

ACCELERATORS

Abbreviation	Chemical composition	Product	%	Compatible Polymers	N-Nitroso Amine Free	N-Nitroso Amine Friendly	CAS	ORIGIN	TIRE	Conveyor belts	Seals	Cables	Pro-files	Belts	Air springs	Hoses	Applications	Availability
CBS	N-Cyclohexylbenzothiazole-2-Sulfenamide	Granchem CBS-80	80	EPDM,NR,SBR, BR,NBR,CR	●		95-33-0	CN	●	●	●	●	●	●	●	●	Basic rapid accelerator for all diene rubbers, especially for application in tire vulcanisation systems and anti-vibration elements.	●
CLD	Caprolactam Disulfide	Granchem CLD-80	80	NR,EPDM, SBR,NBR,IIR	●		23847-08-7	CN	●	●	●	●	●	●	●	●	Non-staining sulfur donor for the vulcanisation of heat resistant, N-nitrosoamine free articles. The best replacement for DTDM	●
DCBS	N,N-Dicyclohexylbenzothiazole-2-Sulfenamide	Granchem DCBS-80	80	EPDM , TPU	NO		4979-33-2	CN			●	●	●			●	Basic rapid accelerator for all diene rubbers, especially for application in tire vulcanisation systems and anti-vibration elements.	●
DPG	Diphenyl Guanidine	Granchem DPG-70	70	All synthetic and natural rubbers	●		102- 0607	EU	●	●	●	●	●	●	●	●	Accelerator for the vulcanisation of NR and SR, particularly used as a co-accelerator in combination with sulfenamides for tire tread and silica compounds	●
DPTT	Dipentamethylene Thiuram Tetrasulphide	Granchem DPTT-75	75	EPDM,IIR	NO		971-15-3	CN			●	●				●	Ultra accelerator for the vulcanisation of NR and SR, sulfur donor in sulfur free or low sulfur vulcanisation, most rapid cure among thiurams	●
DTDM	Dithiodimorpholine	Granchem DTDM-80	80	EPDM,NBR, SBR,NR	NO		103-34-4	CN	●	●	●	●	●	●	●	●	Non-staining sulfur donor for the vulcanisation of heat resistant NR and SR articles	●
HMT	Hexamethylene-tetramine	Granchem HMT-80	80	SBR,NR,BR,IIR	●		100-97-0	EU	●	●	●	●	●	●	●	●	Co-accelerator and methylene donor for resorcinol-based compounds for hardening or steel cord adhesion	●
MBT	2-Mercaptobenzo-thiazole	Granchem MBT-75	75	CR , SBR, NR,	●		149-30-4	EU	●	●				●		●	Rapid accelerator for the curing of NR and SR compounds for technical rubber goods, extruded profiles	●
MBT	2-Mercaptobenzo-thiazole	Granchem MBT-80	80	CR, SBR, NR	●		149-30-4	EU	●	●				●		●	Rapid accelerator for the curing of NR and SR compounds for technical rubber goods, extruded profiles	●
MBTS	Mercaptobenzo-thiazole Disulphide	Granchem MBTS-75	75	NBR,SBR, NR,CR,IIR	●		120-78-5	CN	●	●	●	●	●	●	●	●	Semi-ultra accelerator for the vulcanisation of NR and SR, moderate curing speed	●
MBTS	Mercaptobenzo-thiazole Disulphide	Granchem MBTS-80	80	NBR,SBR, NR,CR,IIR	●		120-78-5	CN	●	●	●	●	●	●	●	●	Semi-ultra accelerator for the vulcanisation of NR and SR, moderate curing speed	●
OTBG	Orthotolyl Biguanide	Granchem OTBG-50	50	All rubbers / low efficiency in EPDM , IIR	●		93-69-6	EU		●	●	●	●	●	●	●	Fast curing secondary accelerator without sulfur donor function, typically used in combinations with sulfenamides or mercaptobenzo-thiazoles	●
TBBS	N-tert.Butyl-2-Benzothiazyl Sulfenamide	Granchem TBBS-80	80	NR, SBR, NBR,	●		95-31-8	EU	●	●						●	Basic rapid accelerator for all diene rubbers, especially for application in tire vulcanisation systems and anti-vibration elements.	●
TBzTD	Tetrabenzyl Thiuram Disulphide	Granchem TBzTD -70	70	All synthetic and natural rubbers		●	10591-85-2	CN	●	●	●	●	●	●	●	●	Ultra accelerator for the vulcanisation of NR and SR, N-nitrosoamine free sulfur donor in sulfur free or low sulfur vulcanisation	●
TBzTD	Tetrabenzyl Thiuram Disulphide	Granchem TBzTD-70/ NBR	70	All synthetic and natural rubbers		●	10591-85-2	CN	●	●	●	●	●	●	●	●	Ultra accelerator for the vulcanisation of NR and SR, N-nitrosoamine free sulfur donor in sulfur free or low sulfur vulcanisation	●

