**

Polycarbonate sheet is a virtually unbreakable optical quality, flexible material which can be fabricated into a wide variety of clear components.

- Good mechanical strength
- Exceptional impact strength
- Excellent flame retardance
- Clear, high optical quality
- Continuous working temperature 80°C (max 100°C)
- Good chemical resistance
- Very good UV/weathering resistance
- Good thermal/noise barrier

Application: Flat and curved glazing, machine guards, riot shields, door viewing panels, light covers

Sheet	Farnell Order Code	Quantity per pack
Sheet size (mm)		
3 x 610 x 1220	521 - 395	2
4 x 610 x 1220	521 - 401	2
5 x 610 x 1220	521 - 413	2
6 x 610 x 1220	521 - 425	2

### Technical Data

Property	ASTM Test Method	Units	AXXIS PC-111
Colour	-	-	Clear
Specific Gravity	D792	-	1.20
Water Absorption			
Saturation in water	D570	%	0.35
Tensile Strength	D638	N/mm <sup>2</sup>	65
Tensile Modulus	D838	N/mm <sup>2</sup>	2300
Elongation	D638	%	>50
Flexural Strength	D790	N/mm <sup>2</sup>	100
Flexural Modulus	D790	N/mm <sup>2</sup>	-
Hardness	Rockwell	-	M75
	Shore D	-	-
Melt Point	D2117	°C	-
Max allowable service temp in air			
for short periods <sup>(1)</sup>	-	°C	135
continuously for 20000hrs <sup>(2)</sup>	-	°C	115
Minimum Service Temperature	-	°C	-80
Linear thermal expansion coefficient	D696	K <sup>-1</sup> x 10 <sup>-5</sup>	6.5
Thermal Conductivity	C117	W/K.m	0.21
Flammability	D635	-	-
UL (thickness in mm)	UL-94	-	V-2/V-0
Volume Resistivity	D257	Ohm.cm	>10 <sup>12</sup>
Dielectric Strength <sup>(3)</sup>	D149	kV/mm	>30
Outside applications - UV resistance	-	-	D
Acids - Strong (pH < 3)	-	-	D
Alkalis - Strong (pH > 11)	-	-	D
Chlorinated Hydrocarbons	-	-	D
Hot Water	-	-	A

- (1) Only a few hours, with little or no load applied  
 (2) After these periods mechanical properties reduce by approx 50%.  
 Note, however, that service temperatures are load and time dependent  
 (3) Test specimen 1.6mm thick unless otherwise stated.

'A' No attack  
 'B' Mild attack by absorption  
 'C' Dimensional change due to absorption  
 'D' Decomposition in short time  
 'E' In steam - at 160°C, decomposition after short time

# ERTALON® 66SAMU

*Nylon 66, MoS<sub>2</sub> Filled*

**DSM EPP**

This material is based on nylon 66, enhanced with a molybdenum disulphide (MoS<sub>2</sub>) filler to produce a low friction, self lubricating material with superior properties over unfilled nylon 66

- High stiffness/strength
- Self lubricating
- Excellent wear resistance
- Dark grey colour
- Continuous working temperature 100°C (max 145°C)
- Good chemical resistance (pH 5-11)
- Greater load bearing capability
- Excellent dynamic bearing material

Application: Gears, bearings, rollers, wheels, cams, nuts, valve seats, pulleys, gaskets, electrical insulators

## Rod 1m long

Diameter (mm)	Farnell Order Code	Quantity per pack
8	520 - 627	5
12	520 - 639	3
16	520 - 640	3
20	520 - 652	2
25	520 - 664	2
30	520 - 676	1
35	520 - 688	1
40	520 - 690	1
45	520 - 706	1
50	520 - 718	1

## Sheet

Sheet size (mm)	Farnell Order Code	Quantity per pack
8 x 500 x 305	520 - 720	2
12 x 500 x 305	520 - 731	1
16 x 500 x 305	520 - 743	1
20 x 500 x 305	520 - 755	1
25 x 500 x 305	520 - 767	1
30 x 500 x 305	520 - 779	1
40 x 500 x 305	520 - 780	1

