

LANXESS

Energizing Chemistry

Rubber Chemicals
Product Range

Edition 2010-01

Cohedur[®]

NaMBT

Renacit[®]

Silica Additive

Vulcuren[®]

Vulkacit[®]

Vulkalent[®]

Vulkanol[®]

Vulkanox[®]

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Zinc Oxide





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LANXESS is a globally operating supplier of rubber chemicals 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 rubber chemicals. The 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.

The information given regarding packaging applies to grades produced in Europe. The packaging of grades from other sources may be different.

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 Industrial & Environmental Affairs Department (IEA) 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

Please note:

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

Characteristics

Versatile and fast accelerators used alone or in conjunction with other accelerators, giving a very broad plateau and good aging resistance.

Applications

Rubber footwear and other hot-air cured goods; moldings and technical goods of all types, e.g. roll covers, conveyor belting, transmission belting, footwear soles and heels, hose, profiles, cables, bicycle and car tires, cellular rubber goods.

Product range and typical properties

Product	Chemical composition (international abbreviation)	Density (g/cm ³)	Initial melting point (°C)	Physical form	Standard packaging	Remarks
Vulkacit® Merkapto/C	2-mercapto-benzothiazole (MBT)	1.5	≥ 174	yellowish white powder, low dust	20 kg paper bags on pallets	
Vulkacit® Merkapto/MG-C				yellowish microgranules, low dust		
Vulkacit® ZM	zinc-2-mercapto-benzothiazole (ZMBT)	1.7	-	yellowish white powder	20 kg paper bags on pallets	free MBT: 11-16 %
Vulkacit® ZM-2				cream-colored powder, low dust		20 kg polyethylene bags on pallets
Vulkacit® DM/C	dibenzothiazyl disulfide (MBTS)	1.5	≥ 168	cream-colored powder, low dust	20 kg paper bags on pallets	
Vulkacit® DM/MG-C				cream-colored microgranules, low dust		

NaMBT

Chemical intermediate and flotation agent

Characteristics

Aniline-based chemical intermediate and flotation agent.

Applications

NaMBT is the main intermediate for sulfenamide and thiazole accelerators. It also serves as a flotation agent for the mining industry, a corrosion inhibitor in various fluids and a metal deactivator for copper and copper alloys.

Product range and typical properties

Product	Chemical composition (international abbreviation)	Density (g/cm ³)	Physical form	Standard packaging
NaMBT	50 % aqueous solution of sodium-2-mercapto-benzothiazole (NaMBT)	1.26	yellow to brown liquid	tank truck, container and rolling channel drums

Characteristics

Fast, yet very safe accelerators giving a much delayed onset of cure, i.e. steep vulcanization curves.

Applications

Used mainly for tires. Also suitable for dynamically stressed technical goods, e.g. buffers and conveyor belting, and for technical moldings and extrudates in general, e.g. seals, hose, profiles, footwear, cable sheathing and insulation.

Product range and typical properties

Product	Chemical composition (international abbreviation)	Density (g/cm³)	Initial melting point (°C)	Physical form	Standard packaging
Vulkacit® CZ/C	N-cyclohexyl-2-benzothiazyl sulfenamide	1.3	≥ 98	white to grayish powder, low dust	
Vulkacit® CZ/EG-C	(CBS)			light gray granules, low dust	
Vulkacit® NZ/EG-C	N-tert. butyl-benzothiazyl sulfenamide (TBBS)	1.3	≥ 106	white to grayish granules, low dust	20 kg paper bags on pallets
Vulkacit® MOZ/LG	2-(morpholiniothio)-benzothiazole (MBS)	1.35	–	yellow lentils	
Vulkacit® DZ/EG-C	N,N-dicyclohexyl-2-benzothiazyl sulfenamide (DCBS)	1.2	≥ 96	beige granules, low dust	

Characteristics

Fast accelerators used alone or in conjunction with other accelerators, especially for efficient or sulfurless vulcanization.

Applications

Transparent, white and colored rubber goods, especially technical goods of all types that must withstand heat. Also suitable for cable sheathing and insulation, bathing articles, fabric proofing, dipped goods and ebonite.

