



NOVOLAK RESINS



LERG IS THE LARGEST MANUFACTURER OF NOVOLAK RESINS IN POLAND

We are the market leader in the synthetic resin industry in Poland. Our standing as a manufacturer and supplier of products tailored to the customer needs across our sectors is backed by more of 80 years of experience and expertise. Our product portfolio today features approx. 600 products, including polyester resins, novolak resins, phenolic resins, resins for wood-based and insulation materials, formalin, as well as Polfill®-branded range dedicated for car body and paint renovation. Our products all find their applications in various industries.

For years now, we have been growing and expanding a leading and secure business within the LERG Chemical Group, which operates to enable entry into new product and sales markets domestically and across a range of geographies.

Currently, the Company's offer covers the following types of novolak resins:

SOLID:

- base novolaks in the form of flakes and pearls
- fine-ground novolaks in the form of a powder composition

LIQUID:

- novolak resin solutions
- resole resins

APPROX. 40% OF THE NOVOLAK RESINS FROM OUR PRODUCTION IS SOLD TO EXPORT MARKETS

Among our Customers are global producers of tires, technical felts, friction and abrasive materials. Our growing Customer base across Europe is the best proof of Customer satisfaction with

the quality of our novolak resins and the terms of partnership with LERG. Also, we boast an incremental growth in our reach beyond Europe.



TECHNOLOGY AND TECHNICAL ADVANCEMENT

We use a fully automated batch charging system for basic raw materials (phenol and formalin). We continuously improve the efficiency of our production lines.

Recently, we have put into operation two new reactors to boost our capacities in responding to the growing demand on the global novolak resin markets.

Lerg's production process for novolak resins is based on a cutting-edge, environmentally friendly and fully automated grinding plant with an agitator station for homogenisation of the final product. The plant design supports a number of technical solutions for the production of a wide range of products to meet the expectations and needs of our Customers.



OUR RESIN RESEARCH AND DEVELOPMENT EFFORTS ARE STRUCTURED SO AS TO CATER FOR INDIVIDUAL CUSTOMER REQUIREMENTS

Approx. 100 new and existing product developments (NPDs, EPDs) are launched at Lerg every year. The quality of our products is demonstrated with awards and certificates, including DNV GL, ISO 9001:2015 Management System Certificate, or the Polish Smart Growth Award.

Lerg operates a well-equipped in-house R&D facility. We also work with international R&D centres in our continuous efforts to provide advanced solutions for our Customers based on optimized technology requirements.

INSTRUMENTAL ANALYSIS LABORATORY:
ICP-OES SPECTROMETRIC TESTING



INSTRUMENTAL ANALYSIS LABORATORY: GC-FID, GPC,
GC-MS, HPLC CHROMATOGRAPHIC TESTING

NOWOLAK-RANGE NOVOLAK RESINS - APPLICATIONS

RUBBER INDUSTRY (TIRES)

LERG offers novolak resins for use in the tire and rubber industry, where, in a system with a curing agent, they are made into reinforcing components. When added to the raw rubber mixture, they enter into reactions with each other, and not with the rubber, to yield a resite network that penetrates the rubber during vulcanisation. They are traded in the form of drops or flakes.

We also offer phenolic resins in water solutions, which are used as a component in impregnating baths for polyamine and polyester fabrics in the production of conveyor belts, V-belts and other textile-rubber products.



ABRASIVES

Liquid resins are used for wetting/cross-linking abrasive grains in the production of abrasive discs, and also for fixing the grain to the backing in the production of coated abrasives. The main input material is phenol but we also supply resins with the addition of urea or melamine. The resins are available in various viscosity ranges; we also offer a range of fine-ground resins.

