

PRODUCTS PIPELINE

GRAFTABOND™

GRAFTAPOR™

GRAFTALEN™

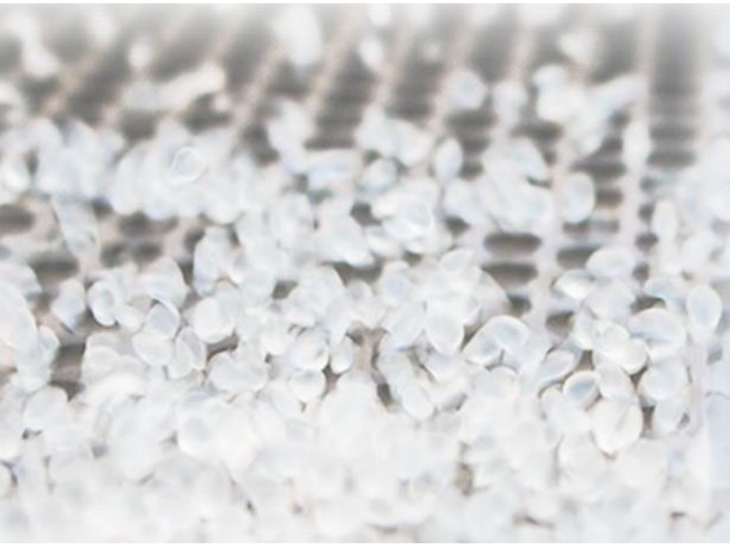
GRAFTAKIT™

GRAFTALLOY™

GRAFTAMID™

GRAFTASYNT™

GRAFTAMER™



GRAFT POLYMER
COMBINE INCOMPATIBLE

	Grades	Base	Monomer	Melt Flow (g/10 min)	Grafting [%]
For PP compounds	GRAFTABOND PP-MAH 02425 CA	PP	MAH	900-1000	2-2,5
	GRAFTABOND PP-MAH 02425 CAT			900-1000	2-2,5
	GRAFTABOND PP-MAH 02425 CAM			900-1000	2-2,5
	GRAFTABOND PP-MAH 50015 CA			500-700	1,5
	GRAFTABOND PP-MAH TL	PP	MAH	1-20	1-3
	GRAFTABOND PP-GMA C	PP	GMA	1-20	2-5
	GRAFTABOND PP-NCO C	PP	NCO	1-20	2-5
For PA	GRAFTABOND EP-MAH 00110 IM	EPDM	MAH	~1	~1
	GRAFTABOND PO-MAH 00110 IM	POE	MAH	~1	~1
For PE compounds	GRAFTABOND HD-MAH 02030 C	HDPE	MAH	20	3
	GRAFTABOND HD-GMA 02530 C	HDPE	GMA	25	3
	GRAFTABOND HD-NCO 02050 C	HDPE	NCO	20	5
	GRAFTABOND LD-MAH 02030 C	LDPE	MAH	20	3
	GRAFTABOND LL-MAH 00220 C	LLDPE	MAH	2	2
	GRAFTABOND LL-NCO 00350 C	LLDPE	NCO	3	5
	GRAFTABOND LD-MAH 00130 TL	LDPE	MAH	1	3
	GRAFTABOND LL-MAH 00130 TL	LLDPE	MAH	1	3
	GRAFTABOND SEBS-MAH 02520 C/IM	SEBS	MAH	25	2
	GRAFTABOND SEBS-MAH 02030 C/IM	SEBS	MAH	20	3
For PET, PBT compounds	GRAFTABOND PO-GMA 00130 IM	POE	GMA	~1	3
	GRAFTABOND EB-GMA 01030 IM/C	EBA	GMA	~10	3
	GRAFTABOND EB-GMA 01050 IM/C	EBA	GMA	~10	5
	GRAFTABOND EB-NCO 01030 IM/C	EBA	NCO	~10	3
	GRAFTABOND EB-NCO 01050 IM/C	EBA	NCO	~10	5
	GRAFTABOND PP-MAH 00330 IM	PP	MAH	~3	3
	GRAFTABOND EB-MAH 00330 C	PP	MAH	~3	3
For ABS compounds	GRAFTABOND SEBS-MAH 02520 C/IM	SEBS	MAH	25	2
	GRAFTABOND SEBS-MAH 02030 C/IM	SEBS	MAH	20	3
	GRAFTABOND ABS-MAH 01010 C	ABS	MAH	10	1
	GRAFTABOND SAN-MAH 01030 C	SAN	MAH	10	3
EVA-based modifiers	GRAFTABOND EV-MAH 00130 CA	EVA	MAH	1	3
	GRAFTABOND EV- APTMS 00330 A	EVA	APTMS	3	3
	GRAFTABOND EV- AAc 15025 IM	EVA	AAc	150	2,5
	GRAFTABOND EV- GMA 15025 IM	EVA	GMA	150	2,5
	GRAFTABOND EV-NCO 00130 CA	EVA	MAH	1	3
SBC-based	GRAFTABOND SB-MAH 00330 IM	SBC	MAH	3	3
	GRAFTABOND SB-MAH 03030 C/IM	SBC	MAH	30	3

