

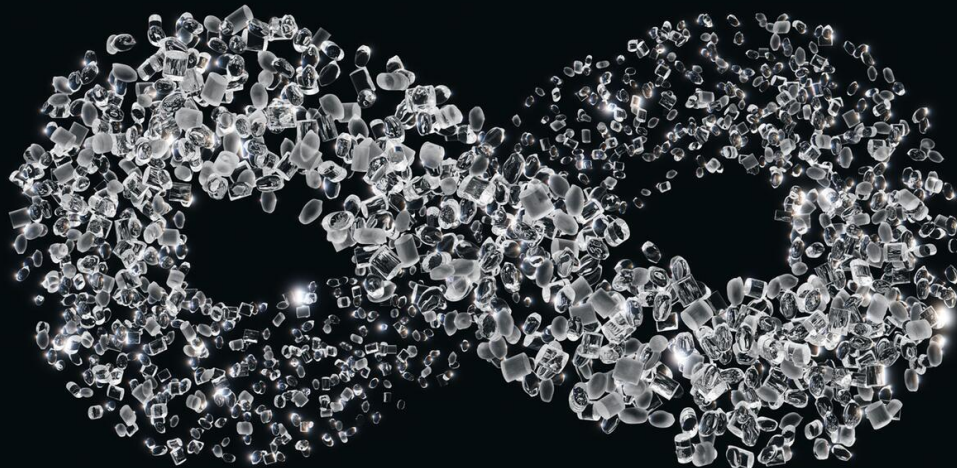
Desmopan[®]

Thermoplastic Polyurethane (TPU)

Product range

Typical values





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Desmopan[®]

A premium TPU that not only provides a high degree of flexibility and resistance across a wide range of temperatures but is also capable of running the entire structural spectrum from hard and stiff - to soft and elastic. Now that's versatility! It's also what makes our TPU ideal for an exceptionally wide range of industrial and consumer applications.

Its high degree of adaptability can even combine the contrasting features of rubber and plastics in terms of flexibility and rigidity, making it a processing multi-talent that's ready for any challenge. With our more sustainable TPUs we are able to continually expand its possibilities, thus enabling more sustainable solutions for our customers to reduce their carbon footprint while not compromising on product quality. And how is our TPU produced? Aiming for 100% renewable energy in the production process.

Enjoy more versatility, application freedom and premium quality with a more sustainable TPU that's ready for all your plans.

#TPUnlimited

TRADE NAME

CIRCULAR SUFFIX

PRODUCT SERIES

APPLICATION/USE

SHORE HARDNESS A/D

CODE DENOTING SPECIAL PROPERTIES

Desmopan® CQ 85 0 85A DPS 055

DPS | Desmopan® special formulation
U | UV-protected
GMP | Good manufacturing practice
BL | Blue Sign Label

0 | Injection molding grades
3 | Extrusion grades
4 | Blow molding grades
5 | Blown film grades
6 | High transparency grades
7 | Only for special applications
8 | Polymer blends

1 Esters
3 Esters
4 Special ester grades
5 Ester-ether hybrid grades
6 C3 ether
7 Carbonates
9 C4 ethers

30 00 Only grades based on bio-based grades
80 00 Only grades based on HDI

CQ In the meaning of Circular Intelligence marks all products with a significant share of alternative raw material:

MBC – bio-circular / mass-balancing solutions
RC – recycling solutions
EC – bio-based solutions

Comparison of properties in the Desmopan® product series

PRODUCT SERIES	DESCRIPTION	PROPERTIES							
		Wear resistance	Dynamic load-bearing capacity	Oil and fat resistance	Hydrolytic stability	Hot air resistance	Light fastness	Microbe resistance	Low-temperature flexibility
1 esters	Injection molding and extrusion grades with high mechanical strength, hydrolysis-stabilized for products subject to high wear	++	++	+	o	+	o	-**	+
3 esters	Injection molding and extrusion grades with high mechanical strength, improved hydrolytic stability and low-temperature flexibility	++	++	+	+	+	o	-**	+
4 special esters	Injection molding grades with low compression set, high heat resistance temperature, good fat and oil resistance	++	++	++	+	++	o	o**	+
5 ester-ether	Injection molding and extrusion grades that cost efficiently combine the advantages of ester and ether products	o/+	o	+	+	-	o	+	+
6 ether	Injection molding grades with very good hydrolytic stability and microbe resistance, but reduced mechanical properties	+	o	+	++	-	o	++	++
7 carbonates	Injection molding and extrusion grades, microbe resistant and hydrolytically stable with low swelling in water and alcohol	+	+	+/** ¹	++	o	o	+	+
8 aliphatics	Injection molding grades that do not yellow on exposure to UV radiation	+	o	+	+/**	+/- ¹	++	-/** ¹	+/** ¹
9 ethers	Injection molding and extrusion grades with very good hydrolytic stability and microbe resistance, very good low-temperature flexibility, some of which are approved for food use	+	o	+	++	-	o	++	++

++ very good + good o satisfactory - moderate

*The products with food compliance (GMP-suffix in the product name) can be found on our website.

** Improves with increasing hardness

¹Dependent on the grade

Product range (by shore hardness and raw material basis)

Desmopan® is the trade name for the thermoplastic polyurethanes (TPU) from Covestro AG.

The Desmopan® product range is adapted to the various specific requirements of the diverse fields of application. It includes in our main portfolio eight product series based on different raw material groups.

Raw materials group	esters			ester-ether	ether	carbonates	aliphatics	ethers
	1	3	4	5	6	7	8	9
55–64A					6064A			
65–74A					6072A			9370A/ AU/GMP
75–84A	1080A		481	5377A	6080A			9380A/ AU
				5080A				
85–89A		385E/S	487 / 487 DPS062	588E/L		786E/S		9385A/ GMP
		3385A			6088A		85085A DPS 055	
					6783A DPS 045		85786A	
90–94A						790		9392A/ AU/GMP
	192	392						
		3491A						
45–49D	1045D		445			795U		
50–54D	1050D		453 / 453 DPS041					
	1350D							
55–59D		3055D/DU	460					9855DU
		3059D						
60–64D		3660DU						9662DU
		3860D						
		3862D						
65–69D		3065D						9665DU
								9868DU
70–74D		3072D						9873DU
75–85D								9885DU



Desmopan® CQ

All our solutions that carry the suffix “CQ”, derived from **Circular Intelligence Quotient** are living proof of our CE vision becoming reality: By using renewable and alternative raw materials such as feedstocks from waste or biomass – either segregated or mass-balanced feedstocks – as well as energy sources and unique chemical recycling technologies, we showcase our Circular Intelligence, offering different possibilities to reduce the carbon footprint.

Bio-circular solutions

Bio-circular is about mixing fossil and renewable, recycled or waste-based feedstock in existing manufacturing systems while keeping track of their quantities through detailed verified bookkeeping and allocate them to specific end products.