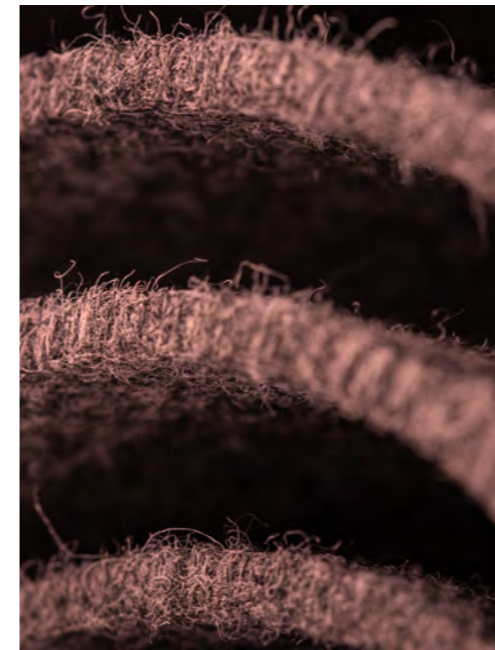


FRICION MATERIALS

LERG's offer further covers fine-ground novolak resins used as a binder in the production of friction lining, i.e. brake pads or shoes, clutch facings, etc. These resins are available in versions tailored to the individual Customer needs.

TECHNICAL FELTS

This product group features fine-ground novolak resins for use as binders in the production of technical felts. There resins are available in the basic version and with a number of additives. According to the Customer's requirements, these resins can be enriched with antipyrenes, separation agents, anti-dusting agents and fillers.



FLAME RETARDANT MATERIALS

We manufacture a range of resins for use as binders in the production of flame retardant materials, such as furnace lining bricks, blocks, ingot moulds, etc.

Types of resins:

- fine-ground novolak resins,
- liquid phenolic-formaldehyde resins of the resole type,
- phenolic-formaldehyde resins of the novolak type,
- novolac liquid phenol-formaldehyde resins.

