







OUR HISTORY:

Expertise in Additives Since 1902

Since being founded in December 1902, we have been a family-owned, medium-sized company specialized in the production of additives.

Although in the first few decades, the core business was producing rubber additives, later we expanded our range with additives for lubricants, coatings, adhesives, and sealants. Our company name DOG Deutsche Oelfabrik GmbH & Co. KG does not reflect this diversity, so we have introduced a product brand concept according to the overview below. For our umbrella brand DOG, "Competence in Additives" was added as a slogan that represents our services well.

In addition to our company headquarters directly at the Hamburg harbour, in 2012 we also constructed a second production site in Marschacht, where we primarily manufacture our special products for the rubber and coating markets.

Social Responsibility

We want to contribute to making modern processes even more effective with our additives: add efficiency. That's why at the centre of our endeavour is the production of efficient products that are safe for the environment and the users. We use a wide range of **natural**, **renewable**

raw materials such as rapeseed oil and castor oil for our products and continually invest in the safety and environmental sustainability of our chemical processes.

In doing so, our highest goal is to pose no harm to people or the environment with our products while helping our customers advance their technology with our products.

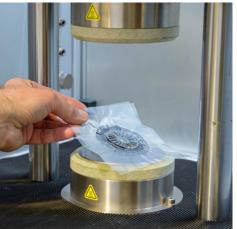
For us, it also goes without saying that we adhere to the laws and regulations, and moreover, we view corruption and child labour as being completely unethical and indefensible.

German Production Sites – Worldwide Sales

We can draw upon a distribution network that has been developed, modernized, and expanded over the course of almost 120 years. By combining our own technology with our local distribution partners who support our customers directly on-site, we have a local presence in over 80 countries. This dual strategy enables us to provide our customers both with fast reaction times and expert consulting for their application.

This strategy is supported by our own technical laboratory capacities that we maintain at our sites in Hamburg and Marschacht.







Your Advantages at a Glance

- We are offering Video Consultation on request
- We deliver highly effective additives globally, also in small units
- We offer a broad range of environmentally and worker-friendly products
- With our own R&D facilities, we are also the development partner of our customers
- As a medium-sized company, we can make fast decisions – we do not keep you waiting for an answer
- Our quality management is certified according to DIN ISO 14001

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Technical Datasheets

You can download always the newest version incl. technical data sheets at **www.dog-chemie.com**.



Dispergum® Zinc Soaps

Dispergum zinc soaps are tried and tested products, which predominantly act as lubricants and therefore lower the compound viscosity. The products may consist of saturated or unsaturated fatty acids and therefore has the function of internal or external lubricants. The

zinc content may act as an activator for the sulfur vulcanization and Dispergum zinc soaps can therefore partially replace stearic acid. Depending on the vulcanization system, Dispergum zinc soaps can also aid by having a slightly retarding effect on the sulfur vulcanization.

Appearance	Product	Properties	Dropping point [°C]	Ash [%]	Dosage [phr]
	Dispergum PT Pure zinc soap on the basis of unsaturated and saturated fatty acids	 Reduces viscosity / better flow behavior Improves filler dispersion Positive influence on heat build-up BfR¹⁾ / FDA²⁾ suitable 	100	13.0	2–5
	Dispergum E Pure zinc soap based predominantly on unsaturated fatty acids	 Low dropping point, therefore particularly suitable for one step and open mill mixing Improves filler dispersion BfR¹⁾ / FDA²⁾ suitable 	83	13.0	2–5
	Dispergum R Zinc soap combined with a special paraffinic lubricant	 Reduces viscosity / better flow behavior Improved release behavior Improves filler dispersion FDA²⁾ suitable 	97	10.2	2–5
	Dispergum ZK Special combination of zinc and potassium soaps	 Particularly effective for compounds with light fillers (such as silica or kaolin) Improves filler dispersion and reduces reagglomeration Improves flow behavior BfR¹¹ / FDA²¹ suitable 	95	13.5	3-5
	Dispergum GT Special combination of zinc soap and fatty acid ester	 Particularly improves the dispersion of silica respectively highly reinforcing fillers Optimizes dynamic properties such as hysteresis Reduces viscosity 	100	16.5	3–5
	Dispergum K Zinc soap combined with an inorganic dispersion agent	 Reduces viscosity / better flow behavior Improves filler dispersion Economical product BfR¹⁾ / FDA²⁾ suitable 	101	24.5	2–5

 $^{^{1)}}$ BfR: Bundesinstitut für Risikobewertung, recommendation XXI.

Product		Kon	takt	Lab Report			
	41	42	44	45	4553	D.O.GUM Highlights	
Dispergum PT	•	•	•	•		*	Page 9
Dispergum E	•						
Dispergum R	•						
Dispergum ZK					•		
Dispergum GT	•	•				*	Page 9
Dispergum K	•						

 $^{^{\}mbox{\tiny 2)}}$ FDA: listed in Food and Drug Administration § 177.2600



Dispergum® Peptizers

Particularly with natural rubber, the degradation of polymer chains is necessary for an optimized plasticity and dispersion of fillers. The systematic adjustment of the required viscosity leads to technical and economical advantages:

- Optimized filler dispersion
- Increase in productivity
- Energy savings during mixing
- More homogeneous blends

Dispergum peptizers are most efficient products for this purpose. Dispergum 24 acts a chemical and physical peptizer. It is recommended when good dynamic properties are required. Dispergum 36 and Dispergum 40 are solely chemical peptizers with excellent mastication properties. Due to the product form, Dispergum peptizers are easy to disperse. They are particularly worker-friendly, since they do **not contain PCTP or DBD**.

Appearance	Product	Properties	Dropping point [°C]	Ash [%]	Dosage [phr]
	Dispergum 24 Combiation of zinc soaps of specific fatty acids and oxidation catalyst	 Mild peptizer with a positive influence on dynamic properties such as heat build-up Suitable for light compounds Combines the properties of a peptizer and a processing additive No hazardous good, because PCTP- and DBD-free 	113	11.8	1–3
	Dispergum 36 Highly active oxidation catalyst in a matrix of organic and inorganic dispersants	 Highly efficient at low dosages Low dropping point Fast dispersion No hazardous good, because PCTP- and DBD-free * Softening point according to Kofler 	63*	21.5	0.1-1.0
	Dispergum 40 Highly active oxidation catalyst on a polymer carrier system	Highly efficient at low dosages Zinc-free No hazardous good, because PCTP- and DBD-free	93	20.0	0.1-1.0

 ${\tt PCTP} = {\tt Pentachloro\ benzolthiol}, \, {\tt DBD} = {\tt Diethyl-p-phenylen\ diamine}$

Product	Kon	takt	Laboratory Exposé		
	25	36	7	D.O.GUM Highlights	
Dispergum 24	•				
Dispergum 36		•		*	Page 11
Dispergum 40			•		



Deogum® – Special Processing Additives

Our Deogum special processing additives includes products with particular properties, tailor-made for specific applications or requirements.

