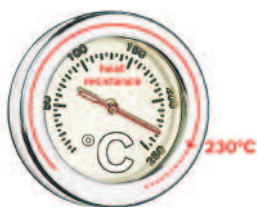


## Product Range Technical Rubber Products

Edition 2010-10

### X Levatherm<sup>®</sup> F

Fluoroelastomers (FKM)



### X Baypren<sup>®</sup> CR

Chloroprene rubber (CR)

### X Therban<sup>®</sup>

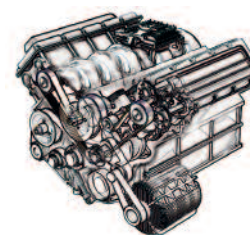
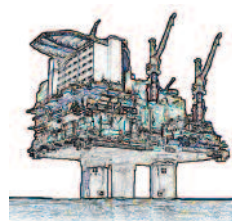
Hydrogenated acrylonitrile-butadiene rubber (HNBR)

### X Baymod<sup>®</sup> L

Ethylene-vinyl acetate rubber (EVM)

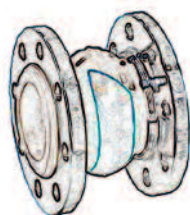
### X Levapren<sup>®</sup> EVM

Ethylene-vinyl acetate rubber (EVM)



### X Levamelt<sup>®</sup> EVM

Ethylene-vinyl acetate rubber (EVM)



### X Buna<sup>®</sup> EP

Ethylene-propylene rubber (EPM/EPDM)

### X Nanoprene<sup>®</sup>

Butadiene/butadiene-styrene based nanoadditives (SBR)

### X Krynac<sup>®</sup> NBR

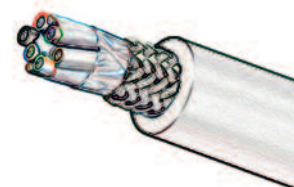
Acrylonitrile-butadiene rubber (NBR)

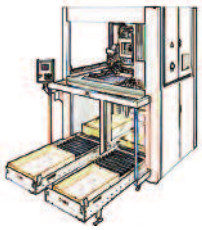
### X Baymod<sup>®</sup> N

Powdered acrylonitrile-butadiene rubber (NBR)

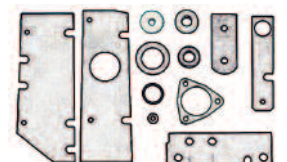
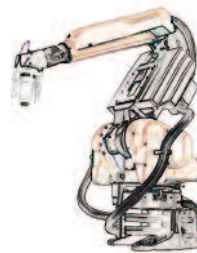
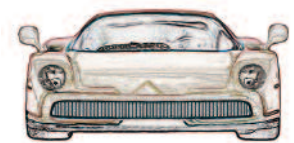
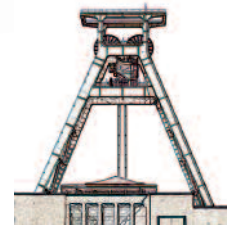
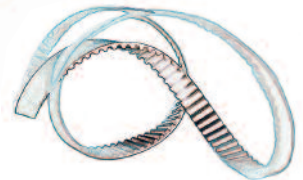
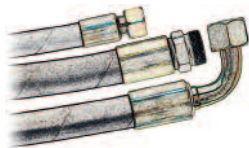
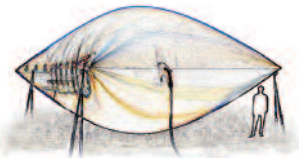
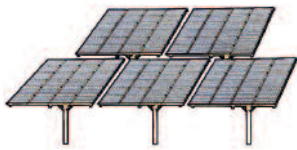
### X Perbunan<sup>®</sup> NBR

Acrylonitrile-butadiene rubber (NBR)





**Synthetic rubber from LANXESS has versatility and peak performance in its genes - making your projects work and speeding up your business.**



LANXESS is a globally operating supplier of specialty elastomers for the rubber-processing industry with a broad product range, tailored to meet the requirements of a wide variety of applications: in automotive engineering, electronics, construction, mechanical engineering, industrial plants, oil exploration, aviation, domestic goods and many other industries.

Resistance to abrasion, heat and aggressive environmental influences are just a few of the excellent properties which make our products so attractive to our international customers.

This brochure gives information on our portfolio of Technical Rubber Products. The rubber grades belonging to one category are listed in the same table. The tables give data on the chemical composition, supply form, standard packaging, the most important characteristic data, the basic properties and the main fields of application for each product.

For further or more detailed information please do not hesitate to contact our local experts. You will find their addresses at the end of this brochure.

For information on food contact applications, please contact the Health, Safety, Environment and Quality Department (HSEQ) of LANXESS Germany or, for business in the USA, the LANXESS Product Safety and Regulatory Affairs Department in Pittsburgh, PA.

Further literature is available giving detailed information on the individual products. And, of course, information can be found on our internet site: [www.lanxess.com](http://www.lanxess.com)

**Please note:**

**The information contained in this publication is current as of 10/2010. Please contact LANXESS Deutschland GmbH or Lanxess Corporation to determine if this publication has been revised.**

<b>Baypren®</b> <b>Chloroprene rubber (CR)</b>	<b>4</b>
<b>Krynac®, Perbunan®, Baymod® N</b> <b>Acrylonitrile-butadiene rubber (NBR)</b>	<b>5</b>
<b>Therban®</b> <b>Hydrogenated acrylonitrile-butadiene rubber (HNBR)</b>	<b>9</b>
<b>Levapren®, Levamelt®, Baymod® L</b> <b>Ethylene-vinyl acetate rubber (EVM)</b>	<b>11</b>
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## Properties

Provided that compounds based on Baypren® are formulated and processed correctly, the vulcanizates are highly resistant to weathering and ozone, have good resistance to aging, hot air and chemicals and display moderately good resistance to oils and gasoline. They also show a low gas permeability and good mechanical/physical properties as well as an excellent abrasion resistance. If suitable formulations are chosen, the flame retardancy and combustion behaviour of Baypren® vulcanizates can be tailored to meet special requirements. The properties of Baypren® vulcanizates are influenced by the type of modification of the raw polymer (e.g. pre-crosslinking, sulphur or xanthogendisulfide modification).