GRANCHEM - Predispersed chemical substances bound to EPDM, SBR, or NBR binder system or custom-made



ACCELERATORS

Abbreviation	Chemical composition	Product	%	Compatible Polymers	N-Nitroso Amine Free	N-Nitroso Amine Friendly	CAS	ORIGIN	TIRE	Conveyor belts	Seals	Cables	Pro-files	Belts	Air springs	Hoses	Applications	Availability
TETD	Tetraethyl Thiuram Disulphide	Granchem TETD-80	80	All synthetic and natural rubbers	NO		97-77-8	CN									Scorch safe ultra-accelerator for the vulcanisation of NR and SR, and curing agent for sulfur-less or low sulfur vulcanisation	
TETD	Tetraethyl Thiuram Disulphide	Granchem TETD-70/ NBR	70	All synthetic and natural rubbers	NO		97-77-8	CN									Scorch safe ultra-accelerator for the vulcanisation of NR and SR, and curing agent for sulfur-less or low sulfur vulcanisation, especially designed for vulcanisation of NBR	
TiBTD	Tetra-Iso-Butyl Thiuram Disulphide	Granchem TiBTD-80	80	All syntetic and natural rubbers			3064-73-1	CN									Fast curing primary or secondary accelerator for the vulcanisation of NR and SR, N-nitrosoamine free sulfur donor in sulfur free or low sulfur vulcanisation, replacement of TMTD or TETD if N-nitrosoamine free vulcanisation is needed	
TiBTD	Tetra-Iso-Butyl Thiuram Disulphide	Granchem TiBTD-70/ NBR	70	All syntetic and natural rubbers			3064-73-1	CN									Fast curing primary or secondary accelerator for the vulcanisation of NR and SR, N-nitrosoamine free sulfur donor in sulfur free or low sulfur vulcanisation, replacement of TMTD or TETD if N-nitrosoamine free vulcanisation is needed	
TMTD	Tetramethyl Thiuram Disulphide	Granchem TMTD-80	80	All syntetic and natural rubbers	NO		137-26-8	EU									Ultra-accelerator for the vulcanisation of NR and SR compounds and curing agent for sulfur-less or low sulfur vulcanisation	
TMTM	Tetramethyl Thiuram Monosulphide	Granchem TMTM-80	80	SBR,CR, NR, IIR, NBR	NO		97-74-5	CN									Ultra-accelerator for the vulcanisation of NR and SR compounds and curing agent for low sulfur vulcanisation	
ZBEC	Zink Dibenzyl Dithiocarbamate	Granchem ZBEC-70	70	NR, SBR, NBR, EPDM, IR, IIR			14726-36-4	CN									Ultra-accelerator for NR and SR, N-nitrosoamine free, recommended especially for continuous vulcanisation of EPDM	
ZBEC	Zink Dibenzyl Dithiocarbamate	Granchem ZBEC-70/ NBR	70	NR, SBR, NBR, EPDM,IR,IIR			14726-36-4	CN									Ultra-accelerator for NR and SR, N-nitrosoamine free, especially designed for vulcanisation of NBR	
ZBOP	Zink Dialkyl Dithiophosphate	Granchem ZBOP-50	50	NR, SBR, NBR, EPDM, IR, IIR			68442-22-8	USA									Non-staining and non-discolouring specialty accelerator for rapid vulcanisation of EPDM and NR compounds not creating N-nitrosoamines	
ZBPD	Zink Dialkyl Dithiophosphate	Granchem ZBPD-50	50	NR, SBR, NBR, EPDM, IR, IIR			6990-43-8	USA									Non-staining and non-discolouring specialty accelerator for rapid vulcanisation of EPDM and NR compounds not creating N-nitrosoamines	
ZDBC	Zink Dibuthyl Dithiocarbamate	Granchem ZDBC-75	75	BR, EPDM, NR, SBR, NBR, IR	NO		136-23-3	CN									Ultra-accelerator for NR and SR, dosage kept under 1 phr because of blooming. Combination with other carbamates recomended	
ZDEC	Zink Diethyl Dithiocarbamate	Granchem ZDEC-75	75	BR, EPDM, NR, SBR, NBR, IR	NO		14324-55-1	CN									Ultra-accelerator for NR and SR, dosage kept under 1 phr because of blooming. Combination with other carbamates recomended	
ZDMC	Zink Dimethyl Dithiocarbamate	Granchem ZDMC-70	70	SBR, NR, EPDM, NBR	NO		137-30-4	EU									Ultra-accelerator for NR and SR, dosage kept under 1 phr because of blooming. Combination with other carbamates recomended	
ZDMC	Zink Dimethyl Dithiocarbamate	Granchem ZDMC-80	80	SBR, NR, EPDM, NBR	NO		137-30-4	EU									Ultra-accelerator for NR and SR, dosage kept under 1 phr because of blooming. Combination with other carbamates recomended	

