

ERTACETAL®

Polyacetal (POM)

Main Characteristics:

- High mechanical strength, stiffness and hardness
- Excellent resilience
- Good creep resistance
- High impact strength, even at low temperatures
- Very good dimensional stability
- Good sliding properties and wear resistance
- Excellent machinability
- Good electrical insulating and dielectric properties
- Physiologically inert (suitable for food contact)
- Not self-extinguishing

ERTACETAL® is very well suited for machining on automatic lathes and is particularly recommended for mechanical precision parts.

ERTACETAL® C

(POM-C)

Colours: Natural (white) and Black

and

ERTACETAL® H

(POM-H)

Colours: Natural (white) and Black

These are Quadrant Engineering Plastic Products' virgin Copolymer and Homopolymer Acetal grades. The Acetal Copolymer is more resistant against hydrolysis, strong alkalis and thermaloxidative degradation than the Acetal Homopolymer. The latter, however, has higher mechanical strength, stiffness, hardness and creep resistance, as well as a lower thermal expansion rate and often it also presents a better wear resistance.

ERTACETAL® H-TF

(POM-H + PTFE)

Colour: Deep brown

ERTACETAL® H-TF is a DELRIN® AF Blend, a combination of TEFLON® fibres evenly dispersed in a DELRIN Acetal resin. Much of the strength that is inherent in ERTACETAL® H is retained. Some properties change due to the addition of TEFLON® fibre which is softer, less stiff and slipperier than virgin Acetal resin. Compared with ERTACETAL® C and H, this material offers superior sliding properties. Bearings made of ERTACETAL® H-TF show low friction, long wear and are essentially free of stick-slip behaviour.

ERTACETAL® C Acetal Copolymer (POM-C)

ERTACETAL® C has a good combination of properties, making it suitable for many applications. With low moisture absorption, good dimensional stability and ease of machining ERTACETAL® C is an ideal choice for precision machined components.

- Physiologically inert
- High impact strength
- Good sliding properties
- Good chemical resistance (4 < pH < 13)
- Excellent machinability
- Very good dimensional stability
- Excellent resilience
- Ideal for close tolerance components

Common Applications:

Pump housings; Impellers; Gears; Bearings; Valves; Valve seats; Domestic appliance parts; Electrical components.

Delivery Programme

	min	max
Rod 1m & 3m long diameter (mm)	3.0	250
Tube 1m & 3m long outer diameter (mm)	20	350
inner diameter (mm)	10	300
Coils 50kg weight width (m)	1.0	
thickness (mm)	0.5	1.0
Sheet 1m & 2m long width (m)	1.0	
thickness (mm)	1.0	6.0
Plate 1m & 3m long width (m)	1.0	
thickness (mm)	8.0	50
Plate 1m & 3m long width (mm)	610	
thickness (mm)	8.0	100
Colours: White and Black		

Technical Specification

Property	ISO Method	Units	Values
Density	1183	g/cm ³	1.41
Water absorption			
• Saturation in air (23°C/50% RH)	~	%	0.20
• Saturation in water (23°C)	~	%	0.85
Tensile strength* ¹	527	N/mm ²	68
Tensile modulus of elasticity* ¹	527	N/mm ²	3100
Elongation at break* ¹	527	%	35
Impact - Charpy* ¹	179/1eU	kJ/m ²	>150
Impact - Izod notched* ¹	180/2A	kJ/m ²	7
Hardness	Rockwell	~	M84
	Shore D	~	~
Melt point	~	°C	165
Max allowable service temperature in air			
• for short periods	~	°C	140
• continuously for 20,000 hrs	~	°C	100
Linear thermal expansion coefficient	~	K ⁻¹ x 10 ⁻⁵	11.0
Thermal conductivity	~	W/(K.m)	0.31
Flammability* ² (6mm thickness)	~	~	HB
Volume resistivity* ¹	IEC93	Ω.cm	>10 ¹⁴
Dielectric strength* ¹	IEC243	kV/mm	20
Outside applications			
• UV resistance	~	~	C/B
Acids - strong (pH<3)	~	~	C
Alkalis - strong (pH>11)	~	~	A
Chlorinated hydrocarbons	~	~	A/B
Hot water	~	~	A

'A' - Acceptable service

'B' - Limited service

'C' - Unacceptable

*¹ - Measured on dry test specimens (where applicable)

*² - Tests completed by DSM EPP using UL test methods

ERTACETAL® H Acetal Homopolymer (POM-H)

ERTACETAL® H is a homopolymer, manufactured into stock shapes from Delrin® resin, with similar properties to ERTACETAL® C. However, ERTACETAL® H is a superior mechanical material, with even better machining properties.