## Applications

Thanks to the excellent set of properties, Baypren® is used for the production of highly stressed rubber articles in many sectors, primarily in the automotive industry, mechanical engineering, plant construction, ship-building, mining and mineral oil production. Typical Baypren® products are (reinforced) hoses, belts (power transmission and conveyor), bellows, axle boots, air springs, dampers, cables and insulation for low voltage cables, sponge rubber, corrosion-resistant linings, roll covers and wiper blades.

## Food contact

Information concerning compliance with FDA and BfR regulations can be obtained on request from the Health, Safety, Environment and Quality Department (HSEQ) of LANXESS Deutschland GmbH.

## Product range and typical properties

Product	Crystallization	Mooney viscosity <sup>(1)</sup> ML (1+4) 100 °C	Density (g/cm <sup>3</sup> )	Physical form	Packaging	Remarks
<b>General purpose grades</b>						
<b>M-modified grades</b>						
Baypren® 110	very low	41 +/-5	1.23	ivory-colored chips	25 kg paper bags with PE inner bags	
Baypren® 110	very low	49 +/-5	1.23		(0.05 mm thick, Vicat softening point	
Baypren® 110	very low	65 +/-7	1.23		DIN 53 460, ca. 75°C); 40 bags pallet =	
Baypren® 112	low	41 +/-8	1.23		1.000 kg net / 35 bags pallet = 875 kg	
Baypren® 210	medium	43 +/-4	1.23		net. Also available only on request: 20 kg	
Baypren® 210	medium	48 +/-4	1.23		PE bags; 50 bags per pallet = 1.000 kg	
Baypren® 211	medium	39 +/-4	1.23		net / 40 bags per pallet = 800 kg net /	
Baypren® 230	medium	100 +/-8	1.23		25 kg PE bags 40 bags per pallet =	
Baypren® 230	medium	108 +/-10	1.23		1000 kg net	
<b>XD-modified grades</b>						
Baypren® 116	very low to low	43 +/-5	1.23	ivory-colored chips	see above	excellent mechanical properties due to formation of perfect network
Baypren® 116	very low to low	49 +/-5	1.23			
Baypren® 126	very low to low	70 +/-7	1.23			
Baypren® 216	medium	43 +/-5	1.23			
Baypren® 216	medium	49 +/-5	1.23			
Baypren® 226	medium	75 +/-6	1.23			
<b>Special grades</b>						
<b>Precrosslinked grades</b>						
Baypren® 114	very low	62 +/-10	1.23	ivory-colored chips	see above	especially designed for extrusion application
Baypren® 214	medium	55 +/-6	1.23			
Baypren® 215	medium	50 +/-6	1.23			
<b>Sulfur-modified grades</b>						
Baypren® 510	low to medium	42 +/-5	1.23	ivory-colored chips	see above	suitable for mastication; easy to process; for dynamic applications
Baypren® 510	low to medium	50 +/-5	1.23			
Baypren® 611	low to medium	35 +/-5	1.23			
Baypren® 611	low to medium	43 +/-6	1.23			
Baypren® 611	low to medium	48 +/-6	1.23			
Baypren® 711	low to medium	43 +/-6	1.23			
Baypren® 711	low to medium	48 +/-6	1.23			
Baypren® 712	medium	46 +/-6	1.23			

<sup>(1)</sup> unmassed (ISO 289)

### Properties

Provided that the compounds are correctly formulated and processed, the vulcanizates have very good resistance to liquid fuels, mineral oils and greases, good resistance to aging, high resistance to wear and abrasion, low permeability to gases and good physical properties (e.g. low compression set).

### Applications

Krynac® is a base polymer for technical rubber articles that are exposed to mineral oil based fluids and gases: e.g. hoses, seals (including rubber-to-metal composites), membranes. Further areas of application are: roll covers, coated fabrics (e.g.

membranes, printing blankets and flexible containers), sheets, thermoinsulation tubes and sheets, gloves and footwear (e.g. safety soles, conveyor and transmission belting).

If Krynac® is fluxed with PVC in a suitable way, the blend can be applied in hose covers, cable sheathing and others e.g. colored articles with good ozone resistance in sponge rubber for thermoinsulation articles.

### Food contact

Information concerning compliance with FDA and BfR regulations can be obtained on request from the Health, Safety, Environment and Quality Department (HSEQ) of LANXESS Deutschland GmbH.

## Grades produced by LANXESS Emulsion Rubber, France

### Product range and typical properties

Product	Acrylonitrile content (%)	Mooney viscosity <sup>(1)</sup> ML (1+4) 100 °C	Density (g/cm <sup>3</sup> )	Stabilizer	Physical form	Standard packaging	Remarks
Krynac® 2645 F	26.0	45	0.96				
Krynac® 2840 F	28.0	40	0.97				
Krynac® 2850 F	27.5	48	0.96				
Krynac® 2860 VP*	28.0	60	0.96				
Krynac® 2865 F	28.0	65	0.97				
Krynac® 2950 F	29.0	47	0.97				
Krynac® 3330 F	33.0	30	0.97				
Krynac® 3345 F	33.0	45	0.97	non staining	bales	25 kg bales on pallets, contents: 900 kg or 1050 kg	
Krynac® 3360 F	33.0	58	0.97				
Krynac® 3370 F	33.0	70	0.97				
Krynac® 3380 VP*	33.0	80	0.97				
Krynac® 33110 F	33.0	110	0.97				
Krynac® 3950 F	39.0	50	0.99				
Krynac® 3980 VP*	39.0	80	0.99				
Krynac® 4450 F	43.5	50	1.00				
Krynac® 4975 F	48.5	75	1.01				best fuel resistance
Krynac® M 3340 VP* (oil-extended, 52 phr Mesamoll®)	22.0	34 (base polymer 34 %)	0.98				for low hardness compounds

<sup>(1)</sup> unmassed (ISO 289)

\* Trial product (VP=Versuchsprodukt), please see page 19.

