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## Rubber Chemicals

### Antidegradants

### Antioxidants

#### Alkylated Phenols / BIS-Phenols

Trade Name	Chemical Name	CAS Registration Number	Non-Staining	Discoloration (Compound)	Comments
Stangard® PC	2,2'-methylenebis (4-methyl-6-tert-butylphenol)	119-47-1	Y	N	Very effective antidegradant with low volatility for use in light colored compounds that require long term color stability
Wingstay® L	Butylated reaction product of p-cresol and dicyclopentadiene	68610-51-5	Y	N	Highly active antioxidant with very low volatility and excellent color stability
Wingstay® S	Styrenated Phenol	61788-44-1	Y	N	Active antioxidant with good activity, persistence, and color properties
Wingstay® T	Butylated octyl phenol; mixture of alkylated phenols	68610-06-0	Y	N	Active antioxidant that also provides excellent UV resistance
Ethanox® 4702	4,4'-methylenebis (2,6-di-tert-butylphenol)	118-82-1	Y	Y	A primary antioxidant with low volatility; ensures long term performance at high temperatures
Ethanox® 310	Pentaerythritol Tetrakis (3-(3,5-di-tert-butyl-4-hydroxyphenyl) propionate)	6683-19-8	Y	N	Primary antioxidant, highly effective, very low volatility which has very good long term protection for olefins and elastomers at high temperatures
Ethanox® 376	Octadecyl-3-(3,5-di-tert-butyl-4-hydroxyphenyl) propionate)	2082-79-3	Y	N	Primary antioxidant, low volatility and good long term protection for olefins and elastomers

## Antioxidants (continued)

### Amino Phenol

Trade Name	Chemical Name	CAS Registration Number	Non-Staining	Discoloration (Compound)	Comments
Ethanox® 4703	2,6-Di-tert-butyl-alpha-dimethylamino-p-cresol	88-27-7	N	Y	Unique, primary antioxidant with highly polar chemical structure that provides excellent protection in high heat environments

### Benzimidazole

Ekaland™ MMBI	Methyl-2-mercapto benzimidazole	53988-10-6	Y	N	Nitrosamine-free, non-blooming antidegradant. In synergy with amine or phenolic antioxidants, provides good protection against oxygen, heat, and metals. Provides dimensional stability to extrudates.
Stangard® ZMTI	Zinc 2-mercaptotoluimidazole	61617-00-3	Y	N	Secondary antioxidant when used with amines or phenolic antioxidants
Stangard® 500	Mercaptobenzimidazole/Amine antioxidant blend	53988-10-6	Y	N	Excellent high temperature antioxidant when used in NBR, BR, and CR with excellent resistance to solvents and fuels at high temperatures

### Diphenylamines

Stangard® ODP	Octylated Diphenylamine	101-67-7	N	Y	Excellent for flex and heat resistance, particularly in polychloroprene compounds
Wingstay® 29	Mixed para oriented styrenated diphenylamines	68442-68-2	N	Y	Highly active, multipurpose antioxidant used for stabilization of synthetic polymers and latices
Stangard® 405	4,4'-bis a-dimethylbenzyl diphenylamine	10081-67-1	N	Y	Active multipurpose antioxidant with excellent heat protection and good oxygen resistance

### Phosphite

Ethaphos® 368	Tris-(2,4-di-tert-butylphenyl) phosphite	31570-04-4	Y	N	A secondary antioxidant that enhances the performance of a primary antioxidant that is very effective at high processing temperatures
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### Quinolines

Stangard® TMQ Stangard® TMQ-E	2,2,4-Trimethyl-1,2-Dihydroquinoline	26780-96-1	N	Y	General purpose high activity, high molecular weight antioxidant good for oxidative and thermal aging
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## Antidegradants

### Antiozonants

#### Paraphenylenediamines

Trade Name	Chemical Name	CAS Registration Number	Non-Staining	Discoloration (Compound)	Comments
Stangard® 6PPD	N-(1,3-Dimethylbutyl)-N'-phenyl-p-phenylenediamine	793-24-8	N	Y	High activity antidegradant which acts as an antioxidant and antiozonant
Stangard® IPPD	N-Isopropyl-N'-phenyl-p-phenylenediamine	101-72-4	N	Y	High activity antidegradant which mostly acts as an antiozonant but also has excellent high temperature resistance
Stangard® DTPD	N, N'-ditolyl-phenylenediamine-mixed	68953-84-4	N	Y	High activity antidegradant with excellent compatibility with elastomeric systems

#### Special Grades

Trade Name	Chemical Name	CAS Registration Number	Non-Staining	Discoloration (Compound)	Comments
Ekaland™ NDBC	Nickel dibutyl dithiocarbamate	13927-77-0	N	Y	Excellent antiozonant in SBR, NBR, and chlorinated systems. In addition, helps stabilize chlorinated systems when exposed to light and chlorinated EPDMs when exposed to heat.
Ekaland™ DATU	Mixture of thioureas N,N'-dibutyl thiourea (30%); N,N' - diethylthiourea (25%) and N-butyl-N'-ethyl thiourea (45%)	109-46-6 105-55-5 32900-06-4	N	N	Antiozonant for synthetic elastomers and also a corrosion inhibitor

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