- Physiologically inert
- High impact strength
- Good sliding properties
- Good chemical resistance (4 < pH < 9)
- Excellent machinability
- Very good dimensional stability
- Excellent resilience
- Ideal for close tolerance components

Common Applications:

Pump housings; Impellers; Gears; Bearings; Valves; Valve seats; Domestic appliance parts; Electrical components.

Delivery Programme

	min	max
Rod 1m & 3m long diameter (mm)	5.0	200
Plate 1m & 3m long width (mm)	610	
thickness (mm)	8.0	50

Colours: White and Black

Technical Specification

Property	ISO Method	Units	Values
Density	1183	g/cm ³	1.43
Water absorption			
• Saturation in air (23°C/50% RH)	~	%	0.20
• Saturation in water (23°C)	~	%	0.85
Tensile strength* ¹	527	N/mm ²	78
Tensile modulus of elasticity* ¹	527	N/mm ²	3600
Elongation at break* ¹	527	%	35
Impact - Charpy* ¹	179/1eU	kJ/m ²	>200
Impact - Izod notched* ¹	180/2A	kJ/m ²	10
Hardness	Rockwell	~	M88
	Shore D	~	~
Melt point	~	°C	175
Max allowable service temperature in air			
• for short periods	~	°C	150
• continuously for 20,000 hrs	~	°C	90
Linear thermal expansion coefficient	~	K ⁻¹ x 10 ⁻⁵	9.5
Thermal conductivity	~	W/(K.m)	0.31
Flammability* ² (6mm thickness)	~	~	HB
Volume resistivity* ¹	IEC93	Ω.cm	>10 ¹⁴
Dielectric strength* ¹	IEC243	kV/mm	20
Outside applications			
• UV resistance	~	~	B
Acids - strong (pH<3)	~	~	C
Alkalis - strong (pH>11)	~	~	C
Chlorinated hydrocarbons	~	~	A/B
Hot water	~	~	A

'A' - Acceptable service

'B' - Limited service

'C' - Unacceptable

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ERTACETAL® H-TF

Acetal Homopolymer + 15% PTFE (POM-H+PTFE)

ERTACETAL® H-TF is an enhanced grade of ERTACETAL® H, but is slightly softer with lower mechanical properties.

- Excellent wear resistance
- Good impact resistance
- Good sliding properties
- Good chemical resistance (5 < pH < 11)
- Excellent machinability
- Very good dimensional stability
- Low coefficient of friction
- Ideal for close tolerance components

Common Applications:

Many bearing, wear and other applications where high PV (pressure & velocity) values are likely to be experienced.

Delivery Programme

	min	max
Rod 1m & 3m long diameter (mm)	10	100
Plate 1m & 3m long width (mm)	610	
thickness (mm)	12	50
Colour: Deep brown		

Technical Specification

Property	ISO Method	Units	Values
Density	1183	g/cm ³	1.50
Water absorption			
• Saturation in air (23°C/50% RH)	~	%	0.17
• Saturation in water (23°C)	~	%	0.72
Tensile strength* ¹	527	N/mm ²	55
Tensile modulus of elasticity* ¹	527	N/mm ²	3200
Elongation at break* ¹	527	%	10
Impact - Charpy* ¹	179/1eU	kJ/m ²	>30
Impact - Izod notched* ¹	180/2A	kJ/m ²	8
Hardness	Rockwell	~	M84
	Shore D	~	~
Melt point	~	°C	175
Max allowable service temperature in air			
• for short periods	~	°C	150
• continuously for 20,000 hrs	~	°C	90
Linear thermal expansion coefficient	~	K ⁻¹ x 10 ⁻⁵	10.5
Thermal conductivity	~	W/(K.m)	0.31
Flammability* ² (6mm thickness)	~	~	HB
Volume resistivity* ¹	IEC93	Ω.cm	>10 ¹⁴
Dielectric strength* ¹	IEC243	kV/mm	20
Outside applications			
• UV resistance	~	~	B
Acids - strong (pH<3)	~	~	C
Alkalis - strong (pH>11)	~	~	C
Chlorinated hydrocarbons	~	~	A/B
Hot water	~	~	A

'A' - Acceptable service

'B' - Limited service

'C' - Unacceptable

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*² - Tests completed by DSM EPP using UL test methods