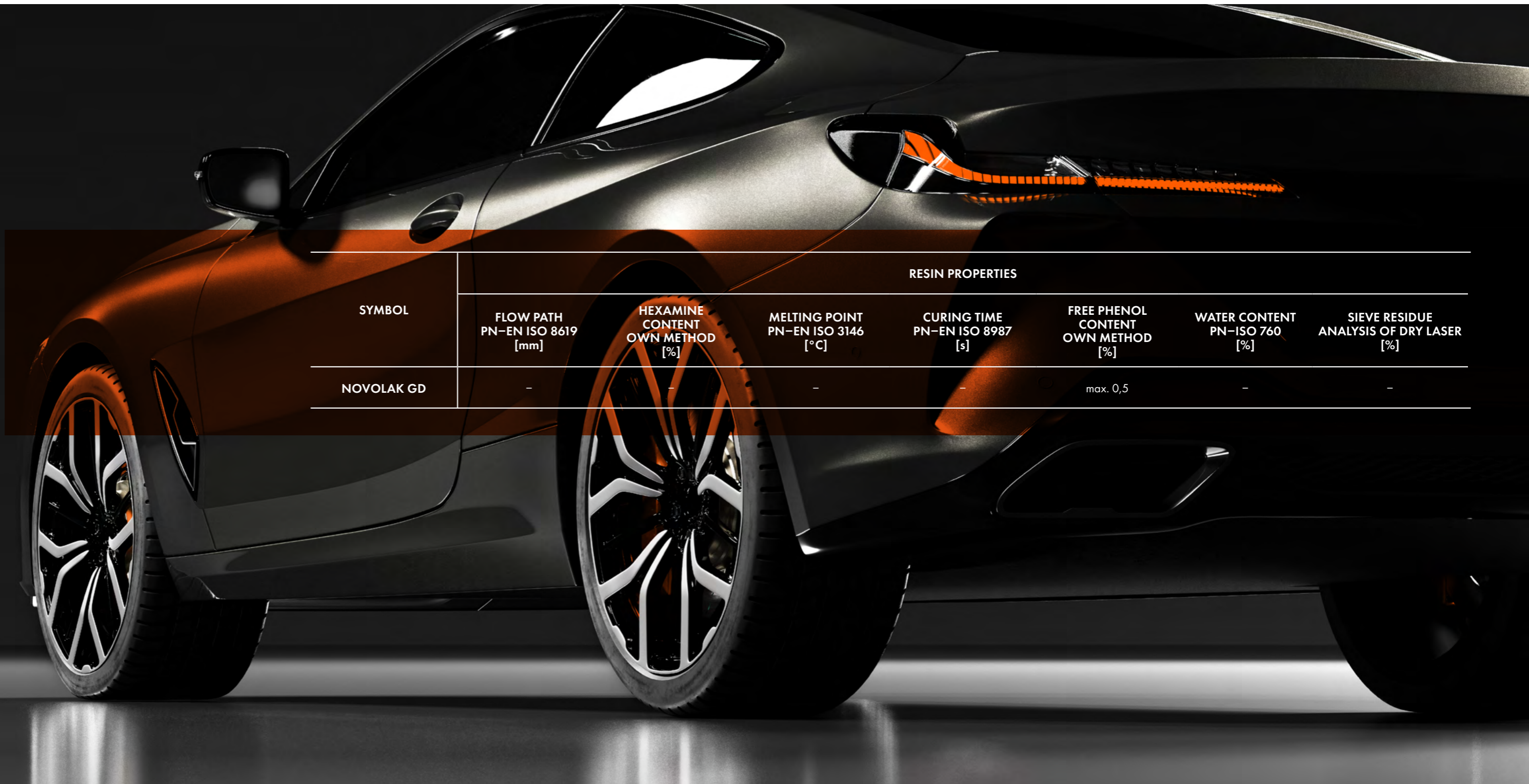


FOUNDRY

Novolak-type resins in the flake form or (if requested by the Customer) in the ground form are offered to manufacturers of resin-bonded sands. Resin-bonded sands are used in the foundry industry for the production of hot-box cores in the Croning process.

NOVOLAK
GD

RUBBER
INDUSTRY
(TIRES)



SYMBOL	RESIN PROPERTIES						
	FLOW PATH PN-EN ISO 8619 [mm]	HEXAMINE CONTENT OWN METHOD [%]	MELTING POINT PN-EN ISO 3146 [°C]	CURING TIME PN-EN ISO 8987 [s]	FREE PHENOL CONTENT OWN METHOD [%]	WATER CONTENT PN-ISO 760 [%]	SIEVE RESIDUE ANALYSIS OF DRY LASER [%]
NOVOLAK GD	-	-	-	-	max. 0,5	-	-



