

Title	Country/Region	Application No.	Patent No.	Abstract
Modified Novolak Resin for Use as Tackifier	United States	11/355,178	7,772,345	The invention is related to a hydrocarbylphenol-formaldehyde linear novolak resin modified with a vinyl monomer. A modified, hydrocarbylphenol-formaldehyde linear novolak resin of the invention is repaired by reacting a hydrocarbyl phenol-formaldehyde linear novolak resin with a vinyl monomer in the presence of an acid catalyst. The invention also relates to a rubber composition with improved tack comprising a rubber or mixture of rubbers, and the modified, hydrocarbylphenol-formaldehyde linear novolak resin.
	Europe	06735207.0	1858975	
	Switzerland/Lichtenstein			
	Finland			
	Great Britain			
	Italy			
China	200680005970.4	101189273		
Novolak Resins and Rubber Compositions Comprising the Same	United States	10/992,234	7,425,602	The present invention relates to novolak resins prepared with, inter alia, one or more alkylphenols. The invention further relates to compositions comprising the novolak resins, such as vulcanizable rubber compositions, and to products obtained therewith.
	United States	12/207,636	8,470,930	
	Europe	04811267.6	1699838	
	China	200480034390.9	200480034390.9	
	Europe	12191334.7	2578610	
Process for Producing a T-Butyl Phenol from a C4 Raffinate Stream	Germany	13168390.6	2657217	This invention relates to processes for producing various t-butyl phenols, such as 2,6-di-tert-butyl phenol and ortho-tert-butyl phenol, by selectively reacting phenol or a substituted phenol with an isobutylene-containing C4 raffinate stream. The 2,6-di-tert-butyl phenol and ortho-tert-butyl phenol can be transalkylated to form other tert-butyl phenols, such as para-tert-butyl phenol, 2,4-di-tert-butyl phenol.
In-situ Alkylphenol-aldehyde Resins	United States	14/514,636	9,944,744	The invention relates to an in-situ process for preparing an alkylphenol-aldehyde resin. The process comprises the step of providing a raw alkylphenol composition. The raw alkylphenol composition comprises one or more alkylphenol
	Europe (UP)	14793372.5	TBD	
	Taiwan	103135837	I725933	
	China	201480056875.10	ZL201480056875.1	
	United States	15/947,503	10,647,806	

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	United States	16/842,221	11,155,667	compounds and at least about 1 wt. % phenol. Each alkylphenol compound has one or more alkyl substituents. The raw alkylphenol composition is reacted directly, without pre-purification, with one or more aldehydes to form an in-situ alkylphenol-aldehyde resin. The invention also relates to an in-situ alkylphenol-aldehyde resin formed from the in-situ process, and its use in a tackifier composition and rubber composition. The tackifier composition and rubber composition containing the in-situ alkylphenol-aldehyde resin show, inter alia, improved tack performance.
Methods of using Phenolic Fatty Acid Compound on a Non-Phenolic Polymer	United States	15/125,532	10,030,332	This invention relates to a process for making phenolic fatty acid compounds having a reduced phenolic ester content. The invention also relates to a method for chemically bonding a phenolic resin with a non-phenolic polymer (e.g., a synthetic fabric). The method comprises contacting a phenolic fatty acid compound with a non-phenolic polymer to introduce a hydroxy phenyl functional group into the non-phenolic polymer; and reacting the hydroxy phenyl functional group contained in the non-phenolic polymer with a phenolic resin or a phenolic crosslinker composition capable of forming a phenolic resin, to chemically bond the phenolic resin with the non-phenolic polymer. The invention is particularly useful for making a synthetic fabric-reinforced article, such as synthetic fabric-reinforced rubber article, circuit board substrate, or fiberglass.
	Europe	15751159.3	3116940	
	Germany			
	France			
	China	201710099195.3	ZL201710099195.3	
	United States	15/125,534	11,390,987	This invention relates to a process for making phenolic fatty acid compounds
	China	201580024553.30	201580024553.30	