## Technical Data

Property	ASTM Test Method	Units	ERTALON® 66SAMU
Colour	-	-	Silver grey
Specific Gravity	D792	-	1.14-1.18
Water Absorption			
Saturation in water	D570	%	6-8
Tensile Strength	D638	N/mm <sup>2</sup>	69/98
Tensile Modulus	D638	N/mm <sup>2</sup>	3130/4160
Elongation	D638	%	5-150
Flexural Strength	D790	N/mm <sup>2</sup>	110-130
Flexural Modulus	D790	N/mm <sup>2</sup>	2758-3448
Hardness	Rockwell	-	R110-125
Shore D	-	-	80-90
Melt Point	D2117	°C	260
Max allowable service temp in air			
for short periods (1)	-	°C	160
continuously for 20000hrs (2)	-	°C	90
Minimum Service Temperature	-	°C	-40
Linear thermal expansion coefficient	D696	K <sup>-1</sup> x 10 <sup>-5</sup>	6.3
Thermal Conductivity	C117	W/K.m	0.3
Flammability	D635	-	Self Extinguishing
UL (thickness in mm)	UL-94	-	-
Volume Resistivity	D257	Ohm.cm	>10 <sup>13</sup>
Dielectric Strength (3)	D149	kV/mm	>20
Outside applications - UV resistance	-	-	C
Acids - Strong (pH < 3)	-	-	D
Alkalis - Strong (pH > 11)	-	-	C
Chlorinated Hydrocarbons	-	-	A
Hot Water	-	-	C

- (1) Only a few hours, with little or no load applied
- (2) After these periods mechanical properties reduce by approx 50%. Note, however, that service temperatures are load and time dependent.
- (3) Test specimen 1.6mm thick unless otherwise stated.

- 'A' No attack
- 'B' Mild attack by absorption
- 'C' Dimensional change due to absorption
- 'D' Decomposition in short time
- 'E' In steam - at 150°C, decomposition after short time

# ERTALON® 66SA

Nylon 66

DSM EPP

ERTALON® 66SA is a highly versatile general engineering plastic due to its excellent combination of properties:

- Tough/resilient
- Good wear resistance
- Electrical insulator
- Natural white colour
- Continuous working temperature 80°C (max 160°C)
- Good chemical resistance (pH 5-11)
- Low weight (1/6 vs steel)
- Good flexural fatigue resistance

Application: gears, bearings, rollers, wheels, cams, nuts, valve seats, pulleys, gaskets, electrical insulators

## Rod 1m long

Diameter (mm)	Farnell Order Code	Quantity per pack
6	520 - 287	5
10	520 - 299	5
15	520 - 305	3
20	520 - 317	2
25	520 - 329	2
30	520 - 330	2
36	520 - 342	1
40	520 - 354	1
45	520 - 366	1
50	520 - 378	1
56	520 - 380	1
60	520 - 391	1
65	520 - 408	1
70	520 - 410	1
75	520 - 421	1

## Sheet

Sheet size (mm)	Farnell Order Code	Quantity per pack
8 x 500 x 305	520 - 433	2
12 x 500 x 305	520 - 445	1
16 x 500 x 305	520 - 457	1
20 x 500 x 305	520 - 469	1
25 x 500 x 305	520 - 470	1
30 x 500 x 305	520 - 482	1
40 x 500 x 305	520 - 494	1
50 x 500 x 305	520 - 500	1

## Technical Data

Property	ASTM Test Method	Units	ERTALON® 66SA
Colour	-	-	White
Specific Gravity	D792	-	1.14-1.15
Water Absorption			
Saturation in water	D570	%	7.9
Tensile Strength	D638	N/mm <sup>2</sup>	62/83
Tensile Modulus	D638	N/mm <sup>2</sup>	1733/2744
Elongation	D638	%	20-200
Flexural Strength	D790	N/mm <sup>2</sup>	86-97
Flexural Modulus	D790	N/mm <sup>2</sup>	1207-2827
Hardness	Rockwell	-	R112-120
	Shore D	-	80-85
Melt Point	D2117	°C	260
Max allowable service temp in air			
for short periods <sup>(1)</sup>	-	°C	160
continuously for 20000hrs <sup>(2)</sup>	-	°C	80
Minimum Service Temperature	-	°C	-40
Linear thermal expansion coefficient	D698	K <sup>-1</sup> x 10 <sup>-5</sup>	10
Thermal Conductivity	C117	W/K.m	0.24
Flammability	D635	-	Self Extinguishing
UL (thickness in mm)	UL-94	-	-
Volume Resistivity	D257	Ohm.cm	>10 <sup>11</sup>
Dielectric Strength <sup>(3)</sup>	D149	kV/mm	>12
Outside applications - UV resistance	-	-	C
Acids - Strong (pH < 3)	-	-	D
Alkalis - Strong (pH > 11)	-	-	C
Chlorinated Hydrocarbons	-	-	A
Hot Water	-	-	C

(1) Only a few hours, with little or no load applied

(2) After these periods mechanical properties reduce by approx 50%.

