

VESTOPLAST®

Designed Polymers by Adhesive Resins Product Line



VESTOPLAST®

Welcome from the Adhesive Experts of Evonik

Discover our product portfolio designed for the Adhesives & Sealants Industry. Based on our different polymer backbone systems, we develop individual solutions according to your needs.

YOUR BENEFITS – OUR VALUES

Focus on customer orientation

We are a solution provider. Our mission is to create tailor-made solutions to ensure that every one of your projects is a success. That is why we are considered to be the first choice when it comes to solving your challenging tasks.

Thanks to our global presence we can respond promptly and make your individual wishes come true.

Perfectly targeted expertise

With our team of adhesive experts and our dedicated sales force, you can be assured that we offer a wealth of expertise.

We do not only provide you with capabilities spanning from research and development through to logistics, but we can also offer you valuable market knowledge and in-depth technical expertise. That is why our know-how is spot-on, every time.

Absolute reliability

Any good business partnership is based on reliability. There is nothing more valuable than knowing that your business partner will be there for you. We take this to heart and offer you excellent product quality, security of supply and our continuous drive to make your challenges our own – this way we help you overcome any obstacle along the way.

Profiting from future orientation

Improving performance and efficiency can only be accomplished if you constantly stay ahead. That is why we identify future trends as early as possible, collaborating with you to develop innovative solutions. Our foresight is valued by customers and partners alike, because they know that we always keep an eye on the future to guarantee long lasting success.

YOUR MARKETS – OUR FOCUS

We offer custom-made Adhesive & Sealant solutions for a broad spectrum of industries. If you don't find your line of business here, just talk to us. Our team will gladly help you accomplish your project.

- Automotive
- Construction
- Packaging
- Electronics
- Processing Aides
- Product Assembly

YOUR SOLUTIONS – OUR BRANDS

DYNACOLL®
Polyester-Polyols, Copolyesters, Polyacrylates

VESTOPLAST®
Amorphous Poly-Alpha-Olefins

VESTOWAX®
Fischer-Tropsch-Waxes

POLYVEST®
Liquid Polybutadienes

DEGALAN®
Methacrylate Binders for Heat Seal Lacquers



Our Product Range

DYNACOLL®

VESTOPLAST®

With VESTOPLAST® amorphous poly-alpha-olefins (APAO), we offer a broad range of co- and terpolymers of ethene, propene and 1-butene as raw materials for various applications.

