HARWICK STANDARD

Registered to Iso 9001

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Rubber Chemicals for Elastomers

Accelerators

Dithiocarbamates

Trade Name	Chemical Name	CAS Registration Number	Type	Cure Speed	Form	Comments
Accelerator ZDEC	Zinc diethyl dithiocarbamate	14324-55-1	Secondary	Ultra Fast	1,2	Fastest dithiocarbamate
Accelerator ZDBC	Zinc dibutyl dithiocarbamate	136-23-2	Secondary	Ultra Fast	2	Next fastest to ZDEC
Ekaland™ ZBEC	Zinc dibenzyl dithiocarbamate	14726-36-4	Secondary	Ultra Fast	1,2	Slowest of all dithiocarbamates and a non-nitrosamine alternative
ZDEC>ZDBC>ZBEC						

Guanidines

Trade Name	Chemical Name	CAS Registration Number	Type	Cure Speed	Form	Comments
Ekaland™ DPG	N,N'-Diphenyl guanidine	102-06-7	Secondary	Medium	1,2,3	Very slow accelerator, but can aid in reversion resistance and is a non-nitrosamine alternative
Ekaland™ DOTG	N,N'-Di-o-tolyl-guanidine	97-39-2	Secondary	Medium	2	Slower than DPG, but has higher activity and is a non-nitrosamine alternative very effective in polychloroprene
DPG>DOTG						

Forms: 1=powder, 2=oil treated powder, 3=granule, 4=crystal, 5=crystal w/anti-caking agent, 6=dispersion in water, 7=pastille

Sulfenamides

Trade Name	Chemical Name	CAS Registration Number	Type	Cure Speed	Form	Comments
Kemai CBS	N-Cyclohexyl-2-benzothiazole sulfenamide	95-33-0	Primary	Fast	1,2,3	Fastest delayed action sulfenamide and is a non-nitrosamine alternative
Kemai TBBS	N-tert-butyl-2-benzothiazole sulfenamide	95-31-8	Primary	Fast	1,2,3,	Delayed action next safest, very active can use reduced level (10%) versus CBS non-nitrosamine alternative
Kemai MBS	N-oxydiethylene benzothiazole-2-sulfenamide	102-77-2	Primary	Fast	3,4	Next safest delayed action sulfenamide
Kemai DCBS	N,N-dicyclohexyl-2-benzothiazole sulfenamide	4979-32-2	Primary	Fast	3	Safest delayed action sulfenamide
CBS>TBBS>MBS>DCBS						

Thiurams (sulfur bearing, except TMTM)

Trade Name	Chemical Name	CAS Registration Number	Type	Cure Speed	Form	Comments
Accelerator TMTD	Tetramethylthiuram disulfide	137-26-8	Secondary	Fast	1,2,3	Fastest of Thiurams (sulfur donor)
Accelerator TETD	Tetraethylthiuram disulfide	97-77-8	Secondary	Fast	2,4	Next fastest Thiuram
Accelerator MET	Blend of TMTD and TETD	137-26-8, 97-77-8	Secondary	Fast	1	Medium rate vs TMTD (Blend TMTD/TETD)
Ekaland™ TMTM	Tetramethylthiuram monosulfide	97-74-5	Secondary	Fast	2,3	Next fastest of Thiurams compared to MET
Ekaland™ TBzTD	Tetrabenzylthiuram disulfide	10591-85-2	Secondary	Fast	2	Slowest rate versus TMTM and non-nitrosamine alternative
Ekaland™ DPTT	Dipentamethylene thiuram hexasulfide	971-15-3	Secondary	Fast	1,2	Sulfur bearing accelerator for most polymers; enhances heat stability and aging properties
Ekaland™ DTDM	4,4'-Dithiodimorpholine	103-34-4	Secondary	Fast	1,2	Sulfur bearing ingredient
TMTD>TETD>MET>TMTM>TBzTD>DPTT						

