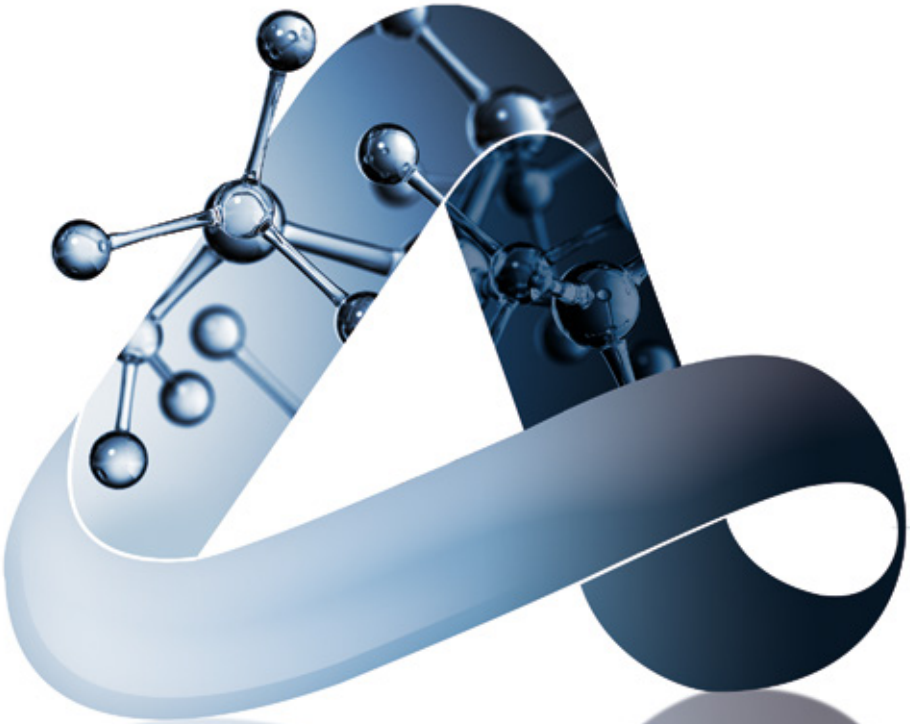


ADDIPLAST GROUP

PRODUCTS GUIDE

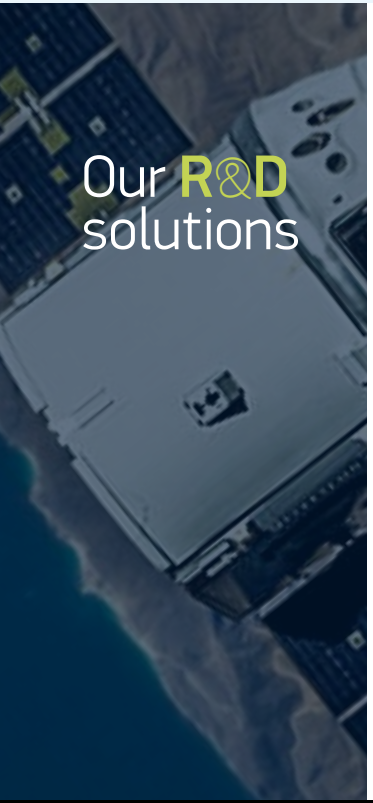
TECHNICAL COMPOUNDS - MASTERBATCHES

A HISTORY
A VISION
A PHILOSOPHY
A PROXIMITY
A WORLDWIDE PRESENCE

ADDIPLAST GROUP

Quality is an imperative of your requirements. The implementation of quality initiatives within the ADDIPLAST GROUP has gone beyond the methods and tools, it is firmly anchored in the company culture. These quality initiatives are values shared with all our collaborators.

The continuous improvement of the processes, methods and organisation contributes to optimize our performance, our reactivity and make our firms more agile.



Our R&D solutions

ADDIPLAST GROUP

RESEARCH CENTER
Addiscience

INNOVATION & CO-DEVELOPMENT OUR MEANS TO ACCOMPANY YOU

ADDIPLAST GROUP has chosen to invest massively in innovation. All our scientific skills and technical means are grouped together in our R&D department ADDISCIENCE, whose tasks are :

- ☐ Development of formulations
- ☐ Production of trials & their characterisation
- ☐ Industrialisation support

Our teams of engineers and technicians are at your service to offer you technical solutions which meet your requirements

The projects are especially focused on :

- ☐ The lightweighting of materials
- ☐ High-performance polymers
- ☐ Environmental protection
- ☐ Flame-retardancy through reactive extrusion

ADDIPLAST GROUP

a global offer
with high performance

ADDILENE®

ADDITEC®

ADDINYL®

ADDIBIO RENEW®

ADDITER®

ADDIPERF®

ADDIFLAM®

ADDIBATCH®

OUR SOLUTIONS

ADDIPLAST GROUP

RESEARCH CENTER
Addiscience

WE FORMULATE
YOUR NEEDS
AND DEVELOP
INNOVATIVE
SOLUTIONS TOGETHER

WE
SHAPE
YOUR MATERIAL

ADDIPLAST GROUP

TECHNICAL COMPOUNDS
Addiplast

ADDIPLAST GROUP

MASTERBATCHES
Addikem

AUTOMOTIVE
& Transportation

Structural material ADDIBIO RENEW® GJI 53116

- PP Compound filled with 30% of natural fibers
  - Suitable for interior parts

PROPERTIES		NORMS	STANDARDS	UNITS		ADDIBIO RENEW® P/E NF30 GJI 53116	PP GF20 H511 V20	PP T20 H420 M20	PP T40 H420 M40
Physico-chemical		Density	ISO 1183-1 Method A	g/cm³		1	1.03	1.04	1.2
Thermal		HDT	ISO 75-2/Af	°C		115	130	80	80
		Vicat Softening T°C	ISO 306/A50	°C		155	160	155	155
Mechanical	**Flexural**	Flexural Modulus	ISO 178	MPa		3150	4000	2700	4000
	Impact Strenght	Charpy unnotched impact strenght	ISO 179-1/1eU	kJ/m²	23°C -20°C	17 10	39 -	40 -	24 -
		Charpy notched impact strenght	ISO 179-1/1eA	kJ/m²	23°C -20°C	6 3	9,5 -	2,5 -	2,5 -

WEIGHT **REDUCTION, NATURAL** FIBERS,
LOCAL PRODUCTION, **NO FOOD** RESSOURCES,
LOWER CARBON FOOTPRINT, **RECYCLING**

Structural and aesthetic material ADDILENE® VHI 53087

- PP compound filled with 30% glass fibers
  - Low odour
  - Suitable for interior parts

PROPERTIES			NORMS	STANDARDS	UNITS		ADDILENE® VHI 53087
Physico-chemical			Density	ISO 1183-1 Method A	g/cm³		1,12
			HDT	ISO 75-2/Af	°C		150
Thermal			Vicat Softening T°C	ISO 306/A50	°C		160
Mechanical	**Flexural**		Flexural Modulus	ISO 178	Mpa		6650
	Impact Strength		Charpy unnotched impact strenght	ISO 179-1/1eU	kJ/m²	23°C -20°C	50 50
			Charpy notched impact strenght	ISO 179-1/1eA	kJ/m²	23°C -20°C	11 10

ADDILENE®

PROPERTIES	STANDARDS	UNITS	HOMOPOLYMER POLYPROPYLENE						COPOLYMER POLYPROPYLENE								
			GLASS FIBERS				GLASS FIBERS - LOW ODOUR	GLASS BEADS	GLASS FIBERS	UNFILLED		IMPACT MODIFIED			MINERAL FILLED		
			PMD 50403	H511 V20	H411 V30	VHE 54065	VHI 53087	H210 G20	J526 V30	J510	SJI 50027	J570	PMD 50384	PMD 50312	PMD 50376	PMD 50213	PMD 50440
PHYSICO-CHEMICAL PROPERTIES																	
MVI (230°C, 2.16kg)	ISO 1133	cm^3/ 10min	18	16	8	3	14	3	20	22	10	25	15	7	6	23	10
Density	ISO 1183-1 Method A	g/cm^3	1,03	1,03	1,11	1,2	1,12	1,01	1,11	0,9	0,91	0,9	0,9	0,9	1,04	1,04	1,1
MECHANICAL PROPERTIES																	
Tensile test																	
Stress at yield point	ISO 527-2/1A	MPa	_	_	_	_	_		_	29	25	21	20	17	25	23	21
Stress at break	ISO 527-2/1A	MPa	70	65	84	95	90	24	65	25	20	15	15	16	20	20	15
Elongation at break	ISO 527-2/1A	%	4	4	5	5	5	>100	5	>100	>50	>100	>50	500	50	20	25
Flexural test																	
Flexural modulus	ISO 178	MPa	4500	4000	6700	8000	6650	1550	5300	1050	1300	900	1000	800	2300	2100	2700
Impact strength																	
Charpy unnotched impact strength	ISO 179-1/1eU	kJ/m^2	38	40	45	55	50	37	40	NB	NB	NB	NB	NB	80	57	NB
Charpy notched impact strength	ISO 179-1/1eA	kJ/m^2	7	9	10	12	11	3	12	11	12	30	18	64	6	6	20

ADDILENE®

PROPERTIES	STANDARDS	UNITS	HOMOPOLYMER POLYPROPYLENE						COPOLYMER POLYPROPYLENE								
			GLASS FIBERS				GLASS FIBERS - LOW ODOUR	GLASS BEADS	GLASS FIBERS	UNFILLED		IMPACT MODIFIED			MINERAL FILLED		
			PMD 50403	H511 V20	H411 V30	VHE 54065	VHI 53087	H210 G20	J526 V30	J510	SJI 50027	J570	PMD 50384	PMD 50312	PMD 50376	PMD 50213	PMD 50440
Hardness																	
Shore D	ISO 868	_	78	79	82	85	77	76	75	66	66	65	65	60	70	68	71
THERMAL																	
Melting point	ISO 11357-3	°C	165/168	165/168	165/168	165/168	165/168	165/168	165/168	165/168	165/168	165/168	165/168	165/168	165/168	165/168	165/168
Heat deflection temperature	ISO 75-2/Af	°C	140	130	140	150	150	62	145	53	50	50	55	45	65	62	70
Vicat softening temperature	ISO 306/A50	°C	163	160	158	160	160	153	160	151	_	143	140	135	152	146	150
FIRE																	
Falling ball test	ISO 60695-10-2	°C	>125	>125	>125	>125	>125	>125	>125	_	_	120	120	96	>125	>125	>125

- The values indicated above have been realised with standard specimens which are conditioned according to ISO 291.
- These data must be considered as indicative values, but in no case as minimum values. Moreover, the design of the mould/die, the processing conditions and the colour may have an impact on the properties.
- The information given herein is the outcome of our research and experience. It is given in all good faith but can neither be interpreted as a warranty given by us nor incur our liability especially in the event of infringement of third party rights.

ADDINYL®

PROPERTIES	STANDARDS	UNITS	*	POLYAMIDE 66								
				UNFILLED	GLASS FIBERS			GLASS BEADS	MINERAL FILLED	IMPACT MODIFIED	GLASS FIBERS AND IMPACT MODIFIED	MIXED FILLED
				A2-A2 Z	A2 V15 A2 ZV15	A2 V30 A2 ZV30	A2 V40 A2 ZV40	A2 G30 A2 ZG30	A2 Z P40	A2 X	VAI 23013	A2 M20 V10
PHYSICO-CHEMICAL												
Density	ISO 1183-1 Method A	g/cm³	-	1,14	1,24	1,37	1,46	1,36	1,48	1,07	1,33	1,36
MECHANICAL												
Tensile test												
Stress at yield point	ISO 527-2/1A	MPa	dam	85	_	-	-	-	-	45	_	-
			cond,	50	_	-	-	-	-	40	_	-
Stress at break	ISO 527-2/1A	MPa	dam	-	120	190	210	80	85	-	160	120
			cond,	-	80	130	160	60	60	-	105	75
Elongation at break	ISO 527-2/1A	%	dam	35	5	5	2	7	10	50	5	4,5
			cond,	>50	15	10	4	11	35	>50	7	6
Flexural test												
Flexural modulus	ISO 178	MPa	dam	2800	5500	9000	10500	3800	5100	1700	8800	7800
			cond,	1200	3100	6000	7700	1800	1600	600	4500	3700
Impact strength												
Charpy unnotched impact strength	ISO 179-1/1eU	kJ/m²	dam	NB	30	80	90	40	NB	NB	70	35
			cond,	NB	70	90	100	60	NB	NB	75	45
Charpy notched impact strength	ISO 179-1/1eA	kJ/m²	dam	4	5	10	11	3	5	NB	10	4
			cond,	8	6	15	16	5	9	NB	15	5

ADDINYL®

PROPERTIES	STANDARDS	UNITS	*	POLYAMIDE 66								
				UNFILLED	GLASS FIBERS			GLASS BEADS	MINERAL FILLED	IMPACT MODIFIED	GLASS FIBERS AND IMPACT MODIFIED	MIXED FILLED
				A2-A2 Z	A2 V15 A2 ZV15	A2 V30 A2 ZV30	A2 V40 A2 ZV40	A2 G30 A2 ZG30	A2 Z P40	A2 X	VAI 23013	A2 M20 V10
Hardness												
Shore D	ISO 868	g/cm³	dam	84	86	88	89	87	88	75	88	86
			cond,	78	82	83	85	82	85	70	83	80
THERMAL												
Melting point	ISO 11357-3	°C	-	260	260	260	260	260	260	260	260	260
Heat deflection temperature	ISO 75-2/Af	°C	-	85	245	250	255	95	140	65	240	240

* *The values indicated above have been realised with standard specimens in room temperature, except if particular conditions:*

- *dam: dry as moulded.*
- *cond: specimens conditioned according to ISO 291 and ISO 1110.*

☐ These data must be considered as indicative values, but in no case as minimum values. Moreover, the design of the mould/die, the processing conditions and the colour may have an impact on the properties.

