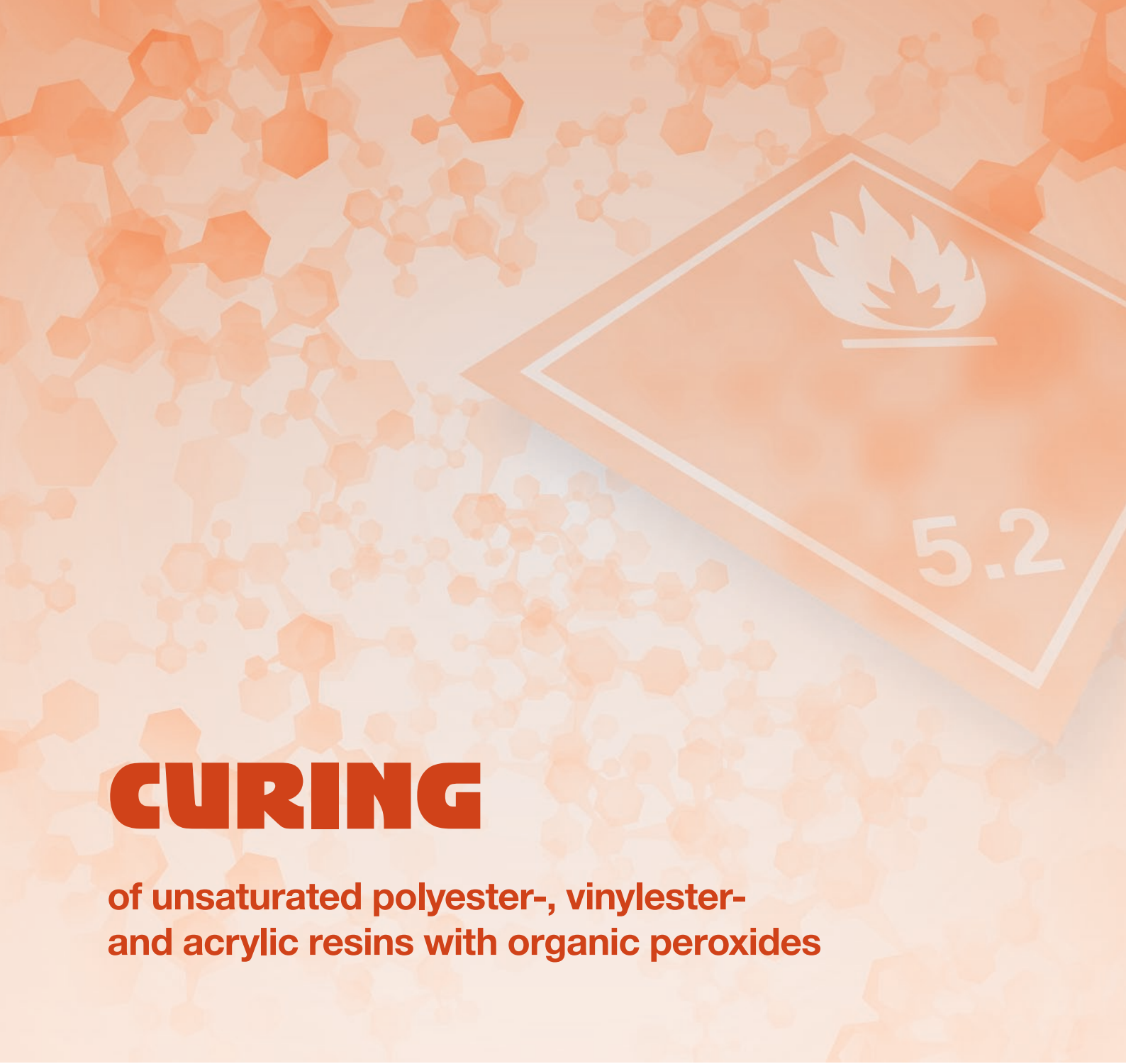


CURING

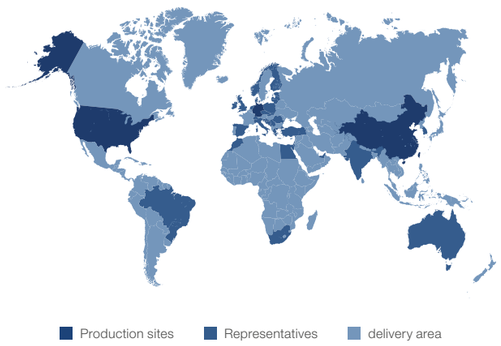
of unsaturated polyester-, vinylester- and acrylic resins with organic peroxides

PERGAN
The Peroxide Company

PERGAN
The Peroxide Company

Reliable, competent, flexible - for 35 years your partner for organic peroxides.
Since its foundation in 1981, Pergan has established itself in the national and international market as a manufacturer of organic peroxides.

Our business activities are conducted from two production facilities in Germany, one production facility in the United States, through a network of more than 30 representatives worldwide and a joint venture company in China. We foster constructive and trusting business connections with our national and international partners.



Organic peroxides

The main stress of our business activity is put on the production and trade of organic peroxides. These are more or less stable chemical compounds which exclusively consist of carbon, hydrogen and oxygen. They are used as initiators and reaction substances in the plastics and rubber industry, because they easily decay in extremely active radicals.