Product range and typical properties

Product	Chemical composition (international abbreviation)	Density (g/cm³)	Initial melting point (°C)	Physical form	Standard packaging
Vulkacit®	tetramethyl thiuram disulfide (TMTD)	1.3	≥ 142 (melting point)	white to grayish powder, low dust	20 kg paper bags
Thiuram/C	dimethyl diphenyl thiuram disulfide	1.4	≥ 180	white to grayish powder	on pallets

Vulkacit®

Dithiocarbamate accelerators

Characteristics

Very fast accelerators used alone or in conjunction with other accelerators.

Applications

Used alone or together with other accelerators for technical goods of every description, footwear and cables, dipped goods, fabric proofing, latex goods of all types (including threads and foam rubber), self-curing compounds and solutions, sheets etc.

Product range and typical properties

Product	Chemical composition (international abbreviation)	Density (g/cm ³)	Initial melting point (°C)	Physical form	Standard packaging
Vulkacit® LDA	zinc diethyl dithiocarbamate (ZDEC)	1.5	≥ 175		
Vulkacit® LDB	zinc dibutyl dithiocarbamate (ZDBC)	1.25	≥ 104		
Vulkacit® LDB/C	zinc dibutyl dithiocarbamate (ZDBC)	1.25	≥ 102	white to yellowish powder (low dust)	20 kg paper bags on pallets
Vulkacit® P extra N	zinc ethylphenyl dithiocarbamate (ZEPC)	1.5	≥ 200		
Vulkacit® ZBEC/C	zinc dibenzyl dithiocarbamate (ZBEC)	1.4	≥ 180		

Vulkacit®

Amine accelerators

Characteristics

Vulkacit® 576 is a fast accelerator for highly elastic goods that are subject to heavy dynamic stresses and also for ebonite. Cohedur® H 30 is a slow accelerator for bulky goods and a secondary accelerator for use with products of the mercapto class.

Applications

Vulkacit® 576 is used for goods that are cured in presses, steam or hot air, and are subjected to dynamic stress. It is also used when the compound contains acidic ingredients or large amounts of reclaim or scrap. Cohedur® H 30 is used for press or steam cured goods, technical goods and ebonite.

Product range and typical properties

Product	Chemical composition (international abbreviation)	Density (g/cm ³)	Melting point (°C)	Physical form	Standard packaging	Remarks
Vulkacit® 576	butyraldehyde-aniline condensation product	0.99	–	amber-colored liquid	50 kg metal drums and 200 kg rolling channel drums	amine accelerators are not suitable for saturated rubbers e.g. EPDM and IIR
Cohedur® H 30	hexamethylene tetramine (HMT) with amorphous silica (about 3 %)	1.3	active ingredient sublimes without melting	white powder	20 kg paper bags on pallets	

Vulcuren®

Crosslinker and anti-reversion agent

Characteristics

Vulcuren® is a new crosslinker for the production of highly reversion-stable vulcanizates of NR, IR, SBR and BR and their blends. Vulcuren® is recommended in combination with sulfur and accelerators such as mercaptobenzothiazoles or sulfenamides in conventional and semi-efficient vulcanization systems.

Applications

Applications Vulcanizates crosslinked with Vulcuren® show excellent retention of static and dynamic modulus, tensile strength, tear strength, hardness, resilience, compression set, heat build-up and creep in the Goodrich Flexometer test, and of the loss factor $\tan \delta$. During sulfur vulcanization in the presence of Vulcuren®, thermodynamically stable, flexible hybrid crosslinks are formed, which have the following structure ($x \leq 3$):



Product range and typical properties

Product	Chemical composition (international abbreviation)	Density (g/cm ³)	Assay (%)	Physical form	Standard packaging
Vulcuren®	1,6-bis(N,N-dibenzylthiocarbamoyldithio)hexane	1.25	87	light yellow to white powder, oil coated	17.5 kg paper bags on pallets

Vulkalent®

Retarders

Characteristics

Increasing additions improve the safety of compounds undergoing processing and prolong the flow times at curing temperatures.

Applications

Suitable for all normal methods of cure. Vulkalent® B/C is used mainly for light-colored goods which must not stain other objects or materials. Vulkalent® G, the most powerful retarder, is suitable for both light and dark goods. Vulkalent® E/C is particularly suitable for use with mercapto accelerators, and in thiuram vulcanization.