**Precrosslinked grades**

Product	Acrylonitrile content (%)	Mooney viscosity <sup>(1)</sup> ML (1+ 4) 100°C	Density (g/cm <sup>3</sup> )	Shrinkage (%)	Physical form	Standard packaging	Remarks
<b>Precrosslinked grades</b>							
Krynac® XL 3025	29.5	70	0.98	25	bales	25 kg bales on pallets, contents: 750 kg	for extrudates with excellent surface
Krynac® XL 3470	34.0	70 <sup>(2)</sup>	0.99	20	bales	25 kg bales on pallets, contents: 900 kg	

**Acrylonitrile-butadiene-styrene terpolymer**

Product	Acrylonitrile content (%)	Styrene	Mooney viscosity <sup>(1)</sup> ML (1+4) 100 °C	Density (g/cm <sup>3</sup> )	Physical form	Standard packaging	Remarks
<b>Acrylonitrile-butadiene-styrene terpolymer</b>							
Krynac® S2250	20.0	22.5	50	0.96	bales	25 kg bales on pallets, contents: 1050 kg	special grade to provide good wet skid resistance

Product	Acrylonitrile content (%)	Mooney viscosity <sup>(1)</sup> ML (1+4) 100 °C	Density (g/cm <sup>3</sup> )	Carboxylic acid (%)	Physical form	Standard packaging	Remarks
<b>Carboxylated grades</b>							
Krynac® X 146	32.5	45	0.97	1	bales	25 kg bales on pallets, contents: 1050 kg	for best abrasion/wear resistance, high modulus compounds, good adhesion
Krynac® X 160	32.5	58	0.97	1			
Krynac® X 740	26.5	38	0.99	7			
Krynac® X 741 VP*	26.5	38	0.99	6.7			
Krynac® X 750	27.0	47	0.99	7			

<sup>(1)</sup> unmassed (ISO 289)

<sup>(2)</sup> massed

\* Trial product (VP=Versuchsprodukt), please see page 19.

### Properties

Perbunan® is a fast curing NBR rubber. Vulcanizates are characterised by a high modulus and good sealing force retention when correctly formulated and processed. Perbunan® grades are available in the range of 18 % to 44 % acrylonitrile content (ACN).

Perbunan® is used for oil resistant rubber articles in general. They are especially suitable for mineral oil based hydraulic fluids, natural fats and oils. Vulcanizates based on high ACN grades are also used for fuel-related applications. Rubber articles based on Perbunan® are suitable for extreme low temperature flexibility (low ACN content) and in general for heat resistance up to 120 °C depending on the time of exposure. Further properties are good abrasion and wear resistance, low gas permeability and good physical properties.

Perbunan® CHM grades are especially designed for molding applications to reduce the tendency of mold fouling tremendously.

### Applications

Perbunan® is preferably used for molded rubber parts such as seals (including rubber-to-metal composites), membranes, vibration dampers and hoses. They are also used for rubberized fabrics (printing blankets, flexible containers), roll covers, sheets, conveyor and transmission belting, shoe soles, other footwear rubber parts, thermoinsulation articles and other applications.

If Perbunan® is fluxed with PVC, the blends are base polymers for colored ozone resistant articles such as hose covers, cable sheathing and spinning aprons.

### Food contact

Information concerning compliance with FDA and BfR regulations can be obtained on request from the Health, Safety, Environment and Quality Department (HSEQ) of LANXESS Deutschland GmbH.

## Grades produced by LANXESS Emulsion Rubber, France

### Product range and typical properties

Product	Acrylonitrile content (%)	Mooney viscosity <sup>(1)</sup> ML (1+4) 100 °C	Density (g/cm <sup>3</sup> )	Stabilizer	Physical form	Standard packaging	Remarks
<b>Standard grades</b>							
Perbunan® 2255 VP*	22.0	55	0.97				good elasticity and low temperature flexibility
Perbunan® 2845 F	28.0	45	0.96				
Perbunan® 2870 F	28.0	70	0.96				
Perbunan® 2895 F	28.0	95	0.96			25 kg bales polyethylene wrapped on non-returnable box pallets, contents: 1050 kg or 900 kg	good elasticity and low temperature flexibility, high viscosity and good compression set behavior for a favorable compromise between oil and fuel resistance and low temperature flexibility for optimal oil and fuel resistance
Perbunan® 28120 F	28.0	120	0.96	non-staining	bales		
Perbunan® 3430 F	34.0	32	0.97				
Perbunan® 3445 F	34.0	45	0.97				
Perbunan® 3470 F	34.0	70	0.97				
Perbunan® 3945 F	39.0	45	0.99				
Perbunan® 3965 F	39.0	65	0.99				
<b>CHM standard grades (CHM = Clean-High-Modulus, all CHM-grades are designed for low mold fouling processing)</b>							
Perbunan® 1846 F	18.0	45	0.93			25 kg bales polyethylene wrapped on non-returnable box pallets, contents: 1050 kg or 900 kg	optimal low temperature flexibility, optimal compression set behavior good elasticity and low temperature flexibility for a favorable compromise between oil and fuel resistance and low temperature flexibility
Perbunan® 2831 F	28.6	30	0.96				
Perbunan® 2846 F	28.6	42	0.96				
Perbunan® 3431 VP*	34.7	29	0.97	non-staining	bales		
Perbunan® 3446 F	34.7	42	0.97				
Perbunan® 3481 F	34.7	78	0.97				
Perbunan® 4456 F	44.0	55	1.01				for optimal oil and fuel resistance

\* Trial product (VP=Versuchsprodukt), please see page 19.

### Properties

These modifiers are supplied as powders and have excellent chemical, oil and hydrolysis resistance. Thermoplastics modified with Baymod® N remain permanently flexible and elastic. They exhibit good low-temperature flexibility, low fatigue and high abrasion resistance.

In friction materials, Baymod® N is an excellent binder for both fillers and fibers and improves the coefficient of friction. The range includes grades in a variety of viscosities and degrees of crosslinking.

### Applications

In addition to typical rubber applications, suitable as polymeric plasticizers particularly for modifying flexible and semi-rigid PVC, EVA, PU, ABS and phenolic resins. Solutions of the uncrosslinked grades are used in adhesives, seals, coatings and friction materials.

### Food contact

Information concerning compliance with FDA and BfR regulations can be obtained on request from the Health, Safety, Environment and Quality Department (HSEQ) of LANXESS Deutschland GmbH.