Organic peroxides are used for:

- polymerization of monomers for plastics manufacture
- crosslinking and modification of polymers,
- as the curing of unsaturated polyester-, vinylester- and acrylic resins

Organic peroxides are furthermore used as oxidation materials for medical preparations and for complicated chemical synthesis.

Safety and environmental conservation out of responsibility

Organic peroxides are highly reactive chemicals. The manufacturing, transport, storage, handling and last but not least the disposal of organic peroxides requires strict precautions. We have effected considerable investments into safety to eliminate risks, to avoid faults and to protect people and environment from becoming endangered. Naturally, we provide our customers support in any kind of safety, handling, or storage issue.

Customer orientation – a recipe for success

Reliable

Quality does not only mean reliability but also includes services such as consultation and support for our customers helping them to solve their problems. Quality results from the performance of all employees. We work towards strengthening quality awareness through the help of information, internal and external training and motivation.

Our company holds ISO 9001 and ISO 14001 certification

Competent

Part of our service also includes examining our customers' applications so that we can develop optimal product formulations and supply them with suitable peroxide- and other additive preparations for their process. Therefore we do not offer only products but moreover solutions to problems. The positive feedback from satisfied customers motivates us to keep continuing along this line.

Flexible

As a medium sized company flexibility is one of our greatest strengths. We are able to react quickly, competently and efficiently to the individual wishes and requirements of our customers. In recognition of exceptional business achievements PERGAN was awarded the jury award „Company of the Year 2010" by Stadtsparkasse Bocholt.

CURING

of unsaturated polyester-, vinylester- and acrylic resins with organic peroxides

Unsaturated polyester resins are cured by free radicals which are formed when organic peroxides decompose. The decomposition initiates a reaction by which unsaturated polyester molecules polymerize with styrene forming a three dimensional network (Duromer or thermoset). Organic peroxides decompose into free radicals either by exposure to heat or in combination with appropriate accelerators.

Accelerators used in practice are mainly organic cobalt salts and tertiary amines. However, these accelerators activate only certain types of organic peroxides.

Contrary to this activation, for example if inhibition is required to increase storage life of an activated resin, the use of so called inhibitors is recommended. Inhibitors are chemical compounds, which prevent the polymerization process of monomers or other reactive compounds. Suitable compounds are Quinones or Phenolic compounds.

Amine or cobalt activated curing

Accelerator activated curing is called cold curing. The most important cold curing systems are: Methylethylketone, cyclohexanone or acetylacetone peroxides in combination with organic cobalt salts and Dibenzoyl peroxide in combination with tertiary amines.

Curing without accelerator

Curing without accelerator, so called hot curing, requires external support of heat. Minimum kick-off temperatures above 50°C and typically temperatures inbetween 120°C and 160°C for SMC/BMC hot moulding are required to achieve a good degree of curing within a short period of time

Organic peroxides used for hot curing are peresters such as tert-Butyl peroxybenzoate, tert-Butyl peroxy-2-ethylhexanoate or perketals such as 1,1-Di(tert-butylperoxy)cyclohexane.

If a very low kick-off temperature is required (50 - 60 °C), more active initiators such as Di-(4-tert.-butylcyclohexyl)-peroxydicarbonat and Methylisobutylketonperoxides are used.

Very often, combinations of organic peroxides or ready-to-use mixtures are utilized to obtain an efficient curing process and a very good degree of curing. We are pleased to develop the best suitable product for your needs.

Phthalate free formulations of organic peroxides, accelerators and inhibitors

Phthalate free formulations are becoming more and more critical in the FRP industry. We are therefore offering a wide range of phthalate free Methylethylketoneperoxides and specialty accelerator and inhibitor formulations. For these products we use the non- hazardous plasticizer TXIB* as a replacement for the phthalates. Formulations containing TXIB can be recognized by the “X” at the end of the trade name.

* TXIB = 2,2,4-trimethyl-1,3-pentanediol diisobutyrat

Storage temperatures

Please refer to MSDS and product labels concerning the safe handling and storage of our products. In this product guide, we have listed the storage temperatures for each of our products, most of which are safe at ambient temperature. Keeping product at the recommended storage temperature at all times avoids loss of quality.

SAFETY FIRST

and environmental conservation for PERGAN out of responsibility

Organic peroxides are highly reactive chemicals. Therefore, they are - determined by national and international regulations - to some extent as dangerous materials (flammable, may cause fire and partly able to explode).

The manufacturing, transport, storage, handling and last but not least disposal of organic peroxides requires strict precautions. We have made considerable investments into safety to eliminate risks, avoid faults and protect people and the environment from becoming endangered. Naturally, we provide our customers with support in any kind of safety, handling, or storage issue.

European Organic Peroxide Safety Group (EOPSG)

PERGAN is a member of EOPSG and with this brochure we would like to give you a deeper insight in safe handling and transport operations of Organic Peroxides in road and sea transport. The described procedures and equipment, supplementary to the legal requirements, represent the standard practices of the authors of this guide.

Download EOPSG brochure
PDF file (appx. 2,4 MB)

Miscellaneous

We would be more than happy to provide you with technical information and safety data sheets concerning all of our products. Please refer to our web address: **www.pergan.com**

Packaging of liquid organic peroxides, accelerators and inhibitors

To improve the differentiation of liquid organic peroxides, accelerators and inhibitors for storage and handling, we supply these products in containers with colors: organic peroxides in blue and transparent containers, accelerators and inhibitors in red containers.