☐ The information given herein is the outcome of our research and experience. It is given in all good faith but can neither be interpreted as a warranty given by us nor incur our liability especially in the event of infringement of third party rights.

ADDINYL®

PROPERTIES	STANDARDS	UNITS	*	POLYAMIDE 6									
				UNFILLED	IMPACT MODIFIED	GLASS FIBERS				GLASS BEADS	MIXED FILLED	CHROME PLATING	MINERAL FILLED
				B2	SBI 20037	B2 V15	B2 V30	VBI 23045 EXTERIOR UV	B2 V50	B2 G30	B2 G10 V20	MBI 24044	B2 M30
PHYSICO-CHEMICAL													
Density	ISO 1183-1 Method A	g/cm³	_	1,14	1,12	1,24	1,37	1,36	1,55	1,35	1,36	1,43	1,36
MECHANICAL													
Tensile test													
Stress at yield point	ISO 527-2/1A	MPa	dam	85	70	_	_	_	_	_	_	95	_
			cond,	40	40	60	_	_	_	_	_	50	_
Stress at break	ISO 527-2/1A	MPa	dam	_	40	120	180	180	220	70	120	90	80
			cond,	_	55	55	100	100	140	40	80	50	50
Elongation at break	ISO 527-2/1A	%	dam	30	25	4	4	5	2	6	5	10	10
			cond,	>50	>200	20	7	7	3	11	7	25	40
Flexural test													
Flexural modulus	ISO 178	MPa	dam	2800	2400	5000	9000	9000	14000	3800	6500	6100	6000
			cond,	900	850	3000	5000	5000	7500	1500	3500	2000	2600
Impact strength													
Charpy unnotched impact strength	ISO 179-1/1eU	kJ/m²	dam	NB	NB	40	80	80	90	45	55	65	40
			cond,	NB	NB	55	85	85	95	NB	75	NB	NB
Charpy notched impact strength	ISO 179-1/1eA	kJ/m²	dam	5	4	6	11	11	13	3	7	4	5
			cond,	15	20	10	19	18	20	5	12	6,5	15

ADDINYL®

PROPERTIES	STANDARDS	UNITS	*	POLYAMIDE 6									
				UNFILLED	IMPACT MODIFIED	GLASS FIBERS				GLASS BEADS	MIXED FILLED	CHROME PLATING	MINERAL FILLED
				B2	SBI 20037	B2 V15	B2 V30	VBI 23045 EXTERIOR UV	B2 V50	B2 G30	B2 G10 V20	MBI 24044	B2 M30
HARDNESS													
Shore D	ISO 868	_	dam	84	81	83	88	88	89	85	87	87	85
			cond,	75	70	74	83	83	85	80	83	82	78
THERMAL													
Melting point	ISO 11357-3	°C	_	220	220	220	220	220	220	220	220	220	220
Heat deflection temperature	ISO 75-2/Af	°C	_	65	60	200	210	210	215	98	205	130	140

** The values indicated above have been realised with standard specimens in room temperature, except if particular conditions:*

- *dam: dry as moulded.*
- *cond: specimens conditioned according to ISO 291 and ISO 1110.*

☐ These data must be considered as indicative values, but in no case as minimum values. Moreover, the design of the mould/die, the processing conditions and the colour may have an impact on the properties.

☐ The information given herein is the outcome of our research and experience. It is given in all good faith but can neither be interpreted as a warranty given by us nor incur our liability especially in the event of infringement of third party rights.

ADDINYL®

PROPERTIES	STANDARDS	UNITS	*	POLYAMIDE 66/6		POLYAMIDE 12				POLYAMIDE 6/12			
				UNFILLED	GLASS FIBERS	UNFILLED			GLASS FIBERS	UNFILLED	GLASS FIBERS		
				C2	C2 V30	SDI 20002	SDP 20003	SDP 20001	VDI 23010	SSI 20001	VSI 21004	VSI 23002	VSI 25003
PHYSICO-CHEMICAL													
Density	ISO 1183-1 Method A	g/cm³	_	1,14	1,37	1	1,01	1,03	1,23	1,07	1,17	1,28	1,53
MECHANICAL													
Tensile test													
Stress at yield point	ISO 527-2/1A	MPa	dam	85	_	_	_	_	_	_	_	_	_
			cond,	50	_	43	37	23	_	53	84	_	_
Stress at break	ISO 527-2/1A	MPa	dam	_	185	_	_	_	119	68	120	150	170
			cond,	_	115	50	36	52	_	33	80	115	135
Elongation at break	ISO 527-2/1A	%	dam	40	4	_	_	_	6	6	5	5	4
			cond,	>50	6	>250	>100	>50	_	>50	7	6	5
Flexural test													
Flexural modulus	ISO 178	MPa	dam	2800	9000	_	_	_	6300	2600	5500	8500	15000
			cond,	1000	5500	1200	780	360	_	1500	4000	6000	13000
Impact strength													
Charpy unnotched impact strength	ISO 179-1/1eU	kJ/m²	dam	NB	80	_	_	_	65	NB	45	68	70
			cond,	NB	85	NB	NB	NB	_	NB	55	64	65
Charpy notched impact strength	ISO 179-1/1eA	kJ/m²	dam	5	10	_	_	_	20	3	6	10	10
			cond,	15	17	11	20	NB	_	4	6	11	11

ADDINYL®

PROPERTIES	STANDARDS	UNITS	*	POLYAMIDE 66/6		POLYAMIDE 12				POLYAMIDE 6/12			
				UNFILLED	GLASS FIBERS	UNFILLED			GLASS FIBERS	UNFILLED	GLASS FIBERS		
				C2	C2 V30	SDI 20002	SDP 20003	SDP 20001	VDI 23010	SSI 20001	VSI 21004	VSI 23002	VSI 25003
HARDNESS													
Shore D	ISO 868	_	dam	83	88	_	_	_	80	80	82	85	87
			cond,	76	83	75	74	71	_	80	81	83	86
THERMAL													
Melting point	ISO 11357-3	°C	_	243	243	175	175	175	175	215	215	215	215
Heat deflection temperature	ISO 75-2/Af	°C	_	65	230	48	49	50	170	80	180	190	200

** The values indicated above have been realised with standard specimens in room temperature, except if particular conditions:*

- *dam: dry as moulded.*
- *cond: specimens conditioned according to ISO 291 and ISO 1110.*

☐ These data must be considered as indicative values, but in no case as minimum values. Moreover, the design of the mould/die, the processing conditions and the colour may have an impact on the properties.

☐ The information given herein is the outcome of our research and experience. It is given in all good faith but can neither be interpreted as a warranty given by us nor incur our liability especially in the event of infringement of third party rights.

ADDITER®

PROPERTIES	STANDARDS	UNITS	PC UNFILLED		ABS/PC UNFILLED	PBT/ASA GLASS FIBERS	ABS UNFILLED
			PMD 70057	SPI 70001 EXTERIOR UV	PMD 70123	VTI 13016	PMD 70065
PHYSICO-CHEMICAL							
MFI (220°, 10kg)	ISO 1133	g/10min	_	_	_	_	28
MFI (250°C, 2,16kg)	ISO 1133	g/10mn		_	20		
MVI (275°C, 2.16kg)	ISO 1133	cm^3/ 10min	_	_	_	20	_
MVI (300°C, 1.2kg)	ISO 1133	cm^3/ 10min	20	30	_	_	_
Density	ISO 1183-1 Method A	g/cm^3	1,2	1,2	1,13	1,44	1,03
MECHANICAL							
Tensile test							
Stress at yield point	ISO 527-2/1A	MPa	66	65	50	_	50
Stress at break	ISO 527-2/1A	MPa	60	60	40	105	35
Elongation at break	ISO 527-2/1A	%	100	80	10	4	30
Flexural test							
Flexural modulus	ISO 178	MPa	2500	2500	2000	7600	2400

ADDITER®

PROPERTIES	STAN-DARDS	UNITS	PC UNFILLED PMD 70057	PC UNFILLED SPI 70001 EXTERIOR UV	ABS/PC UNFILLED PMD 70123	PBT/ASA GLASS FIBERS VTI 13016	ABS UNFILLED PMD 70065
Impact strength							
Charpy unnotched impact strength	ISO 179-1/1eU	kJ/m²	NB	NB	NB	40	85
Charpy notched impact strength	ISO 179-1/1eA	kJ/m²	9	8	35	5,5	14
Hardness							
Shore D	ISO 868	_	82	83	82	82	81
THERMAL							
Melting point	ISO 11357-3	°C	_	_	_	220-230	-
Heat deflection temperature	ISO 75-2/Af	°C	122	120	105	190	75
Vicat softening temperature	ISO 306/A50	°C	145	140	135	215	100
FIRE							
Falling ball test	CEI 60695-10-2	°C	>125	>125	110	>190	-

- The values indicated above have been realised with standard specimens which are conditioned according to ISO 291.
- These data must be considered as indicative values, but in no case as minimum values. Moreover, the design of the mould/die, the processing conditions and the colour may have an impact on the properties.
- The information given herein is the outcome of our research and experience. It is given in all good faith but can neither be interpreted as a warranty given by us nor incur our liability especially in the event of infringement of third party rights.

ADDIFLAM®

PROPERTIES	STANDARDS	UNITS	*	COPOLYMER POLYPROPYLENE	HOMOPOLYMER POLYPROPYLENE		PA6	PA66
				HALOGEN FREE	HALOGENATED (RoHS)		HALOGEN FREE	
				UNFILLED	MINERAL FILLED	GLASS FIBERS	UNFILLED	MIXED FILLED
				PMD 50458	J490 M20 FR	H490 M20 FR	VHI 53063 X	SBI 20011 F	A2 I G10 V20
PHYSICO-CHEMICAL								
MVI (230°C, 2.16kg)	ISO 1133	cm^3/10 min		2 (5kg)	8	9	7	_	_
Density	ISO 1183-1 Method A	g/cm^3		1	1,3	1,31	1,39	1,16	1,34
FIRE								
UL 94 (1,6mm**)	UL 94	_		V0	V0	V0	V0	V0 (0,8mm)	V0
Yellow Card	_	_		_		_	_		_
Glow wire GWFI (2mm)	CEI 60695-2-12	°C		960	960	960	960	960	960
Falling ball test	CEI 60695-10-2	°C		131	>125	>125	>125	>125	_
Limiting Oxygen Index***	ISO 4589-2	%	_	39	26	27	26	38	31
MECHANICAL								
Tensile test								
Stress at yield point	ISO 527-2/1A	MPa	dam	25	21	30	_	80	_
			cond,	_	_	_	_	35	70
Stress at break	ISO 527-2/1A	MPa	dam	20	16	20	80	75	115
			cond,	_	_	_	_	50	70
Elongation at break	ISO 527-2/1A	%	dam	>100	27	5	5	8	4
			cond,	_	_	_	_	200	6

ADDIFLAM®

PROPERTIES	STANDARDS	UNITS	*	COPOLYMER POLYPROPYLENE	HOMOPOLYMER POLYPROPYLENE		PA6	PA66
				HALOGEN FREE	HALOGENATED (RoHS)		HALOGEN FREE	
				UNFILLED	MINERAL FILLED	GLASS FIBERS	UNFILLED	MIXED FILLED
				PMD 50458	J490 M20 FR	H490 M20 FR	VHI 53063 X	SBI 20011 F	A2 I G10 V20
Flexural test									
Flexural modulus	ISO 178	MPa	dam	1400	2800	3500	7700	3400	8000
			cond,	–	–	–	–	1000	4700
Impact strength									
Charpy unnotched impact strength	ISO 179-1/1eU	kJ/m²	dam	NB	56	25	38	87	48
			cond,	–	–	–	–	NB	50
Charpy notched impact strength	ISO 179-1/1eA	kJ/m²	dam	7,5	4	2	10	3	6,5
			cond,	–	–	–	–	8	9
Hardness									
Shore D	ISO 868	–	dam	67	74	75	82	85	89
			cond,	–	–	–	–	77	86
THERMAL									
Melting point	ISO 11357-3	°C		165/168	165/168	165/168	165/168	220	260
Heat deflection temperature	ISO 75-2/Af	°C		65	71	85	150	86	189
Vicat softening temperature	ISO 306/A50	°C		150	148	155	160	–	–
ELECTRICAL									
IRC	CEI 60112	V		>600	>600	>600	500	>600	450

** The values indicated above have been realised with standard specimens in room temperature, except if particular conditions:*
- *dam: dry as moulded.*
- *cond: specimens conditioned according to ISO 291 and ISO 1110.*

*** The test according to the directives UL94 has been made with a specimen with a thickness of 1,6mm, except if another thickness value is indicated between brackets, just after the result.*
**** The LOI measures are obtained from standard specimens of type I with an ignition type A.*

- These data must be considered as indicative values, but in no case as minimum values. Moreover, the design of the mould/die, the processing conditions and the colour may have an impact on the properties.
- The information given herein is the outcome of our research and experience. It is given in all good faith but can neither be interpreted as a warranty given by us nor incur our liability especially in the event of infringement of third party rights.

