QUALITY *STRENGTHENS.*

Reference Data:
Film and Extrusion Grades
Base Resins

Envalior
Imagine the Future

DURETHAN® AND POCAN® GRADES *FOR EXTRUSION PROCESSING*

Plastics with growth potential
Durethan® and Pocan® polymers are two product lines that hold a high potential for growth and innovation. Our competitive production facilities and the intensive development work that we have conducted on products and applications have made us a key supplier in many different markets.

The polymers business is also based on in-house production of the relevant feedstocks required. The production plants for cyclohexanol/cyclohexanone, caprolactam and glass fibers rank among the biggest of their kind.

Industries and areas of application
Durethan® and Pocan® are suitable for a wide range of demanding applications because of their outstanding material properties.

Durethan® is valued in the packaging sector both for use as coextrusion film and as non-oriented or oriented monofilm. Pocan® and Durethan® are also used in the form of fibers, filaments or nonwovens in filtration technology, agriculture and textile technology. Fiber-optic cable sheathing made of Pocan® has now become standard in cable manufacture. Durethan® and Pocan® are successfully used as raw materials for pro-file and semi-finished product manufacture and as starting products for compounds.

Key brands and products:

Durethan®: Engineering resins based on polyamide 6, polyamide 66 and co-polyamides

Pocan®: Engineering resins based on polybutylene terephthalate

Sites:
Krefeld-Uerdingen, Germany
Hamm-Uentrop, Germany
Gastonia, United States
Jhagadia, India
Wuxi, China
Porto Feliz, Brazil
Antwerp, Belgium

Durethan® and Pocan® can be supplied in, for example:

- 25 kg bags PE or PE/aluminum coated
- 1.000 kg octabins with PE or PE/aluminum inliner
- 25.000 kg bulk containers

For details or for other packaging please contact your local representative.

Food contact:
The Pocan® and Durethan® grades which are mentioned in this brochure, except Durethan B26 and B29, can be used for food contact applications.

For details please see:
www.envalior.com/en-us/products/durethan
www.envalior.com/en-us/products/pocan

Or contact us:
www.envalior.com

GRADES AND *APPLICATIONS*

	Grade	Base raw material for compounds	Cast film	Blown film	Coatings	Filaments fibers	Semi-finished goods, profiles
Durethan®	B26, B26F	■			■	■	
	B29, B29F	■					
	B31F	■			■	■	
	B35F		■		■	■	
	B35FA		■		■	■	
	B35FKA		■				
	B38F		■			■	
	B38FKA		■				
	B40F		■			■	
	B40FA		■	■		■	■
	B40FD		■	■		■	■
	B40FKA		■				
	B40FAM		■	■		■	■
	C38F			■		■	
	C38FA			■		■	
	C38FAM			■		■	
	C38FKAM			■			
	C38FKS			■			
	CPA31F		■	■		■	
Pocan®	B500					■	
	B600					■	
	B1100	■			■	■	
	B1300	■			■	■	
	B1600	■			■	■	■
	B1700						■
	B1703						■
FUNCTIONAL ADDITIVES							
Durethan®	KU2-2903		■	■	■	■	
	DPCPA31FBA		■	■	■	■	■
	B40FBT		■	■	■	■	■
	T40		■	■			

DURETHAN®
FOR EXTRUSION

RANGE OF GRADES

POLYAMIDE 6

B26, B26F	Very low viscosity	– Melt blown and spun bond – Nonwovens for filter applications
B31F	Low viscosity, no additives	– Extrusion and coextrusion coating – Mono– and multifilaments
B35F	Medium viscosity, no additives	– Mono–cast films – Cast coextrusion of PA–PE composite films – Mono– and multifilaments
B35FA	Medium viscosity, lubricated	– Mono–cast films, especially BOPA film – Cast coextrusion of PA–PE composite films
B35FKA	Medium viscosity, nucleated and lubricated	– Mono–cast films, especially BOPA film – Cast coextrusion of PA–PE composite films
B38F	Medium viscosity, no additive	– Mono–cast–films – Cast coextrusion of PA–PE composite films
B38FKA	Medium viscosity, nucleated and lubricated	– Mono–cast films – Cast coextrusion of PA–PE composite films
B40F	High viscosity, without additives or pro–cessing aids	– Films and general extrusion – Mono– and multifilaments
B40FA	High viscosity, lubricated	– Mono blown and cast films, especially for sausage casings made by double bubble stretching process
B40FA	High viscosity, lubricated	– Extruded semi–finished products made by cooled die process – Solid rods up to approx. 250 mm in diameter – Tube extrusion by water tank calibration method up to a diameter of approx. 50 mm – Corrugated pipes – Injection molding of casters and rollers
B40FAM	High viscosity, high content of slip agent and lubricant	– Cast and blown films with good surface slip and smoothness, including in the freshly extruded state – Embedded PA layer made by PE–PA–PE coextrusion cast or blown film process – Sausage casings made by double bubble process
B40FD	High viscosity, reduced crystallization	– Mono and coextrusion blown films with large bubble diameter – Monofilaments and semi–finished products with large diameter
B40FKA	High viscosity, nucleated and lubricated	– Mono–cast films – Cast coextrusion of PA–PE composite films