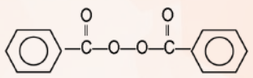
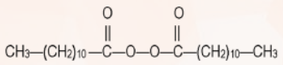
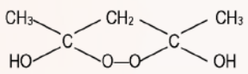
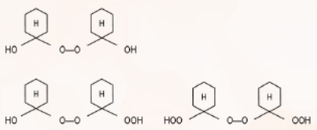
Applications

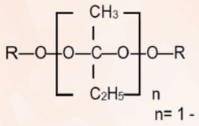
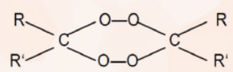
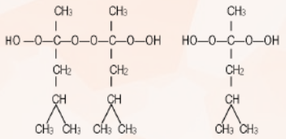
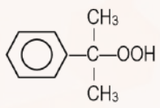
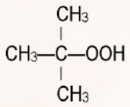
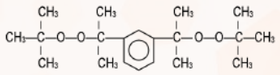
● = recommended
● = suitable

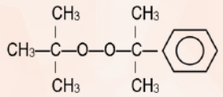
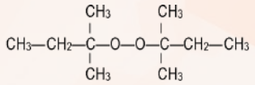
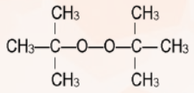
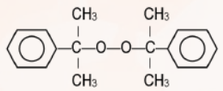
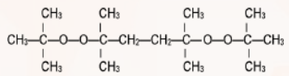
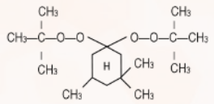
	Ambient temperature							Elevated temperature			High temperature			Special resins			
	Hand lay-up and Spray-up	RTM	Polymer concrete and marble	Gelcoats	Putties	Chemical anchors and mine bolts	Buttons	Centrifugal casting	Filament winding	Continuous Laminating	Cure-in-place- pipe (CIPP)	Pultrusion	SMC / BMC	Vinylesters	Acrylics	Polymerization of alkyde styrene mixtures	Page
Diacyl peroxides																	
PEROXAN BP-Pulver 50 W	●	●	●		●							●		●	●		8
PEROXAN BP-Pulver 50 W+	●	●	●			●						●		●			8
PEROXAN BP-Pulver 50 W-F	●	●	●			●						●		●	●		8
PEROXAN BP-Pulver 50 SE	●	●	●											●			8
PEROXAN BP-Pulver 30 W	●	●	●		●							●		●	●		8
PEROXAN BP-Pulver 20			●		●												8
PEROXAN BP-Paste 50 PF					●	●											8
PEROXAN BP-Paste 50 PF rot					●	●											8
PEROXAN BP-Paste 20 weiß					●	●											8
PEROXAN BP-Paste 20 schwarz					●	●											8
PEROXAN BP-40 W	●	●	●						●					●			8
PEROXAN BP-40 LV	●	●	●						●					●			8
PEROXAN BP-40 LS	●	●	●						●					●			8
PEROXAN BP- 5 L															●		8
PEROXAN LP fein			●												●		8
Ketone peroxides																	
PEROXAN A-40 L	●	●	●	●				●		●							8
PEROXAN A-40 KP									●								8
PEROXAN A-50 M	●	●	●						●								8
PEROXAN C-50 L	●				●		●										8
PEROXAN C-50 LM	●	●			●												8
PEROXAN C-50 A	●								●					●			8
PEROXAN ME-50 L	●	●	●	●				●	●	●				●			10
PEROXAN ME-50 LX	●	●	●	●				●	●	●				●			10
PEROXAN ME-50 LY	●	●	●	●				●	●	●				●			10
PEROXAN ME-50 LA	●	●							●	●				●			10
PEROXAN ME-50 LA3 X	●	●							●	●				●			10
PEROXAN ME-50 LS	●	●	●	●			●										10
PEROXAN ME-50 LS-D	●	●	●				●	●	●	●							10
PEROXAN ME-50 LS-PX	●	●	●					●	●	●							10
PEROXAN ME-50 LS-P 10 X	●	●	●				●	●	●	●							10
PEROXAN ME-60 L	●	●	●				●	●	●	●							10
PEROXAN ME-30 LX	●	●															10
PEROXAN ME-50 LU 1 X		●	●					●	●					●			10
PEROXAN ME-50 LU 2		●	●					●	●					●			10
PEROXAN M64 AX	●	●	●	●				●	●	●							10
PEROXAN M64 A1 X	●	●	●	●				●	●	●							10
PEROXAN MI-60 KX							●		●	●		●		●			10
PEROXAN MI-60 KPX									●	●		●					10
PEROXAN MI-60 KPX+									●	●		●					10
Hydroperoxides																	
PEROXAN CU-80 L									●					●			10
PEROXAN CU-40 M														●			10
PEROXAN BHP-70																●	10

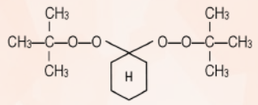
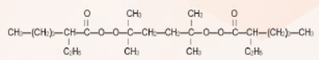
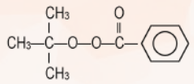
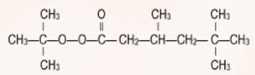
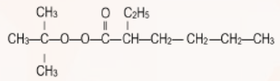
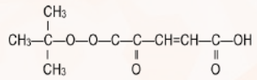
● = recommended
● = suitable