Note, however, that service temperatures are load and time dependent

(3) Test specimen 1.6mm thick unless otherwise stated.

'A' No attack

'B' Mild attack by absorption

'C' Dimensional change due to absorption

'D' Decomposition in short time

'E' In steam - at 160°C, decomposition after short time

## ERTALON® 66GF-30

*Nylon 66 30% Glass Filled*

**DSM EPP**

The addition of 30% glass fibre to nylon 66 produces an outstanding composite material which is ideal for demanding static applications:

- High strength/stiffness
- Excellent creep resistance
- Good dimensional stability
- Black colour
- Continuous working temperature 120°C (max 145°C)
- Good chemical resistance (pH 5-11)
- Good hydrolysis resistance
- Excellent electrical insulator

Application: as ERTALON® 66SA but at higher loads

### Rod 1m long

Diameter (mm)	Farnell Order Code	Quantity per pack
10	520 - 512	5
15	520 - 524	3
20	520 - 536	2
25	520 - 548	2
30	520 - 550	2
40	520 - 561	1
50	520 - 573	1
70	520 - 585	1

### Sheet

Sheet size (mm)	Farnell Order Code	Quantity per pack
10 x 500 x 305	520 - 597	1
20 x 500 x 305	520 - 603	1
25 x 500 x 305	520 - 615	1

### Technical Data

Property	ASTM Test Method	Units	ERTALON® 66GF30
Colour	-	-	Black
Specific Gravity	D792	-	1.35
Water Absorption			
Saturation in water	D570	%	5.5
Tensile Strength	D638	N/mm <sup>2</sup>	190
Tensile Modulus	D638	N/mm <sup>2</sup>	10,000
Elongation	D638	%	3
Flexural Strength	D790	N/mm <sup>2</sup>	270
Flexural Modulus	D790	N/mm <sup>2</sup>	-
Hardness	Rockwell	-	M100
	Shore D	-	-
Melt Point	D2117	°C	255
Max allowable service temp in air			
for short periods (1)	-	°C	145
continuously for 20000hrs (2)	-	°C	120
Minimum Service Temperature	-	°C	-20
Linear thermal expansion coefficient	D696	K x 10 <sup>-5</sup>	4.5
Thermal Conductivity	C117	W/K m	0.24
Flammability	D635	-	-
UL (thickness in mm)	UL-94	-	HB (1.6)
Volume Resistivity	D257	Ohm.cm	10 <sup>15</sup>
Dielectric Strength (3)	D149	kV/mm	45
Outside applications - UV resistance	-	-	A
Acids - Strong (pH < 3)	-	-	C
Alkalis - Strong (pH > 11)	-	-	A
Chlorinated Hydrocarbons	-	-	B
Hot Water	-	-	B

- (1) Only a few hours, with little or no load applied  
 (2) After these periods mechanical properties reduce by approx 50%  
 Note, however, that service temperatures are load and time dependent.  
 (3) Test specimen 1.6mm thick unless otherwise stated.

- 'A' No attack  
 'B' Mild attack by absorption  
 'C' Dimensional change due to absorption  
 'D' Decomposition in short time  
 'E' in steam - at 160°C decomposition after short time

# UHMWPE

## Ultra high molecular weight polyethylene

**DSM EPP**

Ultra high molecular weight polyethylene is a physiologically inert material with an outstanding combination of properties for indoor and outdoor aggressive environments:

- Very high impact resistance
- Good abrasive wear resistance
- Suitable for food contact
- Natural translucent white colour
- Continuous working temperature 60°C (max 80°C)
- Low temperature capability -250°C
- Excellent chemical and UV/weathering resistance
- Excellent electrical properties

Application: chute linings, chain guides, underwater bearings, hopper linings, impact plates, pulleys, textiles machinery, gaskets, pump components, guide rails

### Rod 1m long

Diameter (mm)	Farnell Order Code	Quantity per pack
20	521 - 152	5
30	521 - 164	5
40	521 - 176	3

### Sheet

Sheet size (mm)	Farnell Order Code	Quantity per pack
3 x 470 x 960	521 - 188	3
4 x 470 x 960	521 - 190	2
8 x 470 x 960	521 - 206	1
10 x 500 x 1000	521 - 218	1
15 x 500 x 1000	521 - 220	1