### Product range and typical properties

Product	Acrylonitrile content (base polymer) (%)	Mooney viscosity <sup>(1)</sup> ML (1+4) 100 °C	Density (g/cm <sup>3</sup> )	Average particle size (mm)	Partitioning agent	Standard packaging	Remarks
<b>Powdered linear grades</b>							
Baymod® N 34.52	33.0	45	0.98	0.7		25 kg boxes	
Baymod® N 34.82	33.0	70	0.98	0.7	calcium stearate	(polyethylene-lined) on pallets, contents: 750 kg	ground
Baymod® N 34.92 VP*	33.0	80	1.01	0.6	Silica	25 kg boxes (polyethylene-lined) on pallets, contents: 750 kg	ground
Baymod® N XL 32.32*	31.5	50	1.01	0.4	PVC	25 kg boxes (polyethylene-lined) on pallets, contents: 750 kg	ground
Baymod® N XL 32.12*	31.5	50	1.01	0.4	Silica	25 kg boxes (polyethylene-lined) on pallets, contents: 750 kg; 500 kg big bags	ground
Baymod® N XL 38.43	34.0	115	1.04	0.12	CaCO <sub>3</sub>	22 kg boxes (polyethylene-lined) on pallets, contents: 660 kg	spray dried

<sup>(1)</sup> unmassed (ISO 289)

\* Trial product (VP=Versuchsprodukt), please see page 19.

### Properties

Provided that the compounds are correctly formulated and processed, the vulcanizates have outstanding mechanical properties, very good resistance to abrasion, very good compression set behavior, excellent resistance to weathering, ozone and hot air and very good resistance to technical oils, even in the presence of hydrogen sulfide and amines.

### Applications

Heavily stressed rubber goods used in oil exploration and production, e.g. seal components, hose, stators, and rubber goods for drill pipes. Also suitable for high quality gaskets, membranes, V-belts and timing belts for motor vehicles, cable sheathing, hydraulic hose and special couplings.

### Food contact

Information concerning compliance with FDA and BfR regulations can be obtained on request from the Health, Safety, Environment and Quality Department (HSEQ) of LANXESS Deutschland GmbH.

### Product range and typical properties

Product	Acrylonitrile content (%)	Mooney viscosity <sup>(1)</sup> ML (1+4) 100°C	Residual double bond content (%)	Density (g/cm <sup>3</sup> )	Standard packaging	Remarks	
<b>Fully saturated (suitable for peroxide crosslinking)</b>							
Therban® 3406	34.0	63	max. 0.9	0.95	Bulk-Box with 20 bales of 25 kg each wrapped in polyethylene-film or 25 kg bales individually packed in boxes	similar to Therban® 3407, but with improved flow behavior <sup>(2)</sup>	
Therban® 3407	34.0	70	max. 0.9	0.95		for lifetime belts, O-rings, gaskets and seals requiring maximum heat resistance and dynamic performance combined with an optimal compromise of low temperature properties and oil resistance	
Therban® 3607	36.0	66	max. 0.9	0.95		lower swelling compared to Therban® 3407	
Therban® 3907	39.0	70	max. 0.9	0.96		further improved oil swelling resistance compared to Therban® 3607, excellent for fuel resistant hoses, belts, seals, O-rings and gaskets	
Therban® 4307	43.0	63	max. 0.9	0.98		very high temperature resistance combined with minimal swelling in oils and fuels; optimal sour gas resistance; ideal for severe application conditions in hoses, diaphragms, O-rings and seals for automotive and oil field applications	
Therban® 4309	43.0	100	max. 0.9	0.98		similar to Therban® 4307 for special compounds with high filler and plasticizer loads	
Therban® 5008 VP*	49.0	80	max. 0.9	1		similar to Therban® 4307 with optimised oil and fuel resistance	
<b>Partially saturated grades (suitable for peroxide and sulfur crosslinking)</b>							
Therban® 3446	34.0	61	4.0	0.95		Bulk-Box with 20 bales of 25 kg each wrapped in polyethylene-film or 25 kg bales individually packed in boxes	optimal combination of heat resistance, dynamic properties and processing
Therban® 3467	34.0	68	5.5	0.95			recommended standard grade for sulfur cure; excellent dynamic properties
Therban® 3496 (name until 30.06.09: Therban® VP KA 8837*)	34.0	55	18.0	0.96	optimal compromise between low temperature compression set and oil swell resistance; especially suited for rolls and dynamic oil field components		
Therban® 3627	36.0	66	2.0	0.96	special low RDB type, comparable to Therban® 3607 (peroxide cure recommended) to increase crosslink density for high module and/or low compression set applications		
Therban® 3629	36.0	87	2.0	0.96	special low RDB type, similar to Therban® 3627 for higher filler load capacity (peroxide cure recommended)		
Therban® 3668 VP*	36.0	87	6.0	0.95	high RDB, high Mooney grade similar to Therban® 3627 for higher filler and plasticiser load capacity		
Therban® 3669 VP*	36.0	95	6.0	0.95	high RDB, high Mooney grade similar to Therban® 3629 for higher filler load capacity especially suited for rolls and dynamic components		
Therban® 4367	43.0	61	5.5	0.98	excellent resistance to oils; should be used instead of Therban® 4307 in case improved dynamic and bonding properties are required		
Therban® 4369	43.0	97	5.5	0.98	similar to Therban® 4307 with capacity for higher filler loads		

<sup>(1)</sup> unmassed (DIN 53523; ASTM D 1646)

<sup>(2)</sup> see Therban® AT for maximum flow

\* Trial product (VP=Versuchsprodukt), please see page 19.