ADDIBIO RENEW®

PROPERTIES	STANDARDS	UNITS	NATURAL FIBERS FILLED POLYOLEFINS					
			AESTHETIC PART			STRUCTURAL PART		
			GEI 52009	GEI 52021	PMD 50659	GJI 52066	GEI 53035	GJI 53116
PHYSICO-CHEMICAL								
% Biobased	_	%	20	20	15	30	20	30
Density	ISO 1183-1 Method A	g/cm³	0,97	0,97	1	0,99	1,03	1
MECHANICAL								
Tensile test								
Stress at yield point	ISO 527-2/1A	MPa	20	20	20	_	_	35
Stress at break	ISO 527-2/1A	MPa	18	18	15	30	50	33
Elongation at break	ISO 527-2/1A	%	15	15	7	3	5	5
Flexural test								
Flexural modulus	ISO 178	MPa	1650	1650	1700	3900	3800	3150
Impact strength								
Charpy unnotched impact strength	ISO 179-1/1eU	kJ/m²	30	30	25	12	30	17
Charpy notched impact strength	ISO 179-1/1eA	kJ/m²	6	6	15	3,5	7	6

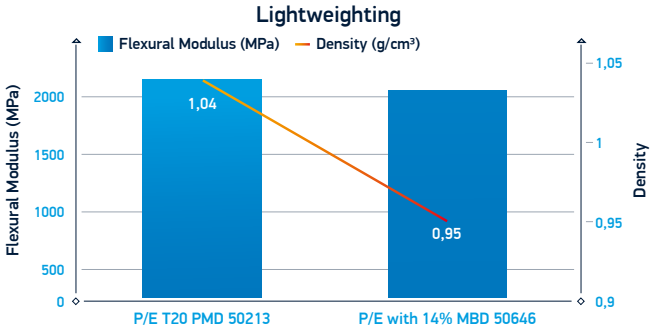
ADDIBIO RENEW®			NATURAL FIBERS FILLED POLYOLEFINS					
			AESTHETIC PART			STRUCTURAL PART		
PROPERTIES	STANDARDS	UNITS	GEI 52009	GEI 52021	PMD 50659	GJI 52066	GEI 53035	GJI 53116
Hardness								
Shore D	ISO 868	_	70	70	61	76	76	72
THERMAL								
Heat deflection temperature	ISO 75-2/Af	°C	65	65	75	110	140	115
Vicat softening temperature	ISO 306/A50	°C	130	130	140	155	160	155
Processing temperature	_	°C	≤200	≤200	≤200	≤200	≤200	≤200

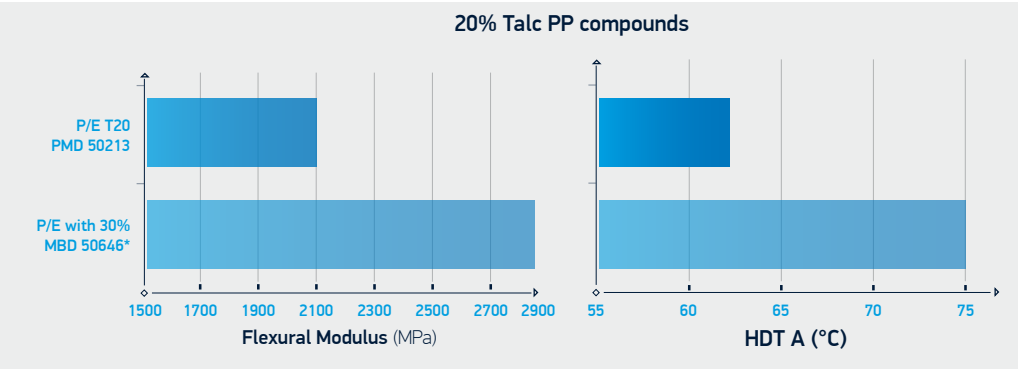
- The values indicated above have been realised with standard specimens which are conditioned according to ISO 291.
- These data must be considered as indicative values, but in no case as minimum values. Moreover, the design of the mould/die, the processing conditions and the colour may have an impact on the properties.
- The information given herein is the outcome of our research and experience. It is given in all good faith but can neither be interpreted as a warranty given by us nor incur our liability especially in the event of infringement of third party rights.

ADDIBATCH® MBD 50646 & MBD 50699

Two "ready made" 70% extra delaminated talc masterbatches
are now available directly in injection molding or in compounding line.

100 % **RECYCLABLE.**
VERY GOOD **TALC DISPERSION.**





*available in compound version **ADDILENE MJI 52107**

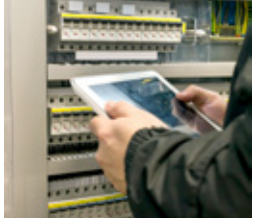
Advantages provided by Extra delaminated compounds & masterbatches:

- ☐ 10% lightweighting
- ☐ Reinforcement improved by 40%
- ☐ HDT improved by 20%
- ☐ Enhance significantly dimensional stability
- ☐ Increase flexural modulus enabling downgauging
- ☐ Stiffness/impact balance remains excellent
- ☐ A solution to reduce weight & density
- ☐ Extra delaminated talc compounds provide similar physical properties to 15% Glass Fibers PP compounds
- ☐ Very good surface appearance
- ☐ Regular CLTE performance
- ☐ A "Ready made" ensuring a perfect dispersion after injection

ELECTRONICS
ELECTRICS
ELECTROTECHNICS

ADDIFLAM®

FIRE RESISTANCE



ADDIFLAM® SBI 20011 F

Yellow Card **UL94:** V0 «All Colors» - 0,8 ; 1,6 & 3mm

ADDIFLAM® SBI 20053 F

UL94: V2 «All Colors» - 0,8 ; 1,6 & 3mm

- Polyamid 6 halogen free flame retardant
  - **Certification** : GWIT 775°C from 0,4mm to 3mm
  - **NF EN 45545-2:** R22 HL2 & R23 HL3
  - **Glow wire test GWFI:** 960°C / 5 s.
  - **LOI:** 39%
  - **CTI:** 600 V
  - **Ball Test >** 125°C
  - Available in **different colors**

RAILWAYS STANDARD
NF EN 45545-2 : R22 HL2 & R23 HL3

ADDILENE®
ADDINYL®

PROPERTIES	STANDARDS	UNITS	*	HOMO PP	COPO PP	PA66		PA6					
				GLASS FIBERS	MINERAL FILLED	GLASS FIBERS	DETEC-TABLE	GLASS FIBERS		IMPACT MODIFIED		IMPACT AND GLASS FIBERS	IMPROVED SLIDING
				H111 V30	J430 N30	A2 V30	PMD 20272	B2 V30	B2 V50	SBI 20062	PMD 20245	VBI 23009	PMD 20090
PHYSICO-CHEMICAL													
MVI (230°C, 2.16kg)	ISO 1133	cm^3/10 min		2	13	–	–	–	–	–	–	–	–
Density	ISO 1183-1 Method A	g/cm^3		1,1	1,14	1,37	1,24	1,37	1,55	1,05	1,13	1,32	1,45
MECHANICAL													
Tensile test													
Stress at yield point	ISO 527-2/1A	MPa	dam	–	20	–	85	–	–	50	55	–	–
			cond,	–	–	–	–	–	–	–	35	–	–
Stress at break	ISO 527-2/1A	MPa	dam	85	15	190	85	180	220	40	45	130	130
			cond,	–	–	130	35	100	140	45	70	90	90
Elongation at break	ISO 527-2/1A	%	dam	5	>15	5	10	4	2	50	>100	4	5
			cond,	–	–	10	6	7	3	250	>250	6	8
Flexural test													
Flexural modulus	ISO 178	MPa	dam	–	–	9000	3300	9000	14000	1750	1350	8000	8300
			cond,	6500	2500	6000	1300	5000	7500	570	650	5000	4800
Impact strength													
Charpy unnotched impact strength	ISO 179-1/1eU	kJ/m^2	dam	50	NB	80	NB	80	90	NB	NB	80	35
			cond,	–	–	90	–	85	95	NB	NB	90	45
Charpy notched impact strength	ISO 179-1/1eA	kJ/m^2	dam	11	10	10	3	11	13	55	9	20	12
			cond,	–	–	15	2	19	20	115	115	25	25

ADDILENE®
ADDINYL®

PROPERTIES	STANDARDS	UNITS	*	HOMO PP	COPO PP	PA66		PA6					
				GLASS FIBERS	MINERAL FILLED	GLASS FIBERS	DETEC-TABLE	GLASS FIBERS		IMPACT MODIFIED		IMPACT AND GLASS FIBERS	IMPROVED SLIDING
				H111 V30	J430 N30	A2 V30	PMD 20272	B2 V30	B2 V50	SBI 20062	PMD 20245	VBI 23009	PMD 20090
Hardness													
Shore D	ISO 868	_	dam	80	68	88	87	88	89	77	82	82	84
			cond,	_	_	83	81	83	85	67	69	80	77
THERMAL													
Melting point	ISO 11357-3	°C	_	165/168	165/168	260	260	220	220	220	220	220	220
Heat deflection temperature	ISO 75-2/Af	°C	_	145	62	250	83	210	215	60	60	200	210
Vicat softening temperature	ISO 306/A50	°C		163	152	_	_	_	_	_	_	_	_
FIRE													
Falling ball test	ISO 60695-10-2	°C	_	>125	>125	_	_	_	_	_	_	_	_

* *The values indicated above have been realised with standard specimens in room temperature, except if particular conditions:*

- *dam: dry as moulded.*
- *cond: specimens conditioned according to ISO 291 and ISO 1110.*

☐ These data must be considered as indicative values, but in no case as minimum values. Moreover, the design of the mould/die, the processing conditions and the colour may have an impact on the properties.

☐ The information given herein is the outcome of our research and experience. It is given in all good faith but can neither be interpreted as a warranty given by us nor incur our liability especially in the event of infringement of third party rights.

ADDITER®
ADDIFLAM®

PROPERTIES	STANDARDS	UNITS	PC	PBT				PC	PBT				
								HALOGEN FREE	HALOGENATED (RoHS)				
			UNFILLED AND EXTERIOR UV	UNFILLED	GLASS FIBERS		CERAMIC EFFECT	UNFILLED	UNFILLED			GLASS FIBERS	
			SPI 70001	STL 10002	VTI 13006	VTI 13008	MTI 14017	SPI 70002 F	STI 10009 X	STL 10010 X	STL 10011 X	VTI 12012 X	VTI 13013 X
PHYSICO-CHEMICAL													
MVI (250°C, 2.16kg)	ISO 1133	cm^3/10 min	_	40	12	11	80	_	16	60	50	10	5
MVI (300°C, 1,2kg)	ISO 1133	cm^3/10 min	30	_	_	_	_	22	_	_	_	_	_
Density	ISO 1183-1 Method A	g/cm^3	1,20	1,31	1,52	1,53	1,76	1,2	1,37	1,39	1,55	1,65	1,74
FIRE													
UL 94 (1,6mm)	UL 94	_	_	_	_	_	_	V0	-	V2	V0	V0	V0
Glow wire GWFI (2mm)	CEI 60695-2-12	°C	_	_	_	_	750	960	960	960	960	960	960
Falling ball test	CEI 60695-10-2	°C	>125	>125	>125	>125	_	_	_	_	_	_	_
Limiting Oxygen Index***	ISO 4589-2	%	_	_	_	_	_	40	22	23	28	_	39
MECHANICAL													
Tensile test													
Stress at yield point	ISO 527-2/1A	MPa	65	54	_	_	_	60	_	_	_	_	_
Stress at break	ISO 527-2/1A	MPa	60	_	130	50	45	55	20	55	40	110	120
Elongation at break	ISO 527-2/1A	%	80	25	2	4	2	40	2	10	5	4	4

ADDITER® ADDIFLAM®

PROPERTIES	STANDARDS	UNITS	PC	PBT				PC	PBT				
								HALOGEN FREE	HALOGENATED (RoHS)				
			UNFILLED AND EXTERIOR UV	UNFILLED	GLASS FIBERS		CERAMIC EFFECT	UNFILLED	UNFILLED			GLASS FIBERS	
			SPI 70001	STL 10002	VTI 13006	VTI 13008	MTI 14017	SPI 70002 F	STI 10009 X	STL 10010 X	STL 10011 X	VTI 12012 X	VTI 13013 X
Flexural test													
Flexural modulus	ISO 178	MPa	2500	2400	8000	3500	3900	2500	2700	2800	3200	8000	11000
Impact strength													
Charpy unnotched impact strength	ISO 179-1/1eU	kJ/m²	NB	NB	50	35	15	NB	10	50	40	40	40
Charpy notched impact strength	ISO 179-1/1eA	kJ/m²	8	3	8	4	1,5	9	2	2	2	6	6
Hardness													
Shore D	ISO 868	_	83	81	83	_	86	82	84	83	83	87	88
THERMAL													
Melting point	ISO 11357-3	°C	_	225	225	225	220	_	225	225	225	225	225
Heat deflection temperature	ISO 75-2/Af	°C	120	_	_	95	115	125	_	_	_	210	210
Vicat softening temperature	ISO 306/A50	°C	140	_	_	_	210	150	_	_	_	220	220
ELECTRICAL													
IRC	CEI 60112	V	_	_	_	_	>600	200	>600	>600	550	_	_

**** The LOI measures are obtained through standard specimens of type I, with ignition of type A.*

- The values indicated above have been realised with standard specimens which are conditioned according to ISO 291.
- These data must be considered as indicative values, but in no case as minimum values. Moreover, the design of the mould/die, the processing conditions and the colour may have an impact on the properties.
- The information given herein is the outcome of our research and experience. It is given in all good faith but can neither be interpreted as a warranty given by us nor incur our liability especially in the event of infringement of third party rights.