GRANCHEM - Predispersed chemical substances bound to EPDM, SBR, or NBR binder system or custom-made



CURING AGENTS

Abbre- viation	Chemical composition	Product	%	Compatible Polymers	N-Nitroso Amine Free	N-Nitroso Amine Friendly	CAS	ORIGIN	TIRE	Conveyor belts	Seals	Cables	Pro- files	Belts	Air springs	Hoses	Applications	Availability
S	Sulfur	Granchem S-80	80	All syntetic and natural rubber	●		7704-34-9	EU	●	●	●	●	●	●	●	●	Curing agent for all natural and synthetic rubbers	●
S	Sulfur	Granchem S-80 /SBR	80	All syntetic and natural rubber	●		7704-34-9	EU	●	●	●	●	●	●	●	●	Curing agent for all natural and synthetic rubbers, recomended especially for tires applications	●
IS	Insoluble Sulfur	Granchem IS90-65	65	All syntetic and natural rubber	●		9035-99-8	EU	●	●						●	Vulcanising agent for natural rubber and synthetic rubber compounds	●

CURING ACTIVATORS

Abbre- viation	Chemical composition	Product	%	Compatible Polymers	N-Nitroso Amine Free	N-Nitroso Amine Friendly	CAS	ORIGIN	TIRE	Conveyor belts	Seals	Cables	Pro- files	Belts	Air springs	Hoses	Applications	Availability
MgO	Magnesium Oxide	Granchem MgO-40/ BIIR	40	CR, CM,FPM, CIIR	●		1309-48-4	EU			●		●		●	●	Curing activator and acid acceptor for chloroprene rubber and halo-butyl rubbers based on high active silica	●
MgO	Magnesium Oxide	Granchem MgO-50	50	CR, CM,FPM, CIIR	●		1309-48-4	EU			●		●		●	●	Curing activator and acid acceptor for chloroprene rubber and halo-butyl rubbers based on high active silica	●
MgO	Magnesium Oxide	Granchem MgO-60	60	CR, CM,FPM, CIIR	●		1309-48-4	EU			●		●		●	●	Curing activator and acid acceptor for chloroprene rubber and halo-butyl rubbers based on high active silica	●
ZnO	Zinc Oxide	Granchem ZnO-80	80	All syntetic and natural rubbers	●		1314-13-4	EU	●	●	●	●	●	●	●	●	Curing activator for using in natural rubber and synthetic rubber compounds	●
ZnO	Zinc Oxide	Granchem ZnO-80/ SBR	80	All syntetic and natural rubbers	●		1314-13-4	EU	●	●	●	●	●	●	●	●	Curing activator for using in natural rubber and synthetic rub- ber compounds, recomended especially for tire applications	●