Material	Bio-content*	CO ₂ emission reduction	Hardness
Desmopan® CQ 192 MBC091	21%	8%	92 shore A
Desmopan® CQ 3860D MBC091	23%	11%	59 shore D
Desmopan® CQ 6088A MBC091	21%	25%	88 shore A
Desmopan® CQ 9868DU MBC091	29%	24%	65 shore D
Desmopan® CQ 9873DU MBC091	31%	28%	71 shore D

*Bio-content based on mass balanced MDI, others mass balance raw materials currently under evaluation to further increase the bio-content.

Recycling solutions

Recycled products are made from secondary raw materials that have already gone through a product cycle and have been processed by specific procedures.

Material	Recycled Content	Hardness	Characteristics / Color
Desmopan® CQ 2050D-RC99	99%	95 shore A	IM*, natural
Desmopan® CQ 385E-RC50	50%	88 shore A	Extrusion/IM*, black
Desmopan® CQ 9385A-RC50	50%	87 shore A	Extrusion/IM*, black
Desmopan® CQ 80D-RC100	100%	63 shore D	Extrusion/IM*, opaque

*IM = Injection Molding

Bio-based solutions

Bio-based raw materials originate from plant, animal or algae biomass. In the case of TPU we use for example starch / industrial corn.

Material	Bio content*	CO ₂ emission reduction	Hardness	Characteristics
Desmopan® CQ33375AUDEC DPS300	64%	tbd	70 shore A	
Desmopan® CQ33085AUDEC DPS300**	56%	26%	83 shore A	Injection Molding and Extrusion grade
Desmopan® CQ33095AUDEC DPS300	47%	21%	94 shore A	
Desmopan® CQ33060DUDEC DPS300	38%	26%	63 shore D	

*Bio-content measurement : ASTM D6866-20 Method B

**There is a non-GMO version available (only direct import from APAC) / Additional version for faster cycle time available for all grades - Improved version for faster cycle time available for all grades (available for direct import from APAC) / up to 82% of bio-content grades available with mass balance version (available for direct import from APAC)

Product series 1, ester grades

Injection molding, extrusion and blow molding grades with high mechanical strength. In extrusion applications, the grades in this product line are characterized by the fact that no melt crystallization occurs even with extended dwell times. They are used primarily for products subject to high wear, such as rollers, shoe heels, pneumatic hoses, bellows.

1080A Shore hardness: 80A Injection molding grade
Hard/soft composite systems, engineering components

192 Shore hardness: 94A/42D Injection molding grade
With high mechanical strength for products subject to high wear
Gear shift knobs, roller tires, coupling elements, shoe heels

1080AU Same as 1080A
Except with special UV stabilizers

Properties	Test Condition	Unit	Standard	Product series 1, ester grades	
				1080A/AU	192
Mechanical properties (23 °C/50 % r. h.)					
Shore hardness A	–	–	DIN ISO 7619-1 (Measuring time 1 s)	80	92
Shore hardness D	–	–	DIN ISO 7619-1 (Measuring time 1 s)	–	42
Ultimate tensile strength	200 mm/min	MPa	DIN 53504, S1	35	52
Strain at break	200 mm/min	%	DIN 53504, S1	750	590
Stress at 10 % strain	200 mm/min	MPa	DIN 53504, S1	1,2	4
Stress at 50 % strain	200 mm/min	MPa	DIN 53504, S1		
Stress at 100 % strain	200 mm/min	MPa	DIN 53504, S1	4	9,5
Stress at 300 % strain	200 mm/min	MPa	DIN 53504, S1	8	17
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method A	36	40
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method C	27	29
Compression set	72 h; 23 °C	%	DIN ISO 815-1	22	25
Abrasion resistance	–	mm ³	ISO 4649, A	35	32
Abrasion resistance	–	mm ³	ISO 4649, B		
Rebound resiliency	–	%	ISO 4662	44	37
Tear strength	500 mm/min	kN/m	ISO 34-1	56	85
Flexural modulus	2 mm/min	MPa	ISO 178	–	–
Tensile storage modulus	–20 °C	MPa	ISO 6721-1, -4	170	450
Tensile storage modulus	20 °C	MPa	ISO 6721-1, -4	34	93
Tensile storage modulus	60 °C	MPa	ISO 6721-1, -4	24	48
Torsional storage modulus	–20 °C	MPa	ISO 6721-2		
Torsional storage modulus	20 °C	MPa	ISO 6721-2		
Torsional storage modulus	60 °C	MPa	ISO 6721-2		
Other properties (23 °C)					
Density		kg/m ³	ISO 1183	1206	1230
Recommended processing and drying conditions					
Injection molding - Melt temperature		°C		185-200	210-225
Injection molding - Mold temperature		°C		20-40	20-40
Extrusion - Melt temperature		°C			–

Product series 1, ester grades

Injection molding, extrusion and blow molding grades with high mechanical strength. In extrusion applications, the grades in this product line are characterized by the fact that no melt crystallization occurs even with extended dwell times. They are used primarily for products subject to high wear, such as rollers, shoe heels, pneumatic hoses, bellows.

1045D Shore hardness: 95A/46D Injection molding grade
With high mechanical strength for products subject to high wear
Roller tires, coupling elements, shoe heels

1350D Shore hardness: 96A/50D Extrusion grade
Good wear resistance, high melt stability, high burst pressure
Pneumatic hoses

1050D Shore hardness: 96A/51D Injection molding grade
With high mechanical strength for products subject to high wear
Roller tires, coupling elements, shoe heels

Properties	Test Condition	Unit	Standard	Product series 1, ester grades		
				1045D	1050D	1350D
Mechanical properties (23 °C/50 % r. h.)						
Shore hardness A	–	–	DIN ISO 7619-1 (Measuring time 1 s)	–	–	–
Shore hardness D	–	–	DIN ISO 7619-1 (Measuring time 1 s)	46	51	52
Ultimate tensile strength	200 mm/min	MPa	DIN 53504, S1	51	48	51
Strain at break	200 mm/min	%	DIN 53504, S1	530	490	450
Stress at 10 % strain	200 mm/min	MPa	DIN 53504, S1	7,1	9,1	8,7
Stress at 50 % strain	200 mm/min	MPa	DIN 53504, S1			
Stress at 100 % strain	200 mm/min	MPa	DIN 53504, S1	12,3	15,2	17,5
Stress at 300 % strain	200 mm/min	MPa	DIN 53504, S1	23	27	32
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method A	39	46	46
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method C	25	31	27
Compression set	72 h; 23 °C	%	DIN ISO 815-1	24	29	25
Abrasion resistance	–	mm ³	ISO 4649, A	11	13	29
Abrasion resistance	–	mm ³	ISO 4649, B			
Rebound resilience	–	%	ISO 4662	40	36	35
Tear strength	500 mm/min	kN/m	ISO 34-1	120	150	135
Flexural modulus	2 mm/min	MPa	ISO 178	–	–	–
Tensile storage modulus	–20 °C	MPa	ISO 6721-1, -4	710	1220	2340
Tensile storage modulus	20 °C	MPa	ISO 6721-1, -4	120	200	300
Tensile storage modulus	60 °C	MPa	ISO 6721-1, -4	50	75	120
Torsional storage modulus	–20 °C	MPa	ISO 6721-2			
Torsional storage modulus	20 °C	MPa	ISO 6721-2			
Torsional storage modulus	60 °C	MPa	ISO 6721-2			
Other properties (23 °C)						
Density		kg/m ³	ISO 1183	1220	1230	1240
Recommended processing and drying conditions						
Injection molding - Melt temperature		°C		210-230	210-230	210-230
Injection molding - Mold temperature		°C		20-40	20-40	20-40
Extrusion - Melt temperature		°C		–	–	195-215

Product series 3, ester grades

Injection molding and extrusion grades with high mechanical strength, improved hydrolytic stability and low-temperature flexibility. Low swelling in oils, fats and solvents. This is the most commonly used product series for extruded products of all kinds and structural parts subject to high stresses.

