



This month’s selection in brief

This first patent alert of 2026 highlights innovations driving sustainability and performance in coating and finishing technologies. Featured developments include bio-based and water-based adhesive systems, advanced fabric treatments for odor control and anti-pilling, protective solutions such as temporary floor coverings; environmentally friendly inkjet formulations for textiles, and coated textile separators enhancing battery efficiency.

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Bio-based adhesive system

Patent number: WO2025231394

Publication date: 2025-11-06

Applicant(s): BIOBOND ADHESIVES, INC.

Inventor(s): HART RICHARD; MCCONNAUGHEY MARC

Summary

The present invention discloses a two-component adhesive system comprising a component (A) consisting of a hydroxyl-containing compound and an organic acid amine complex or an aliphatic polyester diol, and component (B) containing an aliphatic and/or cycloaliphatic isocyanate. The adhesive system is water-based, bio-based with at least 24 wt% renewable content and characterized by low or no volatile organic compounds (VOCs), addressing environmental and health concerns associated with conventional adhesives. Component (A) may include cardanol and related compounds derived from cashew nutshell liquid, providing fast curing, adhesion, chemical resistance, and flexibility. Component (B) includes specific aliphatic isocyanates such as HDI and its derivatives. The system allows inclusion of various additives to enhance performance. The adhesive exhibits excellent adhesion to diverse substrates including ceramics, glass, concrete, wood, metals, tiles, and textiles, with excellent durability, corrosion, chemical, and acid resistance. The adhesive cures at ambient temperature within 8 hours or less and is easy to apply and clean up with water. The invention also includes kits with separately packaged components and methods for preparing and applying the adhesive. This technology provides a sustainable, safe, and effective alternative to petrochemical-based adhesives with improved performance and environmental profile.



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Water-based hot-melt adhesive and nonwoven coated with the water-based hot-melt adhesive

Patent number: EP4553126

Publication date: 2025-05-14

Applicant(s): BenQ Materials Corporation

Inventor(s): LIN YEN-LING; WANG TZE-CHI; CHEN CHING-HUANG

Summary

This invention discloses a water-based hot-melt adhesive composition and its application as a coating on polyolefin spunbonded nonwoven fabrics for healthcare device packaging. The adhesive comprises hydrophilic-modified water-based polyolefin resin, water-based ionomer, wax particles, and tackifier particles in defined weight ratios, optionally including water-based paraffin. The adhesive coating provides a balance of sufficient seal strength, gas-permeability, peelability, and weatherability, critical for sterilizable healthcare packaging materials. The adhesive enables heat sealing with flexible sheets or blister containers at peripheral edges while maintaining microbial barrier properties and preventing fiber tear contamination upon opening. The preparation method avoids complex blending, using water as a solvent for dispersion and coating. The coated nonwoven fabric exhibits gas-permeability less than 170 seconds and seal strength greater than 265 g/15 mm, retaining performance after reliability testing. This technology addresses limitations of prior art adhesives by combining ease of manufacture, reliable sealing, and sterilization compatibility, enhancing healthcare packaging safety and functionality.

Example / Comparative Example	Weight of coating layer (gsm)	Gas-permeability (s)	Layer-peeling	Initial seal strength (gf/15mm)	Seal strength after reliability test (gf/15mm)	Difference of seal strength
Example 1	13.7	56	○	271	273	+2
Example 2	17.4	144	○	383	322	-61
Example 3	11.9	160	○	388	322	-66
Example 4	17.5	58	○	368	343	-25
Example 5	14.3	104	○	286	285	-1
Example 6	16.3	96	○	334	334	0
Example 7	14.5	95	○	368	349	-19
Example 8	15.5	100	○	312	342	+30
Example 9	17.7	78	○	432	358	-74
Example 10	17.2	76	○	333	367	+34
Example 11	17.3	92	○	329	317	-12
Example 12	16.9	85	○	389	404	+15
Example 13	17.2	92	○	355	332	-23
Example 14	17.7	73	○	730	358	-12
Comparative Example 1	10.0	60	×	158	-	-
Comparative Example 2	18.3	61	○	374	211	-163

