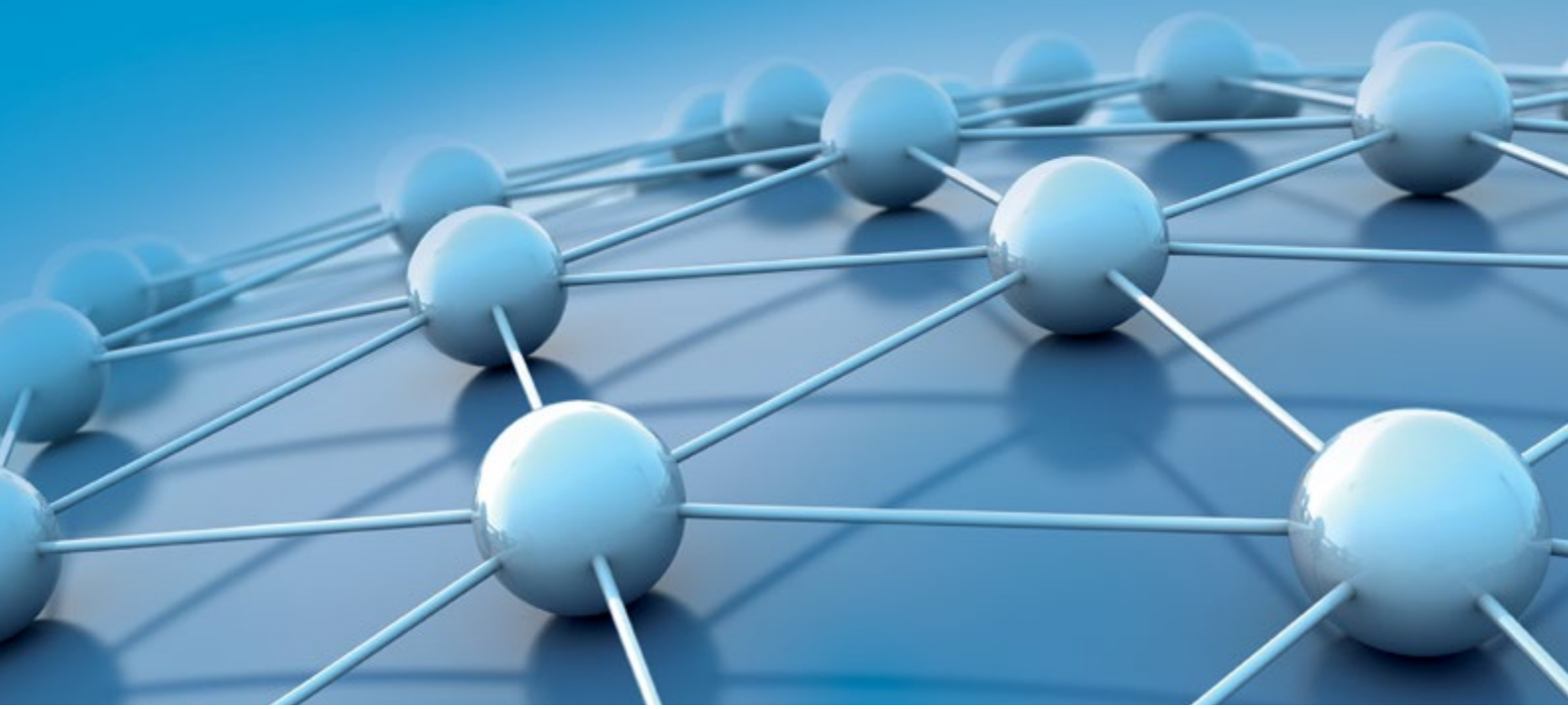
PRODUCT INFORMATION BASIC PROGRAM

AKROMID® A (PA 6.6)
AKROMID® B (PA 6)
AKROLOY® PA
CompaDur® PBT



AKRO-PLASTIC
Think Polyamide

AKRO Engineering Plastics (Suzhou) Co., Ltd.
Member of the Feddersen Group

Dear AKRO-PLASTIC customers,

through our brochure, we would like to give you a brief overview of our range of products AKROMID® A, AKROMID® B, AKROLOY® PA and CompaDur® PBT. However this information represents only part of our production possibilities and special compounding demands are often made. You should always feel free to consult our technical engineering department if you have any questions or individual needs. Our engineers are on hand to offer competent advice on specific subjects, questions and problem solving.

At AKRO-PLASTIC, we see ourselves not only as a producer, but also as a service provider. We constantly refine existing successful products, continually adapting them to the growing demands of the market. We set new standards with our certified quality management and our in-house accredited test lab. In this endeavour, you the customers are an important interface. It is your needs, questions and demands that drive our efforts to continue this successful development.

