Product Overview

Additives for Masterbatcher, Compounder and Converter

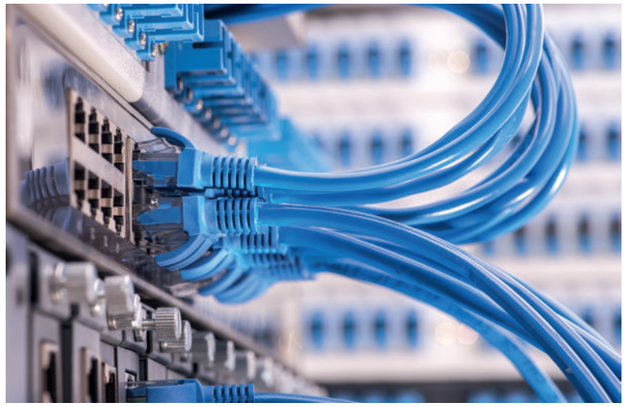
EVONIK
Leading Beyond Chemistry

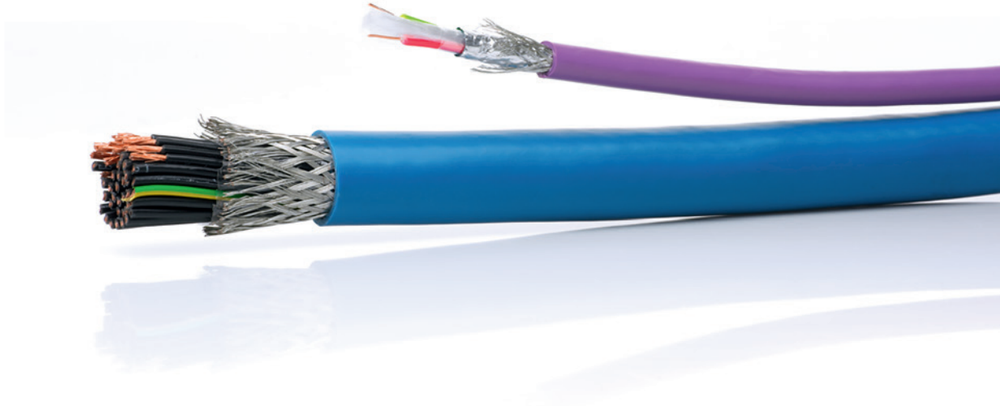
Additives for masterbatcher and liquid colorant manufacturer

Product	Pigments and fillers				Masterbatches and Compounds				Applications			Liquid pastes						Polymer types										
	Inorganic pigments	Organic pigments	Carbon black	Fillers	Monomasterbatches[1]	Multiple pigment masterbatches[2]	Colored compounds[3]	Filler compounds[4]	Moulding	Film application	Fibre/ Filament production	Phthalate / Adipate pastes	Polyol pastes	Vegetable oil pastes	Mineral oil pastes	Silicon pastes	PE / EVA	PP	POM	PA	PET/ PBT	ABS/PS/SAN/ASA	PVC	PU / TPU	Silicones	Unsaturated PES / Vinylester
MASTERBATCHES																										
TEGOMER® E 525	●	●	●	●	●	●	○	●	●	●							●	○	●				●			
TEGOMER® P 121	●	●	●	●	●	●	●	○	●	●	●						●	●	○	●	●	●	●			
TEGOMER® P 122	●	●	●	○	●	●	○	●	●	●	○						●	●	○	●	●	●	●			
COLORANTS																										
TEGOMER® DA 626	○	●	●	○								●	●										●	●		●
TEGOMER® DA 646	●	●	●	○								○	●	○	○								○	●		
TEGOMER® DA 655	●	○	○	●								●		●	●											●
TEGOMER® DA 800	●	●	○	●								○	●	●	●		●	●		○	●		●	●		
TEGO® STO V	○	●	●											●	●		●	●			●	●				
TEGO® STO 85 V	●	●	●											●	●		●	●			○	●				
TEGOPREN® 6875	●	●	●	●								○		●	●	●						○			●	●

● = highly recommended ○ = suitable n.a. = not applicable

[1] Single pigment masterbatches, high pigment loading. For fibre, film and automotive.
[2] Different pigments used for customized colors, combination with fillers. For moulding and general purpose applications.
[3] Low concentration of pigment directly dispersed during compounding.
[4] Inorganic materials, e.g. chalk, talc, antimony trioxide with high to very high loading (40–85%).