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Methods of Using a Phenolic Fatty Acid Compound on a Synthetic Fabric Material	Europe	15715530.0	3116939	having a reduced phenolic ester content. The invention also relates to a method for chemically bonding a phenolic resin with a non-phenolic polymer (e.g., a synthetic fabric). The method comprises contacting a phenolic fatty acid compound with a non-phenolic polymer to introduce a hydroxy phenyl functional group into the non-phenolic polymer; and reacting the hydroxy phenyl functional group contained in the non-phenolic polymer with a phenolic resin or a phenolic crosslinker composition capable of forming a phenolic resin, to chemically bond the phenolic resin with the non-phenolic polymer. The invention is particularly useful for making a synthetic fabric-reinforced article, such as synthetic fabric-reinforced rubber article, circuit board substrate, or fiberglass.
	Germany			
	France			
	Great Britain			
Preparation of Sterically Hindered Hydroxyphenylcarboxylic Acid Esters	Canada	2,556,388	2,556,388	A novel manufacturing process is described for producing hindered phenolic alkyl esters, which may be useful as antioxidants. This process simplifies catalyst neutralization and removal during the preparation of hindered phenolic esters. Compositions that comprise the hindered phenolic esters produced according to these methods are also described.
	China	200580006152.1	ZL200580006152.1	
	China	201010148181.4	201010148181.4	
	Europe	05713643.4	1730097	
	Switzerland/Lichtenstein			
	Germany			
	France			
	Great Britain			
	Italy			
	Netherlands			
	India	4843/DELNP/2006	251730	
	Singapore	200605751.7	124958	
	United States	10/788,850	7,667,066	
United States	12/693,685	7,988,884		
	China	2010800309231	ZL 201080030923.1	Processes for producing 1,3,5-trimethyl-2,4,6-tris(3,5-dialkyl-4-
	India	10238/DELNP/2011	297220	

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Green and Atom-Economical Processes for Producing Phenolic Antioxidants	Taiwan	099122412	I490195	hydroxybenzyl)benzene are provided, in particular such processes that utilize 2,6-di-tert-butylphenol, paraformaldehyde, a secondary amine, mesitylene, and acetic acid.
	United States	13/382,683	8,766,016	
Method for Synthesizing Hindered Phenol Antioxidants	China	200710173322.6	200710173322.6	The invention relates to a synthesis process of hindered phenol anti-oxidant, which comprises evenly mixing compound II and compound III, adding in catalyst whose molar percent content is 0.05-5% of compound II, pumping vacuum, conducting ester exchange reaction for 1-20 hours under the conditions that the vacuum degree is 1-100 mmHg, the temperature is 120-200 DEG C, thereby generating hindered phenol anti-oxidant with structural formula I. Compared with the prior art, the invention has the characteristics of simple process, high production efficiency and excellent product property and the like.
Compositions and Process for Stabilizing Phenolic Resins Containing Calixarenes	United States	15/879,245	10,889,677	This invention relates to compositions and a process for stabilizing or solubilizing a phenolic resin containing a mixture of linear phenolic resins and calixarenes. The process comprises contacting the phenolic resin with an epoxide, to at least partially alkoxyate the phenolic hydroxyl groups of the calixarenes. This process forms a stabilized or solubilized phenolic resin with an increased solubility in a hydrocarbon solvent.
	United States	17/116,128	11,192,973	
Processes for Preparing Calixarenes	United States	16/271,499	10,781,154	This invention relates to a process for preparing a calixarene compound by
	United States	16/992,747	11,072,572	

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	United States	17/087,422	11,225,450	reacting a phenolic compound and an aldehyde in the presence of at least one nitrogen-containing base as a catalyst to form the calixarene compound. The invention also relates to processes for high-yield, high solid-content production of a calixarene compound, with high selectivity toward a high-purity calix[8]arene compound, without carrying out a recrystallization step.
Phenolic Resin Composition and the Use Thereof in a Rubber Composition to Reduce Hysteresis	China	2018102857671	TBD	This invention relates to a phenolic resin composition comprising a phenolic resin and mixed with and/or modified by one or more functionalized organosulfur compounds. This invention also relates to a rubber composition comprising (i) a natural rubber, a synthetic rubber, or a mixture thereof; (ii) one or more phenolic resins; and (iii) one or more functionalized organosulfur compounds. The interaction between the component (i) and the components (ii) and (iii) reduces the hysteresis increase compared to a rubber composition without the component (iii), upon curing the rubber composition. The invention also relates to a process for preparing the phenolic resin composition, a process for preparing the rubber composition, and a process for reducing the hysteresis increase caused in a rubber composition when a phenolic resin is added to a rubber composition.
	United States	16/353,718	10,851,224	
	China	2018102857671	2018102857671	