Product range and typical properties

Product	Chemical composition (international abbreviation)	Density (g/cm ³)	Initial melting point (°C)	Physical form	Standard packaging	Remarks
Vulkalent® B/C	phthalic anhydride (PTA)	1.51	≥ 128	light yellow to white powder, oil coated	20 kg paper bags on pallets	not suitable for compounds containing Vulkacit® Thiuram without sulfur
Vulkalent® E/C	N-phenyl-N-(trichloromethylsulfenyl)-benzene sulfonamide with additives	1.68	–	white to beige powder, oil coated	25 kg boxes on pallets	suitable for light and dark goods; in some cases substantially more effective than Vulkalent® B/C
Vulkalent® G	N-cyclohexylthiophthalimide (CTP)	1.3	≥ 87	beige crystalline powder	25 kg paper bags on pallets	particularly suitable for compounds containing sulfenamide accelerators

Characteristics

These antioxidants afford outstanding protection against dynamic stress, oxidation, heat, ozone and rubber poisons. They cause severe staining and contact staining.

Vulkanox® 4020 is an excellent stabilizer for polymers, especially for staining E-SBR.

Applications

Car, truck and earthmover tires; technical goods subjected to dynamic stress; spring components, conveyor and transmission belting, hose, seals; cable sheathing and insulation, inner tubes, roll covers.

Product range and typical properties

Product	Chemical composition (international abbreviation)	Staining ⁽¹⁾	Density (g/cm ³)	Initial melting point (°C)	Physical form	Standard packaging	Remarks
Vulkanox® 4010 NA/LG	N-isopropyl-N'-phenyl-p-phenylenediamine (IPPD)	5-6	1.1	≥ 76	brownish lentil-shaped granules	25 kg paper bags on pallets and FIBC	best anti-flex cracking effect, very good ozone protection, good heat protection
Vulkanox® 4020/LG	N-(1,3-dimethylbutyl)-N'-phenyl-p-phenylenediamine (6PPD)	5-6	1.0	≥ 45	brownish lentil-shaped granules	road or rail tanker	anti-flex cracking effect, slightly less effective than Vulkanox® 4010 NA, good anti-aging properties, good ozone protection
Vulkanox® 4020 liquid	N,N'-bis-(1,4-dimethylpentyl)-p-phenylenediamine (77PD)	5	0.9	–	dark red liquid	180 kg rolling channel drums on pallets	optimum ozone protection, anti-aging properties less effective than with Vulkanox® 4010 NA and 4020
Vulkanox® 3100	mixture of diaryl-p-phenylenediamines (DTPD)	5	1.2	≥ 95	brown flakes	20 kg paper bags on pallets and FIBC	excellent antiozonant for CR; in other diene rubbers: good anti-aging properties, anti-flex cracking effect and ozone protection less than with Vulkanox® 4010 NA and 4020, but improved long-term effect
Vulkanox® DPPD	N,N'-diphenyl-p-phenylenediamine (DPPD)	5	1.2	≥ 135	brown flakes	20 kg paper bags on pallets	in diene rubbers except CR: good anti-aging properties, anti-flex cracking effect and ozone protection, but less than with Vulkanox® 4010 NA and 4020, higher tendency to bloom in rubber because of lower solubility, therefore restrictions if used alone

⁽¹⁾ 0 = no staining →6 = very heavy staining

Characteristics

This antioxidant offers very good protection against oxidation and heat, and good protection against rubber poisons. The staining effects range from medium to relatively weak.

Applications

Used in conjunction with p-phenylenediamines for heavily stressed technical goods and tires. Used for technical goods in general, e.g. roll covers, buffers, conveyor and transmission belting, hose, profiles, seals. Also suitable for boots and footwear soles and heels.

Product range and typical properties

Product	Chemical composition (international abbreviation)	Staining⁽¹⁾	Density (g/cm³)	Softening point (°C)	Physical form	Standard packaging	Remarks
Vulkanox® HS/LG	2,2,4-trimethyl-1,2-dihydroquinoline, polymerized (TMQ)	3	1.1	90	yellow to brownish lentil-shaped granules	25 kg paper bags on pallets and FIBC	affords very good heat protection, especially in conjunction with Vulkanox® MB or MB2; slight anti-flex cracking effect and slight antiozonant effect; improves the heat resistance of EPDM; also suitable for latex

⁽¹⁾ 0 = no staining →6 = very heavy staining

Characteristics

These antioxidants impart resistance to oxygen, heat and in some cases flex cracking. They do not cause staining.