And this joint effort should continue into the future.

Any information given on the chemical and physical characteristics of our products, including technical advice on applications whether verbally, in writing or by testing the product, is given to the best of our knowledge. However, this information is given without obligation and does not exempt the buyer from carrying out their own investigations and tests in order to ascertain the products' specific suitability for the purpose intended. The buyer is solely responsible for the application, utilization and processing of the products, and must observe the laws and government regulations and the consequential rights of any third party. At all times our Conditions of Sales apply.

AKROMID® A3 Standard Series (PA 6.6 non-reinforced and reinforced)

Properties	Test Specification	Test Method	Unit	A3 (2414)		A3 GF 10 (2852)		A3 GF 15 (2418)		A3 GF 20 (2419)		A3 GF 25 (2420)		A3 GF 30 (2397)		A3 GF 35 (2421)		A3 GF 40 (1258)		A3 GF 50 (2423)		A3 GF 60 (2424)	
Mechanical Properties				d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*
Tensile modulus	1 mm/min	ISO 527-1/2	MPa	3,100	1,100	4,800	2,800	6,400	3,700	7,200	4,600	8,500	6,000	10,000	7,100	11,600	8,400	12,300	9,500	16,700	12,600	20,500	15,800
Yield stress/Tensile stress at break	5 mm/min*	ISO 527-1/2	MPa	85/	50/	/115	/70	/140	/80	/160	/100	/185	/115	/200	/130	/215	/145	/225	/160	/250	/180	/260	/190
Elongation at break	5 mm/min*	ISO 527-1/2	%	25	50	3.5	20	3.5	12	3.5	8	3.5	6.5	3	5.5	3	5	3	4	2.5	3.5	2	2.5
Flexural modulus	2 mm/min	ISO 178	MPa	2,800		4,400		6,100		7,000	5,000	7,600	6,200	8,800	7,200	10,000	8,000	12,000		15,200	13,600	19,800	
Flexural strength	2 mm/min	ISO 178	MPa	110		170		200		235	165	260	200	285	220	300	245	360		380	310	400	
Charpy impact strength	23 °C	ISO 179/1eU	kJ/m²	n.b.	n.b.	38	116	45	88	60	86	70	90	85	95	92	102	100	105	105	110	102	105
Charpy impact strength	-30 °C	ISO 179/1eU	kJ/m²	n.b.		37		43		48		64		80		90		95		105		97	
Charpy notched impact strength	23 °C	ISO 179/1eA	kJ/m²	3	13	4	5	7	8	9	11	10	13	12	16	15	19	17	20	19	23	19	22
Charpy notched impact strength	-30 °C	ISO 179/1eA	kJ/m²	2		4		6		8		9		11		13		15		16		19	
Ball indentation	358N	ISO 2039-1	N/mm²																				
Thermal Properties				d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.	
Melting point		ISO 11357-1/3	°C	262		262		262		262		262		262		262		262		262		262	
Heat distortion temperature, HDT/A	1.8 MPa	ISO 75-2	°C	75		245		245		250		255		255		255		260		260		260	
Heat distortion temperature, HDT/B	0.45 MPa	ISO 75-2	°C	215		260		260		260		260		260		260		260		260		260	
Heat distortion temperature, HDT/C	8 MPa	ISO 75-2	°C											210		220		225		235		235	
Vicat softeing temperature	50 N,50 °C/h	ISO 306	°C																				
CLTE, flow	23 °C – 80 °C	ISO 11359-1/2	10^{-4}/K	0.71				0.34						0.19						0.17			
CLTE, transverse	23 °C – 80 °C	ISO 11359-1/2	10^{-4}/K	1.1				1.11						0.95						0.88			
Temperature index for 50 % loss of tensile strength	5,000 h	IEC 216	°C	115 – 145		160 – 175		160 – 175		160 – 175		160 – 175		160 – 175		160 – 175		160 – 175		160 – 175		160 – 175	
Temperature index for 50 % loss of tensile strength	20,000 h	IEC 216	°C	100 – 120		130 – 150		130 – 150		130 – 150		130 – 150		130 – 150		130 – 150		130 – 150		130 – 150		130 – 150	
Electrical Properties				d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*
Volume resistivity		IEC 60093	Ohm x m	10^{13}	10^{10}	10^{12}	10^{10}	10^{12}	10^{10}	10^{12}	10^{10}	10^{12}	10^{10}	10^{12}	10^{10}	10^{12}	10^{10}	10^{12}	10^{10}	10^{12}	10^{10}	10^{12}	10^{10}
Surface resistivity		IEC 60093	Ohm	10^{13}	10^{10}	10^{13}	10^{10}	10^{13}	10^{10}	10^{13}	10^{10}	10^{13}	10^{10}	10^{13}	10^{10}	10^{13}	10^{10}	10^{13}	10^{10}	10^{13}	10^{10}	10^{13}	10^{10}
Comparative tracking index, CTI	Test solution A	IEC 60112		600		550		550		550		550		550		550		550		550		550	
Physical Properties				d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.	
Density	23 °C	ISO 1183	g/cm³	1.14		1.20		1.24		1.28		1.32		1.36		1.40		1.46		1.57		1.71	
Content reinforcement		ISO 1172	%	–		10		15		20		25		30		35		40		50		60	
Humidity absorption	23 °C/50 % r.h.	ISO 1110	%	2.9 – 3.1		2.6 – 2.8		2.5 – 2.7		2.3 – 2.5		2.0 – 2.2		1.9 – 2.1		1.8 – 2.0		1.7 – 1.9		1.3 – 1.5		1.0 – 1.2	
Water absorption	23 °C/satur.	ISO 62	%	8.0 – 9.0		7.5 – 8.0		6.7 – 7.3		6.7 – 7.2		5.7 – 6.3		5.2 – 5.8		4.7 – 5.3		4.3 – 4.7		3.7 – 4.3		3.2 – 3.7	
Waterabsorption up to saturation	23 °C/satur.	ISO 62	%																				
Moisture absorption	24 h /23 °C	ISO 62	%																				
Flammability				d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.	
Flammability acc. UL 94	1.6 mm	UL 94	Classification	V-2		HB		HB		HB		HB		HB		HB		HB		HB		HB	
Rate acc. FMVSS 302 (< 100mm/min)	> 1 mm thickness	FMVSS 302	mm/min	+		+		+		+		+		+		+		+		+		+	
GWFI	1.6 mm	IEC 60695-12	°C	750		650		650		650		650		650		650		650		650		650	
Processing				d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.	
Flowability	Flow spiral¹	AKRO	mm	1,040		1,020		990		950		890		830		770		720		600		530	
Processing shrinkage, flow		ISO 294-4	%	1.86		0.64		0.43		0.32		0.24		0.18		0.17		0.16		0.25		0.44	
Processing shrinkage, transverse		ISO 294-4	%	2.25		1.47		1.37		1.32		1.27		1.28		1.25		1.19		1.16		0.76	
Processing shrinkage, flow	260 °C/MT.80 °C/ 600 bar	ISO 2577	%																				
Processing shrinkage, transverse		ISO 2577	%																				