SYMBOL	RESIN PROPERTIES						
	FLOW PATH PN-EN ISO 8619 [mm]	HEXAMINE CONTENT OWN METHOD [%]	MELTING POINT PN-EN ISO 3146 [°C]	CURING TIME PN-EN ISO 8987 [s]	FREE PHENOL CONTENT OWN METHOD [%]	WATER CONTENT PN-ISO 760 [%]	SIEVE RESIDUE ANALYSIS OF DRY LASER [%]
MD 1/1A	20-26	8,3-8,8	-	-	max. 0,5	-	0,090 mm: max. 6
MD 1/7A	45-55	13-14	-	-	max. 0,5	max. 0,8	0,090 mm: max. 6
MD 1/8A	30-40	3,8-4,4	-	-	max. 0,5	-	0,090 mm: 2-6
MD 1/11	18-26	8,7-9,3	88-105	-	max. 0,9	max. 1,0	0,045 mm: 5-20; 0,075 mm: max. 2; 0,150 mm: 0
MD 1/12	30-40	8,5-9,5	approx. 80	approx. 130	max. 0,6	max. 0,8	0,045 mm: 0-5
MD 1/13A	16-24	8,4-9,4	-	75-105	max. 0,5	-	0,063 mm: 8-15
MD 1/14	14-17	8,7-9,3	90-115	-	max. 0,9	max. 1,0	0,045 mm: 5-20; 0,075 mm: max. 2; 0,150 mm: 0
MD 1/17	15-20	13-14	-	-	max. 0,9	max. 1,0	0,045 mm: 8-14
MD 1/19	30-40	12-15	min. 70	-	-	-	0,045 mm: 10-12; 0,063 mm: max. 3
MD 1/20	50-55	11,5-12,5	min. 75	-	max. 0,9	max. 1,0	0,045 mm: 5-20; 0,075 mm: max. 2; 0,150 mm: 0
MD 1/21	40-50	11,7-12,7	-	-	max. 0,9	max. 1,0	0,045 mm: 6-12
MD 1/22	45-65	8,7-9,5	50-70	-	max. 0,9	max. 1,0	0,090 mm: max. 3,5
MD 1/24	25-30	11,5-12,5	-	-	max. 0,2	max. 0,6	0,045 mm: 10-14
MD 1/25	20-25	8,6-9,4	-	-	max. 0,2	max. 1,0	0,045 mm: 25-30
MD 1/32	14-19	15,5-16,5	approx. 100	-	max. 0,5	max. 1,0	0,025 mm: 35 - 54 0,045 mm: 17-25; 0,063 mm: max. 5; 0,140 mm: max. 3
MD 1/36	50-55	13,5-14,5	min. 75	-	max. 0,9	max. 1,0	0,045 mm: 5-20; 0,075 mm: max. 2; 0,150 mm: 0



SYMBOL	RESIN PROPERTIES						
	FLOW PATH PN-EN ISO 8619 [mm]	HEXAMINE CONTENT OWN METHOD [%]	MELTING POINT PN-EN ISO 3146 [°C]	CURING TIME PN-EN ISO 8987 [s]	FREE PHENOL CONTENT OWN METHOD [%]	WATER CONTENT PN-ISO 760 [%]	SIEVE RESIDUE ANALYSIS OF DRY LASER [%]
MD 1/37	50-55	15,5-16,5	min. 75	-	max. 0,9	max. 1,0	0,045 mm: 5-20; 0,075 mm: max. 2; 0,150 mm: 0
MD 1/39	18-22	13,7-14,3	85-105		max. 0,9		0,063 mm: 2-5
MD 1/40	40-50	10,5-11,5				max. 1,0	0,045 mm: 9-13
MD 1/42	34-40	8,7-9,7			max. 0,2	max. 1,0	0,090 mm: 5-10
MD 1/43	20-26	8,5-9,5			max. 0,9	max. 1,0	0,045 mm: 19-25; 0,063 mm: 8-12
MD 1/44	26-30	13,3-14,3			max. 1,0		0,045 mm: 2-10
MD 1/47	17-23	approx. 13	approx. 80	-	max. 0,6	max. 0,8	
MD 1/49	30-35	8,7-9,3	-	-	max. 0,9	max. 1,0	0,045 mm: 12-17
MD 1/50	15-20	13,5-14,7	90-100			max. 0,6	0,045 mm: 2-6
MD 1/55	23-32	12,5-13,5			max. 0,7	max. 1,0	0,045 mm: max. 3
MD 1/56	30-35	11,5-12,5	80-95		max. 0,5	max. 1,0	0,045 mm: 15-20
MD 1/57	16-21	12,5-13,5			max. 0,9	max. 1,0	0,045 mm: 3-7
MD 1/59	34-40	11,7-12,3	-		-	max. 1,0	0,045 mm: 8-12
MD 1/61	15-20	8,7-9,3			max. 0,2	max. 0,6	0,045 mm: 8-14
MD 1/64	45-55	13,5-14,5			max. 0,9	max. 1,0	0,045 mm: 12-18
MD 1/67	17-22	8,8-9,6			max. 0,7	max. 0,8	0,045 mm: max. 1,0