Additives for compounder

Product	Application			Polymer types										Melting point [°C]	Type of Siloxane	Physical form	Use, Effects & Typical Applications
PROPERTY ENHANCEMENT	Processing aid	Surface Modification	Bulk properties	PE/ EVA	PP	PA or PA/GF	PET/PBT	TPE/TPU	ABS/PS/SAN	PMMA	PC	PVC	Hotmelt				
TEGOMER® AntiScratch 100	○	●	●		●			●						> 70	Polyolefin compound	Granule	Scratch resistance for PP/TPO compounds, e.g. dashboards, door panels, airbag covers
TEGOMER® AntiScratch L	○	●	●	○	●	○		●	●		○			n.a.	Alkyl	Liquid	Demoulding + scratch resistance in PP, TPE-V and SEBS, for proper processing, advanced dosing & mixing system required
TEGOMER® FR 100	●	●	●	●	●			●	○					> 70	Polyolefin compound	Granule	Smooth surfaces & printability of highly filled EVA & x-PE cable compounds (ATH & MDH)
TEGOMER® FR 120	●	●	●	●	●			●	○					> 70	Polyolefin compound	Pellet	Flame retardance enhancement for various flame retardant grades; smooth surface & printability of highly filled polyolefin compounds
TEGOMER® H-Si 6441 P	●	●	●	○	●	●	●	○	○	○	●	●	●	54	Copolyester	Pellet	AntiScratch for technical polymers, e.g. for colored/opaque PMMA TV frames, PC/ABS pillars, COF reduction & better demoulding, e.g. SEBS based air bag covers
TEGOMER® V-Si 4042	●	●	●	●	●			●	○				○	n.a.	Vinyl	Liquid	LOI and flame retardance enhancement of ATH & MDH filled compounds, improved mar/abrasion resistance, e.g. highly filled HFFR cables, processing aid for rubber
TEGOMER® 6264	○	●	○	●	●			●						○	>70	Polyolefin compound	Pellet	Scratch resistance in TPO or TPE compounds, improvement of haptic performance , filler dispersion in polyolefins
TEGOPREN® 6879	●	●	●	●	●	●	○	●	○			○		n.a.		Liquid	LOI and flame retardance enhancement for various flame retardant grades (P, N, OH), improves CTI in E&E application and works as a processing aid
TEGOMER® M-Si 2650	○	●	○			●	○	●	○	○	●			n.a.	Aryl	Liquid	COF reduction of TPEs, e.g. automotive sealants, improved scratch resistance of PC/ABS, PET, e.g. car interiors, electronics, furniture surfaces

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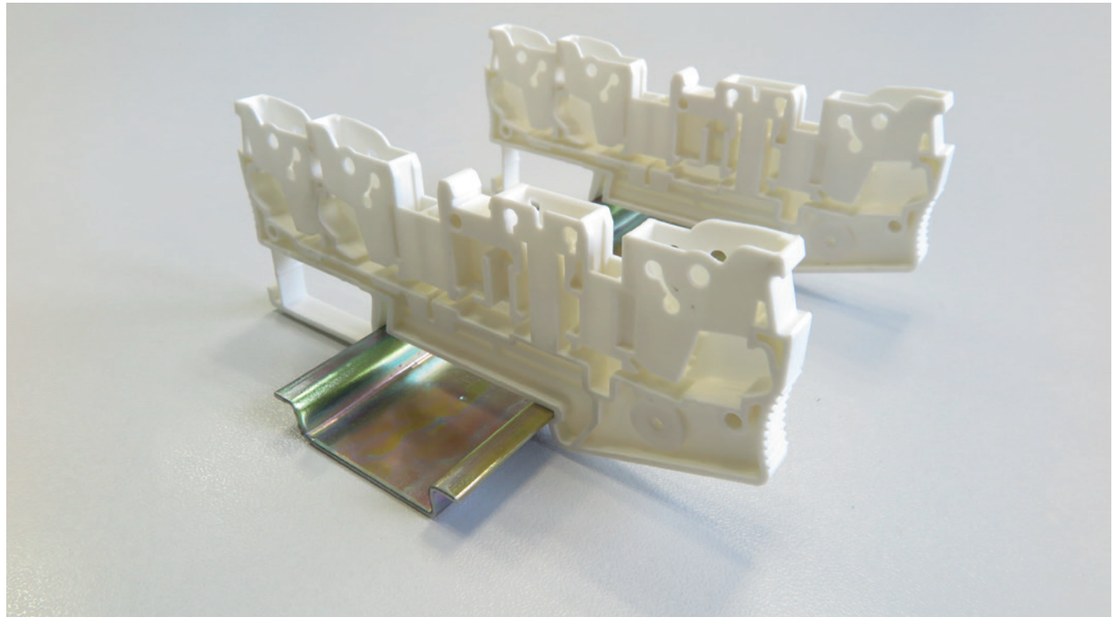
Easy to use Crosslinker Masterbatches for Compounder and Converter