Appearance	Product	Properties	Dropping point [°C]	Ash [%]	Dosage [phr]
	Deogum 80 Combination of fatty acid derivatives and lubricants	 Applicable for a broad range of elastomers Improved demoulding and reduced mould fouling in peroxide cured EPDM compounds 	112	3.0	1–5
	Deogum 194 Organosiloxane combined with lubricants	 Improved release and demoulding behaviour No impeding influence of the organosiloxane on following processes Low peroxide consumption Also suitable for special elastomers such as HNBR, ACM, ECO, etc. 	100	-	0.5–3
	Deogum 294 Organosiloxane combined with lubricants	 Primarily used for FKM Improved release and flow behavior No impeding influence of the organosiloxane on following processes 	104	-	0.5-3
	Deogum 400 Combination of fatty acid derivates and waxes	 Primarily used for FKM Improved demoulding and mould fouling behavior, particularly when curing with peroxides Improves dispersion and flow behaviour 	104	-	0.5-3
	Deogum 384 Phosphoric acid ester combined with organosiloxane	 Primarily for AEM and HT-ACM Reduces tackiness Optimizes dispersion and flow behaviour 	104	-	0.5-5

Product		Kon	takt		Laboratory Report					Laboratory Exposé	D.O.GUM Highlights		
	40	42	44	45	4519	4543	4548	4555	4568	11			
Deogum 80	•	•	•	•									
Deogum 194			•	•	•						*	Page 4	
Deogum 294										•			
Deogum 400							•	•					
Deogum 384				•		•							

Deoflow® / Deosol® – Zinc-free Processing Additives

The use of processing aids containing zinc can be disadvantageous for some elastomer types. The Deoflow / Deosol products offer a broad selection for varying fields of application. The range encompasses processing aids for standard elastomers as well as for special elastomers with a high temperature stability.

Appearance	Product	Properties	Dropping point [°C]	Ash [%]	Dosage [phr]
	Deoflow A / AM Fatty alcohol and fatty acid ester combined with lubricants	 Universally used, since no side effects for the vulcanization system Optimized dispersion and flow behavior Free from metal ions and therefore also suitable for elastomers containing halogens 	96	< 1.0	2-6
	Deoflow D Fatty alcohol and fatty acid ester with inorganic dispersion agent	Economic productOptimized dispersion and flow behavior	97	20.5	2-6
	Deoflow AP Fatty acid ester combined with lubricants	 Universally used, since no side effects for the vulcanization system Optimized dispersion and flow behavior Free from metal ions and therefore also suitable for elastomers containing halogens 	102	< 0.5	2-6
	Deoflow S Calcium salt of saturated fatty acids combined with amide esters	 Excellent lubricating and dispersion agent Improves demoulding and release behavior Versatile areas of application 	105	4.5	1–5
	Deoflow Z Calcium salt with amide ester and inorganic dispersant	 Economical product Lubricating and dispersing agent Improves demoulding and release behavior 	103	24.5	2-6
	Deoflow 821 Pentaerythritol tetrastearate	 Lubricating and demoulding agent Higher temperature stability, therefore also particularly suitable for NBR, HNBR and ACM Versatile areas of application Low dropping point 	65	< 0.2	1–3
	Deoflow F Combination of fattc acid ester with lubricants	Excellent lubricating and dispersion agentImproves extrusion and release behaviorReducing roller stickness	88	6.5	2–5
	Deosol HN Fatty acid ester combined with waxes and inorganic dispersant	 Versatile areas of application Dispersing aid, particularly for reinforcing fillers Low peroxide consumption Low dropping point 	55	21.5	2-10

Product		Kon	takt		Laboratory Report				D.O.GUM Highlights	
Product	40	42	44	45	4522	4558	4559	4563	D.O.GOIVI	nigillights
Deoflow A/AM/D	•	•	•						*	Page 10
Deoflow AP			•	•					*	Page 10
Deoflow S	•	•	•	•					*	Page 4
Deoflow Z			•		•				*	Page 4
Deoflow 821	•	•	•	•					*	Page 7+8
Deosol HN						•	•	•		



Deoplast® – Oleochemical Processing Additives

Deoplast is an established group of processing additives, which have been developed for the increased requirements posed to the polymer processing industry. Besides the classic focus on elastomer processing, Deoplast products are also suitable for thermoplastic polymers.

Appearance	Product	Properties	Dropping point	Ash	Dosage
			[°C]	[%]	[phr]
	Deoplast EP 11 Combination of zinc soap and fatty acid amide	 The composition of metal soap and amide optimizes compatiblization (phase transfer) and flow characteristic Improved demoulding and release Reduces viscosity 	110	6.0	2-5
	Deoplast EP 12 Complex mixture of metal soap and fatty acid amides	 Improves demoulding and release behaviour Optimized dispersion and flow behaviour Primarily for EPDM and EVA With antistatic properties 	120	3.0	2-5
	Deoplast EP 20 Fatty acid derivative free from metal ions	 Low dropping point Improved demoulding and release Optimized dispersion and flow behavior Free from metal ions and therefore suitable for elastomers containing halogens – i.e. CR 	80	< 0.2	1–5



Deotack® – RESINS – Homogenizing and Tackifying

Appearance	Product	Properties	Dropping point [°C]	Ash	Dosage
	Homogenisator 501 C9 hydrocarbon resin	 Improves the homogeneous blending of polymers with different polarities Optimized dispersion and processing behavior Increased tack 	[°C]	[%] < 0.1	[phr] 3-15
多 於	Homogenisator 501 D C9 hydrocarbon resin	Economical product with a distinctly darker color	100	< 0.1	3–15
	Deotack 1100 C5 hydrocarbon resin	 Homogenizing and tackifying resin Little influence on vulcanization Light color, neutral odor No PAH FDA²⁾ suitable 	98	< 0.2	2-6
	Deotack RS Alkyl phenolic resin	Excellent tackifying resin High building tack over a long period	102	< 0.2	2-6
	Deotack P Highly viscous polyether	 Plasticizer with low volatility and good extraction stability Increased tack Light color BfR¹⁾ suitable Predominantly for polar elastomers such as NBR or CR 	liquid	-	3–15
	Deotack 70 DL Highly viscous polyether on a silica carrier system	 Dry liquid of Deotack P, 70 % active substance Easier weighing / handling Particularly suitable for soft compounds or open mill mixing BfR¹⁾ suitable 	-	27.5	5–20

¹⁾ BfR: Bundesinstitut für Risikobewertung, recommendation XXI.