CO–POLYAMIDES

C38F	PA 6/IPDI, very high transparency, without additives	– PA–PE multilayer blown films with embedded PA layer
C38FA	PA 6/IPDI, high transparency, slip agent	– PA–PE multilayer blown films with exterior PA surface layer
C38FAM	PA 6/IPDI, high transparency, high content of slip agent and lubricant	– PA–PE multilayer blown films with exterior PA surface layer – Highly supple films, especially good for vacuum forming films
C38FKAM	PA 6/IPDI, high transparency, nucleated, high content of slip agent and lubricant	– PA–PE multilayer blown films with exterior PA surface layer
C38FKS	PA 6/IPDI, high transparency, nucleated, with processing aid	– PA–PE multilayer blown films with exterior PA surface layer
CPA31F	PA 6/66, no additives	– Extrusion of monofilaments, bristles and tapes

FUNCTIONAL ADDITIVES

DPCPA31FBA	Slip agent concentrate	– For use with PA 6 and CoPA film grades, food contact applications
KU2–2903	Slip agent and antiblock masterbatch	– For use with PA 6 and CoPA film grades, food contact applications
B40FBT	Heat stabilization agent masterbatch	– For use with PA 6 and CoPA film grades, food contact applications
T40	PA 6I, transparent, partly aromatic PA	– To be used as a blend partner for improving vacuum forming properties gloss and trans–parency reduction of curl in coextrusion film

FILM GRADES ARE DELIVERED IN SPECIAL PACKAGING WHICH ALLOWS EASY PROCESSING WITHOUT PRE–DRYING.

REFERENCE DATA

Properties	Melting point	MVR	Density	WATER ABSORPTION		PERMEABILITY*	
				Saturation	Equilibrium	Oxygen*	Water vapor**
Standards	**ISO 11357–1, –3**	**ISO 1133–1**	**ISO 1183**	**ISO 62**	**ISO 62**	**DIN 53380**	**DIN 53122**
Test conditions	**10 °C / min**	**235 °C; 2.16 kg**		**water at 23 °C**	**23 °C, 50% r.h.**	**23 °C, 0% r.h.**	**23 °C, 85% r.h.**
Units	**°C**	**cm³ / 10 min**	**kg / m³**	**%**	**%**	**$\frac{cm^3 \times 25.4\ \mu m}{m^2 \times d \times bar}$**	**$\frac{g}{(m^2 \times d)}$**
B26, B26F	222		1140	~ 10	~ 3	45 ... 60	35 ... 45
B29, B29F	222		1140	~ 10	~ 3	45 ... 60	35 ... 45
B31F	222	16	1140	~ 10	~ 3	45 ... 60	35 ... 45
B35F	222	7	1140	~ 10	~ 3	45 ... 60	35 ... 45
B35FA	222	7	1140	~ 10	~ 3	45 ... 60	35 ... 45
B35FKA	222	7	1140	~ 10	~ 3	45 ... 60	35 ... 45
B38F	222	5	1140	~ 10	~ 3	45 ... 60	35 ... 45
B38FKA	222	5	1140	~ 10	~ 3	45 ... 60	35 ... 45
B40F	222	3	1140	~ 10	~ 3	45 ... 60	35 ... 45
B40FA	222	3	1140	~ 10	~ 3	45 ... 60	35 ... 45
B40FAM	222	3	1140	~ 10	~ 3	45 ... 60	35 ... 45
B40FD	222	3	1140	~ 10	~ 3	45 ... 60	35 ... 45
B40FKA	222	3	1140	~ 10	~ 3	45 ... 60	35 ... 45
C38F	212	5	1130	~ 10	~ 3	60 ... 70	40 ... 50
C38FA	212	5	1130	~ 10	~ 3	60 ... 70	40 ... 50
C38FAM	212	5	1130	~ 10	~ 3	60 ... 70	40 ... 50
C38FKAM	212	5	1130	~ 10	~ 3	60 ... 70	40 ... 50
C38FKS	212	5	1130	~ 10	~ 3	60 ... 70	40 ... 50
DPCPA31FBA	210		1120				
KU2–2903	190		1130				
B40FBT	220		1120				
T40	***		1180	~ 6	~ 2		