Water-based anti-odor fabric treatment compositions

Patent number: US12435295

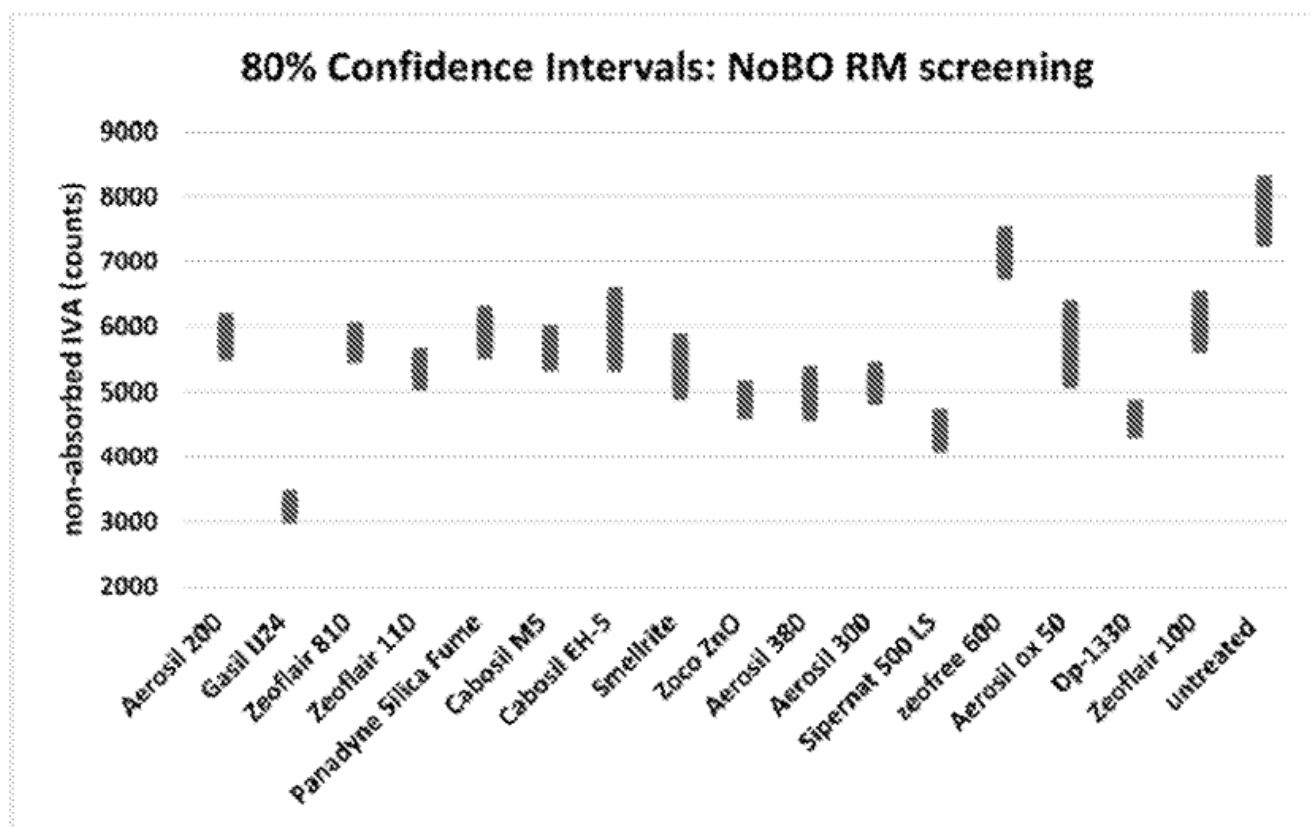
Publication date: 2025-10-07

Applicant(s): SCIESSENT LLC

Inventor(s): LAN TIAN; JOHNSON KENNETH

Summary

This invention discloses aqueous fabric treatment compositions comprising cationic acrylic polymer emulsions/dispersions combined with water soluble or dispersible silica gel, optionally with zeolite, to impart durable and long-lasting odor control to textiles and fibrous materials. The cationic acrylic polymer is self-cross-linking or used with a cross-linking agent, and the composition maintains a specific weight ratio of polymer to silica gel components. These compositions provide a broad spectrum of odor control with enhanced efficacy and durability, including after multiple wash cycles, overcoming limitations of prior art odor absorbers. The polymers include specific (meth)acrylic ester monomers and cross-linking comonomers such as di- or tri-(meth)acrylates and acrylamides like N-methylol acrylamide. The compositions are suitable for OEM finishing, post-manufacture treatment, and consumer application by various methods including spraying and laundering. The invention offers a technically improved, easy-to-apply solution for renewable and effective odor control in fabrics, combining synergistic effects of silica gel and cationic acrylic polymers to achieve superior odor absorption and retention.