ACCUREL Grade	Active	Polymer	Application
ACCUREL® CL 480 M	TMPTMA	LDPE	The trifunctional monomer can polymerize in the presence of radicals formed by irradiation or peroxides. ACCUREL® CL 480 M is used for the production of radiation crosslinkable or peroxide crosslinkable polyolefins, e.g. cables, tubes, pipes and foams. The active ingredient TMPTMA increases the crosslinking reactions over the degradation reactions during irradiation.
ACCUREL® CL 370 M	TAIC	LLDPE	ACCUREL® CL 370 M is used for the production of radiation crosslinkable or peroxide crosslinkable polyethylene, e.g. cables, tubes and pipes. The product is suitable for LLDPE, LDPE and HDPE and can be used for other polyolefins such as EVA or PP as well. The active ingredient TAIC increases the cross-linking reactions over the degradation reactions during irradiation.
ACCUREL® CL 380 M	TMPTMA	LLDPE	The trifunctional monomer can polymerize in the presence of radicals formed by irradiation or peroxides. ACCUREL® CL 380 M is used for the production of radiation crosslinkable or peroxide crosslinkable polyolefins, e.g. cables, tubes, pipes and foams. The active ingredient TMPTMA increases the crosslinking reactions over the degradation reactions during irradiation.
ACCUREL® CL 460	TAC	LDPE	ACCUREL® CL 460 is a co-agent to increase crosslinking yield of PE, EVA, EPDM etc. It is used for the production of radiation crosslinkable or peroxide crosslinkable polyethylene, e.g., cables, tubes or pipes. The active ingredient TAC increases the crosslinking reactions over the degradation reactions during irradiation.
ACCUREL® CL 770	TAIC	PA 6	The active ingredient of ACCUREL® CL 770 is a trifunctional monomer, which can polymerize in the presence of radicals formed by irradiation or peroxides. ACCUREL® CL 770 improves heat resistance (e.g. hot set performance) and mechanical properties requested in E-Mobility applications or cable appliance in tunnel or public transport applications.
ACCUREL® CL 170	TAIC	PP	ACCUREL® CL 170 is used for the production of radiation crosslinkable or peroxide crosslinkable polyolefins, e.g. cables, tubes, pipes and foams. It increases the crosslinking reactions over the degradation reactions during irradiation.
ACCUREL® CL 570	TAIC	EVA	ACCUREL® CL 570 is used for the production of radiation crosslinkable or peroxide crosslinkable polyolefins, e.g. cables, tubes, pipes and foams. The EVA carrier allows the use of the masterbatch in all polyolefins, e.g. LLDPE, LDPE, HDPE, EVA and PP. It increases the crosslinking reactions over the degradation reactions during irradiation.
ACCUREL® CL 560	TAC	EVA	ACCUREL® CL 560 is a co-agent to increase crosslinking yield of PE, EVA, EPDM etc. It is used for the production of radiation crosslinkable or peroxide crosslinkable polyethylene, e.g. cables, tubes or pipes. The active ingredient TAC increases the crosslinking reactions over the degradation reactions during irradiation.