Applications

For white, colored, and transparent goods, e.g. white sidewalls, bicycle tires, floor covering materials, mats, light-colored footwear, footwear soles (including microcellular soles), dipped goods, fabric proofing, bathing goods, toys and light-colored technical goods of all types, whether made from solid rubber or latex.

Product range and typical properties

Product	Chemical composition (international abbreviation)	Staining ⁽¹⁾	Density (g/cm ³)	Physical form	Standard packaging	Remarks
Vulkanox® DS	mixture of alkyl- and aralkyl-substituted phenols	0	0.93	yellowish to reddish liquid	180 kg rolling channel drums on pallets	inexpensive antioxidants affording relatively good protection from oxygen and with some anti-flex cracking effect; non-staining, even in goods exposed to light for long periods; very good anti-crazing effect; suitable for latex
Vulkanox® DS/F	mixture of alkyl- and aralkyl-substituted phenols, solidified with inorganic filler	0	1.3	beige-yellow powder	15 kg paper bags on pallets	antioxidant, anti-flex cracking and crazing effects slightly less powerful than those of Vulkanox® DS; very low volatility; suitable for latex
Vulkanox® SP	phenol, styrenated (SPH)	0	1.1	clear amber viscous liquid	200 kg rolling channel drums on pallets	Vulkanox® SP spezial has a different composition than Vulkanox® SP; use as stabilizer in E-SBR and latex
Vulkanox® SP spezial	phenol, styrenated (SPH)	0	1.1	clear amber viscous liquid	200 kg rolling channel drums on pallets	

⁽¹⁾ 0 = no staining -> 6 = very heavy staining

Characteristics

These antioxidants afford protection from oxygen, heat and unorientated crack formation (crazing). To some extent they are effective against rubber poisons and fatigue. Staining absent or minimal. No contact staining.

Applications

Vulkanox® BKF and SKF for light, colored and transparent articles, fabric proofing, bathing, technical rubber and latex goods (particularly foam rubber). Also for goods which must not stain objects or materials with which they come into contact.

Vulkanox® BHT for fabric proofing, toys, bathing goods, light-colored footwear, mats, floor coverings, light-colored hoses, white sidewalls, threads and profiles, latex goods produced by the solution dipping process.

Vulkanox® MB, MB2 and ZMB2 mainly for heat-resistant thiuram-cured goods, white and colored goods as listed for Vulkanox® BHT, transparent vulcanizates and latex foam.

Product range and typical properties

Product	Chemical composition (international abbreviation)	Staining ⁽¹⁾	Density (g/cm ³)	Initial melting point (°C)	Physical form	Standard packaging	Remarks
Vulkanox® BKF ⁽²⁾	2,2'-methylene-bis-(4-methyl-6-tert.-butylphenol) (BPH)	1	1.0	≥ 124	white to light beige-colored powder	15 kg paper bags on pallets	good protection from heat, oxygen, and (when used in conjunction with Vulkanox® MB or MB 2) against rubber poisons; suitable for latex
Vulkanox® SKF	sterically hindered polynuclear phenol	0	1.1	≥ 105	white to cream-colored powder		slightly less effective than Vulkanox® BKF; does not discolor goods exposed to oxidizing agents (detergents)
Vulkanox® BHT ⁽²⁾	2,6-di-tert-butyl-4-methylphenol (BHT) ⁽³⁾	0	1.0	solidification point 69	colorless crystals	25 kg paper bags on pallets	not recommended for articles needing very good heat resistance; excellent anti-crazing effect
Vulkanox® MB/MG	2-mercapto-benzimidazole (MBI)	0	1.4		yellowish white microgranules		a weak antioxidant effect, which is somewhat improved in vulcanizates whose cure is accelerated with dithiocarbamates;
Vulkanox® MB2/MG	4- and 5-methyl-2-mercaptobenzimidazole (MMBI)	0	1.3	approx. 270, with decomposition	white to beige-colored microgranules	20 kg paper bags on pallets	a brightening effect, especially if goods are transparent; used particularly as synergists for other antioxidants;
Vulkanox® MB2/MG-C	4- and 5-methyl-2-mercaptobenzimidazole (MMBI)	0	1.3	approx. 270, with decomposition	white to beige-colored microgranules, low dust		used particularly as synergists for other antioxidants; suitable for latex
Vulkanox® ZMB2/C-5	zinc-4- and 5-methyl-2-mercaptobenzimidazole (ZMMBI)	0	1.5	approx. 300, with decomposition	white to beige-colored powder, low dust		used particularly as synergists for other antioxidants; suitable for latex