Water-based anti-pilling fabric treatment compositions

Patent number: US12366032

Publication date: 2025-07-22

Applicant(s): SCIESSENT LLC

Inventor(s): JOHNSON KENNETH; STEVENS JR LESTER FRANKLIN

Summary

This invention discloses a method and composition for enhancing the resistance of fabrics and textiles to pilling by applying a curable aqueous composition comprising a polymer/polymer forming component and a silicone component. The polymer component includes cross-linkable aliphatic and/or cycloaliphatic polyurethane dispersions, self-crosslinking acrylic polymer emulsions, or combinations thereof, while the silicone component is a silicone dispersion. The composition contains 1 to 70 wt% solids, with an anti-pilling effective amount of 0.05% to 4% solids relative to fabric weight. After application, the fabric is cured under conditions sufficient to cross-link the polymer, resulting in durable anti-pilling properties that persist even after four laundering cycles. The invention addresses the need for effective, commercially viable anti-pilling treatments applicable in industrial, OEM, and consumer settings without requiring complex processing. The compositions can be applied by various methods including padding, dipping, spraying, or laundering additives, and are suitable for natural, synthetic, or blended fabrics. This approach improves fabric aesthetics and durability by preventing pilling caused by abrasion during use and cleaning, thereby extending fabric life and maintaining appearance.

	1HL + Treated	1HL + Treated + 4 HL
Nacrylic 4460, 1% solid	3	2.5
Rovene 6016, 1% solid	3.5	3
80/20 Nacrylic 4460/Rovene 6016, 1% solid	4	2.5
73/18/9 Nacrylic 4460/Rovene 6016/Additive GF, 1% solid	3	2.5
91/9 Nacrylic 4460/Additive GF, 1% solid	3.5	3
91/9 Rovene 6016/Additive GF, 1% solid	4	3.5
91/9 Nacrylic 4460/Additive S-7A, 1% solid	3	2.5
91/9 Nacrylic 6016/Additive S-7A, 1% solid	4	3
91/9 Unithane IC-910 NF/Additive GF, 1% solid	3.5	3
95/5 Unithane IC-910 NF/Additive GF, 1% solid	3	2
91/9 Unithane IC-910 NF/Additive GF, 1% solid, repeat	4	3.5
87/13 Unithane IC-910 NF/Additive GF, 1% solid	3.5	3.5
83/17 Unithane IC-910 NF/Additive GF, 1% solid	3	3
Water only	2	2