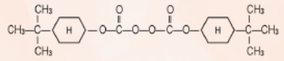
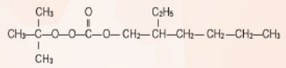
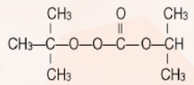
	Ambient temperature							Elevated temperature			High temperature			Special resins			
	Hand lay-up and Spray-up	RTM	Polymer concrete and marble	Gelcoats	Putties	Chemical anchors and mine bolts	Buttons	Centrifugal casting	Filament winding	Continuous Laminating	Cure-in-place- pipe (CIPP)	Pultrusion	SMC / BMC	Vinylesters	Acrylics	Polymerization of alkyde styrene mixtures	Page
Dialkyl peroxides																	
PEROXAN BIB-1													●				10
PEROXAN BIB-80 P													●				10
PEROXAN BIB-40 P													●				10
PEROXAN BU													●				12
PEROXAN BU M2												●					12
PEROXAN DA																●	12
PEROXAN DB																●	12
PEROXAN DC-P+													●				12
PEROXAN DC-80 P													●				12
PEROXAN DC-40 P													●				12
PEROXAN DC-50 L													●				12
PEROXAN HX													●				12
PEROXAN HX-45 P													●				12
Peroxyketals																	
PEROXAN PK295 V-75											●		●				12
PEROXAN PK295 V											●		●				12
PEROXAN PK295 P												●	●				12
PEROXAN PK295 S1-V										●	●	●	●				12
PEROXAN PK122 V-80											●		●				14
PEROXAN PK122 V											●	●	●				14
Peroxyesters																	
PEROXAN HXP											●	●	●				14
PEROXAN PB											●	●	●	●			14
PEROXAN PB-75											●	●	●	●			14
PEROXAN PB-50 P													●				14
PEROXAN PB M-20		●										●					14
PEROXAN PB-50 A						●							●				14
PEROXAN PIN							●				●	●	●	●			14
PEROXAN PIN S1		●					●				●	●		●			14
PEROXAN PO											●	●	●	●			14
PEROXAN PO-M+						●						●		●			14
PEROXAN PO-50 P													●				14
PEROXAN PM-25 S															●		14
Peroxydicarbonates																	
PEROXAN BCC											●	●		●	●		16
PEROXAN BCC-40 W											●	●		●			16
PEROXAN BCC-40 S												●		●			16
PEROXAN BCC-Paste 50 A											●	●		●			16
Peroxyesters																	
PEROXAN BEC														●	●		16
PEROXAN BIC														●	●		16

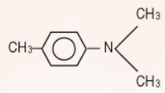
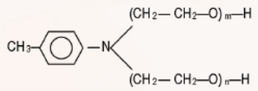
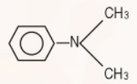
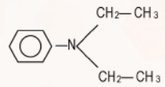
Type of initiator / Trade name	Chemical name / Chemical structure	Physical form	Peroxide assay	Active oxygen assay	Standard package	Storage temp. max.	Storage temp. min.	Application	UN-No.
Diacyl peroxide	Dibenzoyl peroxide								
PEROXAN BP-Pulver 50 W		Powder with plasticizer	50%	3,30%	25kg Cardboard box	30°C		Curing of UP resins and acrylics	3106
PEROXAN BP-Pulver 50 W+		Powder with plasticizer	50%	3,30%	25kg Cardboard box	30°C		Curing of UP resins, easy to disperse, free flowing, easy to handle	3106
PEROXAN BP-Pulver 50 W-F		Powder with plasticizer	50%	3,30%	25kg Cardboard box	30°C		Curing of UP-/Acrylresins, free flowing, easy to handle	3106
PEROXAN BP-Pulver 50 SE		Powder with gypsum	50%	3,30%	25kg Cardboard box	30°C		Curing of UP resins, easy to handle	3106
PEROXAN BP-Pulver 30 W		Powder with plasticizer	30%	1,98%	25kg Cardboard box	30°C		Curing of UP-/Acrylresins, easy to disperse, easy to handle	3077
PEROXAN BP-Pulver 20		Powder with gypsum	20%	1,32%	25kg Cardboard box Bags of different sizes	30°C		Curing of highly filled UP resins	3077
PEROXAN BP-Paste 50 PF		Paste with stabilizing agent	50%	3,30%	25kg Pail	30°C	5°C	Curing of putties, UP resins, free of phthalates	3108
PEROXAN BP-Paste 50 PF rot		Paste with stabilizing agent	50%	3,30%	25kg Pail	30°C	5°C	Curing of putties, UP resins, free of phthalates	3108
PEROXAN BP-Paste 20 weiß		Paste with stabilizing agent	20%	1,32%	25kg Pail	30°C	5°C	Specially developped for curing of chemical anchors, good dispersion control	3108
PEROXAN BP-Paste 20 schwarz		Paste with stabilizing agent	20%	1,32%	25kg Pail Tubes and cartridges of different sizes	30°C	5°C	Specially developped for curing of chemical anchors, good dispersion control	3108
PEROXAN BP-40 W		Suspension in water	40%	2,64%	25kg Container	30°C	5°C	Curing of UP resins, easy to disperse in the resin	3109
PEROXAN BP-40 LV		Suspension with stabilizing agent	40%	2,64%	25kg Container	30°C	5°C	Curing of UP resins, easy to handle because of low viscosity	3107
PEROXAN BP-40 LS		Suspension with stabilizing agent	40%	2,64%	25kg Container	30°C	5°C	Curing of UP resins, easy to disperse	3107
PEROXAN BP- 5 L		Solution in plasticizer	5%	0,33%	25kg Container	20°C	10°C	Specially developped for curing of acrylics	3082
Diacyl peroxide	Dilauroyl peroxide								
PEROXAN LP fein		Powder	98%	3,93%	20kg Cardboard box	30°C		Curing of acrylics at temperatures above T = 70°C	3106
Ketone peroxide	Acetylaceton peroxide								
PEROXAN A-40 L		Solution in diacetone alcohol	-	4,20%	30kg Container	25°C	5°C	Fast curing of translucent sheets, polymer concrete and other mouldings	3105
PEROXAN A-40 KP	Peroxide mixture	Solution in diacetone alcohol	-	4,50%	25kg Container	25°C	5°C	Hot curing of UP resins in continuous processes	3105
PEROXAN A-50 M	Peroxide mixture	Solution in plasticizer	-	5,20%	25kg Container	25°C	5°C	Fast curing of translucent sheets, polymer concrete and other mouldings	3105
Ketone peroxide	Cyclohexanon peroxide								
PEROXAN C-50 L		Solution in plasticizer	-	5,35%	30kg Container	25°C	5°C	Curing of UP resins and coatings, allows even curing without major tension	3105
PEROXAN C-50 LM	Peroxide mixture	Solution in plasticizer	-	9,70%	25kg Container	25°C	5°C	Curing of gelcoats and spray fillers	3105
PEROXAN C-50 A	Peroxide mixture	Solution in plasticizer	-	5,10%	25kg Container	25°C	5°C	Curing of UP resins, short gel and cure time at ambient temperature	3105