ADDIFLAM®

			HOMOPOLYMER POLYPROPYLENE					HIGH MODULUS POLYPROPYLENE				
			HALOGEN FREE			HALOGENATED (RoHS)						HALOGEN FREE
			UNFILLED			UNFILLED		MINERAL FILLED			30% GLASS FIBERS	
PROPERTIES	STANDARDS	UNITS	PMD 50445	SEI 50016 F	SEI 50054 F	H490 S	SHI 50050 X	H490 M20 FR	PMD 50265	PMD 50291	VHI 53063 X	VHI 53089 F
PHYSICO-CHEMICAL												
MVI (230°C, 2.16kg)	ISO 1133	cm^3/10 min	16	14	10	12	6	9	16	18	7	9
Density	ISO 1183-1 Method A	g/cm^3	0,9	0,88	1,01	0,94	0,97	1,31	0,96	1,16	1,39	1,25
FIRE												
UL 94 (1,6mm)	UL 94	_	V2	V2	V0	V2	V0	V0	HB	V2	V0	V0
Yellow Card	_	_	_	_	_		_	_	_	_	_	_
Glow wire GWFI (2mm)	CEI 60695-2-12	°C	960	960	960	960	960	960	750	960	960	960
Falling ball test	CEI 60695-10-2	°C	>125	>125	>125	>125	120	>125	>125	>125	>125	>125
Limiting Oxygen Index***	ISO 4589-2	%	26	26	40	27	35	27	_	_	26	40
MECHANICAL												
Tensile test												
Stress at yield point	ISO 527-2/1A	MPa	37	36	20	_	35	30	_	_	_	_
Stress at break	ISO 527-2/1A	MPa	20	22	15	32	10	20	30	32	80	85
Elongation at break	ISO 527-2/1A	%	>50	25	35	>100	60	5	5	5	5	4

ADDIFLAM®

PROPERTIES	STANDARDS	UNITS	HOMOPOLYMER POLYPROPYLENE					HIGH MODULUS POLYPROPYLENE				
			HALOGEN FREE			HALOGENATED (RoHS)						HALOGEN FREE
			UNFILLED			UNFILLED		MINERAL FILLED			30% GLASS FIBERS	
			PMD 50445	SEI 50016 F	SEI 50054 F	H490 S	SHI 50050 X	H490 M20 FR	PMD 50265	PMD 50291	VHI 53063 X	VHI 53089 F
Flexural test												
Flexural modulus	ISO 178	MPa	1700	1700	1800	1300	1400	3500	2200	2300	7700	7750
Impact strength												
Charpy unnotched impact strength	ISO 179-1/1eU	kJ/m²	NB	91	30	NB	NB	25	30	23	38	35
Charpy notched impact strength	ISO 179-1/1eA	kJ/m²	3	2,5	2,5	3,5	2,5	2	7	6	10	10
Hardness												
Shore D	ISO 868	_	76	76	71	74	77	75	68	75	82	79
THERMAL												
Melting point	ISO 11357-3	°C	165/168	165/168	165/168	165/168	165/168	165/168	165/168	165/168	165/168	165/168
Heat deflection temperature	ISO 75-2/Af	°C	65	64	70	61	60	85	90	100	150	155
Vicat softening temperature	ISO 306/A50	°C	155	153	150	153	150	155	150	155	160	160
ELECTRICAL												
IRC	CEI 60112	V	>600	>600	>600	>600	>600	>600	>600	>600	500	>600

**** The LOI measures are obtained through standard specimens of type I, with ignition of type A.*

- The values indicated above have been realised with standard specimens which are conditioned according to ISO 291.
- These data must be considered as indicative values, but in no case as minimum values. Moreover, the design of the mould/die, the processing conditions and the colour may have an impact on the properties.
- The information given herein is the outcome of our research and experience. It is given in all good faith but can neither be interpreted as a warranty given by us nor incur our liability especially in the event of infringement of third party rights.

ADDIFLAM®

PROPERTIES	STANDARDS	UNITS	COPOLYMER POLYPROPYLENE						
			HALOGEN FREE		HALOGENATED (RoHS)				
			UNFILLED		UNFILLED	MINERAL FILLED			
			SJI 50032 F	PMD 50458	J490 S	MJI 52054 X	MEI 52046 X	J390 M20 FR	J490 M20 FR
PHYSICO-CHEMICAL									
MVI (230°C, 2.16kg)	ISO 1133	cm^3/10 min	35	2 (5kg)	16	15	5	5	8
Density	ISO 1183-1 Method A	g/cm^3	0,9	1	0,94	1,04	1,31	1,3	1,3
FIRE									
UL 94 (1,6mm)	UL 94	_	V2	V0	V2	V2	V0	V0	V0
Yellow Card	_	_		_		_	_	_	
Glow wire GWFI (2mm)	CEI 60695-2-12	°C	800	960	960	960	960	960	960
Falling ball test	CEI 60695-10-2	°C	107	131	_	110	118	>125	>125
Limiting Oxygen Index***	ISO 4589-2	%	23	39	26	28	27	26	26
MECHANICAL									
Tensile test									
Stress at yield point	ISO 527-2/1A	MPa	25	25	_	23	20	21	21
Stress at break	ISO 527-2/1A	MPa	17	20	26	17	11	11	16
Elongation at break	ISO 527-2/1A	%	35	>100	>100	25	50	30	27

ADDIFLAM®

			COPOLYMER POLYPROPYLENE						
			HALOGEN FREE		HALOGENATED (RoHS)				
			UNFILLED		UNFILLED	MINERAL FILLED			
PROPERTIES	STANDARDS	UNITS	SJI 50032 F	PMD 50458	J490 S	MJI 52054 X	MEI 52046 X	J390 M20 FR	J490 M20 FR
Flexural test									
Flexural modulus	ISO 178	MPa	1200	1400	1000	1900	2450	3100	2800
Impact strength									
Charpy unnotched impact strength	ISO 179-1/1eU	kJ/m²	NB	NB	NB	80	NB	60	56
Charpy notched impact strength	ISO 179-1/1eA	kJ/m²	7	7,5	10	5,5	10	4	4
Hardness									
Shore D	ISO 868	_	71	67	65	72	65	73	74
THERMAL									
Melting point	ISO 11357-3	°C	165/168	165/168	165/168	165/168	165/168	165/168	165/168
Heat deflection temperature	ISO 75-2/Af	°C	55	65	51	63	70	75	71
Vicat softening temperature	ISO 306/A50	°C	145	150	152	145	145	150	148
ELECTRICAL									
IRC	CEI 60112	V	>600	>600	>600	>600	>600	>600	>600

**** The LOI measures are obtained through standard specimens of type I, with ignition of type A.*

- The values indicated above have been realised with standard specimens which are conditioned according to ISO 291.
- These data must be considered as indicative values, but in no case as minimum values. Moreover, the design of the mould/die, the processing conditions and the colour may have an impact on the properties.
- The information given herein is the outcome of our research and experience. It is given in all good faith but can neither be interpreted as a warranty given by us nor incur our liability especially in the event of infringement of third party rights.

ADDIFLAM®

PROPERTIES	STANDARDS	UNITS	*	POLYAMIDE 6						POLYAMIDE 66				
				HALOGENATED (RoHS)	HALOGEN FREE					HALOGENATED (RoHS)	HALOGEN FREE			
				IMPROVED SLIDING	UNFILLED			GLASS FIBERS		GLASS FIBERS	UNFILLED	GLASS FIBERS		MIXED FILLED
				PMD 20191	PMD 20133	SBI 20053 F	SBI 20011 F	VBI 21013 F	VBI 22019 F	PMD 20183	A2I	A2 I V20	A2 I V25	A2I G10 V20
PHYSICO-CHEMICAL														
Density	ISO 1183-1 Method A	g/cm³	_	1,5	1,17	1,17	1,16	1,3	1,41	1,41	1,19	1,3	1,37	1,34
FIRE														
UL 94 (1,6mm**)	UL 94	_	_	V2	V2	V2 (0,8mm)	V0 (0,8mm)	V0	V0	HB	V0 (0,8mm)	V0	V0	V0
Yellow Card	_	_	_	_	_	_		_	_	_	_	_	_	_
Rail standard classification	NF EN 45545-2	_	_	_	_	R22 HL2 R23 HL3	R22 HL2 R23 HL3	_	_	_	_	_	_	_
Glow wire GWFI (2mm)	CEI 60695-2-12	°C	_	960	850	960	960	960	960	750	960	960	960	960
Limiting Oxygen Index***	ISO 4589-2	%	_	26	30	33	38	32	32	28	38	32	32	31
MECHANICAL														
Tensile test														
Stress at yield point	ISO 527-2/1A	MPa	dam	_	_	75	80	_	_	_	_	_	_	_
			cond,	_	40	35	35	50	_	90	_	_	_	70
Stress at break	ISO 527-2/1A	MPa	dam	140	60	75	75	80	90	120	60	115	130	115
			cond,	90	45	50	50	50	60	80	50	75	90	70
Elongation at break	ISO 527-2/1A	%	dam	5	10	6	8	4	4	4	3	5	5	4
			cond,	8	30	200	200	6	5	6	15	6	6	6
Flexural test														
Flexural modulus	ISO 178	MPa	dam	8200	3000	3400	3400	6000	8600	7000	3500	7500	7800	8000
			cond,	4800	1000	1000	1000	3300	4700	5000	2000	4800	5500	4700

ADDIFLAM®

PROPERTIES	STANDARDS	UNITS	*	POLYAMIDE 6						POLYAMIDE 66				
				HALOGENATED (RoHS)	HALOGEN FREE					HALOGENATED (RoHS)	HALOGEN FREE			
				IMPROVED SLIDING	UNFILLED			GLASS FIBERS		GLASS FIBERS	UNFILLED	GLASS FIBERS		MIXED FILLED
				PMD 20191	PMD 20133	SBI 20053 F	SBI 20011 F	VBI 21013 F	VBI 22019 F	PMD 20183	A2I	A2 I V20	A2 I V25	A2I G10 V20
Impact strength														
Charpy unnotched impact strength	ISO 179-1/1eU	kJ/m²	dam	70	NB	60	87	30	30	40	40	50	60	48
			cond,	80	NB	NB	NB	35	35	50	NB	55	65	50
Charpy notched impact strength	ISO 179-1/1eA	kJ/m²	dam	13	3	2,5	3	4	5	5	2,5	7	8,5	6,5
			cond,	20	10	7	8	6	7	7	7	11	10	9
Hardness														
Shore D	ISO 868	–	dam	84	83	84	85	84	87	87	85	88	90	89
			cond,	79	77	75	77	80	83	86	78	83	89	86
THERMAL														
Melting point	ISO 11357-3	°C		220	220	220	220	220	220	260	260	260	260	260
Heat deflection temperature	ISO 75-2/Af	°C		206	65	86	86	190	195	245	85	240	245	189
ELECTRICAL														
IRC	CEI 60112	V		300	>600	>600	>600	550	500	400	>600	>600	>600	450

** The values indicated above have been realised with standard specimens in room temperature, except if particular conditions:*

- *dam: dry as moulded.*
- *cond: specimens conditioned according to ISO 291 and ISO 1110.*

*** The test according to the directives UL94 has been made with a specimen with a thickness of 1,6mm, except if another thickness value is indicated between brackets, just after the result.*

**** The LOI measures are obtained from standard specimens of type I with an ignition type A.*

- These data must be considered as indicative values, but in no case as minimum values. Moreover, the design of the mould/die, the processing conditions and the colour may have an impact on the properties.
- The information given herein is the outcome of our research and experience. It is given in all good faith but can neither be interpreted as a warranty given by us nor incur our liability especially in the event of infringement of third party rights.