Temporary floor protection fabric

Patent number: WO2025251135

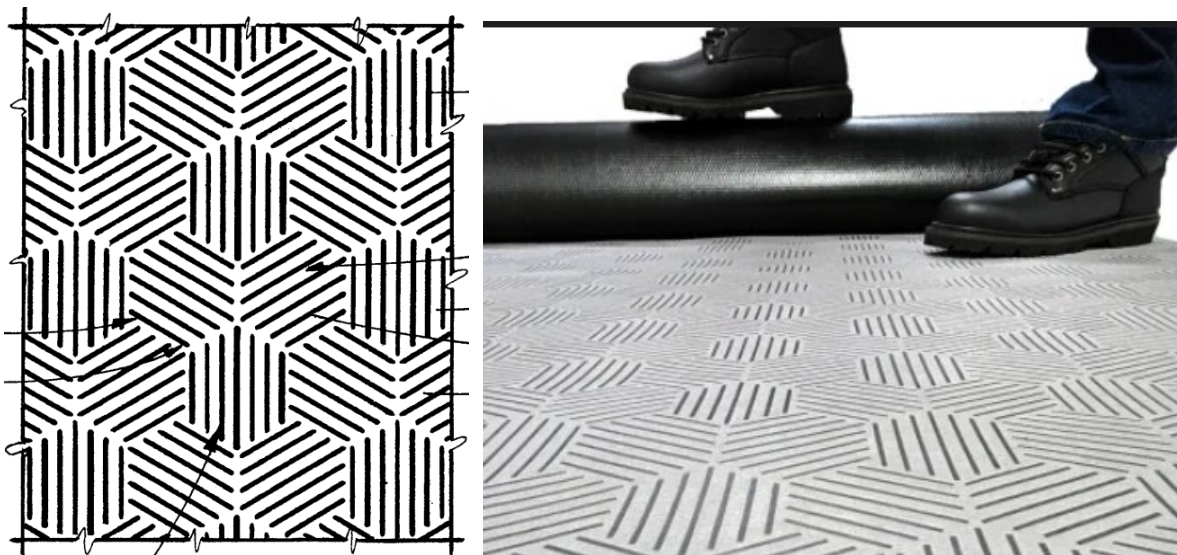
Publication date: 2025-12-11

Applicant(s): CANADA COVERS LTD.

Inventor(s): SANDHAR HARPREET SINGH

Summary

This invention provides a multi-layer temporary floor protection fabric designed for use during construction, renovation, painting, and moving activities to protect floors from damage. The fabric comprises a hydrophilic, non-woven polypropylene top layer with a plurality of channels that absorb water and trap dirt, enhancing cleanliness and safety. An intermediate cushioning layer of spun bonded polypropylene or needle-punched polyester provides shock absorption and dimensional stability. A polypropylene adhesive layer bonds the top and intermediate layers, ensuring structural integrity. The waterproof bottom layer, composed of polypropylene and polyethylene or polyester with water-based glue, features an anti-slip texture or adhesive properties to prevent fabric movement and slipping on various floor surfaces. The fabric exhibits high tear strength and elongation, enabling multiple uses. Its lightweight construction and roll format facilitate easy handling and installation without curling. The invention addresses shortcomings of prior art by combining durability, waterproofing, spill absorption, dirt trapping, and anti-slip features in a single protective fabric, thereby improving floor protection and user safety during temporary applications.



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Pigment ink formulation for dod inkjet printing of textile fabrics

Patent number: EP4606869

Publication date: 2025-08-27

Applicant(s): Swiss Performance Chemicals AG

Inventor(s): MHEIDLE MICKAEL

Summary

The present invention discloses a silicone- and fluorine-free water-based piezoelectric drop-on-demand inkjet ink formulation for textile printing comprising 3-15 wt-% pigment dispersed in a mixture of water-dispersible (meth)acrylic, styrene-(meth)acrylic, and urethane resins with defined glass transition temperatures, up to 2 wt-% surfactant, 20-40 wt-% 1,2,3-propanetriol, optional pH adjusting agents, biocides, thickening agents, further water-miscible solvents, and water. The ink formulation has a viscosity of 4-9 cP at 25°C and a shear rate of 200-400 s⁻¹, with total resin content of 7-10 wt-%. The invention also provides an ink set of at least three blendable inks and a manufacturing process for printed textiles that does not require pretreatment or post-coating steps. The process involves piezoelectric drop-on-demand inkjet printing on one or both sides of non-pretreated textile fabrics, drying at 120-140°C, and calendering at 140-180°C. This approach yields printed textiles with excellent rubbing fastness, color development, and preserved textile hand, while being environmentally friendly and compatible with industrial textile printing requirements.