CA=Coupling Agent; TL=Tie Layer; C=Compatibilizer; IM=Impact Modifier; A=Adhesive

GRAFTABOND™ - a line of graft / block copolymers (adhesion promoters) for combining various polymers (with fiberglass, carbon fiber, mineral and natural fillers, mixed polymer waste).

	Grades	Base	Monomer	Grafting Degree* %	UH=UHMWPE; C=Compatibilizer
UH modified powders	GRAFTABOND UHP-MAH 00030	UHP	MAH	3	
	GRAFTABOND UHP-GMA 00030	UHP	GMA	5	
	GRAFTABOND UHP-SAN 00050	UHP	SAN	5	
PVC-based modifiers	GRAFTABOND PVC-MAH 00025 C	PVC	MAH	2,5	
	GRAFTABOND PVC-VA 00010 C	PVC	VA	1	
	GRAFTABOND PVC-BA 00020 C	PVC	BA	2	
Modified Waxes	GRAFTABOND PEW-MAH	PE wax	MAH	1,5-3	
	GRAFTABOND PEW-GMA	PE wax	GMA	1-5	
	GRAFTABOND PPW-MAH	PP wax	MAH	1-5	

Standard grade Custom made grade

GRAFTALEN™ - a line of a reactive solid super-concentrates for polyolefin rheology modification, E-Modulus enhancer, PET/PBT chain extender, AOX masterbatch.

Grades	Base	Active component	Application
GRAFTALEN MB PP-EM 70090	PP	SAN/Fillers	E-Module Enhancer
GRAFTALEN HMSPP 01200 (for injection molding)	PP	Long chain branched (LCB) PP homopolymer	Increase melt strength
GRAFTALEN HMSPP 00100 (for extrusion)	PP	Long chain branched (LCB) PP homopolymer	Increase melt strength
GRAFTALEN 168E CE	-	Chemicals	Chain Extender
GRAFTALEN SA	SA	Chemicals	Lubricant
GRAFTALEN EB-AOX	EBA	Chemicals	AOX MB
GRAFTALEN MB PO-DCP	Universal grades for use in PE/PP	3,5,10,20 % of DCP peroxide	Rheology modifier
GRAFTALEN MB PO-BIB		5, 10% of BIB peroxide	Rheology modifier
GRAFTALEN MB PO-DTBP		5,10,15,20 % of DTBP (peroxide)	Rheology modifier

Standard grade Custom made grade



GRAFTAPOR™

GRAFTAPOR™ - a unique line of porous (80-120% porosity) polymer carriers for many liquid chemicals.