ADDIPLAST GROUP

present at every moment
of daily life

COSMETICS MEDICAL PHARMA

ADDILENE®
PHARMACOPEIA FDA

Pharmacopeia & FDA

ADDILENE® H400 White 24

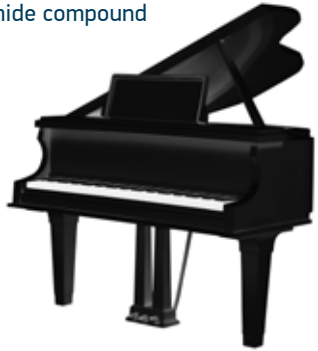
- Mass-coloured ready-to-use polypropylene white grade
- Used as a compound or in dilution
- Perfect homogeneous and reproductible coloration
- European Pharmacopeia in accordance with 3.1.3 (polyolefins) Pharmacopeia Edition 9
- Compliant with 10/2011/EC of 14 January 2011 and amendment 2019/37
- Compliant with US CFR Title 21 (Code of Federal Regulations that establishes the US Food and Drug Administration FDA dated 1st April 2012):
  - Title 21 Sec. 177.1520 “Olefin polymers”
  - Title 21 Sec. 178.2010 “Antioxidants and/or stabilizers for polymers”
  - Title 21 Sec. 178.3297 “colorants for polymers”

ADDINYL®
PIANO BLACK DEEP BLACK COLOURS

Deep black colours

ADDINYL® PMD 20214 Black 41

- Mass-coloured ready-to-use polyamide compound
- High glossy effect
- Substitution of paint and varnish
- Very good scratch resistance



ADDIBIO RENEW®

NATURAL FIBERS FDA CALIFORNIA 65

ADDIBIO RENEW® GHI 52028

- 20% bio-based polypropylene compound
- FDA Food contact material
- Compliant with California 65 proposal
- Suitable for primary packaging
- Suitable for aesthetic parts
- Natural and pastel colours
- Mat aspect

Inspired by nature

ADDITER® CERAMIC Effect

ADDITER® MTI 14017

- Vintage
- High glossy ceramic effect
- Very good scratch resistance
- Cold touch
- Metallic tone
- High density

HIGH QUALITY VALUE FROM THE PAST
COSMETIC, TABLEWARE, CONSUMER / INDUSTRIAL PRODUCTS, HOUSEHOLD

ADDILENE® ADDIBIO RENIEW®

PROPERTIES	STANDARDS	UNITS	HOMOPOLYMER PP		COPOLYMER PP			POLYPROPYLENE		COPO PP	NATURAL FIBERS FILLED POLYOLEFINS		BLACK PCR UNFILLED	BLACK PCR HIGH DENSITY
			UNFILLED	HIGH DENSITY	HIGH DENSITY			CHROME PLATING		LOW SHRINKAGE				
			H400	H420 K24	J410 K14	J470 K19	J522 K20	PMD 50245	PMD 50424	PMD 50333	GHI 52028 FOOD APPROVED	GJI 52103	SJI 50130	MJI 57117
PHYSICO-CHEMICAL PROPERTIES														
% Natural fibers	-	%									20	25		
MVI (230°C, 2.16kg)	ISO 1133	cm^3/ 10min	11	10	12	18	2	15	11	16	9 (190°C)	6 (190°C)	10	4
Density	ISO 1183-1 Method A	g/cm^3	0,9	2,4	1,45	1,9	20	1,15	1,2	0,96	0,97	0,99	0,9	2
MECHANICAL														
Tensile test														
Stress at yield point	ISO 527-2/1A	MPa	40	12	_	10	12	28	24	_	20	_	25	10
Stress at break	ISO 527-2/1A	MPa	30	10	14	8,5	11	26	20	30	16	40	15	10
Elongation at break	ISO 527-2/1A	%	>100	5	_	50	35	50	20	5	10	5	60	40
Flexural test														
Flexural modulus	ISO 178	MPa	1400	4500	2400	2600	3700	2000	2100	2200	1900	2900	1200	3000
Impact strength														
Charpy unnotched impact strength	ISO 179-1/1eU	kJ/m^2	NB	15	NB	NB	30	NB	NB	30	25	9	NB	30
Charpy notched impact strength	ISO 179-1/1eA	kJ/m^2	3	3	4	6,5	3,5	3,5	5	7	3	4	10	5
Hardness														
Shore D	ISO 868	_	74	81	69	67	73	75	72	68	69	75	66	69

ADDILENE®
ADDIBIO RENIEW®

PROPERTIES	STANDARDS	UNITS	HOMOPOLYMER PP		COPOLYMER PP			POLYPROPYLENE		COPO PP	NATURAL FIBERS FILLED POLYOLEFINS		BLACK PCR UNFILLED	BLACK PCR HIGH DENSITY
			UNFILLED	HIGH DENSITY	HIGH DENSITY			CHROME PLATING		LOW SHRINKAGE				
			H400	H420 K24	J410 K14	J470 K19	J522 K20	PMD 50245	PMD 50424	PMD 50333	GHI 52028 FOOD APPROVED	GJI 52103	SJI 50130	MJI 57117
THERMAL PROPERTIES														
Melting point	ISO 11357-3	°C	165/168	165/168	165/168	165/168	165/168	165/168	165/168	165/168	165/168	165/168	165/168	165/168
Heat deflection temperature	ISO 75-2/Af	°C	62	80	63	60	75	65	65	90	75	95	60	70
Vicat softening temperature	ISO 306/A50	°C	153	153	152	142	150	153	153	150	150	140	145	145
FIRE PROPERTIES														
Falling ball test	ISO 60695-10-2	°C	>125	_	>125	113	>125	>125	>125	>125	123	123	>125	121

- The values indicated above have been realised with standard specimens which are conditioned according to ISO 291.
- These data must be considered as indicative values, but in no case as minimum values. Moreover, the design of the mould/die, the processing conditions and the colour may have an impact on the properties.
- The information given herein is the outcome of our research and experience. It is given in all good faith but can neither be interpreted as a warranty given by us nor incur our liability especially in the event of infringement of third party rights.

ADDINYL®
ADDITER®
ADDIBATCH®

PROPERTIES	STANDARDS	UNITS	*	PA6			PBT		ABS		PP BASE
				PIANO BLACK	HIGH DENSITY		LOWER FRICTION COEFF.	CERAMIC EFFECT	HIGH DENSITY		NUCLEATING AND CLARIFYING MASTERBATCH
				PMD 20214	B2 K20	B2 K25	STI 10021	MTI 14017	PMD 70062	PMD 70075	MBD 50622
PHYSICO-CHEMICAL PROPERTIES											
Density	ISO 1183-1 Method A	g/cm³	_	1,14	2,1	2,5	1,3	1,76	1,6	2	_
Bulk Density	ISO 60	g/cm³	_	_	_	_		_	_	_	0,55
Content		%	_	_	_	_		_	_	_	8
Usage		%	_	_	_	_		_	_	_	From 1 to 3%
MECHANICAL PROPERTIES											
Tensile test											
Stress at yield point	ISO 527-2/1A	MPa	dam	_	_	24	55	_	_	_	_
			cond,	_	_	11	_	_	_	_	_
Stress at break	ISO 527-2/1A	MPa	dam	80	33	22	50	45	40	30	_
			cond,	30	24	11	_	_	_	_	_
Elongation at break	ISO 527-2/1A	%	dam	30	10	4	40	2	4	2	_
			cond,	>50	40	25	_	_	_	_	_
Flexural test											
Flexural modulus	ISO 178	MPa	dam	2800	5000	9200	2550	3900	3400	5000	_
			cond,	900	2200	3500	_	_	_	_	_
Impact strength											
Charpy unnotched	ISO 179-1/1eU	kJ/m2	dam	NB	36	16	NB	15	15	5	_
			cond.	NB	NB	36	_	_	_	_	_
Charpy notched	ISO 179-1/1eA	kJ/m2	dam	5	2,5	3	3	1,5	2,5	1	_
			cond.	15	3	6	_	_	_	_	_

ADDINYL®
ADDITER®
ADDIBATCH®

PROPERTIES	STANDARDS	UNITS	*	PA6			PBT		ABS		PP BASE
				PIANO BLACK	HIGH DENSITY		LOWER FRICTION COEFF.	CERAMIC EFFECT	HIGH DENSITY		NUCLEATING AND CLARIFYING MASTERBATCH
				PMD 20214	B2 K20	B2 K25	STI 10021	MTI 14017	PMD 70062	PMD 70075	MBD 50622
Hardness											
Shore D	ISO 868	-	dam	82	86	88	79	86	83	87	_
			cond,	71	83	83	_	_	_	_	_
THERMAL											
Melting point	ISO 11357-3	°C	-	220	220	220	220	220	_	_	165/168
Heat deflection temperature	ISO 75-2/Af	°C	-	65	72	100	80	115	80	**85**	_

***** *The values indicated above have been realised with standard specimens in room temperature, except if particular conditions:*

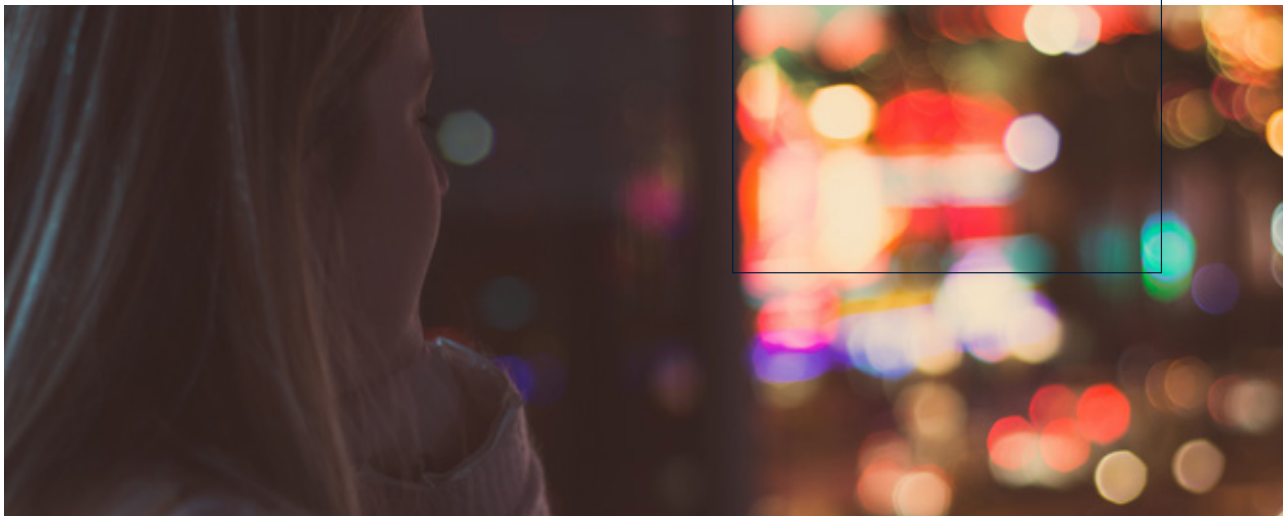
- *dam: dry as moulded.*
- *cond: specimens conditioned according to ISO 291 and ISO 1110.*

☐ These data must be considered as indicative values, but in no case as minimum values. Moreover, the design of the mould/die, the processing conditions and the colour may have an impact on the properties.

☐ The information given herein is the outcome of our research and experience. It is given in all good faith but can neither be interpreted as a warranty given by us nor incur our liability especially in the event of infringement of third party rights.

ADDIPLAST GROUP

a global offer with high performance



CONSUMER GOODS
BUILDINGS
HOUSEHOLD
APPLIANCIES

ADDILENE®

PROPERTIES	STANDARDS	UNITS	HOMOPOLYMER POLYPROPYLENE							SPECIAL PP	COPO PP
			MINERAL FILLED				GLASS FIBERS			X-RAY DETECTABLE	MINERAL FILLED
			H462 M20	H552 Y7	MJE 53087	H220 M40	H211 V20	H111 V30	H411 V30	MRL 53003	J120 M20
PHYSICO-CHEMICAL											
MVI (230°C, 2.16kg)	ISO 1133	cm^3/ 10min	15	22	4	3	3	2	8	60	2
Density	ISO 1183-1 Method A	g/cm^3	1,04	1,15	1,21	1,19	1,03	1,1	1,11	1,2	1,04
MECHANICAL											
Tensile test											
Stress at yield point	ISO 527-2/1A	MPa	34	28	25	30	_	_	_	25	25
Stress at break	ISO 527-2/1A	MPa	30	22	20	27	70	85	84	15	20
Elongation at break	ISO 527-2/1A	%	30	>100	>300	30	3	5	5	>50	45
Flexural test											
Flexural modulus	ISO 178	MPa	2500	2100	1770	4000	4000	6500	6700	1400	2200
Impact strength											
Charpy unnotched impact strength	ISO 179-1/1eU	kJ/m^2	35	NB	NB	30	35	50	45	NB	NB
Charpy notched impact strength	ISO 179-1/1eA	kJ/m^2	4	5	9	3,5	7	11	10	2,5	14
Hardness											
Shore D	ISO 868	_	76	75	69	76	79	80	82	72	68

ADDILENE®

PROPERTIES	STANDARDS	UNITS	HOMOPOLYMER POLYPROPYLENE							SPECIAL PP	COPO PP
			MINERAL FILLED				GLASS FIBERS			X-RAY DETECTABLE	MINERAL FILLED
			H462 M20	H552 Y7	MJE 53087	H220 M40	H211 V20	H111 V30	H411 V30	MRL 53003	J120 M20
THERMAL											
Melting point	ISO 11357-3	°C	165/168	165/168	165/168	165/168	165/168	165/168	165/168	155	165/168
Heat deflection temperature	ISO 75-2/Af	°C	74	65	65	82	130	145	140	55	60
Vicat softening temperature	ISO 306/A50	°C	153	153	150	155	160	163	158	130	150
FIRE											
Falling ball test	ISO 60695-10-2	°C	>125	>125	>125	>125	>125	>125	>125	_	_

- The values indicated above have been realised with standard specimens which are conditioned according to ISO 291.
- These data must be considered as indicative values, but in no case as minimum values. Moreover, the design of the mould/die, the processing conditions and the colour may have an impact on the properties.
- The information given herein is the outcome of our research and experience. It is given in all good faith but can neither be interpreted as a warranty given by us nor incur our liability especially in the event of infringement of third party rights.