385E/S

Shore hardness: 85A

Extrusion and injection molding grade
Films, non-reinforced hoses,
screen/sieve elements, engineering
components, hard/soft composite
systems

392

Shore hardness: 92A

Extrusion- and injection molding grade,
high mechanical strength
Toothed belts, profiles, hoses, non-
reinforced

Properties	Test Condition	Unit	Standard	Product series 3, ester grades	
				385E/S	392
Mechanical properties (23 °C/50 % r. h.)					
Shore hardness A	–	–	DIN ISO 7619-1 (Measuring time 1 s)	85	92
Shore hardness D	–	–	DIN ISO 7619-1 (Measuring time 1 s)	32	40
Ultimate tensile strength	200 mm/min	MPa	DIN 53504, S1	53	51
Strain at break	200 mm/min	%	DIN 53504, S1	600	563
Stress at 10 % strain	200 mm/min	MPa	DIN 53504, S1	1,7	4,2
Stress at 50 % strain	200 mm/min	MPa	DIN 53504, S1		7,8
Stress at 100 % strain	200 mm/min	MPa	DIN 53504, S1	5,3	9,2
Stress at 300 % strain	200 mm/min	MPa	DIN 53504, S1	13	21
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method A	40	36
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method C	25	25
Compression set	72 h; 23 °C	%	DIN ISO 815-1	20	25
Abrasion resistance	–	mm ³	ISO 4649, A	30	25
Abrasion resistance	–	mm ³	ISO 4649, B		
Rebound resilience	–	%	ISO 4662	50	33
Tear strength	500 mm/min	kN/m	ISO 34-1	70	80
Flexural modulus	2 mm/min	MPa	ISO 178	–	
Tensile storage modulus	–20 °C	MPa	ISO 6721-1, -4	186	455
Tensile storage modulus	20 °C	MPa	ISO 6721-1, -4	51	90
Tensile storage modulus	60 °C	MPa	ISO 6721-1, -4	37	59
Torsional storage modulus	–20 °C	MPa	ISO 6721-2		
Torsional storage modulus	20 °C	MPa	ISO 6721-2		
Torsional storage modulus	60 °C	MPa	ISO 6721-2		
Other properties (23 °C)					
Density		kg/m ³	ISO 1183	1200	1210
Recommended processing and drying conditions					
Injection molding - Melt temperature		°C		210-230	210-230
Injection molding - Mold temperature		°C		20-40	20-40
Extrusion - Melt temperature		°C		200-220	200-220

Product series 3, ester grades

Injection molding and extrusion grades with high mechanical strength, improved hydrolytic stability and low-temperature flexibility. Low swelling in oils, fats and solvents. This is the most commonly used product series for extruded products of all kinds and structural parts subject to high stresses.

3385A Shore hardness: 85A
 Extrusion and injection molding grade
 Good wear resistance, short cycle times, high melt stability
 Hard/soft composite systems, non-reinforced hoses, profiles, engineering injection moldings

3491A Shore hardness: 92A/40D
 Extrusion and injection molding grade
 Suitable for extrusion blow molding, high melt stability

Properties	Test Condition	Unit	Standard	Product series 3, ester grades	
				3385A	3491A
Mechanical properties (23 °C/50 % r. h.)					
Shore hardness A	–	–	DIN ISO 7619-1 (Measuring time 1 s)	85	91
Shore hardness D	–	–	DIN ISO 7619-1 (Measuring time 1 s)	33	40
Ultimate tensile strength	200 mm/min	MPa	DIN 53504, S1	53	55
Strain at break	200 mm/min	%	DIN 53504, S1	590	560
Stress at 10 % strain	200 mm/min	MPa	DIN 53504, S1	1,7	3,1
Stress at 50 % strain	200 mm/min	MPa	DIN 53504, S1		
Stress at 100 % strain	200 mm/min	MPa	DIN 53504, S1	5,6	8,1
Stress at 300 % strain	200 mm/min	MPa	DIN 53504, S1	14	19
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method A	42	45
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method C	35	35
Compression set	72 h; 23 °C	%	DIN ISO 815-1	20	20
Abrasion resistance	–	mm ³	ISO 4649, A	30	25
Abrasion resistance	–	mm ³	ISO 4649, B		
Rebound resilience	–	%	ISO 4662	50	42
Tear strength	500 mm/min	kN/m	ISO 34-1	70	90
Flexural modulus	2 mm/min	MPa	ISO 178	–	–
Tensile storage modulus	–20 °C	MPa	ISO 6721-1, -4	85	515
Tensile storage modulus	20 °C	MPa	ISO 6721-1, -4	30	95
Tensile storage modulus	60 °C	MPa	ISO 6721-1, -4	20	60
Torsional storage modulus	–20 °C	MPa	ISO 6721-2		
Torsional storage modulus	20 °C	MPa	ISO 6721-2		
Torsional storage modulus	60 °C	MPa	ISO 6721-2		
Other properties (23 °C)					
Density		kg/m ³	ISO 1183	1200	1200
Recommended processing and drying conditions					
Injection molding - Melt temperature		°C		190-210	200-230
Injection molding - Mold temperature		°C		20-40	20-40
Extrusion - Melt temperature		°C		175-205	200-220

Product series 3, ester grades

Injection molding grades with high mechanical strength, particularly outstanding abrasion and wear resistance, and faster cycle times in processing.

3055DU Shore hardness: 96A/56D
Injection molding grade
With high mechanical strength for products subject to high wear, good wear resistance, very short cycle times
Rollers, engineering injection moldings

3065D Shore hardness: 98A/65D
Injection molding grade
High mechanical strength, excellent abrasion resistance, good wear resistance, very short cycle times
Engineering components

3059D Shore hardness: 97A/59D
Injection molding grade
Excellent abrasion resistance, good wear resistance, very short cycle times
Replacement heel tips, rollers, shoe shells, engineering injection moldings

3072D Shore hardness: 98A/72D
Injection molding grade
High mechanical strength
High mechanical strength, excellent abrasion resistance, good wear resistance, very short cycle times
Engineering components