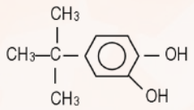
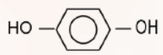
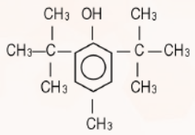
Type of initiator / Trade name	Chemical name / Chemical structure	Physical form	Peroxide assay	Active oxygen assay	Standard package	Storage temp. max.	Storage temp. min.	Application	UN-No.
Ketone peroxide	Methylethylketone peroxide								
PEROXAN ME-50 L		Solution in plasticizer	-	9,05%	25kg Container	30°C	0°C	Curing of polymer concrete, translucent sheets, etc.; for light stable products	3105
PEROXAN ME-50 LX		Solution in TXIB	-	9,05%	30kg Container	30°C	0°C	Curing of large mouldings, allowing long gel time, especially suitable for VE resins	3105
PEROXAN ME-50 LY		Solution in plasticizer	-	8,90%	30kg Container	30°C	0°C	Curing of large mouldings, allowing long gel time, especially suitable for VE resins	3105
PEROXAN ME-50 LA		Solution in plasticizer	-	8,90%	25kg Container	30°C	0°C	Curing of large mouldings, allowing long gel time, especially suitable for VE resins	3105
PEROXAN ME-50 LA3 X		Solution in TXIB	-	8,00%	30kg Container	30°C	0°C	Curing of large mouldings, allowing long gel time, especially suitable for VE resins	3105
PEROXAN ME-50 LS		Solution in plasticizer	-	9,70%	25kg Container	30°C	0°C	Fast curing of UP mouldings; higher activity	3105
PEROXAN ME-50 LS-D		Solution in plasticizer	-	9,70%	25kg Container	30°C	0°C	Fast curing of UP mouldings; high activity	3105
PEROXAN ME-50 LS-PX		Solution in TXIB	-	9,05%	30kg Container	30°C	0°C	Fast curing of UP button sheets; super high activity	3105
PEROXAN ME-50 LS-P 10 X		Solution in TXIB	-	9,70%	30kg Container	30°C	0°C	Curing of button sheets, super high activity	3105
PEROXAN ME-60 L		Solution in plasticizer	-	9,05%	25kg Container	30°C	0°C	Curing of polymer concrete, translucent sheets, etc.; for light stable products	3105
PEROXAN ME-30 LX		Solution in TXIB	-	7,70%	30kg Container	30°C	0°C	Curing of UP resins, low concentration makes dosage easier	3107
PEROXAN ME-50 LU 1 X	Peroxide mixture	Solution in TXIB	-	9,15%	25kg Container	30°C	0°C	Curing of large mouldings, when a lower peak exotherm is needed	3105
PEROXAN ME-50 LU 2	Peroxide mixture	Solution in plasticizer	-	8,85%	25kg Container	30°C	0°C	Curing of large mouldings, when a lowest peak exotherm is needed	3105
PEROXAN M64 AX	Peroxide mixture	Solution in TXIB	-	7,50%	30kg Container	30°C	0°C	Curing of UP resins, short gel and cure time at ambient temperature	3105
PEROXAN M64 A1 X	Peroxide mixture	Solution in TXIB	-	7,85%	30kg Container	30°C	0°C	Comparable to PEROXAN M64 AX, but shorter gel time	3105
Ketone peroxide	Methylisobutylketone peroxide								
PEROXAN MI-60 KX		Solution in TXIB	-	8,85%	25kg Container	25°C	5°C	Long gel and cure time at ambiant temperature, very active at temperatures above T = 70°C	3105
PEROXAN MI-60 KPX	Peroxide mixture	Solution in TXIB	-	8,65%	25kg Container	25°C	5°C	Long gel and cure time at ambiant temperature, very active at temperatures above T = 70°C, especially suitable for continuous processes, low residual styrene content in the final product	3103
PEROXAN MI-60 KPX +	Peroxide mixture	Solution in TXIB	-	8,05%	25kg Container	25°C	5°C	Extra long gel and cure time at ambiant temperature, very active at temperatures above T = 70°C, especially suitable for continuous processes, low residual styrene content in the final product	3103
Hydroperoxide	Cumene hydroperoxide								
PEROXAN CU-80 L		Solution in cumene	80%	8,41%	25kg Container	30°C	0°C	Hot curing of UP resins, curing of VE resins at ambient temperature	3109
PEROXAN CU-40 M		Solution in promotor	40%	4,21%	25kg Container	30°C	0°C	Curing of VE resins in combination with cobalt accelerator at ambient temperature, no gazing	3109
Hydroperoxide	tert-Butyl hydroperoxide								
PEROXAN BHP-70		Solution in water	70%	12,43%	25kg Container, 190kg Drum	30°C	5°C	Hot curing of UP resins, polymerization of alkyd styrene mixtures	3109
Dialkyl peroxide	Di-(2-tert-butyl-peroxyisopropyl)-benzene								
PEROXAN BIB-1		Powder	95%	8,98%	20kg Cardboard box	30°C		Curing of SMC and BMC	3106
PEROXAN BIB-80 P		Powder with chalk	80%	7,56%	20kg Cardboard box	30°C		Curing of SMC and BMC	3106
PEROXAN BIB-40 P		Powder with chalk	40%	3,78%	20kg Cardboard box	30°C		Curing of SMC and BMC	none