* measured on PA–X–PE blown coextruded film (30–10–50 µm, air cooled and conditioned in 50 °C water bath
** measured on 50 µm mono–cast film, manufactured at 90 °C chill roll temperature
*** no melting point, softening temperature > 120 °C

POCAN®
FOR EXTRUSION APPLICATIONS

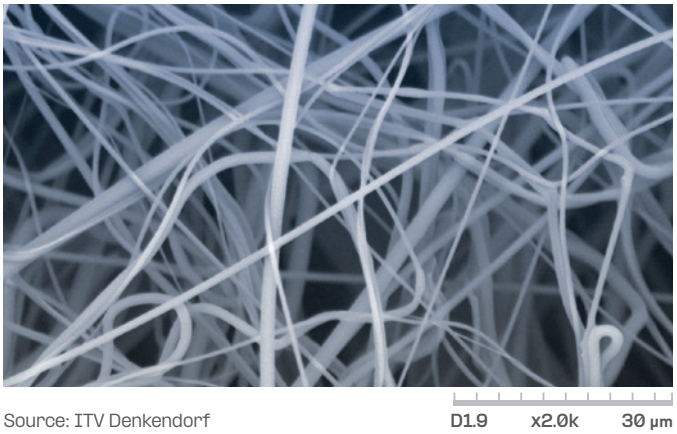
RANGE OF GRADES

B500	PBT, extremely low viscosity, no additives	– Nonwoven from meltblown – Binder for nonwovens from PET – Filter media for blood, food, fuel
B600	PBT, extremely low viscosity, no additives	– Nonwoven from meltblown – Binder for nonwovens from PET – Filter media for blood, food, fuel
B1100	PBT, low viscosity, no additives	– Nonwoven from meltblown or spunbond – Binder for nonwovens from PET – Filter media for blood, food, fuel
B1300	PBT, medium viscosity, no additives	– Nonwoven from meltblown or spunbond – Filter media for blood, food, fuel – Fibers and multifilaments for cloths – Technical applications, bristles, coatings
B1600	PBT, medium viscosity, no additives	– Nonwoven from meltblown or spunbond – Filter media for blood, food, fuel – Fibers and filaments for cloths – Technical applications, bristles, coatings
B1700	PBT, high viscosity, no additives	– Glass fiber sheathing – Profile extrusion – Semi–finished products
B1703	PBT, high viscosity, nucleated and lubricated	– Glass fiber sheathings – Especially quickly crystallizing for high line speeds, lubricated – Profile extrusion

REFERENCE DATA

Properties	Melting point	MFR	Viscosity Number*	Density	Apparent Density	WATER ABSORPTION	
						Saturation	Equilibrium
Standards	**ISO 11357–1, –3**	**ISO 1133–1**	**ISO 1628–5**	**ISO 1183**	**ISO 60**	**ISO 62**	**ISO 62**
Test conditions	**10 °C / min**	**250 °C; 2.16 kg**				**water at 23 °C**	**23 °C, 50% r.h.**
Units	**°C**	**g / 10 min**	**ml / g**	**kg / m³**	**g / cm³**	**%**	**%**
B500	225	310	~ 65	1310	~ 0.7	~ 0.5	0.2
B600	225	250	~ 70	1310	~ 0.7	~ 0.5	0.2
B1100	225	90	~ 95	1300	~ 0.7	~ 0.5	0.2
B1300	225	50	~ 105	1300	~ 0.7	~ 0.5	0.2
B1600	225	12	~ 150	1300	~ 0.7	~ 0.5	0.2
B1700	225	9	~ 160	1300	~ 0.7	~ 0.5	0.2
B1703	225	9	~ 160	1300	~ 0.7	~ 0.5	0.2