Dry Silan Grades for Compounder and Converter

ACCUREL Grade	Active	Polymer	Application
ACCUREL® DS 110	AMEO	PP	ACCUREL® DS 110 is a highly concentrated “dry silane” masterbatch based on PP and AMEO (3-Aminopropyltriethoxysilane). It is bifunctional, possessing a reactive primary amino group and hydrolysable ethoxy silyl groups.
ACCUREL® DS 220	GYLMO	HDPE	The dual nature of the "dry silane" masterbatch ACCUREL® DS 220, allows the chemical binding of inorganic materials (e.g. glass, metals, fillers) and organic polymers (e.g. thermosets, thermoplastics, elastomers) functioning as an adhesion promotor, crosslinker and surface modifier.
ACCUREL® DS 310	AMEO	LLDPE	The dual nature of the "dry silane" masterbatch ACCUREL® DS 310, allows the chemical binding of inorganic materials (e.g. glass, metals, fillers) with organic polymers (e.g. thermosets, thermoplastics, elastomers) functioning as an adhesion promotor, crosslinker and surface modifier.
ACCUREL® DS 320	GLYMO	LLDPE	ACCUREL® DS 320 is a highly concentrated “dry silane” masterbatch, based on LLDPE and GLYMO (3-Glycidyloxypropyltrimethoxysilane). It is bifunctional, possessing a reactive epoxide and hydrolysable inorganic methoxy silyl groups.
ACCUREL® DS 330	VTEO	LLDPE	ACCUREL® DS 330 is a highly concentrated “dry silane” masterbatch based on LLDPE and VTEO (Vinyltriethoxysilane). It is bifunctional, possessing a reactive vinyl group and a hydrolysable ethoxy silyl group.
ACCUREL® DS 340	VTMO + Initiator	LLDPE	ACCUREL® DS 340 is a highly concentrated “dry silane” masterbatch of VTMO (vinyltrimethoxysilane) and a grafting-initiator, based on LLDPE. It is designed for the silan-crosslinking of polyethylene and ethylene copolymers in a two-step process like Sioplas®.

Highly filled additive masterbatches – ACCUREL® grades

Effects	Polymer types								Typical Applications
	HDPE	LLDPE	LDPE	EVA	PP	PA6	PC	PS/ABS/ ASA/SAN	
Slip Agent/ COF reduction	ACCUREL® Si 803 ACCUREL® Si 752	ACCUREL® Si 726 ACCUREL® Si 735	ACCUREL® SF 640 ACCUREL® Si 703	ACCUREL® SF 660	ACCUREL® SF 610 ACCUREL® Si 707 ACCUREL® Si 761 ACCUREL® Si 802				HDPE pipes and HDPE molded parts; LDPE film, BOPP film, PS film/sheets.
Antifog Agent		ACCUREL® AF 401 ACCUREL® AF 430 ACCUREL® GA 320			ACCUREL® AF 701 ACCUREL® AF 730 ACCUREL® GA 314	ACCUREL® AF 730		ACCUREL® AF 450	Agricultural PE films with cold fog performance, PS films with cold and hot fog characteristics.
Antistatic Agent	ACCUREL® SF 179	ACCUREL® SF 261 ACCUREL® GA 372	ACCUREL® GA 301 ACCUREL® GA 322 ACCUREL® SF 112	ACCUREL® GA 303	ACCUREL® GA 300 ACCUREL® GA 309 ACCUREL® SF 266 ACCUREL® SF 268 ACCUREL® SF 271			ACCUREL® GA 302 ACCUREL® GA 381	Short and long term antistatic effects can be provided; PE film and bubble film; electronic packaging and molded parts. BOPP standard packaging film, PP cast film, PP print lamination film and molded PP parts; PS films, foams and moulded parts even for electronic application.
Antiblock Agent		ACCUREL® SF 1760		ACCUREL® SF 1760					PE and EVA film and sheet application, PP films, e.g. metallizable film, cigarette film; transparent PET sheets or parts.
Mold Release Agent			ACCUREL® Si 703				ACCUREL® Si 792		Injection molding application for various polymers.
Foam Cell Stabilizer/ Foaming Agent			ACCUREL® GA 301 ACCUREL® GA 354	ACCUREL® GA 303					PE and EVA foams with homogeneous cell structure; TPE-V sealants with reduced density due to foaming.
Haptic Enhancers					ACCUREL® GA 300 ACCUREL® SF 617				PP fibres and nonwovens with soft grip performance, improved haptic.
Polymer Processing Aid (PPA)		TEGOMER® 6810			TEGOMER® 6850				Fluorine free processing aid for blow and cast film application, fibre spinning, cable and pipe extrusion; permanent slip/LOF reduction.