**Product range and typical properties**

Product	Acrylonitrile content (%)	Mooney viscosity <sup>(1)</sup> ML (1+4) 100 °C	Residual double bond content (%)	Density (g/cm <sup>3</sup> )	Physical form	Standard packaging	Remarks
<b>Specialty grades</b>							
<b>Low Temperature Technology – LT</b>							
Therban® LT 2157	21.0	70	5.5	0.96	bales		optimal low temperature flexibility balanced with good oil resistance for use in low temperature belts, seals, O-rings and gaskets
Therban® LT 2007	21.0	74	max. 0.9	0.96	bales		similar to Therban® LT 2157 with optimal combination of heat and low temperature resistance, designed for extreme service conditions (peroxide curable)
Therban® LT 2057	21.0	67	5.5	0.96	bales		similar to Therban® LT 2157 with outstanding low mold fouling properties (sulfur and peroxide curable)
Therban® LT 2568	25.0	77	5.5	0.96	bales		similar to Therban® LT 2157 low mold fouling grade with improved oil resistance
<b>Low Mooney – Advanced Technology – AT</b>							
Therban® AT 3404 (former trial product name Therban® VP KA 8966)	34.0	39	max. 0.9	0.95	bales	Bulk-Box with 20 bales of 25 kg each wrapped in polyethylene-film or 25 kg bales individually packed in boxes	similar to Therban® 3406 with extra low Mooney viscosity for outstanding processing properties for use in O-rings, seals, spread compounds or as viscosity modifier for high viscosity compounds (peroxide curable)
Therban® AT 3443 VP*	34.0	39	4.0	0.95	bales		similar to Therban® 3446 combined with processing advantages of new Advanced Technology (sulfur and peroxide curable)
Therban® AT 3904 VP*	39.0	39	max. 0.9	0.95	bales		similar to Therban® 3907 combined with processing advantages of new Advanced Technology (peroxide curable)
Therban® AT 4364 VP*	43.0	39	5.5	0.98	bales		similar to Therban® 4367 combined with processing advantages of new Advanced Technology (sulfur and peroxide curable)
Therban® AT 5005 VP*	49.0	55	max. 0.9	1	bales		optimised oil and fuel resistance; excellent heat resistance for high nitrile grades; improved process ability; optimised for biofuel applications
Therban® AT 5065 VP*	49.0	55	6.0	1	bales		optimises oil and fuel resistance; improved process ability; optimises for biofuel applications; should be used in cases improved dynamic and bonding properties are required
Therban® AT LT 2004 VP* (Low Temperature/Low Mold Fouling)	21.0	39	max. 0.9	0.96	bales		similar to Therban® LT 2007 combined with processing advantages of new Advanced Technology (peroxide curable)
<b>Carboxylated Technology – XT</b>							
Therban® XT VP KA 8889*	33.0	77	3.5	0.97	bales		maximum wear resistance and adhesive properties; in combination with Therban® ART strong synergies observed; use for belts, rolls, oil field applications and as adhesive promoter for fabrics and cords (sulfur and peroxide curable)
<b>Acrylate Reinforced Technology</b>							
Therban® VP KA 8796*	34.0 <sup>(2)</sup>	22 <sup>(3)</sup>	5.5 <sup>(2)</sup>	1.14		20 kg boxes on pallets contents: 800 kg on pallets	Enhanced stiffness, abrasion and load bearing properties, excellent adhesion to metal; use where extreme dynamic performance is warranted e.g. life-time belts, paper and steel rolls (peroxide curable)

<sup>(1)</sup> unmassed (DIN 53523; ASTM D 1646)

\* Trial product (VP=Versuchsprodukt), please see page 19.

<sup>(2)</sup> of base polymer

<sup>(3)</sup> compound mooney

### Properties

Provided that the compounds are correctly formulated and processed, the vulcanizates have very good resistance to weathering, ozone and light, very good hot air resistance, very low compression set at high temperatures and good physical properties.

### Applications

Technical moldings and extrudates, seals, cable sheathing and insulation, cellular rubber goods, footwear soles, waterproofing sheets, strips etc. Specific compounds meet DIN 4102 B1 for flooring, cables and profiles (FRNC).

### Food contact

Information concerning compliance with FDA and BfR regulations can be obtained on request from the Health, Safety, Environment and Quality Department (HSEQ) of LANXESS Deutschland GmbH.

### Product range and typical properties

Product	Vinyl acetate content (%)	Mooney viscosity <sup>(1)</sup> ML (1+4) 100 °C	Density (g/cm <sup>3</sup> )	Physical form	Standard packaging	Remarks
Levapren® 400	40	20 ±4	0.98	granules	25 kg polyethylene bags** on pallet, 1000 kg net	used in cable manufacture and rubber goods
Levapren® 450	45	20 ±4	0.99			
Levapren® 500	50	27 ±4	1.00			
Levapren® 600	60	27 ±4	1.04			
Levapren® 650 VP*	65	27 ±4	1.06	granules	25 kg polyethylene bags** in cardboard boxes on pallet, 1000 kg net	used in cable manufacture and rubber goods
Levapren® 700	70	27 ±4	1.08			
Levapren® 800	80	28 ±6	1.11			
Levapren® 900	90	38 ±6	1.15			
<b>Trial products, precrosslinked</b>						
Levapren® 500 XL VP*	50	55 approx.	1.00	granules	25 kg polyethylene bags*** in cardboard boxes on pallet, contents: 750 kg	similar to Levapren® 500, 600, 700 and 800 with improved processing properties
Levapren® 600 XL VP*	60	55 approx.	1.04			
Levapren® 700 XL VP*	70	60 approx.	1.08	granules	25 kg polyethylene bags*** in cardboard boxes on pallet, contents: 750 kg	
Levapren® 800 XL VP*	80	55 approx.	1.11			
				granules	25 kg polyethylene bags*** in cardboard boxes on pallet, contents: 750 kg	

<sup>(1)</sup> unmassed (DIN 53523; ASTM D 1646)

\* Trial product (VP = Versuchsprodukt), please see page 19

\*\* Vicat 93 °C, thickness 170 µm

\*\*\* Vicat 100 °C, thickness 180 µm

### Properties

Because of its free-flowing granular form, Levamelt® is suitable for processing on standard single or twin-screw extruders. The range includes hot melt and pressure sensitive adhesive (PSA) grades that are suitable for the production of cast and blown films.

### Applications

Multilayer systems (laminated sheets) and thin sheet extrusions for surface adhesion can be tailor-made for specific applications. These can be used in protective films, food packaging, bookbinding, labels, adhesive tapes etc.

### Food contact

Information concerning compliance with FDA and BfR regulations can be obtained on request from the Health, Safety, Environment and Quality Department (HSEQ) of LANXESS Deutschland GmbH.