Product	Kon	takt		Laborato	D.O.GUM Highlights			
Product	40	42	4491	4541	4549	4497	D.O.GOIM	nigniignts
Homogenisator 501	•	•	•	•				
Deotack 1100					•			
Deotack RS						•		
Deotack P	•	•					*	Page 7
Deotack 70 DL	•	•						

²⁾ FDA: listed in Food and Drug Administration § 177.2600

										Elas
Requested Effect	Products	Page	NR/IR	SBR/BR	EPDM (s)	EPDM (p)	NBR	CR	IIR/CIIR/BIIR	
Improved FI	ow Properties / Lower Visco					47				
	Dispergum Zinc Soaps	4	VV	VV	V		V			
	Dispergum Peptizer (for NR)	5	VV							
	Deoflow S / Z	7	V	V	VV	V		v *	V	
	Deoflow A / AM / AP / D	7	V	V	V	VV		VV	VV	
	Deoflow 821	7					VV	~		VV
	Deoflow F	7	VV		VV	VV	V	~	V	
	Deogum 80	6	~	V	V	VV	VV	V**	✓ **	VV
	Deogum 194	6			V	V				
	Deogum 294	6								
	Deogum 400	6								
	Deoplast EP 11	8	V	V	V					
	Deoplast EP 12	8			VV	V				
	Deoplast EP 20	8						VV	V	
Improved Di	•									
•	Dispergum Zinc Soaps	4	VV	VV	V		VV			
	Deoflow S / Z	7	V	V	VV	V		V*	VV	
	Deoflow A / AM / AP / D	7	V	V	V	VV		VV	V	
	Deoflow 821	7					VV	V		
	Deoflow F	7	V	V	VV	VV		V	V	
	Deogum 80	6	V	V	V	VV	V		V**	VV
	Deogum 194	6	-		V	V				
	Deogum 294	6				-				
	Deogum 400	6								
	Deosol HN	7	V	V			V			
	Deoplast EP 11	8	V	V	V					
	Deoplast EP 12	8			VV	V				
	Deoplast EP 20	8				<u> </u>		VV	V	
E 10.6	Dispergum ZK	4	VV	VV	VV		VV		•	
Especially for white fillers	Dispergum GT	4	V V	VV	~	V				
	Homogenisator 501 / 501 D	9	<i>VV</i>	VV	VV		<i></i>	V V		
Particular for polymer blends	Dispergum Peptizer (for NR)	5					~ ~ ~	00		
	1 0 1)	~ ~							
Low Mixing	Temperature							l		
	Dispergum E	4	V V	V V	~		V			
	Deogum 400	6								
	Deoflow 821	7			V	V	V V	V	V	V
	Deosol HN	7	~	~	V	V	V	V		
Facility D	Deoplast EP 20	8			✓			~ ~		
Easier Demo	oulding / Improved Release B	1			4.1			4.5		
	Deoflow S / Z	7	~	V	VV	V		/ *	V V	
	Deoflow 821	7					<i>VV</i>	~		
	Deoflow F	7	V	V	VV	V	V			V
	Deogum 80	6				V V				V V
	Deogum 194	6			V	V	V	~		V
	Deogum 400	6								
	Deoplast EP 11	8	V	V	V					
	Deoplast EP 12	8			V	✓			V	
	Deoplast EP 20	8	~	~	~	~		V V	V	
Increased Bu	_									
	Homogenisator 501 / 501 D	9	V	~	~		V	~	✓	
	Deotack 1100	9	V	V	~	V	V	~	✓	
	Deotack RS	9	VV	VV	~		V V	VV	V V	
	Deotack P / 70 DL	9					V	V		

tomers CSM	CM	HNBR (s)	HNBR (p)	ACM	AEM	EVA	FKM	Page	Products	Requested Effect
COIVI	CIVI	madit (3)	тивк (р)	ACIVI	ALIVI	LVA	TIXIVI	rage	1 Todaeto	
		VV	V					4	Dispergum Zinc Soaps	
								5	Dispergum Peptizer (for NR)	
V	V V*							7	Deoflow S / Z	
VV	V							7	Deoflow A / AM / AP / D	
V		VV	V V	VV		V		7	Deoflow 821	
V	V							7	Deoflow F	
								6	Deogum 80	
		V	V	V	V			6	Deogum 194	
							VV	6	Deogum 294	
							VV	6	Deogum 400	
								8	Deoplast EP 11	
						V		8	Deoplast EP 12	
V	V							8	Deoplast EP 20	
		VV	V					4	Dispergum Zinc Soaps	
V	V V*							7	Deoflow S / Z	
VV	~					V		7	Deoflow A / AM / AP / D	
V		V	V	VV		V		7	Deoflow 821	
VV	V		, and the second					7	Deoflow F	
		V	V					6	Deogum 80	
		•	•	VV	VV			6	Deogum 194	
							VV	6	Deogum 294	
							V	6	Deogum 400	
								7	Deosol HN	
								8	Deoplast EP 11	
						V		8	Deoplast EP 12	
								8	Deoplast EP 20	
		V V	V					4	Dispergum ZK	
								4	Dispergum GT	Especially for white fillers
././								_		
V V								5	Homogenisator 501 D	Particular for polymer blends
)	Dispergum Peptizer (for NR)	polymer bremas
		VV	V					4	Dispergum E	
			•				V V	6	Deogum 400	
V	V	VV	V V	VV		V		7	Deoflow 821	
						•		7	Deosol HN	
V	VV							8	Deoplast EP 20	
								U	Deophast El 20	
	v *					~		7	Deoflow S / Z	
		V	V	V V		<i>V</i>		7	Deoflow 821	
	V			7 7		~		7	Deoflow F	
								6	Deogum 80	
		V	V	V	~	V				
				V			V V	6	Deogum 194 Deogum 400	
							00	6		
								8	Deoplast EP 11	
						V		8	Deoplast EP 12	
								8	Deoplast EP 20	
4									Hamanania tau 504 B	
V								9	Homogenisator 501 D	
V								9	Deotack 1100	
<i>VV</i>								9	Deotack RS	
V								9	Deotack P / 70DL	DOG



Deovulc® Accelerator Blends for EPDM and Diene Elastomers

Deovulc accelerator blends are balanced combinations of different accelerators, which are based on DOG's long-term experience in vulcanization chemicals. Deovulc accelerator blends enable the replacement of the usually complex accelerator systems in EPDM by one single component. The vulcanized products do not display blooming or staining problems. Deovulc accelerator blends additionally lend themselves as primary or secondary accelerators for the sulfur vulcanization of diene rubbers such as NR or NBR.