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Processes for Preparing Calix[4]arenes from Calix[8]arenes	United States	16/271,554	10,843,990	<p>This invention relates to a one-pot synthesis of a high-purity calix[4]arene compound by reacting a phenolic compound and an aldehyde in the presence of at least one nitrogen-containing base as a catalyst to form the calix[8]arene compound, and cleaving the calix[8]arene compound into a high-purity calix[4]arene compound, directly, without carrying out a purification step before the cleaving step. The invention also relates to an improved conversion of a calix[8]arene compound to a calix[4]arene compound, by cleaving a calix[8]arene compound in a glycol ether solvent having a boiling point of at least about 200° C., to result in a high-purity calix[4]arene compound, without using an antisolvent.</p>
Paraffin Inhibitor Composition for Use at Low Temperatures	United States	16/293,732	10,961,474	<p>A paraffin inhibitor composition that exhibits stable properties at low temperature is provided. The composition may contain, for instance, an alkylphenol copolymer having the following repeating units (A) and (B): [Alkylphenol A with R1 para to OH and x repeat units, and Alkylphenol B with R2 para to OH and y repeat units]</p> <p>wherein, x is an integer from 1 to 200; y is an integer from 2 to 200; R1 is a straight or branched C1-C15 alkyl; and R2 is a straight or branched C16-C40 alkyl.</p>

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Asphaltene Dispersant Composition	United States	16/293,768	10,961,475	<p>An asphaltene dispersant composition is provided. The composition may contain an alkylphenol copolymer having the following repeating units (A) and (B): [Alkylphenol A with R1 para to OH and x repeat units, and Alkylphenol B with R2 para to OH and y repeat units]</p> <p>wherein, x is an integer from 1 to 200;y is an integer from 2 to 200;R1 is a straight or branched C1-C15 alkyl; andR2 is a straight or branched C2-C40 alkyl, wherein R2 is different than R1.</p>
Alkylphenol Copolymer	United States	16/293,808	10,961,476	<p>An alkylphenol copolymer, such as for use in a petroleum composition, is provided. The alkylphenol copolymer has the following repeating units (A) and (B): [Alkylphenol A with R1 para to OH and x repeat units, and Alkylphenol B with R2 para to OH and y repeat units]</p> <p>wherein, x is an integer from 1 to 200;y is an integer from 2 to 200;R1 is a straight or branched C1-C15 alkyl; andR2 is a straight or branched C2-C40 alkyl, wherein R2 is different than R1.</p>

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Thermally Stable Macromolecular Compound and Petroleum Composition Including the Same	United States	16/293,878	11,560,526	<p>In one embodiment, an alkylphenol copolymer is disclosed wherein the copolymer comprises at least one alkylphenol monomer and the alkylphenol copolymer exhibits the following: an oscillation displacement Θ of greater than 0 at a temperature of -5° C. in a first oscillation temperature sweep and an oscillation displacement Θ in a second oscillation temperature sweep within 25% of the oscillation displacement Θ in the first oscillation temperature sweep at a temperature of -5° C. In a further embodiment, a petroleum composition is disclosed wherein the composition comprises a petroleum source and a macromolecular compound wherein the macromolecular compound exhibits the following: an oscillation displacement Θ of greater than 0 at a temperature of -10° C. in a first oscillation temperature sweep, and an oscillation displacement Θ in a second oscillation temperature sweep within 25% of the oscillation displacement Θ in the first oscillation temperature sweep at a temperature of -10° C.</p>

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Alkylphenol Copolymer	United States	16/919,275	11,345,846	<p>An alkylphenol copolymer, such as for use in a petroleum composition, is provided. The alkylphenol copolymer has at least the following repeating unit (I): [A-X-R1 para to OH of phenol]</p> <p>wherein: A is a direct bond or an alkylene; X is —C(O)O—, —OC(O)—, —C(O)N(R6)—, —N(R6)C(O)—, —C(O)—, —N(R6)—, —O—, or —S—; R6 is H or an alkyl; R1 includes a C1-C80 alkyl, a C2-C20 alkenyl, a C2-C20 alkynyl, a C3-C12 aryl, or a polyether; and is an integer from 1 to 200. The present invention also provides a method for forming the alkylphenol copolymer containing the aforementioned repeating unit (I) as well as a method for forming a monomer for forming repeating unit (I).</p>
Liquid Phosphite Blends as Stabilizers	Argentina	P070102088	AR064233B1	<p>A composition is disclosed that comprises a blend of at least two different phosphites of the structure [P bonded to OR1, OR2, and OR3]</p> <p>wherein R1, R2, and R3 are independently selected alkylated aryl groups and wherein said blend is a liquid at ambient conditions. The compositions are useful for stabilizing thermoplastic resins and elastomers.</p>
	Brazil	PI07132565	PI07132565	
	Canada	2654157	2654157	
	China	200780022904.20	ZL200780022904.2	
	France	07775879.5	2057222	
	Germany	07775879.5	602007035552.4	
	Poland	07775879.5	2057222	
	Switzerland	07775879.5	2057222	
	The Netherlands	07775879.5	2057222	
	Great Britain	07775879.5	2057222	
	Indonesia	W00200803955	IDP000042356	
	India	9884DELNP2008	278746	
	Japan	2009516481	5315238	
	South Korea	20087029548	1382690	
Russian Federation	2009101471	2455325		