ADDINYL®

PROPERTIES	STANDARDS	UNITS	*	PA66 UNFILLED A2	PA66 GLASS FIBERS A2 V30	PA66 GLASS BEADS A2 G30	PA66 DETECTABLE PMD 20272	PA6 GLASS FIBERS B2 V30	PA6 GLASS FIBERS B2 V50	PA6 GLASS BEADS B2 G30	PA6 IMPACT MODIFIED SBI 20008	PA6 IMPACT MODIFIED VBI 23009
PHYSICO-CHEMICAL												
Density	ISO 1183-1 Method A	g/cm³		1,14	1,37	1,36	1,24	1,37	1,55	1,35	1,11	1,32
MECHANICAL												
Tensile test												
Stress at yield point	ISO 527-2/1A	MPa	dam	85	–	–	85	–	–	–	60	–
			cond,	50	–	–	–	–	–	–	35	–
Stress at break	ISO 527-2/1A	MPa	dam	–	190	80	85	180	220	70	–	130
			cond,	–	130	60	35	100	140	40	–	90
Elongation at break	ISO 527-2/1A	%	dam	35	5	7	10	4	2	6	>50	4
			cond,	>50	10	11	6	7	3	11	>50	6
Flexural test												
Flexural modulus	ISO 178	MPa	dam	2800	9000	3800	3300	9000	14000	3800	2100	8000
			cond,	1200	6000	1800	1300	5000	7500	1500	700	5000
Impact strength												
Charpy unnotched impact strength	ISO 179-1/1eU	kJ/m²	dam	NB	80	40	NB	80	90	45	NB	80
			cond,	NB	90	60	_	85	95	NB	NB	90
Charpy notched impact strength	ISO 179-1/1eA	kJ/m²	dam	4	10	3	3	11	13	3	15	20
			cond,	8	15	5	2	19	20	5	40	25

ADDINYL®				PA66				PA6				
				UNFILLED	GLASS FIBERS	GLASS BEADS	DETECTABLE	GLASS FIBERS		GLASS BEADS	IMPACT MODIFIED	
PROPERTIES	STANDARDS	UNITS	*	A2	A2 V30	A2 G30	PMD 20272	B2 V30	B2 V50	B2 G30	SBI 20008	VBI 23009
Hardness												
Shore D	ISO 868	–	dam	84	88	87	87	88	89	85	79	82
			cond,	78	83	82	81	83	85	80	71	80
THERMAL												
Melting point	ISO 11357-3	°C	_	260	260	260	260	220	220	220	220	220
Heat deflection temperature	ISO 75-2/Af	°C	_	85	250	95	83	210	215	98	70	200

** The values indicated above have been realised with standard specimens in room temperature, except if particular conditions:*

- *dam: dry as moulded.*
- *cond: specimens conditioned according to ISO 291 and ISO 1110.*

☐ These data must be considered as indicative values, but in no case as minimum values. Moreover, the design of the mould/die, the processing conditions and the colour may have an impact on the properties.

☐ The information given herein is the outcome of our research and experience. It is given in all good faith but can neither be interpreted as a warranty given by us nor incur our liability especially in the event of infringement of third party rights.

ADDITER®

PROPERTIES	STANDARDS	UNITS	PC UNFILLED PMD 70057	PBT/ASA GLASS FIBERS VTI 13016	ABS UNFILLED PMD 70065	ABS GLASS FIBERS PMD 70115
PHYSICO-CHEMICAL						
MFI (200°C, 5kg)	ISO 1133	g/10min	_	_	_	1
MFI (220°C, 10kg)	ISO 1133	g/10min	_	_	28	_
MVI (275°C, 2.16kg)	ISO 1133	cm^3/10 min	_	20	_	_
MVI (300°C, 1.2kg)	ISO 1133	cm^3/10 min	20	_	_	_
Density	ISO 1183-1 Method A	g/cm^3	1,2	1,44	1,03	1,17
MECHANICAL						
Tensile test						
Stress at yield point	ISO 527-2/1A	MPa	66	_	50	_
Stress at break	ISO 527-2/1A	MPa	60	105	35	75
Elongation at break	ISO 527-2/1A	%	100	4	30	4
Flexural test						
Flexural modulus	ISO 178	MPa	2500	7600	2400	5500

ADDITER®

PROPERTIES	STANDARDS	UNITS	PC	PBT/ASA	ABS	
			UNFILLED	GLASS FIBERS	UNFILLED	GLASS FIBERS
			PMD 70057	VTI 13016	PMD 70065	PMD 70115
Impact strength						
Charpy unnotched impact strength	ISO 179-1/1eU	kJ/m²	NB	40	85	20
Charpy notched impact strength	ISO 179-1/1eA	kJ/m²	9	5,5	14	6,5
Hardness						
Shore D	ISO 868	_	82	82	81	81
THERMAL						
Melting point	ISO 11357-3	°C	_	220-230	_	_
Heat deflection temperature	ISO 75-2/Af	°C	122	190	75	95
Vicat softening temperature	ISO 306/A50	°C	145	215	100	105
FIRE						
Falling ball test	CEI 60695-10-2	°C	>125	>190	_	_

- The values indicated above have been realised with standard specimens which are conditioned according to ISO 291.
- These data must be considered as indicative values, but in no case as minimum values. Moreover, the design of the mould/die, the processing conditions and the colour may have an impact on the properties.
- The information given herein is the outcome of our research and experience. It is given in all good faith but can neither be interpreted as a warranty given by us nor incur our liability especially in the event of infringement of third party rights.


TECHNOLOGY SURVEY
& INNOVATION
T
I
FORMULATION
& PERFORMANCE
F
P
PRODUCTION & EXPERTISE
P
E
ECO-CONCEPTION
& SUSTAINABLE DEVELOPMENT
D
E
DESIGN & PERCEIVED
QUALITY
D
Q

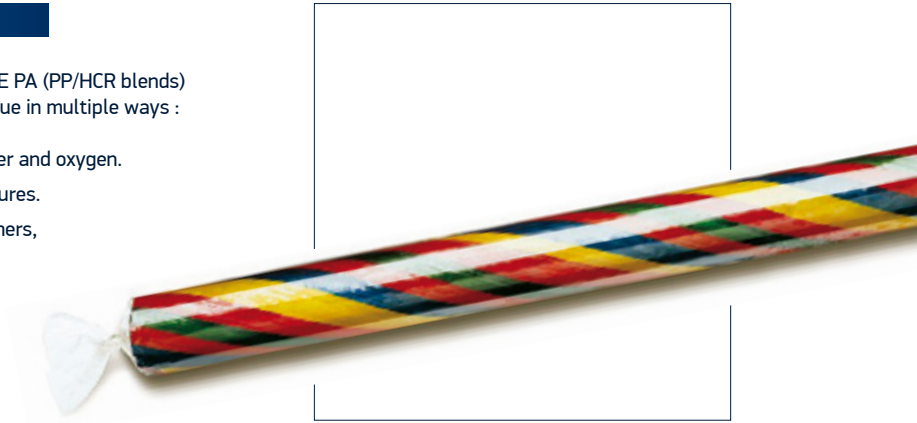
PACKAGING

ADDILENE®

BI-ORIENTED POLYPROPYLENE (BOPP)

By building on your technical expertise, adding ADDILENE PA (PP/HCR blends) to your existing masterbatch formulations can create value in multiple ways :

- **Extended shelf-life** thanks to improved barrier to water and oxygen.
- **Chlorine-free alternative** to more complex film structures.
- **"Trouble-free" continuous operations** for your customers, due to ultra-low volatile levels.
- **Faster machinability of the stiffer films.**
- **Better twist retention properties.**
- **Opportunity to produce twistable BOPP films.**



ADDILENE®		BI-ORIENTED POLYPROPYLENE (BOPP)				
PROPERTIES	UNITS	PA 619	PA 635	PA 639	PA 609	PA 735
Resin		C5	C9	C5	C5	C9
Softening point range	°C	125	125	140	140	125
Resin content	%	60	60	60	50	70

☐ These data must be considered as indicative values, but in no case as minimum values. Moreover, the design of the mould/die, the processing conditions and the colour may have an impact on the properties.

☐ The information given herein is the outcome of our research and experience. It is given in all good faith but can neither be interpreted as a warranty given by us nor incur our liability especially in the event of infringement of third party rights.

ADDIBATCH®

PROPERTIES	STANDARDS	UNITS	FLAME RETARDANT MASTERBATCH					
			PP BASE			LLDPE BASE	LDPE BASE	
			HALOGEN FREE		HALOGENATED (RoHS)	HALOGENATED (RoHS)	HALOGEN FREE	
			MBD 50620	MBD 50619	MBD 50612	MBD 40193	MBD 40210	MBD 40220
PHYSICO-CHEMICAL								
Bulk Density	ISO 60	g/cm³	0,62	0,57	1,1	1,18	0,61	0,63
Volatiles	Internal	%	<0,15	<0,15	<0,15	<0,15	<0,10	<0,10
Melting point	ISO 11357-3	°C	165/168	165/168	165/168	115/135	105/120	105/120
MFI (190°C, 2.16kg)	ISO 1133	g/10mn	_	_	_	10	_	_
MFI (190°C, 5kg)	ISO 1133	g/10mn	_	_	_	_	1,2	2
MVI (230°C, 2.16kg)	ISO 1133	cm³/10 min	_	9	_	_	_	_
MVI (230°C, 5kg)	ISO 1133	cm³/10 min	_	_	10	_	_	_
Content		%	40	35	80	74	45	45
Usage			For textile Industry: From 3 to 5% to achieve FMVSS302 (<80mm/mn). For extrusion application: From 4 to 6% to achieve M1 or M2 classification.	From 5 to 10% to achieve UL94 V2/1,6mm. From 5 to 10% to achieve GWFI 960°C or 850°C. Halogenated up to 10%	From 30 to 40% into PP 20% Talcum to achieve UL94 V0/1,6mm and GWFI 960°C.	From 10 to 20% for films 100 to 200µ, to achieve B1 classification (DIN 4102). From 5 to 8% for B2 classification. From 35 to 40% to achieve UL94 V0/1,6mm.	From 15 to 20% for films 80 to 250µ, to achieve M1 or M2 classification. T° process >220°C.	From 15 to 20% for films 80 to 250µ, to achieve M1 or M2 classification.

- These data must be considered as indicative values, but in no case as minimum values. Moreover, the design of the mould/die, the processing conditions and the colour may have an impact on the properties.
- The information given herein is the outcome of our research and experience. It is given in all good faith but can neither be interpreted as a warranty given by us nor incur our liability especially in the event of infringement of third party rights.

ADDIBATCH®

PROPERTIES	STANDARDS	UNITS	ANTI UV MASTERBATCH			ANTI-BACTERIAL MASTER-BATCH	ODOR ABSORBER MASTER-BATCH	HUMIDITY ABSORBER MASTERBATCH		PROCESSING AID MASTERBATCH		
			LDPE BASE			LDPE BASE	LDPE BASE			LDPE BASE		LLDPE BASE
							FOOD APPROVED			FOOD APPROVED		
			MBD 40168	MBD 40175	MBD 40214	MBD 40178	MBD 40209	MBD 40241	MBD 40242	MBD 40161	MBD 40162	MBD 40227
PHYSICO-CHEMICAL PROPERTIES												
Bulk Density	ISO 60	g/cm3	0,52	0,52	0,52	0,67	0,45	0,98	1,12	0,53	0,54	0,50
Volatiles	Internal	%	<0,15	<0,15	<0,15	<0,15	<0,15	<0,15	<0,15	<0,15	<0,15	<0,15
Melting point	ISO 11357-3	°C	105/120	105/120	105/120	105/120	105/120	105/120	105/120	105/120	105/120	115/135
MFI (190°C, 1,2kg)	ISO 1133	g/10mn	_	_	_	_	20/30	_	_	_	_	_
MFI (190°C, 5kg)	ISO 1133	g/10mn	_	_	_	_	_	3	6	_	_	_
Content		%	20	20	10	40	10	70	75	5% fluor agent	2,5% fluor agent	2,5% fluor agent
Usage			From 2 to 4% Combinated HALS HMW & LMW	From 2 to 4% HALS HMW	From 4 to 5% HALS HMW	From 3 to 10%	From 5 to 10%	From 1 to 2%	From 1 to 2%	From 1 to 2%	From 1 to 2%	2% HALS HMW T° until 280°C PS compatible

☐ These data must be considered as indicative values, but in no case as minimum values. Moreover, the design of the mould/die, the processing conditions and the colour may have an impact on the properties.

☐ The information given herein is the outcome of our research and experience. It is given in all good faith but can neither be interpreted as a warranty given by us nor incur our liability especially in the event of infringement of third party rights.

ADDIBATCH®

PROPERTIES	STANDARDS	UNITS	NUCLEATING AND CLARIFYING MASTERBATCH	ANTI FOGGING MASTERBATCH	ANTI-OXYDANT MASTERBATCH	ANTIBLOCKING MASTERBATCH		
			PP BASE	LDPE BASE	LDPE BASE	LDPE BASE		LLDPE BASE
			FOOD APPROVED	FOOD APPROVED	FOOD APPROVED	FOOD APPROVED		
			MBD 50622	MBD 40194	MBD 40166	MBD 40243	MBD 40172	MBD 40218
PHYSICO-CHEMICAL								
Bulk Density	ISO 60	g/cm³	0,55	0,54	0,52	0,55	0,56	0,65
Volatiles	internal	%	<0,15	<0,15	<0,15	<0,15	<0,15	<0,15
Melting point	ISO 11357-3	°C	165/168	105/120	105/120	105/120	105/120	105/120
Content		%	8	10	20	10% synth silica	15% nat silica	30% talc
Usage		%	From 1 to 3%	From 4 to 7%	From 1 to 2%	From 1 to 5%	From 1,5 to 7%	From 0,5 to 2%

- These data must be considered as indicative values, but in no case as minimum values. Moreover, the design of the mould/die, the processing conditions and the colour may have an impact on the properties.
- The information given herein is the outcome of our research and experience. It is given in all good faith but can neither be interpreted as a warranty given by us nor incur our liability especially in the event of infringement of third party rights.