Advantages at a glance:

- Single component replaces complex accelerator blends in EPDM
- Saves R&D time ready-to-use
- No blooming, no staining
- 40 years of proven quality and experience in production
- May be used as a primary or secondary accelerator in diene elastomers

Appearance	Product	Properties	Dosage for	EPDM comp	ounds [phr]
		•	black	light	sulfur
	Deovulc EG 3 Combination of highly active accelerators, contains ETU	 Versatile areas of application Fast vulcanization Bloom-free	3–5	5-6	1-2
	Deovulc EG 3 MF Combination of highly active accelerators	 Versatile areas of application Fast vulcanization Bloom-free	3-5	5-6	1-2
	Deovulc BG 187 V Combination of thiazoles, dithiophosphates and alkaline accelerators. Successor of Deovulc BG 187 with complete REACH registration	 Does not form toxic nitrosamines Balanced vulcanization characteristics Good solubility in the polymer and hence bloom-free Available as powder or granules 	4-6	6-8	0.8-1.5
	Deovulc BG 383 Guanidine-free combination of accelerators with thiazoles, dithiophosphates and dithiocarbamates which does not form toxic nitrosamines	 Does not form toxic nitrosamines Without guanidines Balanced vulcanization characteristics 	5-6	6-8	0.8-1.5
	Deovulc BG 223 Well balanced composition of accelerators to replace OTOS	 OTOS replacement, non toxic Providing same curing behavior like OTOS, non reversible system Improving Compression Set Especially for NR and EPDM compounds 	2-6	4-7	1–2



Product	Kontakt Laboratory Exposé		Laboratory Report			D.O.GUM Highlights	
	47	3	4293 4510 4571		D.O.GOW HIGHIIGHTS		
Deovulc EG 3	•		•	•			
Deovulc EG 3 MF	•		•	•			
Deovulc BG 383	•						
Deovulc BG 223					•		

Deovulc® Single Accelerators

NEW

Appearance	Product	Properties	Product form	Active substance [%]	Dosage [phr]
	Deovulc TP 4-75 V Zinc dialkyl dithiophosphate as a 75 % preparation on a silica carrier system	 Nitrosamine free For rapid vulcanization, particularly as a primary accelerator for EPDM High solubility, no blooming Reversion stabilizer for NR, in combination with thiazole or sulphenamide accelerators Non-staining, therfore also particularly suitable for light compounds 	whitish powder	75	1.5-4.0
	Deovulc TP 4-50 V Zinc dialkyl dithiophosphate on a silica carrier	 Nitrosamine free accelerator For rapid vulcanization for EPDM mainly Non dusty preparation Non-staining, suitable for light compounds 	whitisch powder	50	2.5–5.0
	Deovulc ATP-70 Amine activated dithiophosphate as a 70 % preparation on a silica carrier system	 Nitrosamine safe Fast cure accelerator primarily in EPDM High level of cross-linking in comination with additional thiazol or sulphenamide accelaerators For low compression set and improved heat resistance 	beige powder	70	0.5-2.5
	Deovulc HDC-70 Hexamethylene diamine carbamate as a 70 % preparation on AEM	Amine accelerator for AEM, HT-ACM and FKM Soft granules for a dust- and speck-free incorporation Hydrolysis protection through the polymer carrier system	white granules	70	1.0-3.0
	Deovulc CTP-PVI N-(cyclohexylthio) phthalimide	Prevulcanisation inhibitorTypically used in combination with sulphenamidesExtends storage stability and flow time	white powder	> 95	0.1-1.0

Product	Kontakt 43	Lab Exposé 2	Lab Report 4551	Lab Report 4572	D.O.GUM Highlights	
Deovulc TP 4-75 V	•	•	•		*	Page 6
Deovulc TP 4-50 V				•		

Deovulc® Activators

Appearance	Product	Properties	Product form	Active substance [%]	Dosage [phr]
	Deovulc ZO Zinc-2-ethylhexanoate	 Activator for the sulfur vulcanization of NR Replacement for stearic acid Good solubility, no blooming Higher crosslinking density possible, so that compression set and dynamic properties can be improved 	highly- viscous liquid	100	1–4
	Deovulc ZO DL Zinc-2-ethylhexanoate on silica	67 % dry liquid of Deovulc ZOEasy weighing / handlingDust-free product	white powder	67	2-5
	Deovulc OH Fine particle calcium hydroxide	 Crosslinking activator and acid scavenger for FKM Fine powder for a spotless incorporation Provided in 1 kg plastic containers with screw caps BfR¹⁾ / FDA²⁾ suitable Available in 1 kg, 4 kg and 0.5 kg EVA bags, low meltable 	white powder	96	3-6
	Deomag 70 Magnesium oxide in a wax matrix	 Crosslinking activator and acid scavenger for CR, CM as well as for CSM Soft granules for a spotless incorporation Wax carrier system protects against humidity and atmospheric influences 	gray granules	70	4–10

¹⁾ BfR: Bundesinstitut für Risikobewertung, recommendation XXI.

Deosulf® Sulfur Preparations

Appearance	Product	Properties	Active substance [%]	1 phr sulfur corresponds to [phr]
	Deosulf L 95 Soluble sulfur in powder form	 Readily dispersed Dust-free incorporation Reduction of local overconcentration, enables uniform physical properties BfR¹⁾ / FDA²⁾ suitable 	99.0 (sol. sulfur)	1
	Deosulf U 60 Insoluble sulfur as a paste	 Spotless dispersion of insoluble sulfur Especially for soft compounds Prevents sulfur blooming from the raw compound FDA²⁾ suitable 	53.0 (insol. sulfur) + 7.0 (sol. sulfur)	1.67

 $^{^{\}rm 1)}$ BfR: Bundesinstitut für Risikobewertung, recommendation XXI.