Type of initiator / Trade name	Chemical name / Chemical structure	Physical form	Peroxide assay	Active oxygen assay	Standard package	Storage temp. max.	Storage temp. min.	Application	UN-No.
Dialkyl peroxide	tert-Butylcumyl peroxide								
PEROXAN BU		Liquid	94%	7,22%	25kg Container	30°C	15°C	Curing of SMC and BMC, allowing a long lasting flow process and short cure times	3107
PEROXAN BU M2	Peroxide mixture	Solution in OMS	-	6,30%	25kg Container	30°C	5°C	Curing of UP resin based electro insulation lacquers at T = 100°C - 170°C	3107
Dialkyl peroxide	Di-tert-amyl peroxide								
PEROXAN DA		Liquid	93%	8,53%	25kg Container	30°C		Hot curing of UP resins, polymerization of alkyd styrene mixtures	3107
Dialkyl peroxide	Di-tert-butyl peroxide								
PEROXAN DB		Liquid	98%	10,72%	20kg Container, 160kg Drum	30°C		Hot curing of UP resins, polymerization of alkyd styrene mixtures	3107
Dialkyl peroxide	Dicumyl peroxide								
PEROXAN DC-P +		Powder	98%	5,80%	20kg Cardboard box	30°C		Curing of SMC and BMC	3110
PEROXAN DC-80 P		Powder with chalk	80%	4,74%	25kg Cardboard box	30°C		Curing of SMC and BMC	3110
PEROXAN DC-40 P		Powder with chalk	40%	2,37%	25kg Cardboard box	30°C		Curing of SMC and BMC	3077
PEROXAN DC-50 L		Solution in aromatics	-	7,63%	25kg Container	30°C		Curing of soaking lacquers and SMC at T = 130°C	3109
Dialkyl peroxide	2,5-Dimethyl-2,5-di-(tert-butylperoxy)-hexane								
PEROXAN HX		Liquid	92%	10,14%	25kg Container	40°C	10°C	Curing of SMC and BMC at T = 160°C, good storage stability in the resin	3103
PEROXAN HX-45 P		Powder with chalk	45%	4,96%	20kg Cardboard box	40°C		Curing of SMC and BMC at T = 160°C, good storage stability in the resin	3108
Peroxyketale	1,1-Di-(tert-butylperoxy)-3,3,5-trimethylcyclohexane								
PEROXAN PK295 V-75		Solution in OMS	75%	7,93%	25kg Container	30°C		Curing of SMC and BMC at T = 120°C - 140°C, good storage stability in the resin	3103
PEROXAN PK295 V		Solution in OMS	50%	5,29%	20kg Container	30°C		Curing of SMC and BMC at T = 120°C - 140°C, good storage stability in the resin	3107
PEROXAN PK295 P		Powder with chalk	40%	4,23%	25kg Cardboard box	30°C		Curing of SMC and BMC at T = 120°C - 140°C, good storage stability in the resin	3110
PEROXAN PK295 S1-V	Peroxide mixture	Solution in OMS	-	5,95%	25kg Container	20°C		Curing of SMC during transfer moulding, pultrusion at T = 100°C -130°C	3115