Table 4: Properties printed 100% cotton satin substrate

	C2	M2	Y2	K2
Hand	***	***	***	***
Colour development	***	***	***	***
Dry Rubbing fastness	4-4.5	4-4.5	4-4.5	3-3.5
Wet rubbing fastness	3.5-4	3.5-4	4-4.5	2.5-3
Back staining	***	***	***	***

Laminated structure, complex synthetic sealing membrane and method of manufacturing the same

Patent number: FR3156061

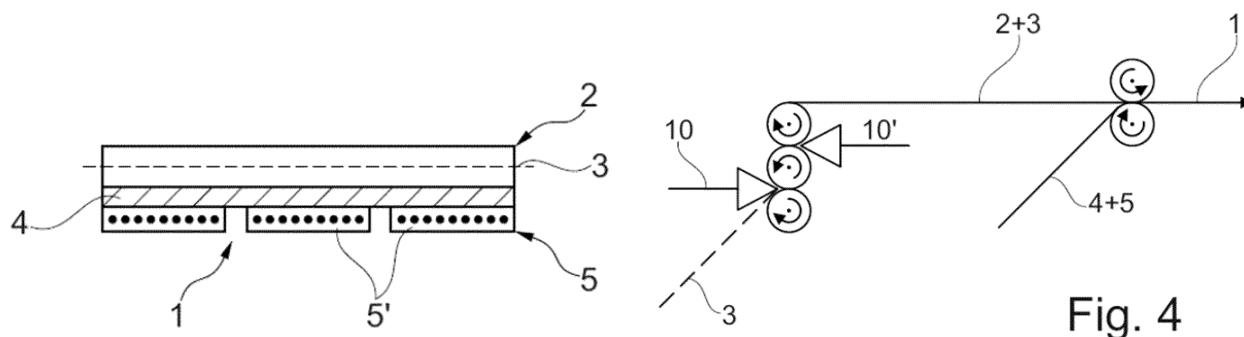
Publication date: 2025-06-06

Applicant(s): SOPREMA

Inventor(s): BINDSCHIEDLER PIERRE-ETIENNE; ROULET ALEXIS

Summary

The invention concerns a complex synthetic sealing membrane with a laminated structure comprising at least one continuous layer based on polyvinyl chloride (PVC) or thermoplastic polyolefin (TPO), a reinforcing reinforcement integrated within the continuous layer, and a geotextile laminated to the continuous layer. A key technical contribution is the inclusion of a discontinuous adhesive layer on the underface of the geotextile, which enhances adhesion to various supports such as concrete, wood, metal, and insulating materials without requiring primers or additional fixing glues. The adhesive is preferably an acrylic-type with a glass transition temperature below 0°C, typically around -34°C, applied in a discontinuous pattern covering 30% to 70% of the surface, often as regular strips. This configuration provides strong adhesion, high resistance to wind pull-out (>5000 Pa per EN 16002), and reduces stress concentrations that can cause cracking during installation. The membrane's reinforcement is typically a glass web integrated into the continuous layer, while the geotextile is made of PET or PP fibers with fiber bonding adhesives. The invention also includes manufacturing methods involving hot coating or extrusion and lamination processes at controlled temperatures to assemble the membrane components effectively. Protective films cover the adhesive layer for packaging and handling. This invention improves sealing membrane performance, installation ease, and durability in roofing and other sealing applications.



Coated separator and related methods

Patent number: WO2025171206

Publication date: 2025-08-14

Applicant(s): CELGARD, LLC

Inventor(s): YIN WENBIN; MAO JIALIN; MA YUE; ZHANG ZHENGMING

Summary

This invention discloses composites comprising porous membranes, particularly microporous battery separators, coated with non-continuous, water-based adhesive layers containing large polymeric particles or agglomerates with average particle sizes (D50) from 5 to 20 microns. The polymeric particles are formed from low melting point polymers (T_m 20°C to 170°C), low glass transition temperature polymers (T_g -35°C to 60°C), or combinations thereof, including PVDF and PVDF-HFP. Alternatively, acrylate particles with high electrolyte swelling ratios (above 200% up to 950%) are used. The coatings are applied via water-based slurries using spray coating methods such as air spray, airless, or air-assisted spray, resulting in environmentally friendly, non-continuous coatings that reduce Gurley increase and electrical resistance compared to prior solvent-based or small particle coatings. The composites may include fiber or non-woven layers and optional ceramic layers, with coatings present on, under, through, or in these layers. The large particle coatings improve electrolyte absorption, adhesion to electrodes, and mechanical strength, enhancing battery separator performance and manufacturing efficiency. The invention addresses prior art limitations by enabling large particle water-based coatings that maintain porosity and adhesion without solvent-related drawbacks.