⁽¹⁾ 0 = no staining → 6 = very heavy staining

⁽²⁾ marketed by LANXESS Business Unit Basic Chemicals

⁽³⁾ The volatility of BHT means that it may migrate into materials which are not in direct contact with the rubber article. There may be a yellowish discoloration by reaction with nitrous fumes in the air.

Vulkazon®

Non-staining antiozonants

Characteristics

Vulkazon® AFD, when used in conjunction with antiozonant waxes, is a very effective non-staining antiozonant for diene rubbers, though without antioxidant or anti-flex cracking effects. It can also be used without wax in the production of goods based on chloroprene rubber or blends of chloroprene rubber with IR or SBR.

Vulkazon® AFS is used, with or without antiozonant wax, mainly for chloroprene rubber. In other diene rubbers Vulkazon® AFS in conjunction with antiozonant wax is often considerably less effective than the corresponding combinations consisting of Vulkazon® AFD and antiozonant wax. Vulkazon® AFS has no antioxidant or anti-flex cracking effect.

Applications

Vulkazon® AFD is used with an antiozonant wax for light-colored goods that must not cause contact staining, e.g. profiles, seals, hose, cables and other products based on NR, IR, BR or SBR, and without wax for products based on CR.

Vulkazon® AFS is particularly recommended for light-colored and non-contact-staining goods (see above) based on CR.

Product range and typical properties

Product	Chemical composition	Density (g/cm ³)	Initial melting point (°C)	Physical form	Standard packaging	Remarks
Vulkazon® AFS/LG	cyclic acetal	1.06	≥ 85	beige to brown lentil-shaped granules	20 kg paper bags on pallets	antiozonants for light-colored or black-containing
Vulkazon® AFD	enol ether	1.02	–	colorless to light yellow liquid	200 kg rolling channel drums on pallets	vulcanizates which must not stain through contact

Renacit®

Peptizing agents

Characteristics

Highly effective non-dusting chemical formulation for substantially reducing mastication times, thus increasing mixing capacity and reducing costs.

Applications

Renacit® 11 or 11/WG are particularly recommended as peptizers for NR but are also suitable for SR. Renacit® 11 or 11/WG are mainly used for mastication in internal mixers or on mixing mills in the presence or absence of carbon black.

Renacit® 9203/WG is a specially designed low DBD version for the mastication in absence of carbon black.

Product range and typical properties

Product	Chemical composition (international abbreviation)	Density (g/cm ³)	Physical form	Standard packaging
Renacit® 11/WG	2,2'-dibenzamido-diphenyl-disulfide (DBD) with activating additive and binder	1.4	blue-greenish extrusion granules	
Renacit® 11	2,2'-dibenzamido-diphenyl-disulfide (DBD) absorbed on clay, low dust	-	grayish powder	20 kg paper bags on pallets
Renacit® 9203/WG	2,2'-dibenzamido-diphenyl-disulfide (DBD) with activating additive and binder	-	blue-greenish extrusion granules	

Characteristics

These plasticizers all improve the low temperature flexibility and resilience of the vulcanizates. Some of the special plasticizers also improve the processing properties and tack of compounds. Others additionally improve the hot air resistance of the vulcanizates.

Applications

Technical goods based on natural or synthetic rubber (especially NBR or CR), e.g. hose and seals for vehicles, aircraft and machinery in general; moldings and extrudates; roll covers; conveyor and transmission belting; cable sheathing; proofing.