The listed products have all "1" grade, which can stand up to 130 °C
5 mm/min*: non-reinforced grade = 50 mm/min, reinforced grade = 5mm/min

+ = passed, ¹ = mould temperature: 100 °C, melt temperature: 320 °C, injection pressure: 750 bar, cross section of flow spiral: 7 mm x 3.5 mm

cond.* = shows test specimen are stored at 70 °C/62 % r.h. to state of equilibrium d.a.m. = dry-as-molded n.b. = not broken

AKROMID® B3 Standard Series (PA 6 non-reinforced and reinforced)

Unit	B3 (2500)		B3 GF 10 (2829)		B3 GF 15 (2469)		B3 GF 20 (2470)		B3 GF 25 (2471)		B3 GF 30 (2472)		B3 GF 35 (2473)		B3 GF 40 (2474)		B3 GF 50 (2475)		B3 GF 60 (2476)	
	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*
MPa	3,600	1,200	4,500	2,700	5,800	3,300	6,800	4,200	8,500	5,100	9,600	5,500	11,500	7,300	12,800	8,200	17,000	10,300	21,000	15,500
MPa	85/	45/	/105	/55	/120	/75	/150	/85	/160	/100	/185	/110	/195	/120	/205	/130	/230	/145	/240	/150
%	>20	>50	3.5	17	3	9.5	3.5	7.5	3.5	6.5	3	5.5	3	5	3	5	2.5	4.5	2.5	3,5
MPa	3,100		3,500		5,200		6,100		7,000		8,500		10,000		10,300		14,900		19,000	
MPa	120		150		180		230		245		270		285		300		340		370	
kJ/m²	n.b.	n.b.	47	115	52	95	73	88	85	90	95	105	100	110	100	110	100	110	90	95
kJ/m²	n.b.		41		43		65		80		85		90		90		90		88	
kJ/m²	3	12	5	8	7	11	9	14	12	16	13	18	15	21	17	23	20	26	20	25
kJ/m²	2		5		6		8		10		12		13		14		16		19	
N/mm²																				
	d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.	
°C	220		220		220		220		220		220		220		220		220		220	
°C	60		200		205		210		210		210		215		215		220		220	
°C	180		220		220		220		220		220		220		220		220		220	
°C											150		165		170		185		190	
°C																				
10^{-4}/K					0.23						0.16						0.11			
10^{-4}/K					0.96						0.95						0.94			
°C	100 – 140		160 – 175		160 – 175		160 – 175		160 – 175		160 – 175		160 – 175		160 – 175		160 – 175		160 – 175	
°C	100 – 120		130 – 150		130 – 150		130 – 150		130 – 150		130 – 150		130 – 150		130 – 150		130 – 150		130 – 150	
	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*
Ohm x m	10^{12}	10^{10}	10^{12}	10^{10}	10^{12}	10^{10}	10^{12}	10^{10}	10^{12}	10^{10}	10^{12}	10^{10}	10^{12}	10^{10}	10^{12}	10^{10}	10^{12}	10^{10}	10^{12}	10^{10}
Ohm	10^{13}	10^{10}	10^{13}	10^{10}	10^{13}	10^{10}	10^{13}	10^{10}	10^{13}	10^{10}	10^{13}	10^{10}	10^{13}	10^{10}	10^{13}	10^{10}	10^{13}	10^{10}	10^{13}	10^{10}
	600		550		550		550		575		575		575		550		550		550	
	d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.	
g/cm³	1.13		1.20		1.23		1.27		1.31		1.36		1.41		1.46		1.56		1.70	
%	–		10		15		20		25		30		35		40		50		60	
%	2.6 – 3.4		2.6 – 3.4		2.6 – 2.9		2.4 – 2.7		2.2 – 2.5		2.1 – 2.3		1.8 – 2.1		1.5 – 1.8		1.3 – 1.6		0.9 – 1.2	
%	9.0 – 10.0		8.5 – 9.0		7.7 – 8.3		7.4 – 7.7		6.8 – 7.4		6.3 – 6.9		5.9 – 6.5		5.2 – 5.7		4.5 – 5.1		3.9 – 4.4	
%																				
%																				
	d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.	