### Technical Data

Property	ASTM Test Method		POLYETHYLENE UHMWPE
	Units	Units	
Colour	-	-	Trans. White
Specific Gravity	D792	-	0.93
Water Absorption	-	-	Non-absorbent
Saturation in water	D570	%	-
Tensile Strength	D638	N/mm <sup>2</sup>	40
Tensile Modulus	D638	N/mm <sup>2</sup>	522-690
Elongation	D638	%	>350
Flexural Strength	D790	N/mm <sup>2</sup>	-
Flexural Modulus	D790	N/mm <sup>2</sup>	517
Hardness	Rockwell	-	-
	Shore D	-	82
Melt Point	D2117	°C	130
Max allowable service temp in air	-	°C	80
for short periods	-	°C	80
continuously for 20000hrs <sup>(1)</sup>	-	°C	60
Minimum Service Temperature	-	°C	-260
Linear thermal expansion coefficient	D696	K <sup>-1</sup> x 10 <sup>-5</sup>	20
Thermal Conductivity	C117	W/K.m	0.42
Flammability	D635	-	Slow Burning
	UL (thickness in mm)	UL-94	-
Volume Resistivity	D257	Ohm.cm	>10 <sup>12</sup>
Dielectric Strength <sup>(2)</sup>	D149	kV/mm	20
Outside applications - UV resistance	-	-	D
Acids - Strong (pH < 3)	-	-	D
Alkalis - Strong (pH > 11)	-	-	D
Chlorinated Hydrocarbons	-	-	A
Hot Water	-	-	D

- (1) Only a few hours, with little or no load applied
- (2) After these periods mechanical properties reduce by approx 50%. Note, however, that service temperatures are load and time dependent
- (3) Test specimen 1.6mm thick unless otherwise stated

- A' No attack
- B' Mild attack by absorption
- C' Dimensional change due to absorption
- D' Decomposition in short time
- E' In steam - at 180°C decomposition after short time

# PVC

## PolyVinylChloride

**DSM EPP**

A long established plastic with quite good mechanical properties, generally chosen when chemical resistance is required at low cost.

- Reasonable mechanical properties
- Limited impact strength
- Low moisture absorption
- Light grey colour
- Continuous working temperature 50°C (max 80°C)
- Good UV/weather resistance
- Good chemical resistance (pH3 - 12)
- Easily fabricated

Application: mainly static applications for prototyping, models, electrical insulation, chemical valves and pumps

### Rod 1m long

Diameter (mm)	Farnell Order Code	Quantity per pack
6	521 - 231	5
10	521 - 243	5
15	521 - 255	3
20	521 - 267	2
25	521 - 279	2

### Sheet

Sheet size (mm)	Farnell Order Code	Quantity per pack
3 x 500 x 1000	521 - 280	5
4.5 x 500 x 1000	521 - 292	3

### Technical Data

Property	ASTM Test Method	Units	PVC
Colour	-	-	Grey
Specific Gravity	D792	-	1.46
Water Absorption			
Saturation in water	D570	%	0.2
Tensile Strength	D638	N/mm <sup>2</sup>	48
Tensile Modulus	D638	N/mm <sup>2</sup>	3500
Elongation	D638	%	120
Flexural Strength	D790	N/mm <sup>2</sup>	125
Flexural Modulus	D790	N/mm <sup>2</sup>	-
Hardness			
Rockwell	-	-	-
Shore D	-	-	84
Melt Point	D2117	°C	-
Max allowable service temp in air			
for short periods <sup>(1)</sup>	-	°C	130
continuously for 20000hrs <sup>(2)</sup>	-	°C	80
Minimum Service Temperature	-	°C	-15
Linear thermal expansion coefficient	D696	K <sup>-1</sup> x 10 <sup>-3</sup>	7.0
Thermal Conductivity	C117	W/K.m	0.14
Flammability	D635	-	-
UL (thickness in mm)	UL-94	-	V-0
Volume Resistivity	D257	Ohm.cm	4 x 10 <sup>12</sup>
Dielectric Strength <sup>(3)</sup>	D149	kV/mm	20-50
Outside applications - UV resistance	-	-	A
Acids - Strong (pH < 3)	-	-	A
Alkalis - Strong (pH > 11)	-	-	A
Chlorinated Hydrocarbons	-	-	D
Hot Water	-	-	A

- (1) Only a few hours, with little or no load applied
- (2) After these periods mechanical properties reduce by approx 50%. Note, however, that service temperatures are load and time dependent
- (3) Test specimen 1.6mm thick unless otherwise stated.

- 'A' No attack
- 'B' Mild attack by absorption
- 'C' Dimensional change due to absorption
- 'D' Decomposition in short time
- 'E' In steam - at 120°C, decomposition after short time