Properties	Test Condition	Unit	Standard	Product series 3, ester grades			
				3055D/DU	3059D	3065D	3072D
Mechanical properties (23 °C/50 % r. h.)							
Shore hardness A	–	–	DIN ISO 7619-1 (Measuring time 1 s)	96	97		
Shore hardness D	–	–	DIN ISO 7619-1 (Measuring time 1 s)	56	59	66	69
Ultimate tensile strength	200 mm/min	MPa	DIN 53504, S1	54	50	59	65
Strain at break	200 mm/min	%	DIN 53504, S1	408	400	360	340
Stress at 10 % strain	200 mm/min	MPa	DIN 53504, S1	14	12,4	20,9	29,6
Stress at 50 % strain	200 mm/min	MPa	DIN 53504, S1	19,9			
Stress at 100 % strain	200 mm/min	MPa	DIN 53504, S1	22,2	21	31,9	37,7
Stress at 300 % strain	200 mm/min	MPa	DIN 53504, S1	39	42	49	65
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method A	35	42	51	49
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method C	26	24	44	40
Compression set	72 h; 23 °C	%	DIN ISO 815-1	21	24	30	29
Abrasion resistance	–	mm ³	ISO 4649, A	26	18	18	20
Abrasion resistance	–	mm ³	ISO 4649, B				
Rebound resilience	–	%	ISO 4662	35	35	45	47
Tear strength	500 mm/min	kN/m	ISO 34-1	135	160	180	250
Flexural modulus	2 mm/min	MPa	ISO 178	130	180	350	800
Tensile storage modulus	–20 °C	MPa	ISO 6721-1, -4	1200	2430	2620	3330
Tensile storage modulus	20 °C	MPa	ISO 6721-1, -4	260	580	950	1270
Tensile storage modulus	60 °C	MPa	ISO 6721-1, -4	120	180	260	380
Torsional storage modulus	–20 °C	MPa	ISO 6721-2				
Torsional storage modulus	20 °C	MPa	ISO 6721-2				
Torsional storage modulus	60 °C	MPa	ISO 6721-2				
Other properties (23 °C)							
Density		kg/m ³	ISO 1183	1220	1230	1220	1240
Recommended processing and drying conditions							
Injection molding - Melt temperature		°C		220-240	220-240	220-240	220-240
Injection molding - Mold temperature		°C		20-40	30-60	30-60	30-60
Extrusion - Melt temperature		°C		–	–	–	–

Product series 3, ester grades

All of the high-transparency grades listed here are hydrolysis-stabilized and treated with special UV protection. They therefore can be used to fabricate clear, transparent injection moldings with wall thicknesses of up to six millimeters. However, hoses, flat films and profiles can also be extruded from these formulations.

More detailed information on the optical properties can be obtained on desmopan.com or on request.



Properties	Test Condition	Unit	Standard	Product series 3, ester grades 3660DU
Mechanical properties (23 °C/50 % r. h.)				
Shore hardness A	–	–	DIN ISO 7619-1 (Measuring time 1 s)	–
Shore hardness D	–	–	DIN ISO 7619-1 (Measuring time 1 s)	61
Ultimate tensile strength	200 mm/min	MPa	DIN 53504, S1	53
Strain at break	200 mm/min	%	DIN 53504, S1	330
Stress at 10 % strain	200 mm/min	MPa	DIN 53504, S1	11,9
Stress at 50 % strain	200 mm/min	MPa	DIN 53504, S1	
Stress at 100 % strain	200 mm/min	MPa	DIN 53504, S1	28,8
Stress at 300 % strain	200 mm/min	MPa	DIN 53504, S1	42
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method A	45
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method C	35
Compression set	72 h; 23 °C	%	DIN ISO 815-1	25
Abrasion resistance	–	mm ³	ISO 4649, A	25
Abrasion resistance	–	mm ³	ISO 4649, B	
Rebound resilience	–	%	ISO 4662	35
Tear strength	500 mm/min	kN/m	ISO 34-1	170
Flexural modulus	2 mm/min	MPa	ISO 178	110
Tensile storage modulus	–20 °C	MPa	ISO 6721-1, -4	2600
Tensile storage modulus	20 °C	MPa	ISO 6721-1, -4	450
Tensile storage modulus	60 °C	MPa	ISO 6721-1, -4	130
Torsional storage modulus	–20 °C	MPa	ISO 6721-2	
Torsional storage modulus	20 °C	MPa	ISO 6721-2	
Torsional storage modulus	60 °C	MPa	ISO 6721-2	
Other properties (23 °C)				
Density		kg/m ³	ISO 1183	1230
Recommended processing and drying conditions				
Injection molding - Melt temperature		°C		220-240
Injection molding - Mold temperature		°C		30-60
Extrusion - Melt temperature		°C		210-230

Product series 3, impact-modified ester grades

The impact-modified ester grades of the new generation are injection molding products with improved initial color and a lower tendency towards yellowing. The main field of application is ski boot shells. However, the high-level properties also make these products an interesting option for numerous parts subject to mechanical loads.



Properties	Test Condition	Unit	Standard	Impact-modified ester grades	
				3860D	3862D
Mechanical properties (23 °C/50 % r. h.)					
Shore hardness A	–	–	DIN ISO 7619-1 (Measuring time 1 s)	–	–
Shore hardness D	–	–	DIN ISO 7619-1 (Measuring time 1 s)	59	62
Ultimate tensile strength	200 mm/min	MPa	DIN 53504, S1	52	60
Strain at break	200 mm/min	%	DIN 53504, S1	430	380
Stress at 10 % strain	200 mm/min	MPa	DIN 53504, S1	13	15
Stress at 50 % strain	200 mm/min	MPa	DIN 53504, S1		
Stress at 100 % strain	200 mm/min	MPa	DIN 53504, S1	25	25
Stress at 300 % strain	200 mm/min	MPa	DIN 53504, S1	44	45
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method A	59	
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method C	46	
Compression set	72 h; 23 °C	%	DIN ISO 815-1	30	
Abrasion resistance	–	mm ³	ISO 4649, A	39	
Abrasion resistance	–	mm ³	ISO 4649, B		
Rebound resilience	–	%	ISO 4662	40	
Tear strength	500 mm/min	kN/m	ISO 34-1	175	
Flexural modulus	2 mm/min	MPa	ISO 178	230	
Tensile storage modulus	–20 °C	MPa	ISO 6721-1, -4	1700	
Tensile storage modulus	20 °C	MPa	ISO 6721-1, -4	420	
Tensile storage modulus	60 °C	MPa	ISO 6721-1, -4	150	
Torsional storage modulus	–20 °C	MPa	ISO 6721-2		
Torsional storage modulus	20 °C	MPa	ISO 6721-2		
Torsional storage modulus	60 °C	MPa	ISO 6721-2		
Other properties (23 °C)					
Density		kg/m ³	ISO 1183	1200	1200
Recommended processing and drying conditions					
Injection molding - Melt temperature		°C		235-245	235-245
Injection molding - Mold temperature		°C		50-70	40-50
Extrusion - Melt temperature		°C			

Product series 4, special ester grades

This line offers several special features thanks to the use of special raw materials and auxiliaries. For certain grades, properties like compression set (CS), heat deflection temperature, hydrolytic stability and oil/fat resistance are superior to those found in the ester product series 100 and 300.