Product	Kontakt 43	Laboratory Report 4545
Deovulc ZO	•	•
Deovulc ZO DL		•
Deosulf L 95	•	

 $^{^{\}mbox{\tiny 2)}}$ FDA: listed in Food and Drug Administration § 177.2600

 $^{^{\}mbox{\tiny 2)}}$ FDA: listed in Food and Drug Administration § 177.2600

Controzon® Antiozonant Waxes

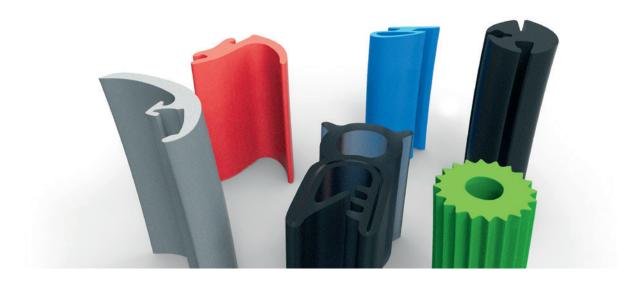
Controzon antiozonant waxes form a uniform, flexible film on the surfaces of vulcanized rubber and consequently protect static products from the harmful influence of ozone and light. Controzon antiozonant waxes are usually combined with chemical antiozonants such as those

based on para-phenylendiamine. The synergistic effect of the wax and the chemical antiozonant enables a protection against dynamic stress. The migration behavior of Controzon antiozonant waxes mainly depends on solubility, temperature and the molecular chain distribution.

Appearance	Product	Properties	Congealing point ca. [°C]	Dosage [phr]
	Controzon Selected <i>n</i> - and <i>iso</i> -paraffins	 For ozone test at ~25°C- 40°C BfR¹¹ / FDA²¹ suitable Specific molecular weight distribution with components of higher molecular weight 	56	2-6
	Controzon W Selected <i>n</i> - and <i>iso</i> -paraffins	 For ozone test at ~25°C- 40°C BfR¹¹ / FDA²¹ suitable Narrow molecular weight distribution 	56	2-6
	Controzon Plus Selected <i>n</i> - and <i>iso</i> -paraffins	 For ozone test at ~40°C-50°C BfR¹¹) / FDA²¹ suitable Medium molecular weight distribution 	65	2-6
	Controzon S Selected <i>n</i> - and <i>iso</i> -paraffins	 For ozone test at ~40 °C- 50 °C BfR¹⁾ / FDA²⁾ suitable Specific molecular weight distribution with components of higher molecular weight 	64	2-6

 $^{^{\}mbox{\tiny 1)}}$ BfR: Bundesinstitut für Risikobewertung, recommendation XXI.

 $^{^{\}mbox{\tiny 2)}}$ FDA: listed in Food and Drug Administration § 177.2600



Product	Laboratory Report							
	4470	4474	4469	4526				
Controzon	•							
Controzon W		•						
Controzon Plus			•					
Controzon S				•				

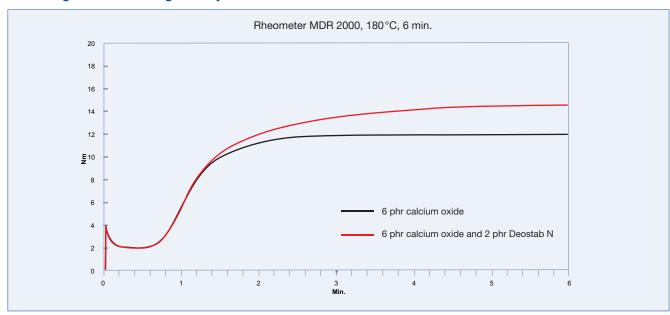
Deostab N® Vulcanization Stabilizer

Deostab N acts as a vulcanization stabilizer in sulfur-cured systems for pressureless vulcanization, where calcium oxide is required. Particularly EPDM profile compounds require Deostab N for an improved compression set without having to increase accelerator concentrations.

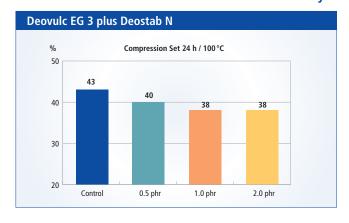
Appearance	Product	Properties	Ash [%]	Dosage [phr]	Technical Literature
	Deostab N Crosslinked native oils (stabilized)	 In pressureless, sulfur-cured vulcanization systems, the crosslinking density is improved → reduction of the compression set Primarily for EPDM profile compounds BfR¹¹) suitable No blooming Also particularly suitable for nitrosamine-free systems 	6.0	0.5-2	Kontakt 35 Kontakt 44 Kontakt 47 D.O.GUM Highlights

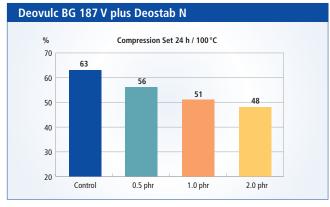
¹⁾ BfR: Bundesinstitut für Risikobewertung, recommendation XXI.

Increasing the Crosslinking Density in EPDM after the Addition of Deostab N



Influence of Deostab N on a Sulfur-Cured EPDM System with 5 phr of Calcium Oxide





Deosec® Calcium Oxide Preparations

Especially for pressurelessly vulcanized products, humidity must be prevented to avoid the formation of porosity. Deosec is able to chemically bind humidity contained in elastomers. In its standard form, Deosec is provided in preweighed EVA bags with low melting points.

Appearance	Product	Properties	Ash	Dosage
			[%]	[phr]
	Deosec PD Calcium oxide with up to 5 % oil	 Fine, dust-free powder for a spotless incorporation High content of active substance Preweighed in 1 kg low-melting EVA bags 	> 94.0	2-12
	Deosec PD-F Calcium oxide with up to 5 % white oil	 Fine, dust-free powder for a spotless incorporation BfR¹⁾ / FDA²⁾ suitable High content of active substance Preweighed in 2.5 kg low-melting EVA bags 	> 94.0	2–12

 $^{^{\}mbox{\tiny 1)}}$ BfR: Bundesinstitut für Risikobewertung, recommendation XXI.