VESTOWAX®

POLYVEST®

DEGALAN®

The world of VESTOPLAST®

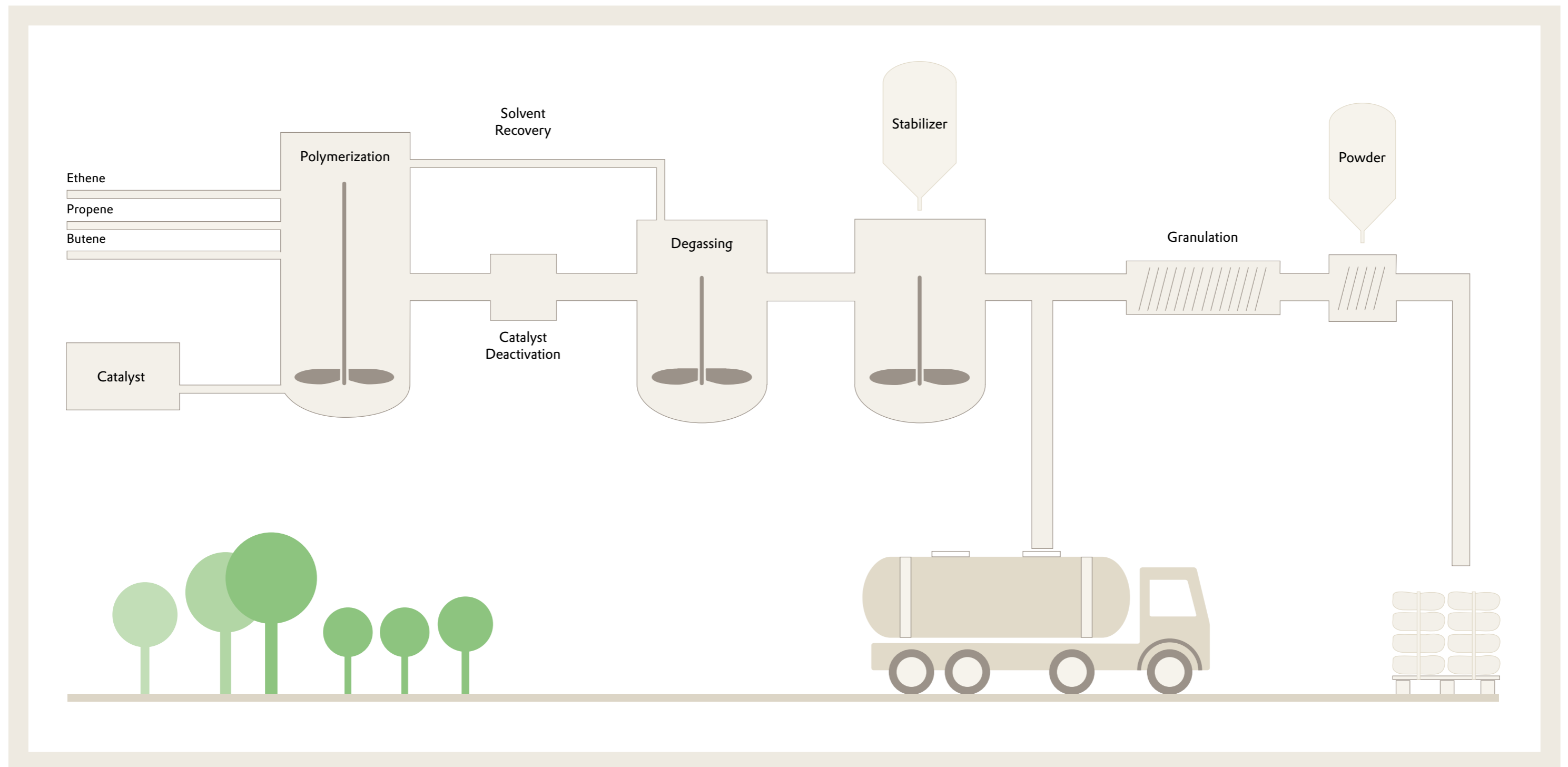
VESTOPLAST® is an amorphous poly-alpha-olefin (APAO) based on ethene, propene and 1-butene. The designed polymers are produced by using different monomer compositions, catalysts and process conditions. Our flexible production process allows us to offer either predominantly amorphous soft grades as well as harder, crystalline grades covering a wide range of viscosities.

The production site, located in Marl, Germany, has direct access to a cracker as well as C2/C3-pipelines and is uniquely connected to a 1-butene production on-site. Additionally, any solvents are recycled during the process to ensure sustainability and environmental protection.

As an add-on, the polymer is provided with a basic stabilizer that helps to maintain the high quality of VESTOPLAST® during our customer's further processing steps.

In a last step, VESTOPLAST® is granulated and finished with a wax powder for improved flowability. The small pellet structure provides maximum heat transfer and fast processing times during melting.

The standard delivery form are 20 kg PE bags on pallets. As a special supply form we also offer molten bulk delivery upon request.



VESTOPLAST®

Designed Polymers for Adhesives & Sealants

AMORPHOUS POLY-ALPHA-OLEFINS

With VESTOPLAST® amorphous poly-alpha-olefins Evonik offers a broad range of co- and terpolymers of ethene, propene and 1-butene as raw material for various applications. With our production process, we are able to design polymers with optimal values for properties such as hardness, cohesion, melt viscosity, crystallinity and rate of crystallization. Due to its amorphous and partly crystalline character, VESTOPLAST® has a low density of around 0.86 g/cm³. In addition to our regular, pure thermoplastic grades, we also offer unique reactive, silane-modified amorphous poly-alpha-olefins.