* High active MgO is used

FLAME RETARDANTS

Abbre- viation	Chemical composition	Product	%	Compatible Polymers	N-Nitroso Amine Free	N-Nitroso Amine Friendly	CAS	ORIGIN	TIRE	Conveyor belts	Seals	Cables	Pro- files	Belts	Air springs	Hoses	Applications	Availability
Sb2O3	Antimony Trioxide	Granchem Sb2O3-85	85	All syntetic and natural rubbers	●		1309-64-4	CN		●			●			●	Flame retardant for flame resistance articles	●

ADHESION PROMOTERS

Abbreviation	Chemical composition	Product	%	Compatible Polymers	N-Nitroso Amine Free	N-Nitroso Amine Friendly	CAS	ORIGIN	TIRE	Conveyor belts	Seals	Cables	Pro-files	Belts	Air springs	Hoses	Applications	Availability
HMT	Hexamethylene Tetramine	Granchem HMT-80	80	SBR,NR,BR,IIR,IR	●		100-97-0	EU	●	●						●	Co-accelerator and methylene donor for resorcinol-based compounds for hardening or steel cord adhesion	●

RETARDERS

Abbreviation	Chemical composition	Product	%	Compatible Polymers	N-Nitroso Amine Free	N-Nitroso Amine Friendly	CAS	ORIGIN	TIRE	Conveyor belts	Seals	Cables	Pro-files	Belts	Air springs	Hoses	Applications	Availability
CTP	N-(Cyclohexyltio) Phthalimide	Granchem CTP-50	50	All synthetic and natural rubbers	●		17796-82-6	CN	●	●	●	●	●	●	●	●	Pre-vulcanisation inhibitor for natural and synthetic rubber compounds based on sulfenamides and thiazols vulcanisation systems	●
CTP	N-(Cyclohexyltio) Phthalimide	Granchem CTP-80	80	All synthetic and natural rubbers	●		17796-82-6	CN	●	●	●	●	●	●	●	●	Pre-vulcanisation inhibitor for natural and synthetic rubber compounds based on sulfenamides and thiazols vulcanisation systems	●
BSA	N-Phenyl-N (Trichloromethylsulfenyl) Benzensulfonamide	Granchem BSA-80	80	All synthetic and natural rubbers	●		2280-49-1	EU	●	●	●	●	●	●	●	●	Retader for natural and synthetic rubber compounds based mostly on non sulfenamides and thiazols vulcanisations systems - i.e. thiurams and dithiocarbamates, offering improved physical properties	●
BSA	N-Phenyl-N (Trichloromethylsulfenyl) Benzensulfonamide	Granchem BSA-80 / SBR	80	All synthetic and natural rubbers	●		2280-49-1	EU	●	●	●	●	●	●	●	●	Retader for natural and synthetic rubber compounds based mostly on non sulfenamides and thiazols vulcanisations systems - i.e. thiurams and dithiocarbamates, offering improved physical properties	●

ANTIDEGRADANTS

Abbreviation	Chemical composition	Product	%	Compatible Polymers	N-Nitroso Amine Free	N-Nitroso Amine Friendly	CAS	ORIGIN	TIRE	Conveyor belts	Seals	Cables	Pro-files	Belts	Air springs	Hoses	Applications	Availability
MBI	2-Mercaptobenz-imidazole	Granchem MBI-80	80	All synthetic and natural rubbers	●		583-39-1	India			●					●	Non-staining antioxidant for vulcanisates based on NR and SR. Superior thermal resistance. Synergistic effect with phenolic or amine antioxidants	●
MMBI	4/5-Methyl-2-Mercaptobenz-imidazole	Granchem MMBI-70	70	All synthetic and natural rubbers	●		53988-10-6	India			●		●		●		Non-staining antioxidant for vulcanisates based on NR and SR. Good against thermal degradation. Synergistic effect with phenolic or amine antioxidants	●