### Product range and typical properties

Product	Vinyl acetate content (%)	Melt flow index (g/10 min.) (190 °C/21.1 N)	Density (g/cm <sup>3</sup> )	Physical form	Standard packaging	Remarks
Levamelt® 400	40	1–5	0.98	granules	25 kg polyethylene bags** on pallet, 1000 kg net	hot melts <sup>(1)</sup>
Levamelt® 450	45	1–5	0.99			
Levamelt® 452	45	5–15	0.99	granules	25 kg polyethylene bags** in cardboard boxes on pallet, 1000 kg net	hot melts <sup>(1)</sup>
Levamelt® 456	45	15–35	0.99			
Levamelt® 500	50	1–4	1.00	granules	25 kg polyethylene bags** in cardboard boxes on pallet, 1000 kg net	PSA
Levamelt® 600	60	1–4	1.04	granules	25 kg polyethylene bags** in cardboard boxes on pallet, 1000 kg net	
Levamelt® 650 VP*	65	1–4	1.04			
Levamelt® 686	68	15–35	1.08			
Levamelt® 700	70	2–6	1.08			
Levamelt® 800	80	2–6	1.11			
Levamelt® 900 VP*	90	1–7	1.15			

<sup>(1)</sup> reduced adhesive properties at r.t. but products exhibit excellent cohesive strength, which implies that either Z-blade mixers or closed mixing equipment is recommended.

\* Trial product (VP=Versuchsprodukt), please see page 19.

\*\* Vicat 93 °C, thickness 170 µm

**Properties**

The Baymod® L product range consists of high molecular ethylene-vinyl acetate copolymers (EVM) which are used as high impact modifiers or plasticizers for PVC and other polymers.

The impact strength achievable using Baymod® L depends on the vinyl acetate content and the molecular weight. Baymod® L grades containing about 45 % VA give the highest notched impact strength.

**Applications**

In addition to typical rubber applications, suitable for production of graft polymers, modifiers for rigid PVC and as plasticizing polymers in semi-rigid to flexible PVC compounds.

**Food contact**

Information concerning compliance with FDA and BfR regulations can be obtained on request from the Health, Safety, Environment and Quality Department (HSEQ) of LANXESS Deutschland GmbH.

**Product range and typical properties**

Product	Vinyl acetate content (%) (190 °C/21.1N)	Melt flow index (g/10 min.)	Density (g/cm³)	Physical form	Partitioning agent	Standard packaging	Remarks
<b>Modifier</b>							
Baymod® L 2450	45	≤ 6 <sup>(1)</sup>	1.00	powder average grain size: 620 µm	PVC + silicia/talc (5-7 %)	25 kg polyethylene bags* in cardboard boxes on pallet, 1000 kg net	impact modification

<sup>(1)</sup> determined on base polymer Levapren 450

\* Vicat 93 °C, thickness 170 µm

### Properties

Provided that the compounds are formulated and processed correctly, the vulcanizates have excellent resistance to weathering and ozone, good to very good aging resistance and low temperature flexibility, low electrical conductivity and satisfactory resistance to polar chemicals.

### Applications

Technical moldings of all kinds; extrusions, e.g. profiles used in the construction and automotive industries; hose, sheet, open and closed cell sponge rubber; roll covers; low to medium voltage cable insulation.

### Food contact

Information concerning compliance with FDA and BfR regulations can be obtained on request from the Health, Safety, Environment and Quality Department (HSEQ) of LANXESS Deutschland GmbH.

### Production sites: G (Marl, Germany), T (Orange, Texas)

#### Product range and typical properties

Product	Mooney viscosity <sup>(1)</sup> ML (1+4) 125 °C ML (1+8)	ENB content (%)	Ethylene content (%) corr. <sup>(2)</sup>	Standard packaging bale weight (bales per pallet)
<b>Copolymers</b>				
G 2050**	24 / -	-	52	25 kg (35)
T 2070	22 / 35 (100 °C)	-	68	34 kg (24)
G 2070 P VP	25 / -	-	73	450 kg
<b>Terpolymers – low unsaturation</b>				
G 2170 P	25 / -	1.2	72	450 kg
G 6170 P	59	1.5	71	20 kg (30), pellets on request (450 kg)
T 6250	55	2.2	62	25 kg (36)
<b>Terpolymers – medium unsaturation</b>				
G 2440	24 / -	4.3	51	25 kg (35)
G 2470 P	24 / -	4.2	69	25 kg (35) pellets on request
G 2470 LM P	22 / -	4.2	69	25 kg (35) pellets on request
G 3440	28 / -	4.1	48	25 kg (35)
G 3473 (30 phr paraffinic oil)	34 / -	4.6	69	25 kg (35)
G 5450	46 / -	4.3	52	25 kg (35)
G 5455	46 / -	4.3	55	25 kg (35)
T 5459 CL (100 phr paraffinic oil)	54 / 38 (150 °C)	4.0	59	25 kg (30)
T 6465 CL (50 phr paraffinic oil)	53 / 37 (150 °C)	4.0	64	25 kg (30)
G 6470 P	59 / -	4.7	70	20 kg (30) pellets on request
G 8450	76 / -	4.3	53	25 kg (35)
G 8460	81 / -	4.5	66	20 kg (30)
G 5567 (75 phr paraffinic oil)	46 / -	5.1	66	25 kg (35)

**Product range and typical properties**

Product	Mooney viscosity <sup>(1)</sup> ML (1+4) 125 °C ML (1+8)	ENB content (%)	Ethylene content (%) corr. <sup>(2)</sup>	Standard packaging bale weight (bales per pallet)
<b>Terpolymers – high unsaturation</b>				
G 9650	87 / -	6.0	53	25 kg (35)
T 9650	94 / 60 (150 °C)	6.5	53	25 kg (36)
<b>Terpolymers – very high unsaturation</b>				
G 3850	28 / -	7.8	48	25 kg (35)
G 3963 (30 phr paraffinic oil)	34 / -	9.0	66	
G 5962 (25 phr paraffinic oil)	51 / -	9.0	64	
G 6850	60 / -	7.7	51	
G 8850	80 / -	7.7	51	
G 8950 VP	82 / -	9.5	51	25 kg (36)
T 6861 CL (15 phr paraffinic oil)	60 / -	8.0	60	
T 4969 CL (100 phr paraffinic oil)*	43 / 30 (150 °C)	10.0	62	
T 3950	33 / 54 (100 °C)	11.4	56	34 kg (24)
<b>functionalized EPM</b>				
Buna XT 2708	4g/10min. <sup>(3)</sup>	–	73	1000 kg