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	Saudi Arabia	7280306.00	2648	
	United States	11787531	7888414	
	United States	12534000	8008383	
	United States	12534010	8008384	
Liquid Amylaryl Phosphite Compositions and Alkylate Compositions for Manufacturing Same	United States	12534019	7947769	Alkylate compositions comprising a monoamylphenol in an amount ranging from 25 weight percent to 99 weight percent and a diamylphenol in an amount ranging from 1 weight percent to 60 weight percent, the weight percentages being based on the total weight of all components in the alkylate composition. The invention is also to processes for making such alkylate compositions and to processes for forming stable liquid amylaryl phosphite compositions from such alkylate compositions.
Liquid Phosphite Compositions Having Different Alkyl Groups	United States	12534051	8178005	A composition comprising at least two different alkylaryl phosphites, wherein some alkyl groups have a different number of carbon atoms than other alkyl groups and wherein the composition is a liquid at ambient conditions.
	China	201080047923.20	ZL201080047923.2	

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Polymers with Low Gel Content and Enhanced Gas-Fading	United States	13272298	8258214	<p>A polymer stabilizing composition comprising a sterically hindered phenol and a phosphite that provides low gel content and enhanced resistance to gas-fading. The stabilizer composition is particularly useful for stabilizing polyethylene homopolymers and copolymers, such as linear low density polyethylenes produced from metallocene catalyst. The sterically hindered phenol is, for example, selected from the group consisting of 1,3,5-tris-(4-tert-butyl-3-hydroxy-2,6-dimethylbenzyl)isocyanurate, 1,3,5-tris-(3,5-dicyclohexyl-4-hydroxybenzyl) isocyanurate, 1,3,5-tris-(3,5-di-tert-butyl-4-hydroxybenzyl) isocyanurate, 1,3,5-tris(4-t-butyl-3-hydroxy-2,6-dimethylbenzyl)-1,3,5-Triazine-2,4,6-(1H,3H,5H)-trione, and 1,3,5-tris-(3,5-di-tert-butyl-4-hydroxybenzyl)-2,4,6-trimethylbenzene.</p>
Liquid Styrenated Phenolic Compositions and Processes for Forming Same	United States	12168675	7902280	<p>Disclosed herein are highly stable styrenated phenolic compositions that are liquids at room temperature, and polymer articles and lubricant compositions containing such styrenated phenolic compositions. Also disclosed are processes for forming such styrenated phenolic compositions, which processes afford distyrenated phenolics assaying at 70% minimum by total GC area, comprising reacting styrene with one or more phenolics, e.g., at least one of phenol, p-cresol and/or o-cresol, in the presence of an acid catalyst, preferably a sulfonic acid catalyst, at elevated temperature, wherein the resulting product mixture comprises one or more monostyrenated phenolics,</p>

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				one or more distyrenated phenolics, and one or more tristyrenated phenolics.
Hydrolytically Stable Phosphite Compositions	United States	12804793	8048946	Hydrolytically stable phosphites as secondary antioxidants for polymer resins comprising a phosphite and an amine compound. The phosphite may be a liquid phosphite composition. The amine compound may have the structure of formula I: [[R2]3-x bonded to N bonded to [CH2-CH(OH)(R1)]x] wherein x is 1, 2 or 3; R1 is selected from the group consisting of hydrogen, and straight or branched C1-C6 alkyl, and R2 is selected from the group consisting of straight or branched C1-C30 alkyl.
	Brazil	1120120008854	1120120008854	
	Canada	2760874	2760874	
	France	10742936.7	2459575	
	Germany	10742936.7	602010021081.2	
	Poland	10742936.7	2459575	
	Switzerland	10742936.7	2459575	
	The Netherlands	10742936.7	2459575	
	Great Britain	10742936.7	2459575	
	India	8437DELNP2011	322358	
	South Korea	20127002004	101752660	
Russian Federation	2012107446	2563457		
Liquid Phosphite Compositions Having Different Alkyl Groups	China	201080028330.1	ZL201080028330.1	A composition comprising a mixture of at least two different alkylaryl phosphites,
	Germany	10737226.0	602010055263.2	