* (phenol / o–dichlorobenzene 1:1)



Source: ITV Denkendorf

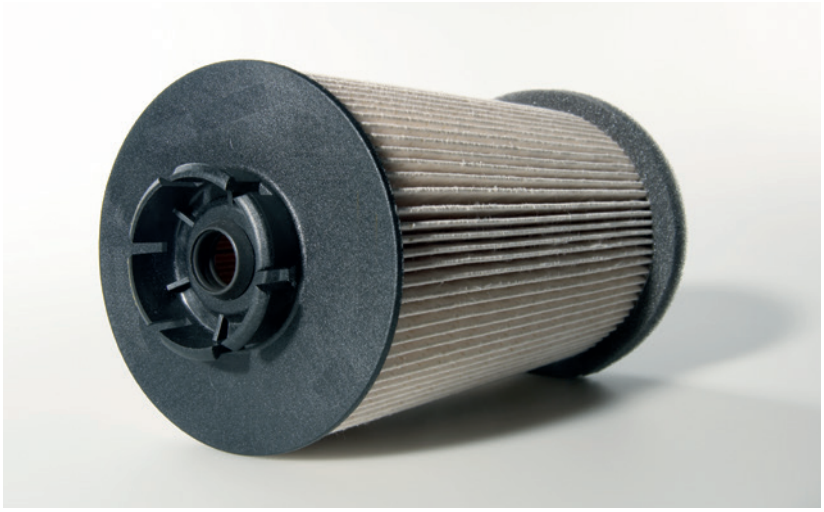
REM picture of nonwoven

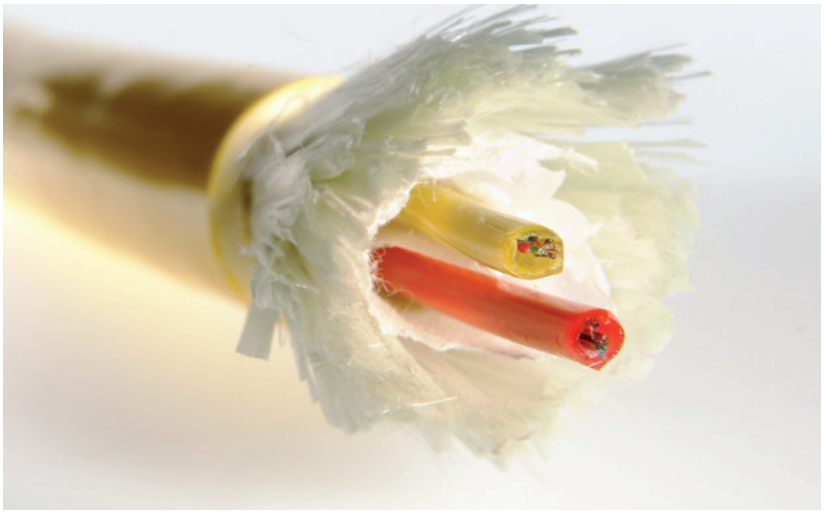
DURETHAN® and POCAN®

AS BASE POLYMERS FOR COMPOUNDING

Properties		Melting point	Viscosity number	Density	Apparent density
Standards		**ISO 11357–1.3**	*/**	**ISO 1183**	**ISO 60**
Test conditions		**10 °C/min**			
Units		**°C**	**ml/g**	**kg/m²**	**g/cm²**
Durethan®	B26, B26F	222	~ 121*	1140	~ 0.7
Durethan®	29, B29F	222	~ 145*	1140	~ 0.7
Durethan®	B31F	222	~ 153*	1140	~ 0.7
Pocan®	B1100	225	~ 95**	1310	~ 0.7
Pocan®	B1300	225	~ 105**	1310	~ 0.7
Pocan®	B1600	225	~ 150**	1310	~ 0.7

* for Durethan®: ISO 307, H_2SO_4 96 %, c = 5 g/l
** for Pocan®: ISO 1628–5 phenol/dichlorobenzene 1:1
Other grades from the Pocan or Durethan range can also where necessary be used as raw materials for compound manufacture.





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