Product	Laboratory Report 4542
Deosec PD	•

²⁾ FDA: listed in Food and Drug Administration § 177.2600

Factice

In general, factices are polymers produced by crosslinking unsaturated, native oils. Various base oils, as well as, different crosslinking agents allow for the production of a broad range of factice types. The special structure imparts specific properties to the factice for its application as an additive in elastomer compounds:

- Improved plasticizer absorption and retention
- Improved pore structure of foam / cellular rubber
- Imparts thixotropy, better dimensional stability
- Reduced shrink of the raw compound
- Improved surface feel and better grindability
- Optimization of dynamic crack resistance
- Smoother surface and lower tolerance variation in extrusion and calander processes

Sulfur Factice – Brown

Appearance	Product	Properties	Total sulfur [%]	Free sulfur [%]	Oil content [%]
	Factice 10 Brown sulfur factice	 Broad range of application Low free sulfur content Low influence on compression set BfR¹⁾ / FDA²⁾ suitable 	13	< 0.2	0
	Factice 14 Brown sulfur factice	 Broad range of application Also available finely ground Mainly for extrudates, printing blankets or rollers BfR¹⁾ / FDA²⁾ suitable 	16	0.65	0
	Factice 17 Brown sulfur factice	 Broad range of application Also available finely ground Mainly for extrudates, printing blankets or rollers BfR¹⁾ / FDA²⁾ suitable 	17	1.15	0
MAK	Factice 25 Brown sulfur factice	Predominantly for ebonite dust replacement Highest sulfur content	23	4	0
	Factice 10 soft Brown sulfur factice	Predominantly for soft compounds or compounds with low shear forces, such as cellular rubber BfR ¹⁾ / FDA ²⁾ suitable	10	< 0.2	0
	Factice DS soft Brown sulfur factice oil extended	Predominantly for soft compounds or compounds with low shear forces, such as cellular rubber Considerable reduction of product hardness	11	0.45	30
	Factice K 14 D Brown sulfur factice	Economic all-purpose type Predominantly for extrudates	14.5	1.5	0
	Factice PD 14 Brown sulfur factice oil extended	Economic all-purpose type Good compatibility with SBR	15	2.0	15
	Factice NP 17 Brown sulfur factice	 Mainly used for chloroprene Reduced mill sticking Good dispersibility	15	0.35	0

¹⁾ BfR: Bundesinstitut für Risikobewertung, recommendation XXI.

²⁾ FDA: listed in Food and Drug Administration § 177.2600

Sulfur Factice – Yellow

Appearance	Product	Properties	Total sulfur [%]	Free sulfur [%]	Oil content [%]
	Factice Gloria 17 Light yellow sulfur factice	 Popular for light compounds Broad range of applications Recommended for printing blankets and rollers BfR¹⁾ / FDA²⁾ suitable 	16.5	1.35	0
	Factice Gloria L Light yellow sulfur factice oil extended	 Popular for light compounds Broad range of applications Good dispersibility BfR¹⁾ / FDA²⁾ suitable 	13.5	1.05	20
	Factice Hamburg 4 Yellow sulfur factice	 Popular for light compounds Economical alternative to Factice Gloria 17 BfR¹⁾ / FDA²⁾ suitable 	16.5	1.05	0

¹⁾ BfR: Bundesinstitut für Risikobewertung, recommendation XXI.

Sulfur Factice – Based on Castor Oil

Appearance	Product	Properties	Total sulfur [%]	Free sulfur [%]	Oil content [%]
	Factice NQ Light brown sulfur factice	 Castor oil factice for optimized swelling resistance Predominantly used for NBR and CR BfR¹⁾ suitable Limited storage stability 	12.5	1.05	0
	Factice RQ 20 Brown sulfur factice	 For NBR and CR articles with high swelling resistance Optimized storage stability 	19.0	5.5	0

¹⁾ BfR: Bundesinstitut für Risikobewertung, recommendation XXI.

Peroxide Factice – Sulfur- and Chlorine-free

Appearance	Product	Properties	Acetone extract [%]	Free sulfur [%]	Ash content [%]
	Factice WP Halogen- and sulfur-free special factice	 For all vulcanization types, particularly peroxide curing – no influence on compression set Excellent heat- and UV-resistance Suitable for transparent articles 	17.5	0	< 0.2
	Factice WPF-NT Halogen- and sulfur-free special factice	 New, continuous production process Selected, particularly fine partikcle size For all vulcanization systems Excellent heat- and UV-resistance 	20	0	< 0.2

²⁾ FDA: listed in Food and Drug Administration § 177.2600

Sulfur Chloride Factice – for Eraser Production

Appearance	Product	Properties	Acetone extract [%]	Free sulfur [%]	Ash content [%]
	Factice No. 12 White sulfur chloride factice	 Mainly used for eraser production May be used as retarder for sulfur vulcanization in small quantities Contains mineral oil 	22.0	< 0.1	16.5
	Factice No. 17 GW White sulfur chloride factice	 Mainly used for eraser production Without additional mineral oil or fillers BfR¹⁾ suitable 	3.5	< 0.1	4

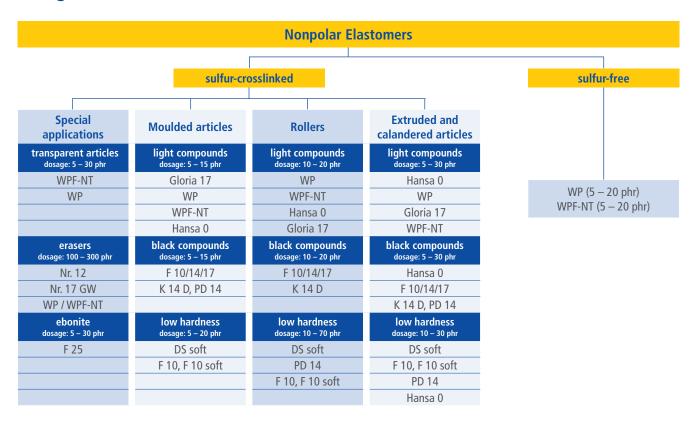
Sulfur Chloride Factice – Stabilized, for General Applications

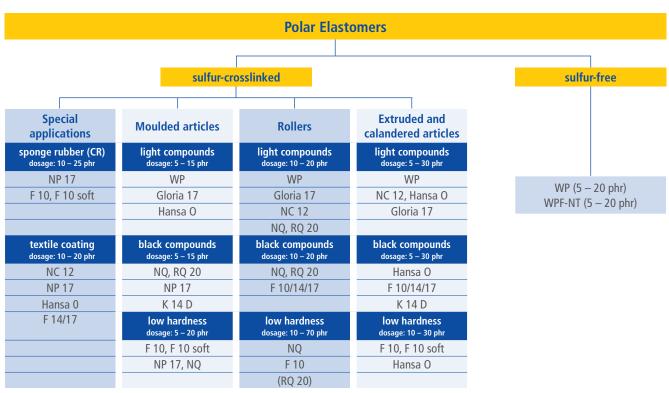
Appearance	Product	Properties	Acetone extract [%]	Free sulfur [%]	Ash content [%]
	Factice Hansa O Stabilized sulfur chloride factice	 Broad range of application Excellent dimensional stability for extrudates Low influence on compression set BfR¹⁾ suitable 	8.5	< 0.1	5
	Factice NC 12 Stabilized sulfur chloride factice	 Especially for CR textile coating BfR¹⁾ suitable 	8.5	< 0.1	4

 $^{^{\}rm 1)}$ BfR: Bundesinstitut für Risikobewertung, recommendation XXI.