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	U S A	12804680	8633267	wherein some alkyl groups have a different number of carbon atoms than other alkyl groups and wherein the mixture is a liquid at ambient conditions.
Polyolefin Compositions for Film, Fiber and Molded Articles	China	201380005932.90	ZL201380005932.9	Polyolefin compositions prepared by processing a polyolefin resin and a mixture of a select hindered phenol and select liquid phosphite above the melting point of the polyolefin contain a higher amount of retained active phosphorus than when other common phosphites are used. The compositions, films, fibers and other molded articles prepared from the compositions show improved stabilization against NOX discoloration and long-term oxidation. The select liquid phosphite consists mainly of a mixture of triphenyl phosphite derivatives wherein the phenyl groups are substituted by different numbers of butyl and/or amyl substituents.
	France	13702167.1	2804901	
	Germany	13702167.1	2804901	
	Great Britain	13702167.1	2804901	
	United States	13741504	9127144	
Composition	Belgium	14805828.20	3074461	The present invention relates to stabilizing compositions, particularly stabilizing compositions which can be used to stabilize insulation or semi-conductive compositions, such as are used for electrically insulating wires and cables. The stabilizing composition comprises: a first
	China	201480065177.80	ZL2014800651778	
	Germany	14805828.20	3074461	
	Spain			
	France			
	Japan	2016535149	6373384	

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	South Korea	1020167017232	102281931	stabilizing component comprising at least one fully hindered phenolic antioxidant; a second stabilizing component comprising at least one partially hindered phenolic antioxidant; and a third stabilizing component comprising at least one sulphur-containing antioxidant.
Antioxidant Compositions	China	201580011764.30	201580011764.3	<p>A stabilizing composition for polymeric materials comprises a phenolic antioxidant and at least one secondary arylamine of Formula I: [Rx bonded to benzene bonded to NH bonded to benzene bonded to Ry]</p> <p>wherein each R group is independently an optionally substituted higher aliphatic hydrocarbyl group (e.g., C5 and above) and x and y are independently 0 to 5 with the proviso that x+y is at least 1. The composition and/or the secondary arylamine is a liquid at ambient conditions and is substantially free (e.g., less than 2 wt.%) from diphenylamine and/or from lower alkylated (e.g., C4 and below) diphenylamine antioxidants. The hydrocarbyl group is preferably alkyl and typically, x and y are both 1. Use of the stabilizing composition to stabilize a polyol or polyurethane is also disclosed. In particular, a process for producing a polyurethane comprises adding the stabilizing composition to a polyol and subsequently reacting the combination with an isocyanate to form the polyurethane.</p>
	Great Britain	1403714.70	2523756	
	Great Britain	15706014.60	3114160	
	Germany		602015050672.3	
	Netherlands		3114160	
Phosphite Compositions	China	201380040548.2	ZL201380040548.2	Solid phosphite compositions comprising tris(4-t-alkylphenyl) phosphites and selected hydroxyalkyl amines exhibit
	Germany	13745087.0	2880092	
	France			

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	Great Britain			surprising performance compared with other phosphite stabilizers in the stabilization of polymers, such as polyolefins and the like, particularly in the prevention of color formation during high temperature processing or when exposed to certain gasses during storage, e.g., "gas fading".
	United States	14053489	8916065	
Antioxidant Composition	Great Britain	1515640.9	2549061	The present invention provides a stabilizing composition, comprising: a) a first phenolic antioxidant comprising one or more phenolic compounds having the structure of formula (I) [di-tertbutyl phenol with para to OH -C-C-C(O)OR1] wherein R1 is a linear or branched alkyl group having from 12 to 20 carbon atoms; and b) one or more second phenolic antioxidants independently selected from: a mono-hydroxybenzene having lower steric hindrance than the first phenolic antioxidant; a di-hydroxybenzene; and/or a tri-hydroxybenzene.
	South Korea	1020187009320	102207778	
	South Korea	1020217001824	10-2437559	
	United States	15754916	11,180,631	
Composition	Great Britain	1707120.0	2562466	A stabilizing composition comprises (a) an antioxidant selected from a phenolic
	China	201880029254.20	ZL 201880029254.2	