SYMBOL	RESIN PROPERTIES						
	FLOW PATH PN-EN ISO 8619 [mm]	HEXAMINE CONTENT OWN METHOD [%]	MELTING POINT PN-EN ISO 3146 [°C]	CURING TIME PN-EN ISO 8987 [s]	FREE PHENOL CONTENT OWN METHOD [%]	WATER CONTENT PN-ISO 760 [%]	SIEVE RESIDUE ANALYSIS OF DRY LASER [%]
MD 2/3B	30-60	7,5-8,5	min. 78	40-60	max. 0,9	max. 1,0	0,045 mm: 4-8
MD 2/4	45-55	8,7-9,5	-	50-90	max. 0,5	-	0,045 mm: 5-11
MD 2/5	50-70	7,0-7,8	min. 77	100-120	max. 0,9	-	0,075 mm: max. 2,0
MD 2/7	24-28	7,0-8,0	approx. 90	80-100	max. 0,2	max. 1,0	0,075 mm: 1-3
MD 2/8	15-25	8,5-9,5	min. 80	25-50	max. 0,9	-	0,075 mm: max. 5,0; 0,125 mm: max. 1,0
MD 2/10	17-23	9,0-10,0	min. 85	50-90	max. 0,2		0,045 mm: 8-14
MD 2/11	25-30	8,7-9,3	min. 85	50-90	max. 0,2		0,045 mm: 8-14
MD 2/12	12-16	7,5-9,0	min. 90	90-120	max. 0,5		0,045 mm: 5-15
MD 2/13	16-22	8,6-9,6			max. 4,0		0,053 mm: max. 25
MD 2/15	12-18	8,0-9,0	min. 90	50-90	max. 0,8		0,090 mm: 0-7
MD 2/17	45-55	8,7-9,5		70-90	max. 0,5		0,045 mm: 5-11
MD 2/19	12-15	7,8-8,2	75-90		max. 0,9		0,075 mm: 5-7
MD 2/22	20-25	9,0-10,5	min. 85	30-50			0,045 mm: 5-7
MD 2/23	20-30	6,8-7,8	approx. 97	110-170	max. 0,2		0,045 mm: 8-14
MD 2/24	32-48	8,0-9,0	78-85		max. 0,8		0,200 mm: max 1,5 %
MD 2/25	45-52	8,7-9,3	70-90	80-120	max. 0,2	max. 1,0	0,075 mm: max. 2,0

NOVOLAK MD3

TECHNICAL FELTS

SYMBOL	RESIN PROPERTIES						
	FLOW PATH PN-EN ISO 8619 [mm]	HEXAMINE CONTENT OWN METHOD [%]	MELTING POINT PN-EN ISO 3146 [°C]	CURING TIME PN-EN ISO 8987 [s]	FREE PHENOL CONTENT OWN METHOD [%]	WATER CONTENT PN-ISO 760 [%]	SIEVE RESIDUE ANALYSIS OF DRY LASER [%]
MD 3/11/C LUB MD 3/11/M	30-40	5,5-7,0	min. 80	45-65	max. 0,2	-	0,063 mm: 12-24
MD 3/12	30-50	5,5-6,5	-	-	max. 0,9	-	0,063 mm: max. 3,5
MD 3/18	35-45	8,5-10,5	75-83	75-100	max. 0,5	max. 0,8	0,045 mm: 30-50; 0,150 mm: 3-6
MD 3/19	20-40	6,0-7,5	min. 80	max. 70	max. 0,2		0,090 mm: 8-14
MD 3/20/1	25-35	6,5-7,5		25-55	max. 0,2	max. 0,8	0,090 mm: 20-26
MD 3/22	15-40	4,1-4,9	77-87	30-70	max. 0,25	max. 0,8	0,090 mm: 13-16
MD 3/25A	15-27	6,5-9,0	min. 77	40-60	max. 0,25	max. 0,8	0,090 mm: 13-16
MD 3/31	20-40	5,5-6,5	min. 75	40-80	max. 0,2	-	0,090 mm: 8-14
MD 3/32/1	14-22	6,0-7,0	approx. 85	35-75	max. 0,25	max. 0,8	0,075 mm: 25-30; 0,063 mm: 33-38
MD 3/35	30-40	9,0-10,0	min. 80	30-60	max. 0,2		0,090 mm: 8-14
MD 3/36/1	14-22	6,5-7,5	approx. 85	40-90	max. 0,5	max. 0,8	0,045 mm: 25-30; 0,075 mm: 8-12
MD 3/38	15-35	6,0-7,5	min. 80	max. 70	max. 0,2		0,090 mm: 8-14
MD 3/39	30-40	6,5-7,5		45-75	max. 0,2	max. 1,0	0,075 mm: 8-12; 0,045 mm: 25-30
MD 3/41	12-22	6,5-7,5	approx. 85	25-55	max. 0,5	max. 1,0	0,090: 8-14
MD 3/45	14-22	5,5-6,5	min. 80	55-75	max. 0,25	max. 0,8	0,063 mm: 12-24