Product	Sulfur Factice	Sulfur Chloride Factice	Peroxide Factice		
Kontakt 38	•	•	•		
D.O.GUM	*	*	*		
Highlights	Page 13				

Dosage Guidelines for Factice





Deolink® - Silanes

Silanes offer the possibility of covalently bonding an inorganic filler to an elastomer. The chemical reaction of silanization leads to an array of advantages.

Advantages of Silanes:

- Higher crosslinking density
- Reduced abrasion
- · Improved dynamic properties
- Lower compression set
- Optimized processing
- Improved electric properties

Fillers suitable for silanization have hydroxy groups on their surface, such as silica, kaolin, aluminium hydroxyde, etc. Carbon black and chalk are unsuitable for silanization. The organofunctional group of the silane must be selected according to the vulcanization system and elastomer type. Sulfur silanes are therefore predominantly used for systems with sulfur vulcanization, whereas vinyl silanes are employed for radical/peroxide vulcanization. DOG offers a range of liquid products as well as special silane preparations. Liquid silanes have the tendency to be very sensitive towards humidity. The resulting premature hydrolysis can lead to a loss in activity. Our polymer-based silane preparations provide a strong protection against humidity.

Deolink® Silane Preparations on Polymer / Wax Systems

The carrier systems of our Deolink silane preparations are specially designed for each silane and consist of polymer / wax or pure polymer systems. Deolink silane preparations with a silane content of 50 % on these carrier systems offer the following advantages compared with liquid silanes or silanes on mineral carrier systems:

- High protection against humidity
- Extended storage stability with loss of activity
- Excellent dispersion and dosage
- Complete use of open packages no material loss
- Easy incorporation without specks
- For open mill mixing as well as continuous mixing processes

Appearance	Product	Properties	Silane content	Dosage
			[%]	[phf] ²⁾
	Deolink TESPT Bis[triethoxysily propyl] tetrasulfide on polymer / wax carrier	 Sulfur silane most commonly used Improved mechanical properties such as abrasion or compression set Optimum silanization at a mixing temperature between 130-150 °C 	50	2–16
	Deolink MX Thiocarboxy silane on polymer carrier	 Sulfur silane with blocked mercapto group May be used across a broad range of mixing temperatures Usually more effective than TESPT at lower mixing temperatures Lower risk of scorch No typical mercaptane odor 	50	1-8
	Deolink Vinyl Tris[2-methoxyethoxy] vinyl silane on polymer / wax carrier	Traditional vinyl silane for radical crosslinking	50	1-6
	Deolink VO Polysiloxane on polymer / wax carrier	 Oligomeric vinyl silane for peroxide vulcanization Does not form any toxic methoxyethanol Replacement for traditional vinyl silanes Low VOC BfR¹¹ suitable 	50	1-6
	Deolink VE Polysiloxane on polymer / wax carrier	 Oligomeric vinyl silane for peroxide vulcanization Does not form any toxic methoxyethanol Replacement for vinyltriethoxy Silane Low VOC BfR¹¹ suitable 	50	1–6

Silane Preparations on Mineral Carrier Systems

For certain silanes or applications, mineral carrier systems are more advantageous than organic polymers, e.g. when flame retardancy is required. The dry liquid carrier systems are also adapted for each silane or application.

Compared with liquid silanes, the following advantages are observed:

- Excellent dispersion and dosage
- Easy handling
- For open mill mixing as well as continuous mixing processes

Appearance	Product	Properties	Silane content	Dosage
POTENTIAL TAXABLE PARTICIPATION			[%]	[phf] ²⁾
	FamaSil DL-VM Silane blend with a polymeric processing aid on a mineral carrier	 Synergistic combination of vinyl- and methacryl-functionalized organosilane For radical / peroxide crosslinking Does not form any toxic methoxyethanol Especially for highly loaded, flame retardant applications such as cable compounds Combines wetting and coupling of fillers, therefore improves physical properties as well as processing behavior 	50	2-6
	Deolink Amino TE 45 DL 3-Aminopropyltriethoxy silane on a mineral carrier	 For sulfur-free vulcanization systems Predominantly for ACM and AEM compounds with light fillers BfR¹⁾ suitable 	45	1–6

¹⁾ BfR: Bundesinstitut für Risikobewertung, recommendation XXI.

Product	Kontakt	Laboratory Exposé			D.O.GUM Highlights		
	39	8	9	10	12	D.O.GOINI	nigillights
Deolink TESPT	•					*	Page 11
Deolink MX	•			•		*	Page 10
Deolink Vinyl	•	•	•				
Deolink VO					•	*	Page 12



²⁾ phf: parts per 100 filler

Deolink® – Liquid Silanes

DOG has offered a broad selection of liquid silanes for many years. Along with the standard products, our Marschacht site also offers the possibility of producing tailor-made silane blends for our customers.

- It goes without saying that DOG only provides products compliant with REACH
- Flexible unit sizes from 25 kg canisters up to 1 MT IBCs
- Individual silane blends tailored to your needs, also in combination with further additives

Appearance	Product	Properties	Silane content	Dosage
	Deolink TESPT-100 Bis[triethoxysilylpropyl] tetrasulfide	 Sulfur silane most commonly used Improved mechanical properties such as abrasion or compression set Optimum silanization at a mixing temperature between 130-150 °C 	[%] 100	[phf] ²⁾
	Deolink MX-100 Thiocarboxy silane	 Sulfur silane with blocked mercapto group May be used across a broad range of mixing temperatures Usually more effective than TESPT at lower mixing temperatures Lower risk of scorch No typical mercaptane odor 	100	0.5-4
	FamaSil FR-VM Silane blend with a polymeric processing aid	 Synergistic combination of vinyl- and methacryl-funktionalized organosilane for radical vulcanization systems Does not form any toxic methoxyethanol during hyrolysis Especially for highly loaded, flame retardant applications such as cable compounds Combines wetting and coupling of fillers, therefore improves physical properties as well as processing behavior 	95	0.5-2
H	Deolink Vinyl-100 Tris[2-methoxyethoxy] vinyl silane	Traditional vinyl silane for radical crosslinking systems	100	0.5-3
	Deolink Vinyl TE-100 Triethoxy vinyl silane	 Vinyl silane for radical crosslinking systems Does not form any toxic methoxyethanol during hyrolysis BfR¹⁾ suitable 	100	0.5-3
7	Deolink Methacryl TM-100 Methacryloxypropyl trimethoxy silane	Suitable for radical as well as for sulfur crosslinking systems BfR ¹⁾ suitable	100	0.5-3
	Deolink Amino TE-100 3-Aminopropyl triethoxy silane	 For sulfur-free crosslinking systems Predominantly for ACM and AEM compounds with light fillers BfR¹⁾ suitable 	100	0.5-3

¹⁾ BfR: Bundesinstitut für Risikobewertung, recommendation XXI.