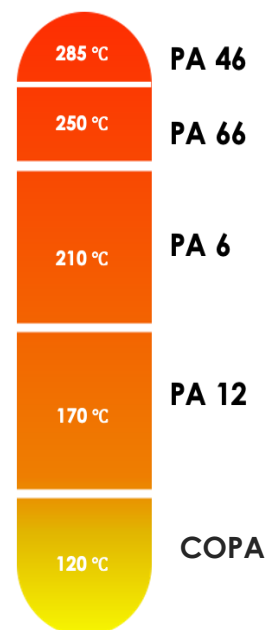
Grades	Base	Porosity %
GRAFTAPOR LD 00480	LDPE	80
GRAFTAPOR LL 02080	LLDPE	80
GRAFTAPOR HD 02080	HDPE	80
GRAFTAPOR EBA 15080	EBA	80
GRAFTAPOR EVA 15080	EVA	80
GRAFTAPOR PP 02080	PP	80
GRAFTAPOR SEBS 01080	SEBS	80
GRAFTAPOR POE 00880	POE	80

Standard grade

GRAFTAMID™

GRAFTAMID™ - a unique line of high-temperature elastomers based on nanostructured polyolefin-polyamide alloys for high-tech hardening modifiers in polyamide compounds, as well as an independent compound in the cable industry, in hot melt adhesives.

Grades	Base	Branch Polymer
GRAFTAMID EB-PA6	EBA	PA6
GRAFTAMID EB-PA66	EBA	PA66
GRAFTAMID PO-PA6	POE	PA6
GRAFTAMID EB-PA12	EBA	PA12
GRAFTAMID EB-PA46	EBA	PA46
GRAFTAMID EB-COPA	EBA	COPA
GRAFTAMID EV-COPA	EVA	COPA



Custom made grade



GRAFT POLYMER
COMBINE INCOMPATIBLE

GRAFTAKIT™ - a reactive liquid or solid super-concentrates on polymeric porous media for carrying out reaction extrusion and modification of compounds directly “at the customer's disposal”, which is especially in demand in the production of non-woven polymer products, blow molding, foaming, cable, pipe, packaging.

Grades	Application	Base	Active component	% of Active component
GRAFTAKIT PP\HD-A18750	A-187 SILANE MB	PP, HDPE	A-187	50
GRAFTAKIT EB-PDMS 15050	PDMS MB	EBA	PDMS	50
GRAFTAKIT EB-PIB 00750	PIB MB	EBA	PIB	50
GRAFTAKIT EB-PBD 00750	PBD MB	EBA	PBD	50
GRAFTAKIT PO-DS	“Dry Silane” MB for MONOSIL	LDPE, HDPE, EBA, EVA	Silane formulation	~50
GRAFTAKIT HMsPP	Melt Strength Enhancer	LDPE, EBA	PBD/TMPTA /TEMPO	50
GRAFTAKIT PEX-b	MB for “SIOPLAS”	PE	Silane/Per	50
GRAFTAKIT FS	MB for Fog supression	PP/EB	OSA	50
GRAFTAKIT PO-BIB	Peroxide MB	PO	BIB	20-50
GRAFTAKIT NW PO 50	“Peroxide-free” MB	PO	TEMPO	50
GRAFTAKIT E-MAH 00550	Copolymer for PA IM,CE	EBA	MAH	50
GRAFTAKIT EB-EMAH 15020	Copolymer for PA IM,CE	EBA	MAH	20

Standard grade Custom made grade



GRAFTALLOY™ - a line of "polymer-polymer" nano-alloys to increase abrasion resistance, temperature resistance, impact strength, reduce friction coefficient, etc.

Grades	Main Chain Polymer	Branch Polymer
GRAFTALLOY COPE-SB	COPE	SBM
GRAFTALLOY COPE-EB	COPE	EBA
GRAFTALLOY COPE-PO	COPE	PO
GRAFTALLOY COPE-EP	COPE	EP
GRAFTALLOY LD-PS	LDPE	PS
GRAFTALLOY LD-SAN	LDPE	SAN
GRAFTALLOY PP-SAN	PP	SAN
GRAFTALLOY EB-PS	EBA	PS
GRAFTALLOY EB-SAN	EBA	SAN