\* MTO= make to order grade

\*\* campaign product - only provided against firm order

(1) unmassed (DIN 53 523, ASTM D 1646)

(2) correction formula C2 corr. = C2 uncorr. X (100-ENB%)/100

(3) melt flow index 230 °C/10 kg (ISO 1133)

Density 0,86 g/cm<sup>3</sup>, for oil-extended grades 0,87 g/cm<sup>3</sup>

### Properties

Provided that the compounds are correctly formulated and processed, the vulcanizates have outstanding resistance against hot air, hot oils, fuels, solvents and hydraulic oils in combination with very good mechanical properties. They have good resistance to abrasion, very good compression set, excellent resistance to weathering, ozone and inorganic acids or concentrated hydrogen peroxide.

They can be used in compression, transfer or injection moulding and further in extrusion or calendering of preforms.

### Applications

Rubber goods used in high temperature environments such as O-rings, gaskets, oil seals, membranes, processing rolls, valve stem seals, tubes and hoses, cable sheathing and special couplings.

Used in automotive, general industry, aerospace industry, oil, gas production and geothermal exploration

### Food contact

Information concerning compliance with FDA and BfR regulations can be obtained on request from the Health, Safety, Environment and Quality Department (HSEQ) of LANXESS Deutschland GmbH.

### Product range and typical properties

Product	Fluorine content (%)	Mooney viscosity <sup>(1)</sup> ML (1+10)121°C	Density (g/cm <sup>3</sup> )	Physical form	Standard packaging	Remarks
<b>Copolymers (suitable for bisphenolic and amine curing)</b>						
Levatherm® F 6623	66-67	33+/-3	1.83	pellets	Two 12.5 kg PE-bags in cardboard box; 20 cardboard boxes on 500 kg skid	Vinylidene Fluoride Hexafluoropropylene Copolymer, standard fluoroelastomer for best compression set and high strength for general molded goods, special grade for injection molding
Levatherm® F 6625	66-67	50+/-5	1.83			Vinylidene Fluoride Hexafluoropropylene Copolymer, standard fluoroelastomer for best compression set and high strength for general molded good
Levatherm® F 6620 HV	66-67	140+/-10* *ML (1+10) 150°C	1.83			Vinylidene Fluoride Hexafluoropropylene Copolymer, high viscosity fluoroelastomer for best compression set and high strength for molded goods, especially for goods used in oil, gas and geothermal applications - best possible explosive decompression resistance
<b>Terpolymers (suitable for bisphenolic and amine curing)</b>						
Levatherm® F 6833	68-69	35+/-5	1.87	pellets	Two 12.5 kg PE-bags in cardboard box; 20 cardboard boxes on 500 kg skid	Vinylidene Fluoride Hexafluoropropylene -Tetrafluoroethylene Terpolymer, fluoroelastomer with improved resistance against chemicals and fluids, special grade for injection molding
Levatherm® F 6834	68-69	45+/-5	1.87			Vinylidene Fluoride Hexafluoropropylene -Tetrafluoroethylene Terpolymer, fluoroelastomer with improved resistance against chemicals and fluids. Can be used in injection and compression molding
Levatherm® F 6836	68-69	65+/-5	1.87			Vinylidene Fluoride Hexafluoropropylene -Tetrafluoroethylene Terpolymer, fluoroelastomer with improved resistance against chemicals and fluids
<b>High fluorine containing terpolymers with cure site monomer (CSM) (suitable for peroxide curing)</b>						
Levatherm® F 7043	70-71	35+/-5	1.91	pellets	Two 12.5 kg PE-bags in cardboard box; 20 cardboard boxes on 500 kg skid	Vinylidene Fluoride Hexafluoropropylene -Tetrafluoro-ethylene - cure site monomer Terpolymer, high fluorine containing fluoroelastomer for extremely high solvent resistance and extremely low permeation rates. Optimized for injection molding and extruded goods
Levatherm® F 7044	70-71	45+/-5	1.91			Vinylidene Fluoride Hexafluoropropylene -Tetrafluoroethylene - cure site monomer Terpolymer, high fluorine containing fluoroelastomer for extremely high solvent resistance and extremely low permeation rates. Optimized for extruded goods
Levatherm® F 7046	70-71	65+/-5	1.91			Vinylidene Fluoride Hexafluoropropylene -Tetrafluoro-ethylene - cure site monomer Terpolymer, high fluorine containing fluoroelastomer for extremely high solvent resistance and extremely low permeation rates
<b>Precompounds</b>						
Levatherm® F 66F3	66-67	30+/-5	1.83	grey sheets	25 kg cardboard boxes on 500 kg skid	Vinylidene Fluoride Hexafluoropropylene Copolymer with incorporated cure, standard fluoroelastomer for very good compression set and high strength for general molded goods, special grade for injection molding, medium state of cure
Levatherm® F 66J3	66-67	30+/-5	1.83			Vinylidene Fluoride Hexafluoropropylene Copolymer with incorporated cure, standard fluoroelastomer for very good compression set and high strength for general molded goods, special grade for injection molding, fast, high state of cure
Levatherm® F 66J5	66-67	40+/-5	1.83			Vinylidene Fluoride Hexafluoropropylene Copolymer with incorporated cure, standard fluoroelastomer for very good compression set and high strength for general molded goods, special grade for injection molding, fast, high state of cure
Levatherm® F 68F3	68-69	30+/-5	1.87			Vinylidene Fluoride Hexafluoropropylene -Tetrafluoroethylene Terpolymer with incorporated cure, fluoroelastomer with improved resistance against chemicals and fluids, special grade for injection molding and medium state of cure
Levatherm® F 68J3	68-69	30+/-5	1.87			Vinylidene Fluoride Hexafluoropropylene -Tetrafluoroethylene Terpolymer with incorporated cure, fluoroelastomer with improved resistance against chemicals and fluids, special grade for injection molding and high state of cure

<sup>(1)</sup> unmassed (ISO 289-1)

**Properties**

Nanoprene® consists of spherical particles with diameters in the ~ 50 nm range. Due to a high degree of crosslinking, the particle morphology is stable even under high shear. Owing to a high crosslink density, the particles will not dissolve, but will swell in appropriate solvents.