Your benefits at a glance

- Excellent adhesion and hot tack properties
- Bonding to various substrates, especially on PP without pretreatment
- Good cohesion and high thermal stability
- Good moisture and gas barrier behavior
- Very good hydrolytic and UV stability
- Chemical resistance, e.g. against battery acid
- Low density

Analytical Methods

• Melt Viscosity

Determination according to DIN 53 019, modified. The melt viscosity is determined by a rotational viscosimeter. It describes the melting flow behaviour at 190 °C: high viscous grades exhibit a slight dependence on shear rate, low viscous grades are almost newtonian at elevated temperatures.

• Softening Point (Ring & Ball)

Determination according to DIN EN 1427. The material is heated up at 180 °C and then the melt is casted into a ring. After 24 h (this time is needed for recrystallization of the amorphous products) the sample is stressed concentrically with a chrome-plated steel ball and the test frame is immersed in a bath of glycerin. This is heated up at a rate of approx. 5 °C/min. The softening point is the temperature when the ball contacts the baseplate of the test frame.

• Needle Penetration

Determination according to DIN EN 1426, modified. The material is heated up at 180 °C in a thin can. After 24 h (this time is needed for recrystallization of the amorphous products) the hardness of the product is determined with a needle and weight of 100 g at 25 °C. The penetration time into the sample is 5 s.

• Thermal Stability under Load / S.A.F.T.

Determination according to Evonik method, similar to WPS 68. The thermal stability under load describes the thermal stability behaviour of bonded substrates. In case of VESTOPLAST® we use grey board to compare each VESTOPLAST® grade with another. A drop of the melt (180 °C) is placed on one side of the board and is pressed to another grey board (T-form). After 24 h the prepared specimen are placed in a heating cabinet with a weight of 450 g and heated up at a rate of 5 °C/h. The thermal stability is the temperature at which the bonded specimen breaks down.

• Tensile Strength / Elongation at Break

Determination according to DIN EN ISO 527-3, modified type 5. The tensile strength describes the tensile and elongation properties of a specimen type 3 with 2 mm thickness.