NOVOLAK

MD 4

FLAME RETARDANT MATERIALS

SYMBOL	RESIN PROPERTIES						
	FLOW PATH PN-EN ISO 8619 [mm]	HEXAMINE CONTENT OWN METHOD [%]	MELTING POINT PN-EN ISO 3146 [°C]	CURING TIME PN-EN ISO 8987 [s]	FREE PHENOL CONTENT OWN METHOD [%]	WATER CONTENT PN-ISO 760 [%]	SIEVE RESIDUE ANALYSIS OF DRY LASER [%]
MD 4/3	14-20	17,5-18,5			max. 0,5		0,090 mm: max. 5,0
MD 4/4	15-35	8,2-9,2	80-120	100-120	max. 0,9	max. 0,8	0,045 mm: 4-20
MD F-1	16-24		90-110	-	-		0,045 mm: 4-20
MD F-2	30-38	8-10	max. 90	-	-		0,045 mm: 20-30

NOVOLAK

MD 5

MOULDING COMPOUNDS

SYMBOL	RESIN PROPERTIES						
	FLOW PATH PN-EN ISO 8619 [mm]	HEXAMINE CONTENT OWN METHOD [%]	MELTING POINT PN-EN ISO 3146 [°C]	CURING TIME PN-EN ISO 8987 [s]	FREE PHENOL CONTENT OWN METHOD [%]	WATER CONTENT PN-ISO 760 [%]	SIEVE RESIDUE ANALYSIS OF DRY LASER [%]
MD 5/2	18-22	12,8-13,2	85-95	-	max. 0,9	max. 1,0	0,075 mm: max. 0,1; 0,064 mm: max. 1,0
MD 5/3	55-60	9,5-10,5	-	-	max. 0,9		0,063 mm: 1-3
MD 5/4	20-25	9,5-10,5	-		max. 0,9		0,063 mm: 1-3
MD 5/5	24-32	12,9-13,5	-		max. 0,9	max. 1,0	0,045 mm: max. 5,0

LIQUID NOVOLAK RESINS

FLAME RETARDANT MATERIALS

SYMBOL	RESIN PROPERTIES			
	CONTENT OF NON-VOLATILE MATTER [%]	VISCOSITY [mPa·s]	PH	FREE PHENOL CONTENT [%]
LERGFEN B-11	70-76	9 500-11 000	6,0-7,5	3,0-6,0
LERGFEN B-15	70-76	9 500-11 000	6,0-7,5	<2,0
LERGFEN P-81	52-62	2 000-4 000	approx. 7,4	<0,1
RESIN PF-12	63-67	200-400	4,0-6,5	≤0,5
RESIN DS-09	72-79	2 000-2 200	5,5-7,5	≤1,0
RESIN DP-03	67-72	5 000-6 000	approx. 6,0	≤0,3



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