Classification	V-2		HB		HB		HB		HB		HB		HB		HB		HB		HB	
mm/min	+		+		+		+		+		+		+		+		+		+	
°C	750		650		650		650		650		650		650		650		650		650	
	d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.	
mm	1,070		945		865		795		715		655		605		540		430		345	
%	1.11		0.44		0.31		0.23		0.17		0.14		0.11		0.10		0.15		0.28	
%	0.95		0.68		0.74		0.79		0.82		0.83		0.83		0.87		0.88		0.67	
%																				
%																				

[1] = mould temperature: 80 °C, melt temperature: 270 °C, injection pressure: 750 bar, cross section of flow spiral: 7 mm x 3.5 mm

cond.* = shows test specimen are stored at 70 °C/62 % r.h. to state of equilibrium d.a.m. = dry-as-molded n.b. = not broken

AKROMID® A3 and B3 Impact Modified Series (PA 6.6 and PA 6 impact modified grade)

Unit	A3 S1 (2840)		A3 1 S3 15 (2892)		A3 GF 13 S3 (2788)		A3 GF 30 S1 (3695)		A3 GM 20/10 S1 (1217)		B3 S3 (3669)		B3 GF 15 S1 (3693)		B3 GF 30 S1 (1383)		B3 GF 50 S1 (3694)		B3 GF 30 S3 (2984)	
	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*
MPa	2,000	1,200	2,600	1,300	5,200		9,500	8,000	6,900	4,800	2,000	650	6,000	3,100	7,500	4,200	14,500	7,800	9,000	
MPa	49	38	63	45	125		180	130	130	92	48	30	120	65	125	70	190	120	160	
%	40	100	35	100	4		4	6	3,5	6	40	100	4	10	6	13	5	8	5.5	
MPa	1,950	1,000	2,300	1,500	4,800		8,800		6,900		1,900	650	6,000	3,100	6,400				8,000	
MPa					180		280		205				190	110	190				250	
kJ/m²	n.b.	n.b.	n.b.	n.b.	75		105	97	77	77	n.b.	n.b.	70	95	110	135	110	110	100	
kJ/m²	n.b.	n.b.			55		105		76		n.b.	n.b.	60		100		100		100	
kJ/m²	80	100	15		11		16	20	15	16	>60		7	16	34	42	30	40	25	
kJ/m²	23		9		6				8		15		6		24		20		15	
N/mm²																				
	d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.	
°C	260		263		260		262		262		224		222		222		222		222	
°C	62		67		244		253		245		52		200		200		210		203	
°C	152		213		260				260		111						225		220	
°C																				
°C																				
10^{-4}/K																				
10^{-4}/K																				
°C																				
°C																				
	d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.	
Ohm x m	10^{14}		10^{14}										10^{13}							
Ohm	10^{15}		10^{15}										10^{15}							
	600		600										575							
	d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.	
g/cm³	1.07		1.10		1.20		1.34		1.31		1.05		1.22		1.28		1.54		1.33	
%					13		30		30				15		30		50		30	
%	1.7		2.1				1.7						2.3				1.3			
%									5.1											
%																				
%																				
	d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.	
Classification	HB		HB				HB		HB		HB		HB		HB		HB		HB	
mm/min	+		+				+		+		+		+		+		+		+	
°C																				
	d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.	
mm							600													
%	1.38		1.22		0.3		0.26		0.47		1.2		0.35		0.4					
%	1.43		1.49		0.9		1.23		1.31		1.8		1.04		0.89					
%																				
%																				