Product range and typical properties

Product	Chemical composition (International abbreviation)	Density (g/cm ³)	Refractive index (n _D 20 °C)	Physical form	Standard packaging	Remarks
Thioester and thioether plasticizers						
Vulkanol® OT	ether thioether	0.96	1.474	nearly colorless to yellow liquid	50 kg plastic bung hole drums, 180 kg rolling channel drums	used mainly for nitrile and chloroprene rubber; Vulkanol® OT particularly suitable for improving low temperature flexibility; Vulkanol® 85 and Vulkanol® OT are recommended for articles needing good heat stability; Vulkanol® 85 also serves as an anti-static agent
Vulkanol® 88	methylene bis (thioglycolic acid butyl ester)	1.10	1.490	light yellow liquid	60 kg and 230 kg plastic bung hole drums	
Vulkanol® 85	ether thioether	1.05	1.471	nearly colorless to yellow liquid	60 kg plastic bung hole drums, 1000 kg IBC	
Ester plasticizers						
Vulkanol® VP RUC 9210	mixture of thioesters and carboxylic acid esters	1.06	1.45	light yellow liquid	55 kg and 205 kg bung hole drums	plasticizer for goods in which heat stability and low temperature flexibility must be favorably combined
Aromatic polyether						
Vulkanol® FH	xylene formaldehyde resin	1.06 (at 50 °C)	1.570 (at 50 °C)	bright yellow viscous liquid	50 kg in hobbocks, 200 kg rolling channel drums	gives high building tack

Characteristics

These products are used for three-component bonding systems comprising resorcinol, methylene donor and reinforcing silica filler.

Applications

Production of compounds with which fabrics and cord (including those made of metals or glass) are bonded directly to rubber. Suitable for all types of rubber, except silicone rubber. In CR, Cohedur® RK is recommended as the resorcinol component.

Product range and typical properties

Product	Chemical composition (international abbreviation)	Density (g/cm ³)	Physical form	Standard packaging	Remarks
Cohedur® A 200	hexamethoxymethylmelamine ether (HMMM)	1.2	clear to cloudy liquid, colorless to yellow	250 kg rolling channel drums on pallets	
Cohedur® A 250	50 % hexamethoxymethylmelamine ether (HMMM) and 50 % filler	1.6	white powder	20 kg packages on pallets and FIBC	
Cohedur® H 30	hexamethylene tetramine (HMT) with amorphous silica (about 3 %)	1.3	white powder	20 kg paper bags on pallets	the mechanical properties of vulcanizates are considerably improved; often resistance to aging, too, is improved by the Cohedur® bonding agents
Cohedur® RDL	1/3 resorcinol, 1/3 hexamethoxymethylmelamin ether (HMMM), 1/3 silica	1.5	white to red brown powder, may contain soft lumps (may change during storage)	20 kg paper bags on pallets	
Cohedur® RS	homogeneous solidified melt of resorcinol and stearic acid in the ratio 2:1	1.19	beige to slightly reddish-brown lentil-shaped granules	20 kg paper bags on pallets	
Cohedur® RK	resorcinol derivative on filler in the ratio 1:1	1.55	white powder	25 kg packages on pallets	resorcinol component for use in CR

Zinc Oxide

Activators, fillers

Characteristics

These products are highly effective vulcanization activators. As the loading is increased, the activity of the vulcanization system and the degree of crosslinking are increased. Also used as light-colored reinforcing fillers.

Applications

Suitable for highly elastic or transparent vulcanizates; vulcanizates cured with metal oxides and without sulfur; food-contacting goods.

Product range and typical properties

Product	Chemical composition	Density (g/cm ³)	BET surface area (m ² /g)	Physical form	Standard packaging	Remarks
Zinkoxyd aktiv®	fine particles of precipitated zinc oxide	5.0	45	white to slightly	20 kg paper bags	Pb content 3 ppm,
Zinc Oxide Transparent	fine particles of precipitated zinc carbonate	3.5	45	yellowish powder	on pallets	Cd content 2 ppm; also suitable for latex

Silica Additive 9202

Processing additive

Characteristics

Silica Additive 9202 is a new processing additive to reduce compound viscosity of silica mixtures without reducing crosslink density and hardness of the vulcanizate. Often also the rheometer behaviour is improved (steeper curve with good scorch safety).

Applications

Suitable for all kind of compounds highly loaded with precipitated silica.

Product range and typical properties

Product	Chemical composition	Density (g/cm ³)	Assay (%)	Physical form	Standard packaging	Remarks
Silica Additive 9202	preparation of polyether polyol on silica	1.4	50	white to yellowish microgranules	25 kg paper bags on pallets and FIBC	mainly used for silica filled passenger tread formulations

Characteristics

Fillers with medium to strong reinforcing effect.