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Thiazoles

Trade Name	Chemical Name	CAS Registration Number	Type	Cure Speed	Form	Comments
Kemai MBT	2-mercapto benzothiazole	149-30-4	Primary	Semi-Fast	1,2,3,	Highly reactive at low temperature <142°C/284°F and is a non-nitrosamine alternative
Kemai MBTS	2,2-Dithiobis (benzothiazole)	120-78-5	Primary	Semi-Fast	1,2,3	Slower than MBT. MBTS is used in polychloroprene for delayed action and is a non-nitrosamine alternative
MBT>MBTS						

Thioureas

Trade Name	Chemical Name	CAS Registration Number	Type	Cure Speed	Form	Comments
Ekaland™ ETU	Ethylene thiourea	96-45-7	Secondary	Medium Fast	1,2	Fastest thiourea used in polychloroprene, but can be used in EPDM as secondary
Ekaland™ DETU	N,N'-Diethylthiourea	105-55-5	Secondary	Medium Fast	4	Fast thiourea used in mercaptan modified polychloroprene and as secondary accelerator in EPDM
Ekaland™ DBTU	N,N'-Dibutylthiourea	109-46-6	Secondary	Medium Fast	5	Next fastest thiourea in polychloroprene
Ekaland™ DPTU	N,N'-Diphenylthiourea	102-08-9	Secondary	Medium Fast	1	Slowest thiourea for polychloroprene
ETU>DETU>DBTU>DPTU						

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Phenoldisulfides

Trade Name	Chemical Name	CAS Registration Number	Type	Cure Speed	Form	Comments
Vultac®2	Poly-tert-amylphenol disulfide	68555-98-6	Secondary	Ultra Fast	7	Bleaching agent for rosins and rosin esters
Vultac® 3	Poly-tert-amylphenol disulfide	68555-98-6	Secondary	Ultra Fast	7	Nitrosamine-free vulcanizing agent
Vultac® 5	Mixture of poly-tert-amylphenoldisulfide and silica	68555-98-6 112926-00-8	Secondary	Ultra Fast	1	75% by weight of ground Vultac 3 mixed with silica gel
Vultac® 710	Mixture of poly-tert-amylphenoldisulfide and stearic acid	68555-98-6 57-11-4	Secondary	Ultra fast	7	75% by weight of ground Vultac 3 mixed with stearic acid
Vultac® TB7	Poly-tert-butylphenol disulfide	60303-68-6	Secondary	Ultra Fast	7	Nitrosamine-free vulcanizing agent
Vultac® TB710	Mixture of poly-tert-butylphenoldisulfide and stearic acid	60303-68-6 57-11-4	Secondary	Ultra Fast	7	Nitrosamine-free vulcanizing agent

Thiadiazoles

Trade Name	Chemical Name	CAS Registration Number	Type	Cure Speed	Form	Comments
Echo® A	A blend of esters of 2, 5-dimercapto 1,3,4-thiadiazole	Proprietary	Secondary	Fast	1	Used in halogenated compounds CPE and CSM

Insoluble Sulfur

Insoluble Sulfur

Trade Name	Chemical Name	CAS Registration Number	Type	Cure Speed	Form	Comments
Vulcanizing Agent IS-HS-7020	Insoluble Sulfur (20% oil treated)	9035-99-8	-	-	2	Standard grade of insoluble sulfur for stocks including low viscosity/durometer compounds where no bloom is required and is heat stable (HS)

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Retarders

Diphenylamine						
Trade Name	**Chemical Name**	**CAS Registration Number**	**Type**	**Cure Speed**	**Form**	**Comments**
Ekaland™ Nitroso HU	N-Nitrosodiphenylamine	86-30-6	-	-	6	Retarder used in high temerature vulcanization systems to control scorch. It is only organic acid retarder that can be used with sulfenamide accelerators.

Phthalimide						
Trade Name	**Chemical Name**	**CAS Registration Number**	**Type**	**Cure Speed**	**Form**	**Comments**
Stangard® CTP	N-Cyclohexyl (thio) phthalimide	17796-82-6	-	-	2,4	True retarder as it reduces scorch, but does not effect cure rate or vulcanization properties

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