[1] = mould temperature: 100 °C, melt temperature: 320 °C, injection pressure: 750 bar, cross section of flow spiral: 7 mm x 3.5 mm

cond.* = shows test specimen are stored at 70 °C/62 % r.h. to state of equilibrium d.a.m. = dry-as-molded n.b. = not broken

AKROMID® A3 and B3 Special Modified Series (PA 6.6 and PA 6 special modified grade)

Unit	A3 GK 30 (3689)		A3 GF 30 4 6 black (1369)		A3 K1 FR (2312)		A3 1 FR (3028)		B3 F0		B3 GK 30 (2719)		B3 GK 50 (3690)		B3 GM 10/20 (3691)		B3 GFM 10/20 (3692)		B3 GFM 15/25 (3578)	
	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*
MPa	5,000		10,000	6,700	9,200	6,500	3,500		4,000	1,300	4,500	1,820	5,700		6,400	3,200	6,000		8,000	
MPa	90		200	130	140	100	80		77	42	76	38	75		105	60	100		120	
%	4		3.5	7	3	4	5		12	100	7	35	4		3.5	15	3.5		3	
MPa	4,300		9,500	7,500					3,800	1,280	3,140	1,570	5,200		6,000		6,000		7,000	
MPa	140		300	230							95	55	135		175		170		190	
kJ/m²	28		86	95	65	70	45		90	n.b.	30	60	42		50	90	45		50	
kJ/m²	22		73										32						45	
kJ/m²	4		12	17	10				4	9	3	5	3		5	10	4		4	
kJ/m²	3		10										1						3.5	
N/mm²																				
	d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.	
°C	262		262		262		260		222		222		225		222		222		222	
°C	100		253		246		80		65		70		75		173		173		190	
°C	225		265		261		220		180		185		188		210		211		216	
°C			210																	
°C																				
10^{-4}/K			0.19																	
10^{-4}/K			0.95																	
°C	160 – 175		170						160 – 175		160 – 175		160 – 175		160 – 175		160 – 175		160 – 175	
°C	130 – 150		150						130 – 150		130 – 150		130 – 150		130 – 150		130 – 150		130 – 150	
	d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.	
Ohm x m	10^{15}		10^{15}				10^{13}		10^{13}		10^{13}		10^{13}		10^{12}		10^{12}		10^{12}	
Ohm	10^{13}		10^{13}				10^{13}		10^{13}		10^{15}		10^{15}		10^{15}		10^{15}		10^{15}	
	500		500		600		600		500		500		500		425		400		400	
	d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.	
g/cm³	1.35		1.36		1.34		1.18		1.17		1.34		1.54		1.34		1.33		1.46	
%	30		30		25						30		50		30		30		40	
%	2.0		1.9						1.5		2.1		1.5		2.0		1.8		1.8	
%	5.8		4.5						4.7		6.5		4.7		7.3		7.3		6.5	
%																				
%																				
	d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.	
Classification	HB		HB		V0		V0		V0		HB		HB		HB		HB		HB	
mm/min	+		+		+				+		+		+		+		+		+	
°C	650				960		960		960		650		650		650		650		650	
	d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.		d.a.m.	
mm																				
%	1.21		0.26		0.3		1.06		0.96		1.00		0.96		0.50		0.36		0.30	
%	1.32		1.13		1.3		1.16		1.05		1.00		1.05		1.00		0.80		0.90	
%																				
%																				

¹ = mould temperature: 100 °C, melt temperature: 320 °C, injection pressure: 750 bar, cross section of flow spiral: 7 mm x 3.5 mm

cond.* = shows test specimen are stored at 70 °C/62 % r.h. to state of equilibrium d.a.m. = dry-as-molded n.b. = not broken