481

Shore hardness: 80A, Injection molding grade
Fat and oil resistant, low compression set, high elasticity, high heat resistance, easily demolded
Rollers, seals, membranes, automotive parts

445

Shore hardness: 93A/44D, Injection molding grade
Fat and oil resistant, high heat resistance, low compression set
Automotive engineering, engineering injection moldings

487

Shore hardness: 86A, Injection molding grade
Fat and oil resistant, low compression set, high heat resistance, short cycle times
Automotive engineering, rollers, seals, membranes, damping elements

453

Shore hardness: 97A/52D, Injection molding grade
Fat and oil resistant, low compression set, good wear resistance
Engineering injection moldings, automotive engineering, coupling elements

**487
DPS062**

Shore hardness: 86A, Injection molding grade
Additionally improved scratch resistance and optimized fogging and migration behavior
Automotive interior parts

**453
DPS041**

Shore hardness: 97A/52D, Injection molding grade
Additionally hydrolysis-stabilized
Engineering injection moldings, automotive engineering, coupling elements

460

Shore hardness: 97A/58D, Injection molding grade
Fat and oil resistant, low compression set, high heat resistance, short cycle times
Automotive engineering, engineering components

Properties	Test Condition	Unit	Standard	Product series 4, special ester grades				
				481	487 / 487 DPS062	445	453 / 453 DPS041	460
Mechanical properties (23 °C/50 % r. h.)								
Shore hardness A	–	–	DIN ISO 7619-1 (Measuring time 1 s)	80	86	93	--	--
Shore hardness D	–	–	DIN ISO 7619-1 (Measuring time 1 s)		34	43	50	59
Ultimate tensile strength	200 mm/min	MPa	DIN 53504, S1	38	46	48	40	41
Strain at break	200 mm/min	%	DIN 53504, S1	620	570	530	510	400
Stress at 10 % strain	200 mm/min	MPa	DIN 53504, S1		1,9	4,4	7,2	14,8
Stress at 50 % strain	200 mm/min	MPa	DIN 53504, S1					
Stress at 100 % strain	200 mm/min	MPa	DIN 53504, S1	4,8	6	12,1	16,6	24
Stress at 300 % strain	200 mm/min	MPa	DIN 53504, S1	9	15	26	28	32
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method A	38	26	26	25	33
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method C	28	20	17	22	25
Compression set	72 h; 23 °C	%	DIN ISO 815-1	15	15	15	15	25
Abrasion resistance	–	mm3	ISO 4649, A	25	25	25	30	40
Abrasion resistance	–	mm3	ISO 4649, B					
Rebound resilience	–	%	ISO 4662	50	50	40	40	40
Tear strength	500 mm/min	kN/m	ISO 34-1	50	70	95	110	150
Flexural modulus	2 mm/min	MPa	ISO 178					170
Tensile storage modulus	–20 °C	MPa	ISO 6721-1, -4	106	225	790	1780	1760
Tensile storage modulus	20 °C	MPa	ISO 6721-1, -4	33	60	100	240	450
Tensile storage modulus	60 °C	MPa	ISO 6721-1, -4	29	46	58	110	130
Torsional storage modulus	–20 °C	MPa	ISO 6721-2					
Torsional storage modulus	20 °C	MPa	ISO 6721-2					
Torsional storage modulus	60 °C	MPa	ISO 6721-2					
Other properties (23 °C)								
Density		kg/m3	ISO 1183	1200	1210	1220	1230	1220
Recommended processing and drying conditions								
Injection molding - Melt temperature		°C		220-240	230-240	210-240	220-240	230-250
Injection molding - Mold temperature		°C		20-40	20-40	20-40	20-40	20-40
Extrusion - Melt temperature		°C			–			–

Product series 5, ester-ether hybrid grades

This product series cost-efficiently unites the advantages of ether and ester raw material classes. These formulations are used wherever mechanical loads occur combined with the risk of damage from microorganisms. Fields of application include extrusion coatings, seals, engineering injection moldings and watch bands.

5377A Shore hardness: 77A
Extrusion and injection molding grade
Improved microbe resistance,
improved hydrolytic stability
Fabric coating, watch band

588E Shore hardness: 88A
Extrusion and injection molding grade
Improved microbe resistance,
improved hydrolytic stability
Cable sheathing, hoses (non-reinforced), roofing membranes

5080A Shore hardness: 80A, Injection molding grade
Improved microbe resistance,
improved hydrolytic stability
Seals, hard/soft composite systems,
membranes

Properties	Test Condition	Unit	Standard	Product series 5, ether-ester grades		
				5377A	5080A	588E
Mechanical properties (23 °C/50 % r. h.)						
Shore hardness A	–	–	DIN ISO 7619-1 (Measuring time 1 s)	80	80	85
Shore hardness D	–	–	DIN ISO 7619-1 (Measuring time 1 s)		29	33
Ultimate tensile strength	200 mm/min	MPa	DIN 53504, S1	30	22	43
Strain at break	200 mm/min	%	DIN 53504, S1	780	701	640
Stress at 10 % strain	200 mm/min	MPa	DIN 53504, S1	1,1	1,5	1,8
Stress at 50 % strain	200 mm/min	MPa	DIN 53504, S1		3,8	
Stress at 100 % strain	200 mm/min	MPa	DIN 53504, S1	4,9	5	5,9
Stress at 300 % strain	200 mm/min	MPa	DIN 53504, S1	8	8,6	10
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method A	42	24	35
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method C	32	19	25
Compression set	72 h; 23 °C	%	DIN ISO 815-1	20	20	23
Abrasion resistance	–	mm ³	ISO 4649, A	80	70	60
Abrasion resistance	–	mm ³	ISO 4649, B			
Rebound resilience	–	%	ISO 4662	45	50	45
Tear strength	500 mm/min	kN/m	ISO 34-1	50	55	55
Flexural modulus	2 mm/min	MPa	ISO 178	–	–	–
Tensile storage modulus	–20 °C	MPa	ISO 6721-1, –4	180	100	170
Tensile storage modulus	20 °C	MPa	ISO 6721-1, –4	30	30	30
Tensile storage modulus	60 °C	MPa	ISO 6721-1, –4	21	23	20
Torsional storage modulus	–20 °C	MPa	ISO 6721-2			
Torsional storage modulus	20 °C	MPa	ISO 6721-2			
Torsional storage modulus	60 °C	MPa	ISO 6721-2			
Other properties (23 °C)						
Density		kg/m ³	ISO 1183	1140	1140	1150
Recommended processing and drying conditions						
Injection molding - Melt temperature		°C		180-200	190-210	210-230
Injection molding - Mold temperature		°C		20-40	20-40	20-40
Extrusion - Melt temperature		°C		170-190	–	190-210

Product series 6, C3 ether grades

The grades in the 6000 product line are C3 ether grades with inherent hydrolytic and microbial stability and exceptionally good fogging behavior. They can be injection molded quickly and easily, allow long flow paths, and are perfectly suited to hard/ soft combinations with many engineering thermoplastics.

They are thus an attractive alternative to other thermoplastic elastomers (TPE).