VESTOPLAST®

Product Range

Properties	Melt Viscosity at 190° [mPa s]	Softening Point (Ring & Ball) [°C]	Needle Penetration (100/25/5) [0.1 mm]	Thermal Stability under Load S.A.F.T. [°C]	Tensile Strength/ Elongation at Break [MPa/%]	Shear Modulus at 23 °C [MPa]	Molecular Weight M _n / M _w [g/mol]	Open Time [s] resp. [min]	Glass Transition Temperature T _g DSC analysis [°C]	Density at 23 °C [g/cm ³]	Shore Hardness A
(1-) Butene-rich											
308	8,000 ± 2,000	136 ± 6	17 ± 3	65 – 70	1.5 / 500	14	11,300 / 49,000	4	-29	0.87	n.d.
408	8,000 ± 2,000	118 ± 4	5 ± 2	85 – 90	6.8 / 80	70	11,600 / 48,000	65 s	-27	0.90	94
508	8,000 ± 2,000	84 ± 4	14 ± 3	60 – 65	1.5 / 340	12	11,800 / 52,000	15	-31	0.87	74
520	22,000 ± 4,000	87 ± 4	14 ± 3	65 – 70	2.4 / 80	7	13,900 / 63,000	15	-29	0.88	76
608	9,000 ± 3,000	157 ± 4	18 ± 3	60 – 65	1.5 / 480	11	12,300 / 46,000	3	-32	0.87	76
EP V2103*	2,500 ± 500	103 ± 3	12 ± 3	90 – 95	2.0 / 40	n.d.	8,500 / 50,000	-5	-33	0.86	n.d.
EP V2094*	2,500 ± 500	94 ± 4	20 ± 4	80 – 85	1.0 / 70	n.d.	9,000 / 55,000	> 10	-38	0.86	n.d.
Propene-rich											
703	2,700 ± 700	124 ± 6	12 ± 3	75 – 80	2.1 / 43	41	7,300 / 34,000	15 s	-28	0.87	87
704	3,500 ± 500	105 ± 5	23 ± 5	70 – 75	0.5 / 100	7.5	8,000 / 35,000	80 s	-36	0.87	n.d.
708	8,000 ± 2,000	106 ± 4	19 ± 3	85 – 90	1.0 / 330	4	11,500 / 75,000	55 s	-33	0.87	67
750	50,000 ± 10,000	107 ± 4	14 ± 3	85 – 90	5.0 / 1,000	14	18,100 / 92,000	50 s	-33	0.87	75
751	50,000 ± 10,000	99 ± 4	25 ± 3	60 – 65	1.5 / 1,000	2	18,800 / 88,000	30	-33	0.87	43
792	120,000 ± 30,000	108 ± 4	14 ± 3	90 – 95	5.8 / 1,200	7	23,800 / 118,000	2	-27	0.87	n.d.
828	25,000 ± 7,000	161 ± 4	22 ± 3	95 – 100	1.0 / 550	4	13,200 / 61,000	70 s	-35	0.87	n.d.
888	120,000 ± 40,000	161 ± 5	16 ± 4	115 – 120	2.5 / 850	6.5	15,000 / 104,000	4 s	-36	0.87	n.d.
891	115,000 ± 35,000	162 ± 4	22 ± 4	105 – 110	2.0 / 1,000	3	18,800 / 85,000	40 s	-33	0.86	n.d.
EP 807*	7,000 ± 2,000	161 ± 3	7 ± 3	125 – 130	4.0 / 40	n.d.	n.d.	< 2 s	n.d.	n.d.	n.d.
Silane modified											
206	5,000 ± 1,000	98 ± 4	19 ± 3	> 160*	1.9 / 720	n.d.	10,600 / 38,000	approx. 20 s	-28	0.87	n.d.

* Experimental Product ¹⁾ after curing n.d. = not determined

• Shear Modulus at 23 °C

Determination according to DIN EN ISO 6721-2. This part specifies the general principles of a method for determining the dynamic rheological properties of polymer melts, part 2 described the Torsion-pendulum method.

• Molecular Weight M_n/M_w

Determination according to GPC, DIN 55 672, modified. The molecular weight is calculated according to GPC, DIN 55672-1, detailed in M_n and M_w.

• Open Time

Determination according to Evonik internal method. The melt (180 °C) is applied as a film of 20 µm on a paper. Strips of paper are pressed into the film at certain intervals (depending on the open time). 30 minutes after the last strip has been applied, a test is carried out to see which of the last strips applied can be lifted off without pulling out the paper fibers. The time at which this strip was applied is noted.

• Glass Transition Temperature

Determination according to DIN 53 765.

• Density at 23 °C

Determination according to DIN EN ISO 1183-1.

• Shore Hardness A

Determination according to GPC, DIN 53 505. This determination specifies the hardness of a specimen. The resistance against penetration of a specific form and specific spring tension. The values are depending on the visco-elastic properties of the polymer.



VESTOPLAST®

A valuable ingredient for a broad range of applications

Woodworking

VESTOPLAST® for e.g. edge banding and profile wrapping

- High softening point and heat stability (SAFT)
- Color stability, no viscosity drop, low cracking
- Adhesion to various substrates, especially PP without pretreatment
- Excellent water and moisture resistance
- Easy to melt and formulate

Packaging

VESTOPLAST® for e.g. hot filling, straw attachment, special applications

- Excellent bonding on coated paper, PP and PE
- Low density for high yield and mileage
- Color stability, no viscosity drop, low cracking
- Compatibility with FT hard waxes for fast setting
- High thermal stability