AKROLOY® PA (glassfibre reinforced grade)

Properties	Test Specification	Test Method	Unit	PA GF 30 (2718)		PA GF 40 (2845)		PA GF 50 (2706)		PA GF 60 (2844)	
Mechanical Properties				d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*	d.a.m.	cond.*
Tensile modulus	1 mm/min	ISO 527-1/2	MPa	10,500	10,000	13,000	12,000	17,500	16,500	21,000	20,000
Yield stress/Tensile stress at break	5 mm/min	ISO 527-1/2	MPa	210	180	230	200	250	220	275	245
Elongation at break	5 mm/min	ISO 527-1/2	%	3	3	3	3	3	3	2.5	2.5
Flexural modulus	2 mm/min	ISO 178	MPa	9,300		12,000		16,400		20,000	
Flexural strength	2 mm/min	ISO 178	MPa	265		325		380		405	
Charpy impact strength	23 °C	ISO 179/1eU	kJ/m²	80	80	95	90	105	100	100	95
Charpy impact strength	-30 °C	ISO 179/1eU	kJ/m²	65		80		95		90	
Charpy notched impact strength	23 °C	ISO 179/1eA	kJ/m²	11	10	14	14	17		16	16
Charpy notched impact strength	-30 °C	ISO 179/1eA	kJ/m²	10		13		15		14	
Ball indentation hardness	HB 961 /30	ISO 2039-1	Mpa²	240		265		290		330	
Thermal Properties				d.a.m.		d.a.m.		d.a.m.		d.a.m.	
Melting point		ISO 11357-1/3	°C	255		255		255		255	
Heat distortion temperature, HDT/A	1.8 MPa	ISO 75-2	°C	215		220		225		225	
Heat distortion temperature, HDT/B	0.45 MPa	ISO 75-2	°C	245		245		245		245	
Heat distortion temperature, HDT/C	8 MPa	ISO 75-2	°C	–		–		–		–	
CLTE, flow	23 °C – 80 °C	ISO 11359-1/2	10^{-4}/K	0.20		0.15		0.15		0.15	
CLTE, transverse	23 °C – 80 °C	ISO 11359-1/2	10^{-4}/K	0.75		0.70		0.65		0.55	
Temperature index for 50 % loss of tensile strength	5,000 h	IEC 216	°C	140 – 150		140 – 150		140 – 150		140 – 150	
Temperature index for 50 % loss of tensile strength	20,000 h	IEC 216	°C	110 – 130		110 – 130		110 – 130		110 – 130	
Electrical Properties											
Volume resistivity		IEC 60093	Ohm x m					9.1 E13			
Surface resistivity		IEC 60093	Ohm					1.5 E17			
Comparative tracking index, CTI	Test solution A	IEC 60112		600		600		600		600	
Physical Properties											
Density	23 °C	ISO 1183	g/cm³	1.38		1.48		1.59		1.72	
Content reinforcement		ISO 1172	%	30		40		50		60	
Humidity absorption	70 °C/62 % r.h.	ISO 1110	%	1.55		1.30		1.05		0.80	
Water absorption	23 °C/satur.	ISO 62	%	4.5 – 5		4 – 4.5		3.5 – 4		3 – 3.5	
Flammability											
Flammability acc. UL 94	0.8/1.6 mm	UL 94	Classification	HB		HB		HB		HB	
Rate acc. FMVSS 302 (< 100mm/min)	> 1 mm thickness	FMVSS 302	mm/min	+		+		+		+	
GWFI	1.6 mm	IEC 60695-12	°C	–		–		–		–	
Processing											
Flowability	Flow spiral[1]	AKRO	mm	757		664		536		468	
Processing shrinkage, flow		ISO 294-4	%	0.1		0.1		0.3		0.3	
Processing shrinkage, transverse		ISO 294-4	%	0.6		0.6		0.5		0.5	

[1] = mould temperature: 100 °C, melt temperature: 320 °C, injection pressure: 750 bar, cross section of flow spiral: 7 mm x 3.5 mm

cond.* = shows test specimen are stored at 70 °C/62 % r.h. to state of equilibrium d.a.m. = dry-as-molded n.b. = not broken

CompaDur® PBT (non-reinforced and reinforced grade)