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	Europe	18722036.3	3619260	<p>antioxidant, a phosphite antioxidant, a sulphur-containing antioxidant, and/or an aminic antioxidant and (b) a buffering agent capable of buffering an aqueous solution at pH 4-8. Typically, the buffering agent is present in an amount of 1-50 wt.% and may be a metal phosphate or metal pyrophosphate, especially one containing an alkali metal. The buffering agent may also comprise one or more amino acids, such as glycine, cysteine, cysteine, methionine, tyrosine, histidine, arginine, glutamic acid, or alkali metal salts thereof, such as monosodium glutamate. Typically, the composition contains a phenolic antioxidant, a phosphite antioxidant and optionally a sulphur-containing antioxidant. The phenolic antioxidant may be tetrakis(3,5-di-<i>t</i>-butyl-4-hydroxyhydrocinnamate)methane, the phosphite antioxidant may be tris(2,4-di-<i>t</i>-butylphenyl)phosphite, and the sulphur-containing antioxidant may be pentaerythritol tetrakis (β-laurylthiopropionate). Use of the composition to stabilize a polymer, especially a polyolefin, or a hot melt adhesive is also disclosed.</p>

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Insulation Composition	Great Britain	1713246.5	2565587	A precursor material for a polyolefin insulation composition comprising a cross linkable graft polymer comprising a polyolefin component, such as polyethylene or polypropylene, and a polyene component, such as 1,7-octadiene, 1,9-decadiene, 1,11-dodecadiene, 1,13-tetradecadiene, 7-methyl-1,6-octadiene, 9-methyl-1,8-decadiene, farnesene, squalene, limonene, dicyclopentadiene, 1,2,4-trivinylcyclohexane, vinyl norbornene, cyclooctadiene or cyclooctatriene, and an antioxidant, such as phenolic antioxidants, phosphite antioxidants, sulphur-containing antioxidants or aminic antioxidants and further comprising a crosslinking agent, comprising a peroxide and a scorch retarder, such as 2,4-diphenyl-4-methyl-1-pentene. Also disclosed is use of the precursor material to form a polyolefin insulation composition to insulate a wire or cable.
Antidegradant Blend	Great Britain	1716709.9	2567456	The present invention is directed to an antidegradant blend, comprising of at least
	India	202027019974	401327	

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	United States	16/755,356	11572455	<p>one metal carboxylate; at least one inorganic phosphite; at least one phenolic antioxidant; and at least one organic phosphite antioxidant. As examples, the metal carboxylate may comprise a metal stearate, a metal lactate and/or a metal benzoate while the inorganic phosphite may comprise one or more metal hypophosphites.</p>
Antioxidant Compositions	Great Britain	1819574.3	2579405	<p>A polymer stabilizing composition comprises (a) a first derivatized phenolic antioxidant, (b) a secondary arylamine of Formula (I) [Rx bonded to benzene bonded to NH bonded to benzene bonded to Ry],</p> <p>wherein x is 0-5, y is 0-5, $x+y \geq 1$, R is optionally substituted hydrocarbyl group and at least one R comprises (i) ≥ 9 carbon atoms or (ii) ≥ 5 carbon atoms if (b) is present in an amount of 35-75 wt.% of the stabilizing composition, and (c) an antioxidant booster selected from (i) a second derivatized phenolic antioxidant having a lower steric hinderance than the first phenolic antioxidant, (ii) a hindered amine, or (iii) an optionally substituted phenothiazine. Preferably, Rx or Ry is a nonyl group and the arylamine may be mono-nonyl or di-nonyl diphenylamine. The composition may be substantially free from diphenylamine and lower alkylated diphenylamine antioxidants, such as t-butylated diphenylamines. Use of the</p>

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				composition to stabilize polyols or polyurethanes is also disclosed, whereby the stabilizing composition may be present in an amount of 0.01-2 wt.%.