Type of initiator / Trade name	Chemical name / Chemical structure	Physical form	Peroxide assay	Active oxygen assay	Standard package	Storage temp. max.	Storage temp. min.	Application	UN-No.
Peroxyketale	1,1-Di-(tert-butylperoxy)-cyclohexane								
PEROXAN PK122 V-80		Solution in OMS	80%	9,83%	20kg Container	30°C		Curing of SMC and BMC at T = 120°C - 140°C, good storage stability in the resin	3103
PEROXAN PK122 V		Solution in OMS	50%	6,14%	20kg Container	30°C		Curing of SMC and BMC at T = 120°C - 140°C, good storage stability in the resin	3105
Peroxyester	2,5-Dimethyl-2,5-di(2-ethylhexanoylperoxy)-hexane								
PEROXAN HXP		Liquid	90%	6,69%	25kg Container	15°C		Curing of SMC at T = 120°C - 160°C, used in combination with low reactive peroxides such as PEROXAN PB or PEROXAN BEC	3113
Peroxyester	tert-Butyl peroxybenzoate								
PEROXAN PB		Liquid	98%	8,07%	25kg Container	30°C	10°C	Curing of SMC and BMC at T=140 - 160 °C, allowing a long lasting flow process	3103
PEROXAN PB-75		Solution in OMS	75%	6,18%	25kg Container	30°C	0°C	Curing of SMC and BMC at T=140 - 160 °C, allowing a long lasting flow process	3105
PEROXAN PB-50 P		Powder with chalk	50%	4,12%	25kg Cardboard box	30°C		Curing of free flowing BMC at T=140 - 160 °C	3106
PEROXAN PB M-20		Solution in promotor	20%	6,18%	25kg Container	30°C	0°C	Specially developped for curing of marble blocks and pultrusion applications	3103
		Solution in promotor							
PEROXAN PB-50 A	Peroxide mixture	Solution in diacetone alcohol	-	4,85%	25kg Container	30°C	0°C	Hot curing of UP resins in continuous processes	3103
Peroxyester	tert-Butyl peroxy-3,5,5-trimethylhexanoate								
PEROXAN PIN		Liquid	98%	6,81%	25kg Container	30°C		Curing of SMC and BMC at T = 140°C - 160°C, free of aromatic compounds	3105
PEROXAN PIN S1		Solution in promotor	90%	6,25%	25kg Container	30°C		Special grade, very active in combination with cobalt accelerator at T = 120°C	3105
Peroxyester	tert-Butyl peroxy-2-ethylhexanoate								
PEROXAN PO		Liquid	98%	7,25%	25kg Container	15°C		Curing of SMC and BMC, very active above T = 80°C	3113
PEROXAN PO-M +		Solution in promotor	89%	6,66%	25kg Container	15°C		Developped for hot curing above T = 100°C, good storage stability in the resin	3113
PEROXAN PO-50 P		Powder with chalk	50%	3,70%	25kg Cardboard box	15°C		Curing of SMC and BMC, very active above T = 80°C, safe handling	3118
Peroxyester	tert-Butyl monoperoxy-maleate								
PEROXAN PM-25 S		Suspension with stabilizing agent	25%	2,13%	25kg Container	30°C		Cold curing of highly filled acrylic resins, to be used in combination with PROMOTOR MA and PERGAQUICK CA	3103

Type of initiator / Trade name	Chemical name / Chemical structure	Physical form	Peroxide assay	Active oxygen assay	Standard package	Storage temp. max.	Storage temp. min.	Application	UN-No.
Peroxydicarbonate	Di-(4-tert-butyl-cyclohexyl)-peroxydicarbonate								
PEROXAN BCC		Powder	95%	3,80%	20kg Cardboard box	15°C		Hot curing at temperatures above T = 60°C, utilized as initiator for various combinations of peroxides , in comparison to PEROXAN BCC, the paste grade PEROXAN BCC-Paste 50 is easy to disperse in the resin	3114
PEROXAN BCC-40 W		Suspension in water	40%	1,60%	25kg Container	15°C	5°C		3119
PEROXAN BCC-40 S		Suspension with stabilizing agent	40%	1,60%	25kg Container	15°C	5°C		3119
PEROXAN BCC-Paste 50 A		Paste with stabilizing agent	50%	2,00%	25kg Pail	15°C	5°C		3118
Peroxyester	tert-Butyl peroxy-2-ethylhexylcarbonate								
PEROXAN BEC		Liquid	95%	6,17%	25kg Container	30°C		Curing of SMC and BMC at T = 140°C - 160°C, allowing a long lasting flow process, very low residual styrene content in the final product and free of aromatic compounds	3105
Peroxyester	tert-Butyl peroxyisopropylcarbonate								
PEROXAN BIC		Solution in isododecane	75%	6,81%	25kg Container	25°C	0°C	Curing of SMC and BMC at T = 140°C - 160°C, allowing a long lasting flow process, very low residual styrene content in the final product and free of aromatic compounds	3103