Properties	Test Condition	Unit	Standard	Product series 6, ether grades			
				6064A	6072A	6080A	6088A
Mechanical properties (23 °C/50 % r. h.)							
Shore hardness A	–	–	DIN ISO 7619-1 (Measuring time 1 s)	67	70	80	89
Shore hardness D	–	–	DIN ISO 7619-1 (Measuring time 1 s)	–	–	–	–
Ultimate tensile strength	200 mm/min	MPa	DIN 53504, S1	23	27	30	28
Strain at break	200 mm/min	%	DIN 53504, S1	970	832	667	610
Stress at 10 % strain	200 mm/min	MPa	DIN 53504, S1	0,6	0,8	1,5	2,7
Stress at 50 % strain	200 mm/min	MPa	DIN 53504, S1				
Stress at 100 % strain	200 mm/min	MPa	DIN 53504, S1	3,2	3,8	5,8	8,3
Stress at 300 % strain	200 mm/min	MPa	DIN 53504, S1	6	7	10	14
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method A	41	37	38	55
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method C	35	32	34	45
Compression set	72 h; 23 °C	%	DIN ISO 815-1	19	16	18	23
Abrasion resistance	–	mm ³	ISO 4649, A	33	30	43	31
Abrasion resistance	–	mm ³	ISO 4649, B				
Rebound resilience	–	%	ISO 4662	45	45	43	43
Tear strength	500 mm/min	kN/m	ISO 34-1	29	32	36	46
Flexural modulus	2 mm/min	MPa	ISO 178	–	–	–	–
Tensile storage modulus	–20 °C	MPa	ISO 6721-1, -4	42	66	153	338
Tensile storage modulus	20 °C	MPa	ISO 6721-1, -4	7	10	21	53
Tensile storage modulus	60 °C	MPa	ISO 6721-1, -4	5	7	13	28
Torsional storage modulus	–20 °C	MPa	ISO 6721-2				
Torsional storage modulus	20 °C	MPa	ISO 6721-2				
Torsional storage modulus	60 °C	MPa	ISO 6721-2				
Other properties (23 °C)							
Density		kg/m ³	ISO 1183	1090	1100	1110	1130
Recommended processing and drying conditions							
Injection molding - Melt temperature		°C		200-220	200-220	200-220	205-225
Injection molding - Mold temperature		°C		20-40	20-40	20-40	20-40
Extrusion - Melt temperature		°C		–	–	–	–

Product series 6, C3 ether grades for calendering

The grades in this line are developed for calendering processes but can also use for flat-film extrusion processes. They show very good mechanical properties and a wide process window. As C3 ether grades they are inherently hydrolytic as well as microbially stable and have no tendencies for surface migration. They are suitable for applications such as tarps, synthetic leather.



Properties	Test Condition	Unit	Standard	Product series 6, C3 ether grades for calendering 6783A DPS 045
Mechanical properties (23 °C/50 % r. h.)				
Shore hardness A	–	–	DIN ISO 7619-1 (Measuring time 1 s)	
Shore hardness D	–	–	DIN ISO 7619-1 (Measuring time 1 s)	
Ultimate tensile strength	200 mm/min	MPa	DIN 53504, S1	24,4
Strain at break	200 mm/min	%	DIN 53504, S1	684,5
Stress at 10 % strain	200 mm/min	MPa	DIN 53504, S1	0,9
Stress at 50 % strain	200 mm/min	MPa	DIN 53504, S1	
Stress at 100 % strain	200 mm/min	MPa	DIN 53504, S1	5,7
Stress at 300 % strain	200 mm/min	MPa	DIN 53504, S1	9,6
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method A	
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method C	
Compression set	72 h; 23 °C	%	DIN ISO 815-1	
Abrasion resistance	–	mm ³	ISO 4649, A	
Abrasion resistance	–	mm ³	ISO 4649, B	
Rebound resilience	–	%	ISO 4662	
Tear strength	500 mm/min	kN/m	ISO 34-1	
Flexural modulus	2 mm/min	MPa	ISO 178	
Tensile storage modulus	–20 °C	MPa	ISO 6721-1, -4	
Tensile storage modulus	20 °C	MPa	ISO 6721-1, -4	
Tensile storage modulus	60 °C	MPa	ISO 6721-1, -4	
Torsional storage modulus	–20 °C	MPa	ISO 6721-2	
Torsional storage modulus	20 °C	MPa	ISO 6721-2	
Torsional storage modulus	60 °C	MPa	ISO 6721-2	
Other properties (23 °C)				
Density		kg/m ³	ISO 1183	
Recommended processing and drying conditions				
Injection molding - Melt temperature		°C		180-220
Injection molding - Mold temperature		°C		20-40
Extrusion - Melt temperature		°C		180-210

Product series 7, carbonate grades

The products in this line of raw materials were specifically developed for special applications and have proven their worth in these fields for many years. They display good microbe resistance and hydrolytic stability, swell less in water and alcohol compared to ether grades and offer a level of mechanical properties comparable to that of the ester grades.

786E/S Shore hardness: 88A
 Extrusion and injection molding grade
 High mechanical strength, very good hydrolytic stability and microbe resistance, good low-temperature flexibility
 Fire-extinguishing hoses, films, sections, engineering components

795U Shore hardness: 94A/43D
 Injection molding grade
 With special UV stabilizers, good hydrolytic stability and microbe resistance, short cycle times
 Animal ID tags

790 Shore hardness: 92A/40D
 Extrusions and injection molding grade
 Good hydrolytic stability and microbe resistance, high mechanical strength, good low-temperature flexibility
 Toothed belts, sections, engineering injection moldings

Properties	Test Condition	Unit	Standard	Product series 7, carbonate grades		
				786E/S	790	795U
Mechanical properties (23 °C/50 % r. h.)						
Shore hardness A	–	–	DIN ISO 7619-1 (Measuring time 1 s)	88	90	94
Shore hardness D	–	–	DIN ISO 7619-1 (Measuring time 1 s)	33	40	48
Ultimate tensile strength	200 mm/min	MPa	DIN 53504, S1	40	54	48
Strain at break	200 mm/min	%	DIN 53504, S1	540	480	480
Stress at 10 % strain	200 mm/min	MPa	DIN 53504, S1	2,6	2,8	8,1
Stress at 50 % strain	200 mm/min	MPa	DIN 53504, S1			
Stress at 100 % strain	200 mm/min	MPa	DIN 53504, S1	8,2	10,6	14,6
Stress at 300 % strain	200 mm/min	MPa	DIN 53504, S1	16	28	28
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method A	42	45	45
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method C	30	34	29
Compression set	72 h; 23 °C	%	DIN ISO 815-1	25	25	20
Abrasion resistance	–	mm ³	ISO 4649, A	40	30	25
Abrasion resistance	–	mm ³	ISO 4649, B			
Rebound resilience	–	%	ISO 4662	32	32	35
Tear strength	500 mm/min	kN/m	ISO 34-1	65	85	100
Flexural modulus	2 mm/min	MPa	ISO 178	–	–	–
Tensile storage modulus	–20 °C	MPa	ISO 6721-1, -4	400	630	1040
Tensile storage modulus	20 °C	MPa	ISO 6721-1, -4	35	100	145
Tensile storage modulus	60 °C	MPa	ISO 6721-1, -4	20	55	50
Torsional storage modulus	–20 °C	MPa	ISO 6721-2			
Torsional storage modulus	20 °C	MPa	ISO 6721-2			
Torsional storage modulus	60 °C	MPa	ISO 6721-2			
Other properties (23 °C)						
Density		kg/m ³	ISO 1183	1150	1210	1200
Recommended processing and drying conditions						
Injection molding - Melt temperature		°C		210-230	210-230	210-230
Injection molding - Mold temperature		°C		20-40	20-40	20-60
Extrusion - Melt temperature		°C		190-210	205-225	–

Product series 8, aliphatics

Products based on an aliphatic isocyanate combine the known properties of TPUs with resistance to yellowing resulting from UV exposure. Therefore, these products are particularly suited to colored applications in the automotive sector.