Applications

For all rubbers except silicone rubber. Vulkasil® S and Vulkasil® N are used mainly for hard transparent, light or colored rubber goods, e.g. footwear soles and heels, hose, profiles, cable sheathing, technical goods, and as ingredients of RFS bonding systems (e.g. Cohedur® systems). Vulkasil® C and Vulkasil® A 1 are not suitable for transparent goods.

Product range and typical properties

Product	Chemical composition	Density (g/cm ³)	BET surface area (m ² /g)	pH value ⁽¹⁾	Physical form	Standard packaging	Remarks
Vulkasil® S	reinforcing precipitated silica	2.0	175	6.2	white amorphous powder	25 kg paper bags on pallets	products are free from crystalline silica and silicates
Vulkasil® S/KG	reinforcing precipitated silica	2.0	175	6.2	white granules	25 kg paper bags on pallets and FIBC	
Vulkasil® N	reinforcing precipitated silica	2.0	125	6.9	white amorphous powder	20 kg paper bags on pallets	
Vulkasil® C	precipitated silica with a medium reinforcing effect	2.0	50	9.0	white amorphous powder		
Vulkasil® A 1	precipitated sodium aluminum silicate with a medium reinforcing effect	2.0	60	11.3	white amorphous powder	25 kg paper bags on pallets	

⁽¹⁾ according to DIN/ISO 787/9

For further information please contact your regional expert

Make use of our experience!

Talk to us! Whether it's technical details or new product ideas you need, our experts will be at your side from development right through to full-scale production. From individual recipe recommendations to on-site advice. We think of ourselves not just as suppliers, but as an active partner to our customers. We've been providing

this service throughout the world for over 90 years. Make use of all this experience in research and practical applications – get in touch today!

Addresses

Please direct any questions on latex chemicals from LANXESS to one of the following addresses:

LANXESS Deutschland GmbH

Business Unit Rubber Chemicals
D-51369 Leverkusen,
Germany
E-mail: info.ruc@lanxess.com
Phone: +49 214 30 71962
Fax: +49 214 30 959 71962

LANXESS India Private Limited

BU Rubber Chemicals, Rubber Technical Center
Plot No. A/221, 16th Road V
MIDC, Wagle Industrial Estate
Thane 400 604, India
E-mail: anand.kulkarni@lanxess.com
Phone: +91 22 2582 6501 & 6502 Ext. 16

LANXESS Chemical (Shanghai) Company Ltd.

BU-Rubber Chemicals
29F, Ocean Towers, No. 550,
Yan`An Road East,
Shanghai, 200001
P.R.China
E-mail: apac.ruc@lanxess.com
Phone: +86 21 33184888
Fax: +86 21 3318488 ext.3085

LANXESS Corporation

1588 Bushy Park Road
Goose Creek, South Carolina 29445
USA
E-mail: InquiriesRUC@lanxess.com
Phone: +1 843 820 6000
Fax: +1 843 820 6454

LANXESS K.K.

Rubber Chemicals
1-6-5, Marunouchi,
Chiyoda-ku, Tokyo 100-8215
Japan
E-mail: naohiro.murakami@lanxess.com
Phone: +81 3 5293 8024
Fax: +81 3 5219 9777

LANXESS Indústria de Produtos Químicos e Plásticos

Rubber Chemicals
Av. Maria Coelho de Aguiar
215 - Bloco B - 2º Andar
05804-902 Sao Paulo SP
Brazil
E-mail: quimicosparaborrachas.br@lanxess.com
Phone: +55 11 3741 2986
Fax: +55 11 3741 3139

Hazard categories / Food contact

Information concerning compliance with FDA and BfR regulations as also hazard categories can be obtained on request.

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.

Health and Safety Information:

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 Industrial & Environmental Affairs Department (IEA) of LANXESS Germany or - for business in the USA - the LANXESS Product Safety and Regulatory Affairs Department in Pittsburgh, PA.

Regulatory Compliance Information: Some of the end uses of the products described in this publication must comply with applicable regulations, such as the FDA, BfR, NSF, USDA, and CPSC. If you have any questions on the regulatory status of these products, contact your LANXESS Corporation representative, the LANXESS Regulatory Affairs Manager in Pittsburgh, PA or the Industrial & Environmental Affairs Department (IEA) of LANXESS Germany.

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LANXESS Deutschland GmbH
51369 Leverkusen
Germany

www.lanxess.com

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