Automotive

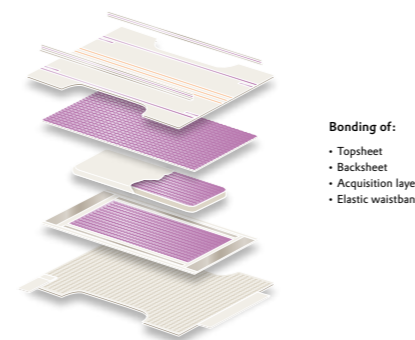
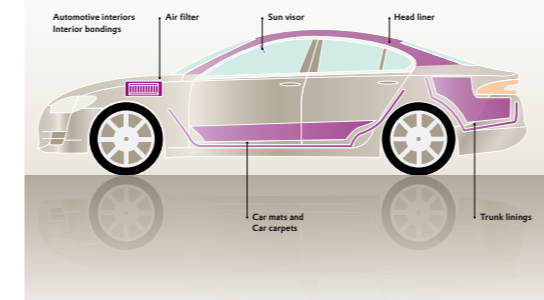
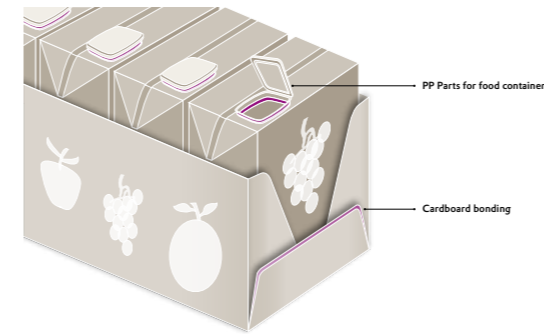
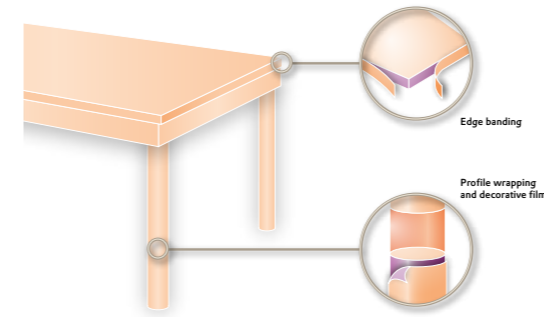
VESTOPLAST® for e.g. interior lamination, felt bonding, car carpets and mats, air filter, batteries

- High softening point and heat stability (SAFT)
- Adhesion to various substrates, especially PP without pretreatment
- High polymer content formulations possible
- Chemically inert, water and UV-resistant
- Easy to melt and formulate

Hygiene and foam application

VESTOPLAST® for e.g. diaper assembly, back-sheet lamination, mattress bonding

- Low density for high yield and mileage
- High polymer content formulations possible, low dependence on tackifiers
- Color stability, no viscosity drop, low cracking
- Excellent sprayability down to 120°C for spiral spray
- Easy to melt and formulate