85085A DPS 055

Shore hardness: 85A
Injection molding grade
Improved scratch resistance, low abrasion loss, optimized fogging and migration behavior
Automotive interior parts

85786A

Shore hardness: 90A
Good low-temperature flexibility, high resilience, improved hydrolytic stability, easily melted
Fabric coating

Properties	Test Condition	Unit	Standard	Product series 8, aliphatics	
				85085A DPS055	85786A
Mechanical properties (23 °C/50 % r. h.)					
Shore hardness A	–	–	DIN ISO 7619-1 (Measuring time 1 s)	87	88
Shore hardness D	–	–	DIN ISO 7619-1 (Measuring time 1 s)	–	–
Ultimate tensile strength	200 mm/min	MPa	DIN 53504, S1	44	27
Strain at break	200 mm/min	%	DIN 53504, S1	920	890
Stress at 10 % strain	200 mm/min	MPa	DIN 53504, S1	2,3	2,8
Stress at 50 % strain	200 mm/min	MPa	DIN 53504, S1		
Stress at 100 % strain	200 mm/min	MPa	DIN 53504, S1	6	7,2
Stress at 300 % strain	200 mm/min	MPa	DIN 53504, S1	10	11
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method A	42	44
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method C	40	32
Compression set	72 h; 23 °C	%	DIN ISO 815-1	20	20
Abrasion resistance	–	mm ³	ISO 4649, A	30	30
Abrasion resistance	–	mm ³	ISO 4649, B		
Rebound resilience	–	%	ISO 4662	63	62
Tear strength	500 mm/min	kN/m	ISO 34-1	60	60
Flexural modulus	2 mm/min	MPa	ISO 178	–	–
Tensile storage modulus	–20 °C	MPa	ISO 6721-1, -4	210	260
Tensile storage modulus	20 °C	MPa	ISO 6721-1, -4	85	65
Tensile storage modulus	60 °C	MPa	ISO 6721-1, -4	55	50
Torsional storage modulus	–20 °C	MPa	ISO 6721-2		
Torsional storage modulus	20 °C	MPa	ISO 6721-2		
Torsional storage modulus	60 °C	MPa	ISO 6721-2		
Other properties (23 °C)					
Density		kg/m ³	ISO 1183	1130	1130
Recommended processing and drying conditions					
Injection molding - Melt temperature		°C		180-210	170-190
Injection molding - Mold temperature		°C		20-40	20-40
Extrusion - Melt temperature		°C			170-190

Product series 9, ether grades

The products in this line have inherent hydrolytic stability and microbe resistance. An additional feature is very good low temperature flexibility. The products in the 900 series are used in applications requiring good flexibility or impact resistance at very low temperatures. Some of the following products [GMP] can be used for the production of consumer products for use with food (see page 26).

9370A
[GMP] Shore hardness: 70A
Extrusion and injection molding grade
Good low-temperature flexibility,
increased water vapor permeability
Roofing membranes, seals,
membranes, films, soles for athletic
footwear, hard/soft composite systems

9380AU Same as 9380A,
except with UV stabilizer

9370AU Same as 9370A,
except with special UV stabilizers

9385A
[GMP] Shore hardness: 86A
Extrusion and injection molding grade
Good low-temperature flexibility,
complies with DIN VDE 0282-10
Cable sheathing, non-reinforced hoses

9380A
[GMP] Shore hardness: 82A
Extrusion and injection molding grade
Good low-temperature flexibility,
complies with DIN VDE 0282-10
Cable sheathing, non-reinforced hoses

Properties	Test Condition	Unit	Standard	Product series 9, ether grades		
				9370A/A U/ 9370A GMP	9380A/ AU	9385A GMP
Mechanical properties (23 °C/50 % r. h.)						
Shore hardness A	–	–	DIN ISO 7619-1 (Measuring time 1 s)	72	83	87
Shore hardness D	–	–	DIN ISO 7619-1 (Measuring time 1 s)	–	–	35
Ultimate tensile strength	200 mm/min	MPa	DIN 53504, S1	26	43	45
Strain at break	200 mm/min	%	DIN 53504, S1	830	630	610
Stress at 10 % strain	200 mm/min	MPa	DIN 53504, S1	0,6	1,5	2,1
Stress at 50 % strain	200 mm/min	MPa	DIN 53504, S1			
Stress at 100 % strain	200 mm/min	MPa	DIN 53504, S1	2,9	5,3	6,9
Stress at 300 % strain	200 mm/min	MPa	DIN 53504, S1	5	9	12
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method A	49	40	46
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method C	35	25	33
Compression set	72 h; 23 °C	%	DIN ISO 815-1	22	25	22
Abrasion resistance	–	mm ³	ISO 4649, A	70	25	25
Abrasion resistance	–	mm ³	ISO 4649, B			
Rebound resilience	–	%	ISO 4662	63	50	49
Tear strength	500 mm/min	kN/m	ISO 34-1	40	50	60
Flexural modulus	2 mm/min	MPa	ISO 178	–	–	–
Tensile storage modulus	–20 °C	MPa	ISO 6721-1, -4	110	70	160
Tensile storage modulus	20 °C	MPa	ISO 6721-1, -4	10	40	40
Tensile storage modulus	60 °C	MPa	ISO 6721-1, -4	5	25	25
Torsional storage modulus	–20 °C	MPa	ISO 6721-2			
Torsional storage modulus	20 °C	MPa	ISO 6721-2			
Torsional storage modulus	60 °C	MPa	ISO 6721-2			
Other properties (23 °C)						
Density		kg/m ³	ISO 1183	1060	1110	1120
Recommended processing and drying conditions						
Injection molding - Melt temperature		°C		190-210	200-230	200-230
Injection molding - Mold temperature		°C		20-40	20-40	20-40
Extrusion - Melt temperature		°C		175-210	195-215	195-215

Product series 9, ether grades

The products in this line have inherent hydrolytic stability and microbe resistance. An additional feature is very good low temperature flexibility. The products in the 900 series are used in applications requiring good flexibility or impact resistance at very low temperatures. Some of the following products [GMP] can be used for the production of consumer products for use with food (see page 26).