ACCUREL® porous polymer carriers

ACCUREL®	Carrier	Maximum Loading Capacity
XP 100	PP	70%
XP 200	HDPE	60%
XP 400	LDPE	50%
XP 500	EVA	50%
XP 550	EMA	30%
XP 601	PC	60%
XP 650	PMMA	50%
XP 700	PA6	65%

ACCUREL®	Carrier	Maximum Loading Capacity
XP 712	PA12	65%
XP 800	PS	60%
XP 850	SBC	50%
XP 851	SAN	60%
XP 880	ABS	50%
XP 950B	Bio Polyester	50%
XP 951B	PLA	60%

Specialities for film application and recycling purposes

Product	Function	Chemical character	Melting point [°C]	Concentration recommended to be used	Operator		
					Recycler	Compounder Masterbatcher	Film manufacturer
TEGO® STS	Antifogging	Sorbitan tristearate	>50	0.1–2.0%		●	
TEGO® Sorb PY 88 TQ	Odor Absorber	Zinc ricinoleate	>70	0.5–2.0%		●	
TEGO® Sorb PY 50 PE	Odor Absorber	Zinc ricinoleate	>100	1.0–5.0%	●	○	●
TEGO® Sorb PY 50 PP	Odor Absorber	Zinc ricinoleate	>120	1.0–5.0%	●	○	●
TEGOMER® 6810	PPA for PE	OMS	>100	0.5–2.0%	○	●	●
TEGOMER® 6850	PPA for PP	OMS	>120	0.5–2.0%	○	●	●

● = highly recommended ○ = suitable

ACCUREL® XP grades are suitable for loading with additives like

- Slip Agents
- Antifog Agents
- Antimicrobials
- Crosslinkers
- Flame Retardants
- Fragrances
- Antioxidants
- Antistatic Agents
- Lubricants
- Mold Release Agents
- Plasticizers
- Scratch Resistance Agents
- Chain Extenders

Additives for the manufacturing and surface treatment of pigments, fillers and flame retardants

Product	Active Content	Pigments, Filler and FR											Recommendation
		Inorganic pigments	Organic pigments	Carbon black	Fillers	Inorganic pigments (TiO_2/ Fe_xO_y)	Organic pigments	Inorganic FR (ATH/ AMH/ MDH)	Organic FR (MP/ MPP/ APP/ MC/ Triazine)	Filler			
										$CaCO_3$ (Calcium Carbonate)	Talc, Mica, Wollastonite	Al_2O_3 (Aluminium Oxide)	
TEGOMER® DISPERSANTS FOR WET MILLING (SLURRY OR FILTER CAKE)													
TEGOMER® DA 640	30% active, Anionic dispersant	●	●	○	●								• Dispersing of fillers as well as of inorganic and organic pigments in water-based slurries, strong viscosity drop • Flocculation of inorganic pigments, fillers or ore residues (use of ppm), can be used instead of polyacrylic amides/acids • Works even in high electrolyte surroundings
TEGOMER® DA 646	100% active, Non-ionic dispersant	○	●	●	○								• Suitable for organic pigment manufacturing to disperse precipitated particles • Small addition level reduces the viscosity in filter cakes, which allows reduced drying costs • Enhancement of color strength
TEGOMER® DA 850	40% active, Polymeric dispersant	●	●	●	●								• Excellent rheological properties even after long term storage of pigment pastes, suitable for slurry manufacturing • Less water uptake than polyacrylic acids or poly phosphates used as state of the art dispersants • Prevents settlement of high density fillers/ pigments • Enhancement of color strength
SURFACE TREATMENTS FOR WET OR DRY STAGE													
TEGOPREN® 5885	100%					○	○	●	○	○	○	○	• Hydrophobic surface treatment especially for very fine or nano scaled fillers, e.g. organo clays or hydroxides
TEGOPREN® 6875	100%					●	●	●	●	○	●	○	• Hydrophobic surface treatment of inorganic fillers, pigments and flame retardants to make them compatible with polymers • Most often used in the final dry milling step before packaging or applied via tumbling or Henschel mixer, even suitable for steam milling operations
TEGOPREN® 6875-45	45%					●	●	●	●	○	●	○	• Hydrophobic surface treatment used in aqueous precipitation or filtration steps in the production of pigments, fillers and flame retardants • Easy to distribute in slurries and filter cakes, but also used in dry surface treatment operations
TEGOPREN® 6879	100%					●	○	●	●	●	●	●	• Superhydrophobic surface treatment of inorganic fillers, pigments and flame retardants to make them compatible with polymers • Most often used in the final dry milling step before packaging or applied via tumbling or Henschel mixer, even suitable for steam milling operations