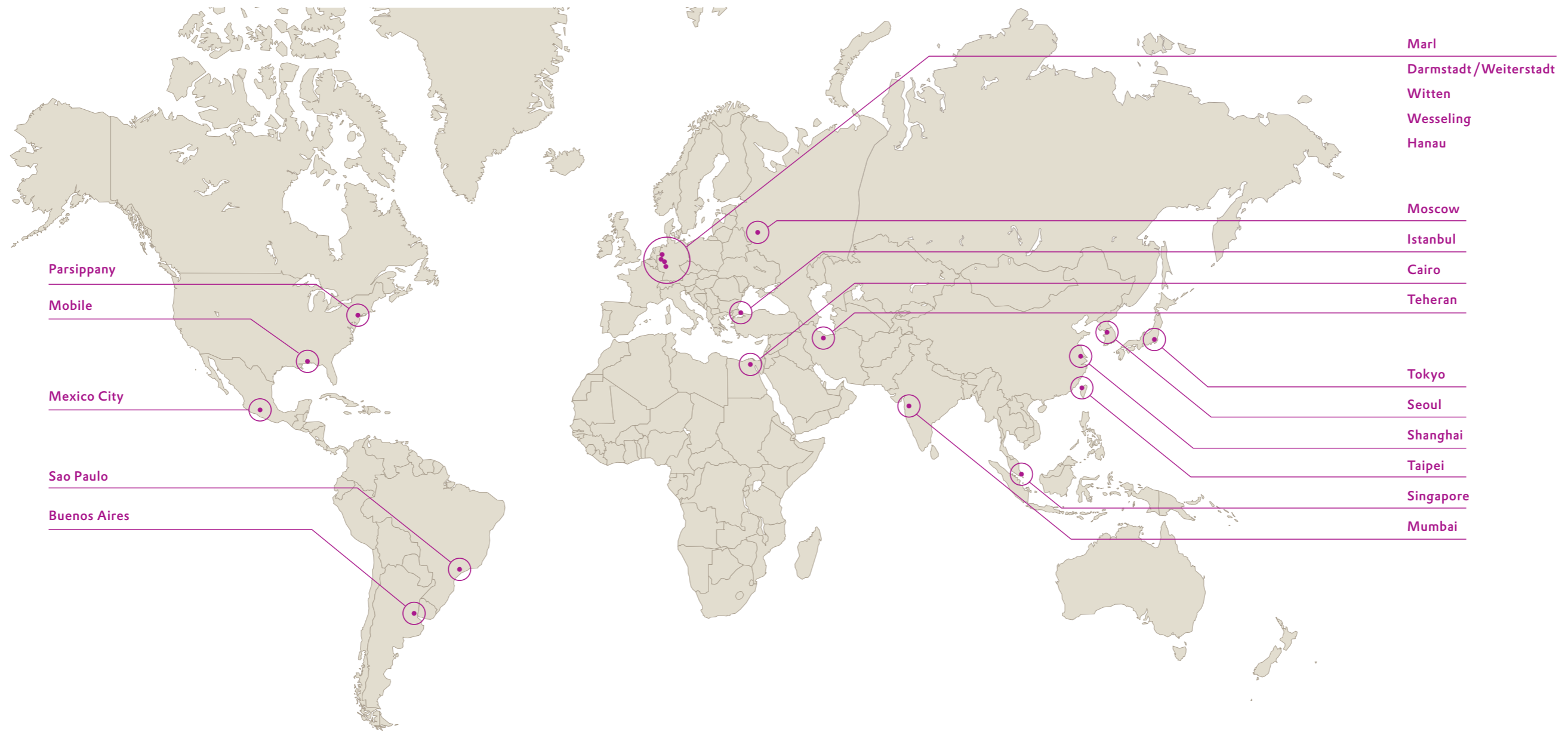
VESTOPLAST® Applications

	206	308	408	508	520	608	EP V2103*	EP V2094*	703	704	708	750	751	792	828	888	891	EP 807*	S/SR
Hygiene																			
Diapers, Feminine & Adult Care			•					•	•	•	•	•							
Woodworking																			
Profile wrapping			•									•			•				
Edge banding												•		•		•	•		
Paper & Packaging																			
Laminated paper							•	•	•		•	•							
Labels										•			•	•					
Bookbinding			•				•		•	•	•								
Fruit juice container							•								•	•		•	
Straw attachment							•												
Automotive																			
Headliner	•						•		•										
Door panels	•						•		•						•			•	
Air filters		•	•						•			•				•		•	
Car lamps	•												•	•	•	•			
Insulating felts							•		•	•	•								
Batteries							•		•						•				
Carpet/Textile Flooring																			
Carpet tiles				•							•								
Wall to wall carpets				•							•								
Car carpets				•							•	•			•				
Bitumen																			
Membranes (Roofing & Bridges)															•	•	•		
Road construction																			•
Various Applications																			
Cable fillings					•							•							
Masterbatches			•	•							•								
Mattresses			•	•				•	•	•	•	•							
Shoes			•				•		•	•	•	•							
White goods							•		•						•	•		•	
Window & Solar cell sealants	•								•				•	•					

* Experimental Products

Designed Polymers: Discover our global network

Find your regional contact:
<http://evonik.com/adhesive-resins-contacts>



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