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Antidegradant Blend	Great Britain	1905933.6	2573403	<p>An antidegradant blend comprises (i) a phenolic antioxidant and/or an organic phosphite antioxidant and (ii) an inorganic antioxidant or reducing agent, wherein there is substantially no metal carboxylate or buffering agent able to buffer in aqueous solution at pH 4-8. The inorganic antioxidant or reducing agent may be a metal phosphite, hypophosphite, thiosulphate, bisulphite, metabisulphite, or hydrosulphite, especially a metal hypophosphite. Typically, the blend comprises both phenolic and organic phosphite antioxidants. A further antidegradant blend comprises tetrakis(3,5-di-<i>t</i>-butyl-4-hydroxyhydrocinnamate) methane, tris(2,4-di-<i>t</i>-butylphenyl)phosphite, and sodium hypophosphite, wherein there is substantially no metal carboxylate or buffering agent able to buffer in aqueous solution at pH 4-8. A polymeric composition comprising a polymeric base material and the antidegradant blend is also disclosed. Preferably, the antidegradant blend is present in an amount of 0.01-5 wt.%. The polymeric base material may be a polyolefin, polystyrene, polyacrylonitrile, polyacrylate, polyurethane, polyamide, polyester, polycarbonate, polyvinylchloride, or an elastomer.</p>
Composition	Great Britain	1910650.9	2576112	<p>A stabilizing antioxidant composition comprises tris(2-<i>t</i>-butylphenyl) phosphite</p>

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	Great Britain	2211916.8	2606975	<p>in the absence of tris(2,4-di-t-butylphenyl) phosphite. Typically, the composition lacks arylphosphites having t-butyl or other alkyl groups in the para-position relative to the phosphite groups. The composition preferably excludes di(2-t-butylphenyl)monophenyl phosphite. Another stabilizing antioxidant composition comprises tris(2-t-butylphenyl) phosphite obtained by adding 2-t-butyl phenol to a phosphorus trihalide. Typically, addition occurs at $\leq 150^{\circ}\text{C}$ in the presence of a secondary or tertiary amine or quaternary ammonium catalyst. Substantially pure tris(2-t-butylphenyl) phosphite is also claimed, having a preferred purity of $\geq 98\%$. It may be produced by adding 2-t-butyl phenol to a phosphorus trihalide followed by one crystallization. Antidegradant blends comprising the composition or substantially pure tris(2-t-butylphenyl) phosphite may contain phenolic antioxidant, further organic phosphite antioxidant, sulphur-containing antioxidant, or aminic antioxidant. The blend may also contain buffer, metal carboxylate, inorganic antioxidant or reducing agent, or inorganic acid scavenger. Stabilization of polymers, especially polyolefins, is envisaged.</p>

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Antidegradant Blend	Great Britain	1907622.3	2584305	<p>An antidegradant blend comprises (i) an aminic component comprising a hydroxylamine and/or hydroxylamine precursor and (ii) inorganic antioxidant/reducing agent. Typically, the blend contains 0.1-30 wt.% aminic component, which may be bis(octadecyl)hydroxylamine, N,N-dibenzylhydroxylamine, N,N-diethylhydroxylamine, N,N-dioctylhydroxylamine, N,N-dilaurylhydroxylamine, N,N-ditetradecylhydroxylamine, N,N-dihexadecylhydroxylamine, N-hexadecyl-N-octadecylhydroxylamine, N-heptadecyl-N-octadecylhydroxylamine, or an amine oxide, particularly bis(hydrogenated rape-oil alkyl)methyl, N-oxides. The inorganic antioxidant/reducing agent may be present in an amount of 0.1-40 wt.% and may comprise metal phosphite, hypophosphite, thiosulphate, bisulphite, metabisulphite, or hydrosulphite, especially sodium hypophosphite. The blend may further contain 1-60 wt.% partially or fully hindered phenolic antioxidant (e.g., tetrakis(methylene(3,5-di-t-butyl-4-hydroxyhydrocinnamate)methane), 10-90 wt.% organic phosphite antioxidant (e.g., tris(2,4-di-t-butylphenyl)phosphite), 10-90 wt.% sulphur-containing antioxidant (e.g., compounds containing thioether or thioester groups), or 1-60 wt.% anti-acid (e.g., calcium stearate). A polymeric composition comprising a polymer and the antidegradant blend is also claimed. The polymeric composition may comprise</p>

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				<p>0.01-5 wt.% antidegradant blend and <45 ppm aminic component. The polymer may be a polyolefin, e.g., polypropylene.</p>