Unit	CompaDur® 121 natural (001)	CompaDur® 151 natural (002)	CompaDur® 121 GF 10 (003)	CompaDur® 121 GF 20 (004)	CompaDur® 121 GF 30 (005)	CompaDur® 121 GF 20 LW (006)	CompaDur® 121 GF 30 LW (007)	CompaDur® 121 GK 20 (008)	CompaDur® 121 GK 30 (009)	CompaDur® 151 FR (010)	CompaDur® 121 GF 10 FR (011)	CompaDur® 121 GF 20 FR (012)	CompaDur® 121 GF 30 FR (013)	CompaDur® 125 GF 15 (014)	CompaDur® 125 GF 20 (015)	CompaDur® 125 GF 30 (016)
	Non-reinforced		Glass Fibre reinforced			GF Low Warp		Glass Bead reinforced		Flameretarding Adjusted				PBT/PET- Blends / PBT-PET		
MPa	2,600	2,600	4,800	7,400	10,000	7,000	11,500	3,800	4,200	3,100	5,800	8,200	11,000	6,100	7,800	10,500
MPa	60	60	100	130	155	125	160	50	50	60	100	130	150	110	135	155
%	35	50	4	3	2.5	3	2.8	5	3	3	3	2.5	2.2	3	3	2.5
MPa	2,300	2,200	4,300	6,500	8,500					2,700	5,000	6,800	9,000	5,000	6,200	9,000
MPa	90	80	150	190	205					95	160	185	220	155	195	220
kJ/m²	230	n.b.	35	50	65	40	55	30	25	70	30	45	60	35	40	65
kJ/m²	100	200	30	45	75			30	25	65	30	45	55	35	40	60
kJ/m²	5.5	6	5	8	12	8	10	3	3	4.5	5.5	8	10	6	9	10
kJ/m²	4.5	5	4	7	11			3	3	4.5	5.5	7	9	6	9	10
N/mm²	140	135	160	190	215	200	220	165	175	160	190	210	235	190	200	220
°C	220 – 225	220 – 225	220 – 225	220 – 225	220 – 225	220 – 225	220 – 225	220 – 225	220 – 225	220 – 225	220 – 225	220 – 225	220 – 225	220 – 255	220 – 255	220 – 255
°C	55	60	190	205	210	195	200	70	80	65	190	205	210	190	200	205
°C	160	165	210	220	220	210	215	175	185	165	210	220	220	220	210	220
°C			60	95	150	90	120				65	140	165	65	95	125
°C	185	180	205	215	220	210	220	190	195	190	205	220	225	200	210	225
10^{-4}/K	1.3	1.3	0.5	0.35	0.3	0.3	0.2	0.9	1.1	0.7	0.45	0.3	0.3	0.3	0.4	0.3
10^{-4}/K	1.3	1.3	1.1	0.9	0.9					0.8	1	0.8	0.8	0.8	0.7	0.6
°C																
°C																
Ohm x m	10^{15}	10^{15}	10^{15}	10^{15}	10^{15}	10^{14}	10^{14}	10^{14}	10^{14}	10^{15}	10^{15}	10^{15}	10^{15}	10^{15}	10^{15}	10^{15}
Ohm	10^{13}	10^{13}	10^{13}	10^{13}	10^{13}	10^{13}	10^{13}	10^{13}	10^{13}	10^{14}	10^{13}	10^{13}	10^{13}	10^{13}	10^{13}	10^{13}
	600	600	300	350	400	250	250	225	250	350	200	200	200	250	250	250
g/cm³	1.3	1.3	1.38	1.45	1.54	1.45	1.5	1.45	1.54	1.45	1.52	1.58	1.66	1.43	1.47	1.55
%			10	20	30	20	30	20	30		10	20	30	15	20	30
%																
%																
%	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.35	0.45	0.4	0.4	0.4	0.4	0.4	0.4
%	0.25	0.25	0.2	0.2	0.15	0.15	0.15	0.2	0.18	0.2	0.2	0.2	0.15	0.2	0.2	0.2
Classification	HB	HB	HB	HB	HB	HB	HB	HB	HB	V-0	V-0	V-0	V-0	HB	HB	HB
mm/min																
°C	750	750	750	650	650					960	960	960	960	750	750	750
mm																
%																
%																
%	1.8	1.8	0.8	0.3	0.3	0.4	0.35	1.6	1.4	2.2	0.4	0.3	0.3	0.35	0.3	0.3
%	1.8	1.8	1.4	1.1	1.1	1	0.7	1.6	1.4	2.1	1.3	1.2	1.1	1.2	1.0	0.9

[1] = mould temperature: 80 °C, melt temperature: 270 °C, injection pressure: 750 bar, cross section of flow spiral: 7 mm x 3.5 mm
cond.* = shows test specimen are stored at 70 °C/62 % r.h. to state of equilibrium d.a.m. = dry-as-molded n.b. = not broken

Application

AKROMID® A, AKROMID® B and CompaDur® PBT can be applied universally as plastic compounds. Some of the typical applications are showed as follows.