Product category / Trade name	Chemical name / Chemical structure	Physical form	Assay	Standard package	Storage temp. max.	Storage temp. min.	Application	UN-No.
Amine accelerator	N,N-Dimethyl-p-toluidine							
PERGAQUICK A100		Liquid	> 98%	190kg Drum	30°C	0°C	To be used in combination with Dibenzoyl peroxide, gives short gel and cure time in UP resins. Dilute PERGAQUICK A100 before use.	2810
Amine accelerator	N,N-Di-(2-hydroxy-ethyl)-p-toluidine							
PERGAQUICK A15 X		Solution in TXIB	10%	25kg Container	30°C	0°C	Good storage stability in UP resin. No change in color of the final product. Reactivity of PERGAQUICK A150 inbetween PERGAQUICK A100 and PERGAQUICK A200. Dilute PERGAQUICK A150 before use.	none
PERGAQUICK A150		Liquid	> 98%	30kg Container, 200kg Drum, 1000kg IBC	30°C	5°C		none
Amine accelerator	N,N-Dimethylaniline							
PERGAQUICK A2 X		Solution in TXIB	10%	25kg Container	30°C	0°C	To be used in combination with Dibenzoyl peroxide, gives relatively short gel and cure time in UP resins. PERGAQUICK A2 X and PERGAQUICK A2 S are medium reactivity products. Dilute PERGAQUICK A200 before use.	none
PERGAQUICK A2 S		Solution in styrene	10%	25kg Container	15°C	0°C		1993
PERGAQUICK A200		Liquid	> 99%	25kg Container, 200kg Drum	30°C	0°C		2253
Amine accelerator	N,N-Diethylaniline							
PERGAQUICK A3 X		Solution in TXIB	10%	25kg Container	30°C	0°C	To be used in combination with Dibenzoyl peroxide, gives long gel time and relatively short cure time in UP resins. PERGAQUICK A3 X and PERGAQUICK A3 S are low reactivity products. Dilute PERGAQUICK A300 before use.	2810
PERGAQUICK A3 S		Solution in styrene	10%	25kg Container	15°C	0°C		2929
PERGAQUICK A300		Liquid	> 99%	25kg Container, 190kg Drum	30°C	0°C		2432

Product category / Trade name	Chemical name / Chemical structure	Physical form	Assay	Standard package	Storage temp. max.	Storage temp. min.	Application	UN-No.
Cobalt accelerator	Cobaltoctoate							
PERGAQUICK C100		Liquid	10% (Co)	30kg Container, 200kg Drum	30°C	5°C	To be used in combination with Ketone peroxides, Cobalt accelerators give shorter gel and cure time (depending on the dosage). To avoid overdosage, dilute PERGAQUICK C100 before use. PERGAQUICK C100 and PERGAQUICK C12 X have almost unlimited storage life. Storage life of PERGAQUICK C11 is limited. By the use of PERGAQUICK C12 KX, one obtains less colouring in the final product.	1993
PERGAQUICK C60 X		Solution in TXIB	6% (Co)	25kg Container	30°C	5°C		1993
PERGAQUICK C12 X		Solution in TXIB	1% (Co)	25kg Container, 200kg Drum	30°C	5°C		3082
PERGAQUICK C11		Solution in styrene	1% (Co)	25kg Container, 180kg Drum	15°C	5°C		1993
PERGAQUICK C12 KX		Solution in TXIB	0,5% (Co)	25kg Container	30°C	5°C		3082
Cobalt amine accelerator	Cobaltoctoate / N,N-Dimethylaniline							
PERGAQUICK C24 AX		Solution in TXIB	12%	25kg Container, 200kg Drum	30°C	5°C	In combination with Ketone peroxides short gel and cure time	3082
Accelerator / Promotor for acrylic resins								
PROMOTOR MA	Isooctylthioglycolate	Liquid	99%	25kg Container	25°C	10°C	Promotor / Accelerator for cold curing of acrylic resins, to be used in combination with PEROXAN PM-25 S.	3082
PERGAQUICK CA	Calcium hydroxide	Powder	97%	25kg Cardboard box	30°C			none
Inhibitor	4-tert.-Butylcatechol							
PERGASLOW BK-10 X		Solution in TXIB	10%	25kg Container, 190kg Drum	30°C	5°C	4-tert.-Butylcatechol increases pot life and gel time. Cure time is also slightly delayed. Dilute PERGASLOW BK-10 X, BK-10 S and PERGASLOW BK-100 before use.	3265
PERGASLOW BK-10 S		Solution in styrene	10%	25kg Container, 190kg Drum	30°C	5°C		2924
PERGASLOW BK-100		Solid	> 98%	25kg Cardboard box	30°C	5°C		3261
Inhibitor	Hydrochinone							
PERGASLOW HD-10		Solution in Cyclohexanon	10%	25kg Container	30°C	0°C	Hydrochinone increases pot life of SMC and BMC.	1993
PERGASLOW HD-100		Granules	> 99%	50kg Cardboard box	30°C	0°C	Dilute PERGASLOW HD-100 before use.	3077
Inhibitor	2,6-Di-tert.butyl-p-kresol							
PERGASLOW PK-30 S		Solution in styrene	30%	25kg Container	20°C	0°C	2,6-Di-tert.butyl-p-kresol increases gel time, but does not influence cure time.	1993
PERGASLOW PK-40		Solution in Xylen	40%	25kg Container	20°C	0°C	Dilute PERGASLOW PK-30 S, PK-40 and PERGASLOW PK-100 before use.	1993
PERGASLOW PK-100		Granules	> 99%	25kg Cardboard box	30°C	0°C		3077

PERGAN
PERGAN MARSHALL LLC

PERGAN Marshall LLC
710 Bussey Rd
Marshall, TX 75670
USA

T +1 903-938-5141
info@perganmarshall.com

PERGAN
The Peroxide Company

PERGAN GmbH
Schlavenhorst 71
46395 Bocholt
Deutschland

T +49 (0) 2871 / 99 02-0
F +49 (0) 2871 / 99 02-50
sales@pergan.com

PERGAN
天津博金精细化工有限公司

PERGAN Fine Chemical Co. Ltd.
Maotiao Road, Nanhe Industrial Zone
Tianjin, 300382
P.R. China

T +86-22-23982200
F +86-22-23983300
yeekew@yahoo.com

Rev. UP/6e/09/2016