Grades	Application	Co-Polymer	Base
GRAFTALLOY MP-UHHD 00850	Melt Processable -UHMWPE based Alloys	HDPE	UHMWPE
GRAFTALLOY MP-UHPP		PP	UHMWPE
GRAFTALLOY MP-UHABS		ABS	UHMWPE
GRAFTALLOY MP-UHSEBS		SEBS	UHMWPE
GRAFTALLOY MP-UHPA		PA	UHMWPE

Standard grade Custom made grade

GRAFTASYNT™ - a line of unique synthetic products, including HFFR flame retardants (halogen-free), very effective even at the lowest dosages, in epoxies, polyurethanes, polyesters, polyamides, polyolefins.

Grades	Base	Application	Physical Form
GRAFTASYNT GB-RG	Modified Glycerol Borate	HFFR for PA, Epoxy, PU	Liquid
GRAFTASYNT GB-RDP	Modified Glycerol Borate	HFFR for PVC	Liquid
GRAFTASYNT GB-TEMPO	Modified Glycerol Borate	HFFR for PA, Epoxy, PU	Liquid
GRAFTASYNT GB-CAC GRAFTASYNT GB-TIPT	Modified Glycerol Borate	HFFR for Tissue	Liquid

Grades	Base	Application	Physical Form
GRAFTASYNT TEMPO 29200	TEMPO	Nitroxide Reactivity Controller	Viscous Red Liquid
GRAFTASYNT TEMPO 62200			Viscous Red Liquid
GRAFTASYNT TEMPO 94400 PD			Orange Powder

Standard grade Custom made grade

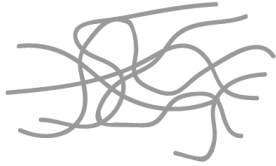


GRAFTAMER™

GRAFTAMER™ - a unique so-called “smart polymers” (thermally reversible cross-linking, self-hardening, self-healing, polymers with “shape memory”, etc.).

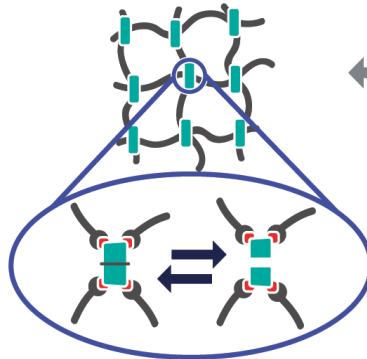
GRAFTAMER™ can be produced individually by a customer's order according to all requirements

GRAFTAMER™ VTR – is irreversible crosslinking, but melt-processable

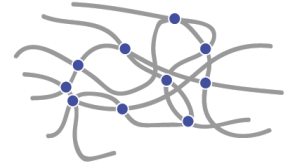


THERMOPLASTIC

- Entangled linear polymer chains
- Reprocessable
- Recyclable
- Soluble
- Bad chemical resistance
- Softens when heated



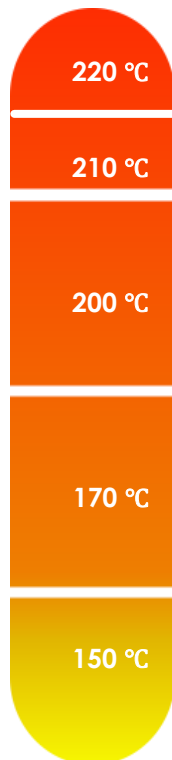
Short cycle times
New repair concepts
Welding
Transport at room temperature
Recycling



THERMOSET

- Covalently crosslinked
- Remains hard when heated
- Insoluble
- Chemical resistance
- Good mechanical properties
- Non-processable
- Non-recyclable

GRAFTAMER™ TRC – is thermo-reversible crosslinking



220 °C PO-g-MAH - Hydroxylamine

210 °C PO-g-MAH - Diol

200 °C PO-g-TEMPO - Isocyanate

170 °C PO-g-TEMPO- Peroxide

150 °C PO-g-Furan - Bismaleimide



GRAFT POLYMER
COMBINE INCOMPATIBLE



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