Product	Deolink TESPT-100	Deolink MX-100	Deolink Vinyl-100
Kontakt 39	•	•	•

²⁾ phf: parts per 100 filler

General Information

Product	Unit	Stora- bility	Standard pallet weight	Product	Unit	Stora- bility	Standard pallet weight
	[kg]	[months]	[kg]		[kg]	[months]	[kg]
Controzon / W / Plus / S	25	24 🌡	675	Deovulc EG 3 (powder)	C 20	12 🌡	600
Decfiere 6 / 688 / 6D / C / 7	25	2.4	750	EG 3 (granules)	C 25	12 🌡	600
Deoflow A / AM / AP / S / Z D / F / Z	25 25	24 24	750 1000	EG 3 MF (powder)	C 20	18 🌡	600
Deoflow 821	20	24	540	BG 383 (powder)	C 25	18 🌡	600
2011011 021	20	2-7	340	BG 383 (granules)	C 25	18 🌡	600
Deogum 80	20	18	540	BG 223 (powder)	C 25	24 🌡	600
Deogum 194 / 294 / 384 / 400	C 20	74	480	TP 4-75 V (powder)	C 25	24 🌡	600
200guii 1347 2347 3047 400	C 20	24	400	TP 4-50 V (powder)	C 25	24 🌡	600
Deolink TESPT / MX / Vinyl	C 20*)	24	640	ATP-70 (powder)	C 25	24 🌡	600
VO / VE	C 20*)	24	480	ZO	D 200	18	800
Amino TE 45 DL	C 20*)	6	640	ZO DL	C 25	18	600
FamaSil DL-VM	C 20	12	480	ОН	C 18x1.0	24	648
Deolink (liquid)				CTP-PVI	25	24	600
TESPT-100 / MX-100	D 200; P 25	24	800	HDC-70	C 20	12	600
Vinyl-100 / Vinyl TE-100	D 200; P 25	24	800	Dispergum			
Amino TE-100	D 190; P 25	24	760	24/36/40/E/GT/I	PT/R 25	24	750
	D 200; P 25	24	800	K/ZK	25	24	1000
Methacryl TM-100	D 200; P 25	24	800	Faction	F 25 25	18	750
FamaSil FR-VM	D 190; P 25	24	760	Factice F 10 / F 14 / F 17 / K 14 D / PD 14	25 25 25 25	12	750
Deomag 70	C 25	12	800	F 10 soft	25	12	500
Deosec PD	20 x 1.0	12	1000	DS soft	25	12	1000
Deosec PD-F	8 x 2.5	12	1000	Gloria 17 / Gloria		24	600
Deosol HN	25	12	750	Hamburg 4	25	24	750
	25	12		NQ / RQ 20	25	6	500
Deostab N	20	24	700	NP 17 / Nr. 12	25	12 🌡	750
Deosulf L 95	25	24	1000	Nr. 17 GW	20	24	600
U 60	B 20	12	480	Hansa O / NC 12	20	24	500
Deotack RS	20	24	500	WP / WPF-NT	25	24	825
P	F 200	24	800				
70 DL	C 25	24	600	Homogenisator 501	25	24	1000
1100	25	24	1000	Homogenisator 501 D	25	24	1000

Units:

Standard packaging: PE or paper bags C= carton, B= bucket, D= drum, P = pail (canister), special packaging on request

Storage conditions:

The shelf life begins with the delivery date. Storage in dry and cool, places, in originally sealed packaging.

■ Store at 25 °C max.

Test Methods			
Met	hod	Met	hod
Acetone extract ¹⁾ Ash (2 h at 950 °C) Density (at 20 °C) Congealing point Softening point (c + b)	DIN ISO 1407 DIN EN ISO 3451-1 DIN ISO 787, Part 10 A DIN ISO 2207 ASTM D 3461	Free sulfur content Total sulfur content Melting range Dropping point (Mettler) Water content	H. Auler GAK 14, 1961, 712 DIN ISO 51724-3 ASTM D 1519 DIN ISO 2176 DIN ISO 3733

¹⁾ The extract is determined at a defined time after manufacturing and can decrease over time, depending on storage conditions and factice type.



^{*) =} also available in preweighed bags (0.5 kg - 2 kg)

Technical Literature

We have devised detailed technical information for our products. From the basics about each product to compound recipe recommendations and detailed test series, we have assembled interesting facts and results for your information.

Literature for the Rubber Industry



Literature Essentials	Highlights for Your Productivity

Kontakt Nr. 25	Dispergum 24
Kontakt Nr. 35	Deostab
Kontakt Nr. 36	Dispergum 36
Kontakt Nr. 38	DOG Factice
Kontakt Nr. 39	DOG Silane Preparations
Kontakt Nr. 40	Selected Processing Additives in CR
Kontakt Nr. 41	Dispergum Zinc Soaps in NR / SBR / BR
Kontakt Nr. 42	Selected Processing Additives in NBR
Kontakt Nr. 43	Deovulc Accelerator Blends
Kontakt Nr. 44	Processing Additives in EPDM Compounds
Kontakt Nr. 45	Processing Additives in in HNBR Compounds

Dispergum [®] Zinc Soags in NR	2000 T	371
EHEE	LABORATORY EXPOSE 12	3
· mount · transform · transform · transform	Deolink® VO Deolink® Vinyl Stri Vinyl State Propertiess on	KONTAKT 45
* Distriction * Control of the Contr	TOO COME TO SEE CASE TO SEE CASE TO SEE	Processing Additives in 1988 Compounds
2/13/6/5		





Literature for the Coating Industry



Deogrip in Practice "PU- and Acrylare Systems" Facts about Deogrip®

Facts about Deolink® and Deogrip®

Product Range "Quality Products for the Coating Industry"



Literature for the Lubricant Industry



Product Range "Quality Products for the Lubricant Industry"



Literature for the Adhesives & Sealants Industry



Product Range "Quality Products for the Adhesives & Sealants Industry"





Imprint



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Hamburg Headquarters

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New Zealand

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