Car door handle
AKROMID® B3 G M 10/20 black

Nylon Ties
AKROMID® A3 1 S3 black

Outlet of vane
CompaDur® 125 GF 30 black

Armrest cover
AKROMID® B3
GF M 15/25 black

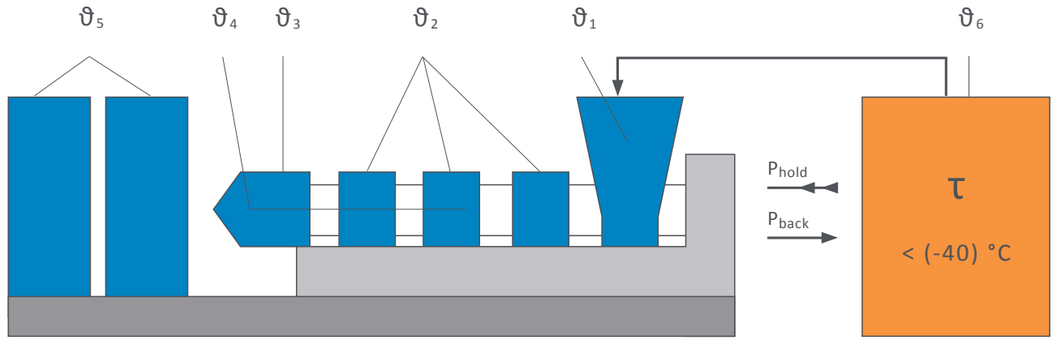
Cooling system controller shell
AKROMID® A3 GF 30 4 6 black

Housing of Circuit Breaker
AKROMID® A3 1 FR grey

Gear housing
CompaDur® 121
GF 30 LW black

Processing Recommendations

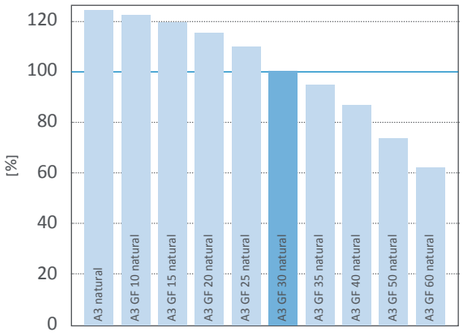
AKROMID® A, AKROMID® B, AKROLOY® PA and CompaDur® PBT can be processed on commercially available injection moulding machines with standard screws according to the recommendations of the machine manufacturer. Please refer to the tables below for our recommended machine, mould and dryer settings (see sketch):



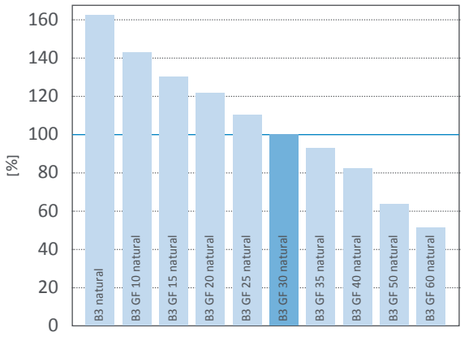
		AKROMID® A	AKROMID® B	AKROLOY® PA	CompaDur® PBT
Flange	ϑ_1	60 – 80 °C	60 – 80 °C	80 °C	60 – 80 °C
Sector 1 – Sector 4	ϑ_2	260 – 300 °C	225 – 300 °C	275 °C – 300 °C	250 °C – 270 °C
Nozzle	ϑ_3	280 – 295 °C	240 – 280 °C	290 °C – 310 °C	250 °C – 270 °C
Melt temperature	ϑ_4	280 – 320 °C	260 – 300 °C	290 °C – 310 °C	250 °C – 270 °C
Mould temperature	ϑ_5	80 – 100 °C	80 – 100 °C	80 °C – 120 °C	75 °C – 85 °C
Drying	ϑ_6	80 °C ca. 4 – 12 h	80 °C ca. 4 – 12 h	80 °C ca. 4 – 8 h	120 – 140 °C ca. 2 – 8 h
Holding pressure, spec.	P_{hold}	750 bar	750 bar	300 – 800 bar	400 – 800 bar
Back pressure, spec.	P_{back}	4 – 10 bar	4 – 10 bar	5 – 15 bar	0 – 10 bar

The specified values are reference values. Higher values should be aimed for with increased filler contents. For drying we recommend the use of a vacuum dryer exclusively. If you use a different type of dryer, we would advise extending the drying time by 2-4 hours based on the original recommendation.

Flow length AKROMID® A



Flow length AKROMID® B



我们期待与您合作！

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