9392A [GMP]

Shore hardness: 92A/42D
Extrusion and injection molding grade
Good low-temperature flexibility
Non-reinforced hoses, cable sheathing,
profiles, engineering components

9392AU

Same as 9392A
except with special UV stabilizers

Properties	Test Condition	Unit	Standard	Product series 9, ether grades 9392A/AU/GMP
Mechanical properties (23 °C/50 % r. h.)				
Shore hardness A	–	–	DIN ISO 7619-1 (Measuring time 1 s)	92
Shore hardness D	–	–	DIN ISO 7619-1 (Measuring time 1 s)	42
Ultimate tensile strength	200 mm/min	MPa	DIN 53504, S1	49
Strain at break	200 mm/min	%	DIN 53504, S1	540
Stress at 10 % strain	200 mm/min	MPa	DIN 53504, S1	3,8
Stress at 50 % strain	200 mm/min	MPa	DIN 53504, S1	
Stress at 100 % strain	200 mm/min	MPa	DIN 53504, S1	10,6
Stress at 300 % strain	200 mm/min	MPa	DIN 53504, S1	20
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method A	56
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method C	36
Compression set	72 h; 23 °C	%	DIN ISO 815-1	22
Abrasion resistance	–	mm ³	ISO 4649, A	25
Abrasion resistance	–	mm ³	ISO 4649, B	
Rebound resiliency	–	%	ISO 4662	32
Tear strength	500 mm/min	kN/m	ISO 34-1	85
Flexural modulus	2 mm/min	MPa	ISO 178	–
Tensile storage modulus	–20 °C	MPa	ISO 6721-1, -4	700
Tensile storage modulus	20 °C	MPa	ISO 6721-1, -4	130
Tensile storage modulus	60 °C	MPa	ISO 6721-1, -4	70
Torsional storage modulus	–20 °C	MPa	ISO 6721-2	
Torsional storage modulus	20 °C	MPa	ISO 6721-2	
Torsional storage modulus	60 °C	MPa	ISO 6721-2	
Other properties (23 °C)				
Density		kg/m ³	ISO 1183	1150
Recommended processing and drying conditions				
Injection molding - Melt temperature		°C		210-230
Injection molding - Mold temperature		°C		20-40
Extrusion - Melt temperature		°C		195-215

Product series 9, impact-modified ether grades

The impact-modified ether grades cover a wide flexural modulus range from 150 to 2,000 megapascals and can be used over a wide temperature range. In addition to injection molding applications for winter sports products and industrial applications, the high-stiffness formulations in particular are ideal for extruding flat films and hoses. They also are an interesting alternative to special polyamides.



Properties	Test Condition	Unit	Standard	Product series 9, ether grades			
				9855DU	9868DU	9873DU	9885DU
Mechanical properties (23 °C/50 % r. h.)							
Shore hardness A	–	–	DIN ISO 7619-1 (Measuring time 1 s)	–	–	–	–
Shore hardness D	–	–	DIN ISO 7619-1 (Measuring time 1 s)	56	66	72	75
Ultimate tensile strength	200 mm/min	MPa	DIN 53504, S1	52	52	52	54
Strain at break	200 mm/min	%	DIN 53504, S1	440	370	342	150
Stress at 10 % strain	200 mm/min	MPa	DIN 53504, S1	11,3	22	34	52,8
Stress at 50 % strain	200 mm/min	MPa	DIN 53504, S1			34	
Stress at 100 % strain	200 mm/min	MPa	DIN 53504, S1	20,6	29,3	35	43,9
Stress at 300 % strain	200 mm/min	MPa	DIN 53504, S1	35	43	47	n. a.
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method A	46	57	61	n. a.
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method C	29	#--	–	–
Compression set	72 h; 23 °C	%	DIN ISO 815-1	30	n.a.	60	n. a.
Abrasion resistance	–	mm ³	ISO 4649, A	46	50	56	60
Abrasion resistance	–	mm ³	ISO 4649, B				
Rebound resilience	–	%	ISO 4662	42	53	65	70
Tear strength	500 mm/min	kN/m	ISO 34-1	125	155	203	285
Flexural modulus	2 mm/min	MPa	ISO 178	185	540	1040	1550
Tensile storage modulus	–20 °C	MPa	ISO 6721-1, -4	970	1610	1490	–
Tensile storage modulus	20 °C	MPa	ISO 6721-1, -4	370	920	1035	1380
Tensile storage modulus	60 °C	MPa	ISO 6721-1, -4	135	320	486	1050
Torsional storage modulus	–20 °C	MPa	ISO 6721-2				
Torsional storage modulus	20 °C	MPa	ISO 6721-2				
Torsional storage modulus	60 °C	MPa	ISO 6721-2				
Other properties (23 °C)							
Density		kg/m ³	ISO 1183	1150	1160	1180	1200
Recommended processing and drying conditions							
Injection molding - Melt temperature		°C		220-265	220-260	220-260	240-260
Injection molding - Mold temperature		°C		60	65	65	70
Extrusion - Melt temperature		°C		220	225	225	230

Product series 9, transparent ether grades

The high-transparency ether grades listed here are treated with special UV protection. They can be used to fabricate clear, transparent injection moldings with wall thicknesses of up to six millimeters in short cycle times. However, flat films, hoses and profiles can also be extruded from these formulations. More detailed information on optical properties can be obtained on the Internet or on request.



Properties	Test Condition	Unit	Standard	Product series 9, ether grades (transparent grades)	
				9662DU	9665DU
Mechanical properties (23 °C/50 % r. h.)					
Shore hardness A	–	–	DIN ISO 7619-1 (Measuring time 1 s)		
Shore hardness D	–	–	DIN ISO 7619-1 (Measuring time 1 s)	60	64
Ultimate tensile strength	200 mm/min	MPa	DIN 53504, S1	59	57
Strain at break	200 mm/min	%	DIN 53504, S1	360	330
Stress at 10 % strain	200 mm/min	MPa	DIN 53504, S1	11,7	16,5
Stress at 50 % strain	200 mm/min	MPa	DIN 53504, S1		
Stress at 100 % strain	200 mm/min	MPa	DIN 53504, S1	25,9	29,4
Stress at 300 % strain	200 mm/min	MPa	DIN 53504, S1	45	50
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method A	43	50
Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method C	26	28
Compression set	72 h; 23 °C	%	DIN ISO 815-1	26	28
Abrasion resistance	–	mm ³	ISO 4649, A	36	25
Abrasion resistance	–	mm ³	ISO 4649, B		
Rebound resilience	–	%	ISO 4662	35	40
Tear strength	500 mm/min	kN/m	ISO 34-1	155	170
Flexural modulus	2 mm/min	MPa	ISO 178	175	285
Tensile storage modulus	–20 °C	MPa	ISO 6721-1, -4	1460	1580
Tensile storage modulus	20 °C	MPa	ISO 6721-1, -4	510	670
Tensile storage modulus	60 °C	MPa	ISO 6721-1, -4	140	150
Torsional storage modulus	–20 °C	MPa	ISO 6721-2		
Torsional storage modulus	20 °C	MPa	ISO 6721-2		
Torsional storage modulus	60 °C	MPa	ISO 6721-2		
Other properties (23 °C)					
Density		kg/m ³	ISO 1183	1175	1175
Recommended processing and drying conditions					
Injection molding - Melt temperature		°C		220-240	220-240
Injection molding - Mold temperature		°C		40-60	40-60
Extrusion - Melt temperature		°C		205-235	205-235



Covestro Deutschland AG
Chempark Dormagen
Alte Heerstraße
Gebäude F29
41538 Dormagen

desmopan.com
tpu-info@covestro.com

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1) Please see the "Guidance on Use of Covestro Products in a Medical Application" document.

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