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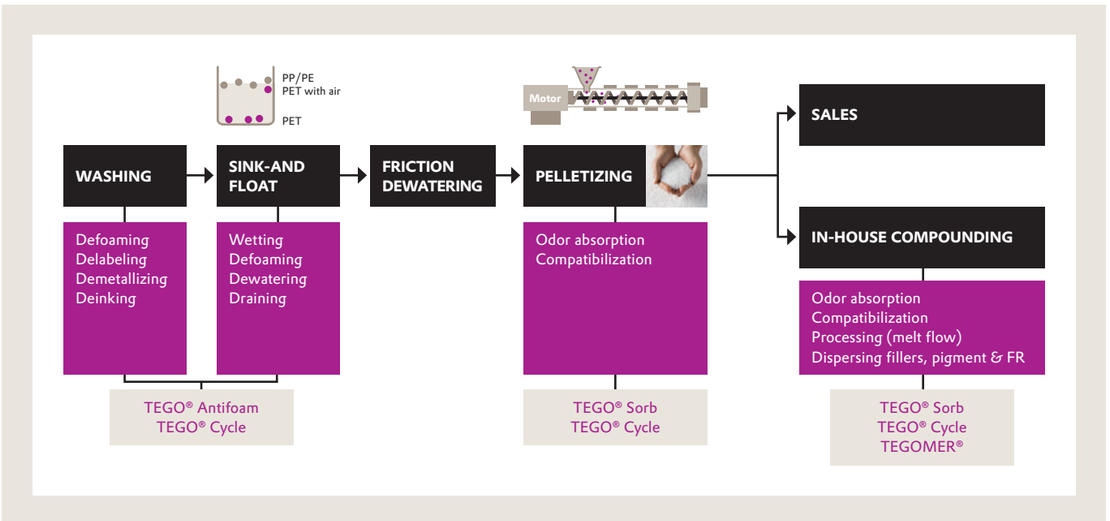
SOLUTIONS FOR A CIRCULAR ECONOMY TRANSFORMING WASTE INTO VALUABLE PLASTICS



WET STAGE

TEGO® Antifoam 4-94
- reliable foam control and excellent long-term stability
- undesired effects associated with silicone-based antifoams (spotting, fish eyes) are eliminated in most applications
- exceeds customer requirements in recycling processes

TEGO® Antifoam 2290
- self-emulsifying organic antifoam concentrate
- destroys foam or prevents foam formation
- foam control e.g. in process and waste water treatment

TEGO® Cycle WA 111
- wetting agent suitable for float-sink and washing processes of plastic recycling to improve the separation process
- highly effective surfactant for the deinking, delabeling and demetallizing of plastic waste
- solvent and silicone free
- outperforms conventional wetting agents due to low foaming behavior and fast surface migration

TEGO® Cycle WA 120
- extraordinary reduction of surface tension in aqueous solutions
- fast coverage of hydrophobic plastic surfaces
- non-ionic and solvent free product

TEGO® Cycle DW 210
- biodegradable dewatering aid
- reduces water content in plastic flakes after centrifugation or filtration
- lower energy costs for drying

DRY STAGE/COMPOUNDING

TEGO® Sorb PY 88 and PY 50 PE/PP
- malodor absorber with a key and locker principle
- not working with a flavor principle
- provides good heat stability in the compounding process
- especially suitable for polyolefins, rubber compound and recycled materials
- available as concentrate and masterbatch in PE or PP

TEGOMER® H-Si 6441 P
- multifunctional polyester modified siloxane
- improves polymer processing (e.g. mould fill/release, internal lubrication, rheology of polymer melt)
- improves bulk properties (e.g. impact and tensile strength, reduction of brittleness, hydrophobizing)
- improves surface properties (e.g. scratch and wear resistance, lower surface friction, higher surface gloss)

TEGO® Cycle CP 310 & CP 320
- used as a processing additive, as compatibilizer and for permanent modification of the polymer properties
- reduction of pressure and higher throughput by decrease of viscosity and lubrication
- prevention of melt fracture and shark skin effect
- improved mold release properties
- improves mechanical performance

TEGOMER® E 525
- higher productivity and lower costs for filler dispersion
- less agglomerates and aggregates
- excellent clarity and reduction of speck formation in films or thin moulded parts
- increase of color strength

TEGOMER® P 121
- increase of color strength
- reducing costs through the reduction of the amount of pigments
- suppression of re-agglomeration in downstream processes

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