The range of available Nanoprene® grades differs in the styrene/butadiene-ratio and is characterized by glass transition temperatures (Tg) between -75 to + 60°C.

The Nanoprene® surface is fully coated with hydroxyl groups and is designed for strong interactions with polar environments.

Nanoprene® is prepared by an emulsion process.

More than 25 patent applications have been filed, which cover the manufacturing process, the use of Nanoprene® in thermoplastic materials as well as in rubber compounds and other application areas. The highly polar Nanoprene® surface allows for strong interactions with polar media either by dipolar inter-actions or by hydrogen bonding. Due to these interactions, Nanoprene® can be well dispersed in duroplast precursors such as polyols and in thermoplastic materials such as PA, PBT etc. Depending on the Nanoprene® grade, special effects can be brought about:

- Increase of impact resistance
- Reduction of hydrolytic degradation
- Increase of elongation at break

**Applications**

For the use of Nanoprene® in industries other than the rubber industry, gel powder is required. For this purpose the bales are ground and an anti-agglomerant is added in order to avoid blocking. So far, Ca-stearate, silica and CaCO3 are being used for this purpose.

Another good example is the strong interaction of Nanoprene® with silica in rubber compounds. By the addition of a grade with a low Tg, hysteresis is reduced. By the addition of a Nanoprene® grade with a higher Tg the damping of the vulcanizates can be adjusted to meet specific requirements.

**Product range and typical properties**

Product	Gel-Type	P (g/cm3)	d60 (nm)	Ospec (m2/g)	TG (°C)	OH-cont. (mg KOH/g)
Nanoprene® B P600H VP*	SBR	1.06	47.4	126	60	20,5
Nanoprene® B P400H VP*	SBR	1.04	40.3	146	37,5	34,6
Nanoprene® B PM00OH VP*	SBR	1.02	50	125	-2,5	25,1
Nanoprene® B M10OH VP*	SBR	1.02	50	125	-9	27,3
Nanoprene® B M15OH VP*	SBR	1.0	45.5	132	-14,5	25,2
Nanoprene® B M75OH VP*	BR	0.94	50.9	127	-77	32,8

\* Trial product (VP=Versuchsprodukt), see page 19

## Please contact your regional expert

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### EMEA

LANXESS Deutschland GmbH  
Technical Rubber Products  
51369 Leverkusen,  
Germany  
E-mail: [dirk.schaefer@lanxess.com](mailto:dirk.schaefer@lanxess.com)  
Phone: +49 (0) 214 32542  
[www.lanxess.com](http://www.lanxess.com)

### APAC

LANXESS Chemical (Shanghai) Co., Ltd  
Technical Rubber Products, APAC  
Building 8, No. 899 Zu Chong Zhi Road  
Zhangjing High-Tech Park  
Shanghai, 201203  
P.R. China  
E-mail: [sharon.guo@lanxess.com](mailto:sharon.guo@lanxess.com)  
Phone: +86 21 61096666  
[www.lanxess.cn](http://www.lanxess.cn)

### LANXESS K.K.

Business Unit: Technical Rubber Products  
1-6-5, Marunouchi  
Chiyoda-ku, Tokyo 100 8215  
Japan  
E-mail: [shunji.baba@lanxess.com](mailto:shunji.baba@lanxess.com)  
Phone: 0081 (0) 3 5293 8028  
Fax: 03 5219 9777  
[www.lanxess.jp](http://www.lanxess.jp)

### NAFTA

LANXESS Corporation  
111 RIDC Park West Drive  
Pittsburgh, PA 15275 1112  
USA  
E-mail: [chia.chu@lanxess.com](mailto:chia.chu@lanxess.com)  
Phone: 001 (412) 809 4765  
[www.us.lanxess.com](http://www.us.lanxess.com)

### LATAM

LANXESS Ind. de Prod. Químicos e Plásticos Ltda .  
Av. Maria Coelho de Aguiar, 215 – Bloco B – 2º andar  
05804-902 – São Paulo – SP – Brasil  
Mr. Fabio Encinas  
E-mail: [fabio.encinas@lanxess.com](mailto:fabio.encinas@lanxess.com)  
Phone: (+55) 11 3741 2964  
Fax: (+55) 11 3741 2998  
[www.lanxess.com.br](http://www.lanxess.com.br)

**Sales offices worldwide:**  
**[www.sales-offices-trp.lanxess.com](http://www.sales-offices-trp.lanxess.com)**

**[www.trp.lanxess.com](http://www.trp.lanxess.com)**

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\* Trial product

(VP = Versuchsprodukt = trial product). The information contained herein is merely preliminary data. Testing as to properties and applications is not final. Further information, including data which could change or add hazards with use, may be developed. Such information may be needed to properly evaluate or use this product. Use is undertaken at the sole risk of the user.

Product safety: Relevant safety data and references as well as the possibly necessary warning labels are to be found in the corresponding safety data sheets.

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Appropriate literature has been assembled which provides information concerning the health and safety precautions that must be observed when handling the LANXESS products mentioned in this publication. For materials mentioned which are not LANXESS products, appropriate industrial hygiene and other safety precautions recommended by their manufacturers should be followed. Before working with any of these products, you must read and become familiar with the available information on their hazards, proper use and handling. This cannot be overemphasized. Information is available in several forms, e.g., material safety data sheets and product labels. Consult your LANXESS representative in Germany or contact the Health, Safety, Environment and Quality Department (HSEQ) of LANXESS Germany or - for business in the USA - the LANXESS Product Safety and Regulatory Affairs Department in Pittsburgh, PA.

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**LANXESS**

**LANXESS Deutschland GmbH**  
51369 Leverkusen  
Germany

[www.lanxess.com](http://www.lanxess.com)