ADDIBATCH®

PROPERTIES	STANDARDS	UNITS	SLIPPING AGENT				COMBINATED MASTERBATCH			
			LDPE BASE			EVA BASE	LDPE BASE			
			FOOD APPROVED				FOOD APPROVED			
			MBD 40164	MBD 40165	MBD 40245	MBD 40232	MBD 40170	MBD 40215	MBD 40171	MBD 40240
PHYSICO-CHEMICAL PROPERTIES										
Bulk Density	ISO 60	g/cm³	0,56	0,56	0,59	0,55	0,58	0,5	0,54	0,64
Volatiles	internal	%	<0,15	<0,15	<0,15	<0,15	<0,15	<0,15	<0,15	<0,15
Melting point	ISO 11357-3	°C	105/120	105/120	105/120	70/100	105/120	105/120	105/120	105/120
Content		%	7,5% oleamide	7,5% erucamide	5% erucamide	20% EBO	15%	60%	15%	31,25%
Usage		%	From 1 to 2%	From 1 to 2%	From 1 to 3%	From 1 to 2%	From 2 to 10% Antistatic and antiblocking	From 2 to 5% Antistatic and antiblocking	From 1 to 3% Slipping and antiblocking	3% Processing aid and antiblocking

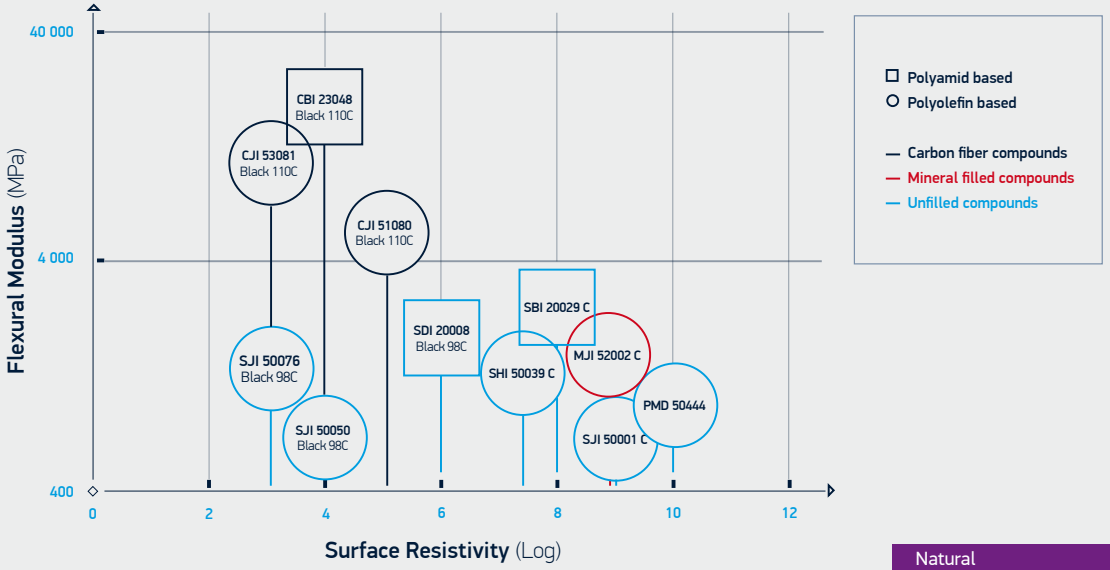
- These data must be considered as indicative values, but in no case as minimum values. Moreover, the design of the mould/die, the processing conditions and the colour may have an impact on the properties.
- The information given herein is the outcome of our research and experience. It is given in all good faith but can neither be interpreted as a warranty given by us nor incur our liability especially in the event of infringement of third party rights.

ADDIPLAST GROUP

Quality performance, a state of mind

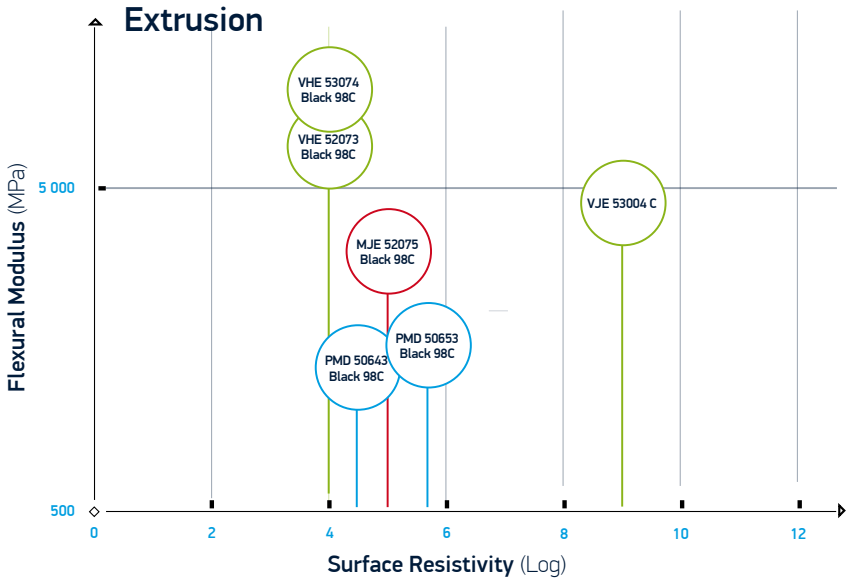
ESD & SEMI-CONDUCTIVE COMPOUNDS

Injection



Natural compounds can be coloured on request

— Glass fiber compounds
— Mineral filled compounds
— Unfilled compounds



SPECIFIC DEVELOPMENT
ON REQUEST

ADDITEC ®

PROPERTIES	STANDARDS	UNITS	EXTRUSION POLYOLEFIN								
			VJE 53004 C NATURAL	PMD 50643 BLACK 98C	PMD 50653 BLACK 98C	MJE 52075 BLACK 98C	VJE 53004 C NATURAL	VHE 53001 C NATURAL	VHE 52073 BLACK 98C	VHE 53074 BLACK 98C	SHE 50003 F BLACK 75C
PHYSICO-CHEMICAL											
MVI (230°C, 2.16kg)	ISO 1133	cm^3/10 min	4	1,5	_	2,5	4	4	_	_	_
MVI (230°C, 5kg)	ISO 1133	cm^3/10 min	_	_	1	_	_	_	2	3	1
Density	ISO 1183-1 Method A	g/cm^3	1,16	0,99	1	1,12	1,16	1,12	1,07	1,2	1,09
ELECTRICAL											
Impact strength	ASTM D 257	Ohm/Sq	10^7-10^9	10^4-10^6	10^3-10^5	10^4-10^6	10^7-10^9	10^7-10^9	10^3-10^5	10^3-10^5	10^6-10^8
IRC	CEI 60112	V	>600	100	50	150	>600	>600	<50	<50	150
MECHANICAL											
Tensile test											
Stress at yield point	ISO 527-2/1A	MPa	_	30	30	30	_	_	_	_	23
Stress at break	ISO 527-2/1A	MPa	46	17	20	20	46	50	70	70	22
Elongation at break	ISO 527-2/1A	%	4	30	>30	10	4	5	5	5	4
Flexural test											
Flexural modulus	ISO 178	MPa	3500	1500	1600	2800	3500	5000	5700	7700	3000
Impact strength											
Charpy unnotched impact strength	ISO 179-1/1eU	kJ/m^2	32	NB	NB	55	32	30	30	20	10
Charpy notched impact strength	ISO 179-1/1eA	kJ/m^2	9	60	55	4,5	9	7	5,5	5,5	1,5
Hardness											
Shore D	ISO 868	_	71	71	75	76	71	80	84	85	80

ADDITEC ®

PROPERTIES	STANDARDS	UNITS	EXTRUSION POLYOLEFIN								
			VJE 53004 C NATURAL	PMD 50643 BLACK 98C	PMD 50653 BLACK 98C	MJE 52075 BLACK 98C	VJE 53004 C NATURAL	VHE 53001 C NATURAL	VHE 52073 BLACK 98C	VHE 53074 BLACK 98C	SHE 50003 F BLACK 75C
THERMAL											
Melting point	ISO 11357-3	°C	165/168	165/168	165/168	165/168	165/168	165/168	165/168	165/168	165/168
Heat deflection temperature	ISO 75-2/Af	°C	125	60	60	70	125	130	145	150	81
Vicat softening temperature	ISO 306/A50	°C	150	155	157	155	150	155	162	164	158
FIRE											
UL 94 (1,6mm)	UL 94	_	_	_	_	_	_	_	_	_	V0
Glow wire GWFI (2mm)	CEI 60695-2-12	°C	_	_	_	_	_	_	_	_	960
Limiting Oxygen Index***	ISO 4589-2	%	_	_	_	_	_	_	_	_	30

*** The LOI measures are obtained from standard specimens of type I with an ignition type A.

- The values indicated above have been realised with standard specimens which are conditioned according to ISO 291.
- These data must be considered as indicative values, but in no case as minimum values. Moreover, the design of the mould/die, the processing conditions and the colour may have an impact on the properties.
- The information given herein is the outcome of our research and experience. It is given in all good faith but can neither be interpreted as a warranty given by us nor incur our liability especially in the event of infringement of third party rights.

ADDITEC®

PROPERTIES	STANDARDS	UNITS	INJECTION POLYOLEFIN							CARBON FIBERS	
			SJI 50001 C NATURAL	SJI 50050 BLACK 98C	SJI 50076 BLACK 98C	SHI 50039 C NATURAL	MJI 52002 C NATURAL	MJI 54003 C NATURAL	PMD 50576 BLACK 75C	CJI 51080 BLACK 110C	CJI 53081 BLACK 110C
PHYSICO-CHEMICAL											
MVI (230°C, 2.16kg)	ISO 1133	cm^3/10 min	5	6	30	18	15	6	2	6	4
Density	ISO 1183-1 Method A	g/cm^3	0,9	0,98	0,99	0,9	1,1	1,33	1,01	0,96	1,04
ELECTRICAL											
Impact strength	ASTM D 257	Ohm/Sq	10^7-10^9	10^3-10^5	10^2-10^4	10^7-10^9	10^7-10^9	10^7-10^9	10^6-10^8	10^3-10^5 *	10^2-10^4 *
IRC	CEI 60112	V	>600	150	50	550	>600	>600	150	_	_
MECHANICAL											
Tensile test											
Stress at yield point	ISO 527-2/1A	MPa	_	20	_	35	_	_	30	_	_
Stress at break	ISO 527-2/1A	MPa	20	12	20	10	13	17	25	38	51
Elongation at break	ISO 527-2/1A	%	100	30	4	>150	100	10	10	3	2
Flexural test											
Flexural modulus	ISO 178	MPa	850	800	1200	1300	1300	1600	2700	6000	11500
Impact strength											
Charpy unnotched impact strength	ISO 179-1/1eU	kJ/m^2	NB	NB	NB	NB	95	40	17	10	9
Charpy notched impact strength	ISO 179-1/1eA	kJ/m^2	70	70	7	3	4,5	5	1	5,5	5
Hardness											
Shore D	ISO 868	_	67	69	73	72	66	72	79	70	72

**on injected specimens*

ADDITEC®

PROPERTIES	STANDARDS	UNITS	INJECTION POLYOLEFIN								
										CARBON FIBERS	
			SJI 50001 C NATURAL	SJI 50050 BLACK 98C	SJI 50076 BLACK 98C	SHI 50039 C NATURAL	MJI 52002 C NATURAL	MJI 54003 C NATURAL	PMD 50576 BLACK 75C	CJI 51080 BLACK 110C	CJI 53081 BLACK 110C
THERMAL											
Melting point	ISO 11357-3	°C	165/168	165/168	165/168	165/168	165/168	165/168	165/168	165/168	165/168
Heat deflection temperature	ISO 75-2/Af	°C	50	50	55	60	55	62	75	125	135
Vicat softening temperature	ISO 306/A50	°C	140	140	150	150	130	127	155	_	_
FIRE											
UL 94 (1,6mm)	UL 94	_	_	_	_	_	_	_	V1	_	_
Glow wire GWFI (2mm)	CEI 60695-2-12	°C	_	_	_	_	_	_	750	_	_
Limiting Oxygen Index***	ISO 4589-2	%	_	_	_	_	_	_	25	_	_

*** *The LOI measures are obtained from standard specimens of type I with an ignition type A.*

- The values indicated above have been realised with standard specimens which are conditioned according to ISO 291.
- These data must be considered as indicative values, but in no case as minimum values. Moreover, the design of the mould/die, the processing conditions and the colour may have an impact on the properties.
- The information given herein is the outcome of our research and experience. It is given in all good faith but can neither be interpreted as a warranty given by us nor incur our liability especially in the event of infringement of third party rights.

ADDITEC ®

PROPERTIES	STANDARDS	UNITS	PA 6	PA 12	PA6 CARBON FIBERS	PA6 CARBON FIBERS
			SBI 20029 C NATURAL	SDI 20008 BLACK 98C	CBI 22049 BLACK 110C	CBI 23048 BLACK 110C
PHYSICO-CHEMICAL						
Density	ISO 1183-1 Method A	g/cm³	1,12	1,08	1,21	1,25
ELECTRICAL						
Superficial resistivity	ASTM D 257	Ohm/Sq	10^7-10^9	10^6-10^8	10^6-10^{10} *	10^3-10^6 *
Comparative Tracking Index	CEI 60112	V	>600	150	_	_
MECHANICAL						
Tensile test						
Stress at yield point	ISO 527-2/1A	MPa	55	50	_	_
Stress at break	ISO 527-2/1A	MPa	40	30	140	170
Elongation at break	ISO 527-2/1A	%	20	>30	4	5
Flexural test						
Flexural modulus	ISO 178	MPa	2100	1600	11500	18000
Impact strength						
Charpy unnotched impact strength	ISO 179-1/1eU	kJ/m²	NB	NB	48	45
Charpy notched impact strength	ISO 179-1/1eA	kJ/m²	7,5	2,5	6	8
Hardness						
Shore D	ISO 868	_	79	79	85	86

*on injected specimens

ADDITEC ®			PA 6	PA 12	PA6 CARBON FIBERS	PA6 CARBON FIBERS
PROPERTIES	STANDARDS	UNITS	SBI 20029 C NATURAL	SDI 20008 BLACK 98C	CBI 22049 BLACK 110C	CBI 23048 BLACK 110C
THERMAL						
Melting point	ISO 11357-3	°C	220	180	220	220
Heat deflection temperature	ISO 75-2/Af	°C	60	60	200	205

☐ The values indicated above have been realised with standard specimens which are conditioned according to ISO 291.

☐ These data must be considered as indicative values, but in no case as minimum values. Moreover, the design of the mould/die, the processing conditions and the colour may have an impact on the properties.

☐ The information given herein is the outcome of our research and experience. It is given in all good faith but can neither be interpreted as a warranty given by us nor incur our liability especially in the event of infringement of third party rights.

Environmental protection for future generations

Our global presence is growing, it is our responsibility to protect the environment.

The management is committed to various programmes :

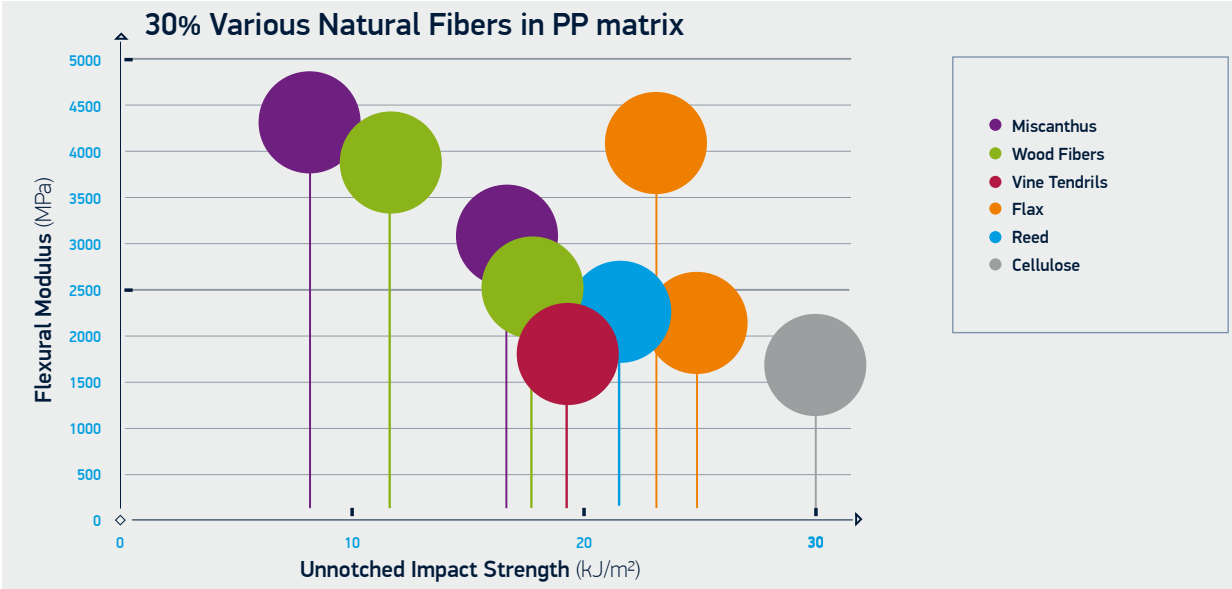
- ☐ Compliance with the current regulations
- ☐ Prediction of occupational hazards and prevention of pollution and noise
- ☐ Protection against fire and explosion
- ☐ Recycling and reduction of all industrial waste through authorized processing companies
- ☐ Consideration of significant environmental aspects
- ☐ Policy of rational use of energies consumed

For many years now, ADDIPLAST GROUP has worked towards an environmental management approach.

BIOBASED COMPOUNDS

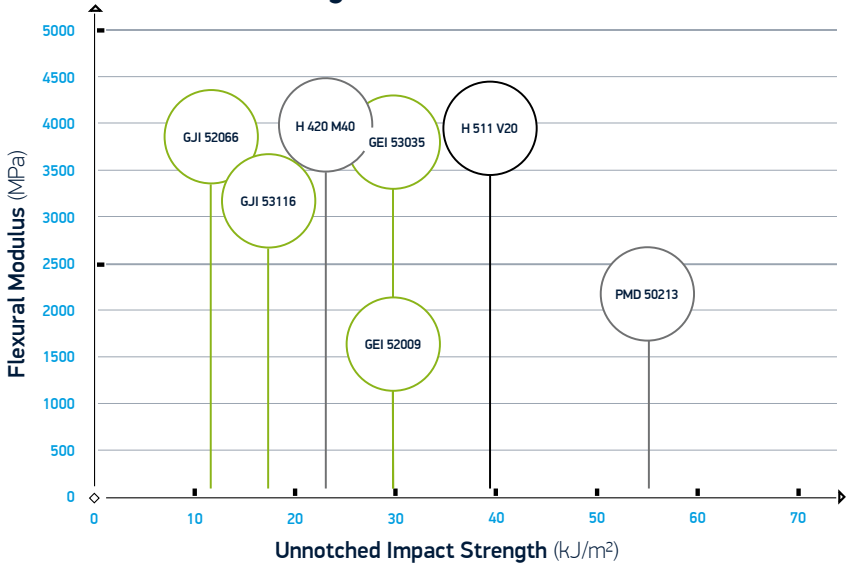
ADDIBIO RENEW®

OUR EQUIPMENT ALLOWS US TO TEST AND DEVELOP FORMULATIONS BASED ON A WIDE VARIETY OF NATURAL FIBERS



Commercial Range of Products

- Natural Fibers
- Mineral Fillers
- Glass Fibers



BASED ON OUR **R&D EXPERTISE**, WE DEVELOPED A RANGE OF COMMERCIAL PRODUCTS, **MATCHING GLASS AND MINERAL COMPOUNDS PERFORMANCES**

ADDIBIO RENIEW®

PROPERTIES	STANDARDS	UNITS	BLACK PCR UNFILLED	BLACK PCR HIGH DENSITY	NATURAL FIBERS FILLED POLYOLEFINS						
			COSMETIC PARTS				AUTOMOTIVE AESTHETIC PARTS		AUTOMOTIVE STRUCTURAL PARTS		
			SJI 50130	MJI 57117	GJI 52103	GHI 52028 FOOD APPROVED	GEI 52009	GEI 52021	GJI 52066	GEI 53035	GJI 53116
PHYSICO-CHEMICAL											
% Natural fibers	_	%	0	0	25	20	20	20	30	20	30
Density	ISO 1183-1 Method A	g/cm³	0,9	2	0,99	0,97	0,97	0,97	0,99	1,03	1
MECHANICAL											
Tensile test											
Stress at yield point	ISO 527-2/1A	MPa	25	10	_	20	20	20	_	_	35
Stress at break	ISO 527-2/1A	MPa	15	10	40	16	18	18	30	50	33
Elongation at break	ISO 527-2/1A	%	60	40	5	10	15	15	3	5	5
Flexural test											
Flexural modulus	ISO 178	MPa	1200	3000	2900	1900	1650	1650	3900	3800	3150
Impact strength											
Charpy unnotched impact strength	ISO 179-1/1eU	kJ/m²	NB	30	9	25	30	30	12	30	17
Charpy notched impact strength	ISO 179-1/1eA	kJ/m²	10	5	4	3	6	6	3,5	7	6

ADDIBIO RENIEW®

PROPERTIES	STANDARDS	UNITS	BLACK PCR UNFILLED	BLACK PCR HIGH DENSITY	NATURAL FIBERS FILLED POLYOLEFINS						
			COSMETIC PARTS				AUTOMOTIVE AESTHETIC PARTS		AUTOMOTIVE STRUCTURAL PARTS		
			SJI 50130	MJI 57117	GJI 52103	GHI 52028 FOOD APPROVED	GEI 52009	GEI 52021	GJI 52066	GEI 53035	GJI 53116
Hardness											
Shore D	ISO 868	_	66	69	75	69	70	70	76	76	72
THERMAL PROPERTIES											
Heat deflection temperature	ISO 75-2/Af	°C	60	70	95	75	65	65	110	140	115
Vicat softening temperature	ISO 306/A50	°C	145	145	140	150	130	130	155	160	155
Processing temperature	_	°C	≤200	≤200	≤200	≤200	≤200	≤200	≤200	≤200	≤200

- The values indicated above have been realised with standard specimens which are conditioned according to ISO 291.
- These data must be considered as indicative values, but in no case as minimum values. Moreover, the design of the mould/die, the processing conditions and the colour may have an impact on the properties.
- The information given herein is the outcome of our research and experience. It is given in all good faith but can neither be interpreted as a warranty given by us nor incur our liability especially in the event of infringement of third party rights.

ADDIBIO RENIEW®

PROPERTIES	STANDARDS	UNITS	POLYAMIDE 6/10					POLYAMIDE 10/10					
			UNFILLED			GLASS FIBERS		UNFILLED				GLASS FIBERS	
			SVI 20012	SVI 20026	SVP 20027	VVI 21018	VVI 23017	SVI 20028	SVI 20032	SVP 20033	SVP 20034	VVI 23029	VVI 25030
PHYSICO-CHEMICAL													
% Biobased	_	%	62	50	48	52	43	99	80	84	78	70	50
Density	ISO 1183-1 Method A	g/cm³	1,05	1,02	1,06	1,13	1,25	1,02	1	1,02	1,03	1,3	1,44
MECHANICAL													
Tensile test													
Stress at yield point	ISO 527-2/1A	MPa	_	40	36	_	_	56	40	40	31	_	_
Stress at break	ISO 527-2/1A	MPa	70	35	44	95	145	40	35	35	28	145	170
Elongation at break	ISO 527-2/1A	%	6	>50	>200	5	5	>50	>50	>50	>75	5	5
Flexural test													
Flexural modulus	ISO 178	MPa	2100	1300	650	4300	7700	1700	1400	900	550	8000	13000
Impact strength													
Charpy unnotched impact strength	ISO 179-1/1eU	kJ/m²	NB	NB	NB	30	60	NB	NB	NB	NB	60	65
Charpy notched impact strength	ISO 179-1/1eA	kJ/m²	3	19	12	5	9	_	13	6	8	10	10

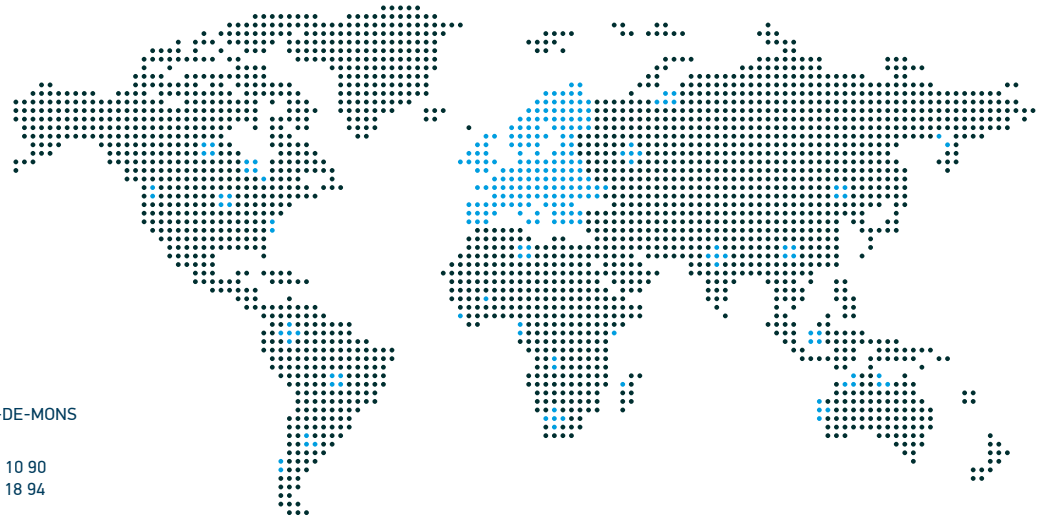
ADDIBIO RENIEW®

PROPERTIES	STANDARDS	UNITS	POLYAMIDE 6/10					POLYAMIDE 10/10					
			UNFILLED			GLASS FIBERS		UNFILLED				GLASS FIBERS	
			SVI 20012	SVI 20026	SVP 20027	VVI 21018	VVI 23017	SVI 20028	SVI 20032	SVP 20033	SVP 20034	VVI 23029	VVI 25030
Hardness													
Shore D	ISO 868	_	80	75	75	83	85	78	74	74	70	85	87
THERMAL													
Heat deflection temperature	ISO 75-2/Af	°C	75	45	50	199	206	56	51	52	52	185	190
Vicat softening temperature	ISO 306/A50	°C	-	-	-	-	-	-	-	-	-	-	-
Processing temperature	_	°C	230	230	230	230	230	210	210	210	210	210	210

- The values indicated above have been realised with standard specimens which are conditioned according to ISO 291.
- These data must be considered as indicative values, but in no case as minimum values. Moreover, the design of the mould/die, the processing conditions and the colour may have an impact on the properties.
- The information given herein is the outcome of our research and experience. It is given in all good faith but can neither be interpreted as a warranty given by us nor incur our liability especially in the event of infringement of third party rights.

ADDIPLAST GROUP

EN MATIÈRE D'INNOVATION



ZI de Campine
43620 SAINT-PAL-DE-MONS
FRANCE

Tel. +33 (0)4 71 75 10 90
Fax +33 (0)4 71 66 18 94

contact@addiplast-group.com

ADDIPLAST GROUP
EN MATIÈRE D'INNOVATION

www.addiplast-group.com