



This month's selection in brief

For the 10th and final Patent Alert of 2025, we spotlight Belgian companies driving innovation in plastics and textiles across diverse applications.

Selected patents:

A protective blanket assembly for a seated person	2
Thermoplastic material for immobilization purposes	3
Method for manufacturing a composite material, in particular a method for manufacturing a composite material from mycelium	4
Additive manufacturing with pyrolyzed lignocellulosic filler and foaming agent.....	5
Method to manufacture a shaped high-density foam flake composite product and three-dimensionally shaped sound absorption member	6
Thermoplastic polyurethane multifilament yarn for a textile product.....	7
Conductive plastics	8
Candle wax composition and method of making candle	9

A protective blanket assembly for a seated person

Patent number: WO2025215001

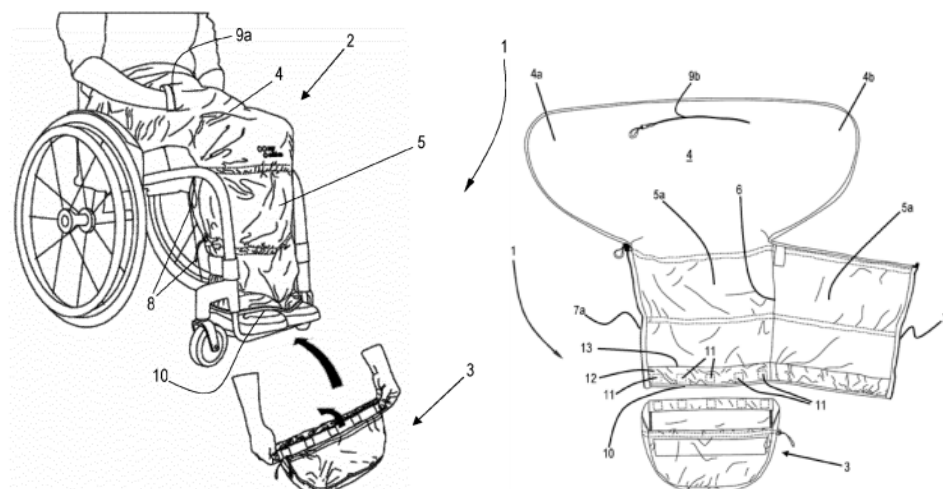
Publication date: 2025-10-16

Applicant(s): MY ADD ON BV (<http://www.myaddon.eu/>)

Inventor(s): VAN DEN BROECK MARIE

Summary

The invention provides a user-friendly alternative to existing blanket assemblies, enabling easy attachment and release of the foot cover to and from the main blanket of the assembly. This is especially beneficial for persons with limited hand mobility and/or persons with for example back-related disabilities, who may have difficulty reaching down to the area of the foot cover. The blanket assembly comprises a main blanket including a lower leg covering that can be wrapped around the seated person's lower legs, and a foot cover configured to be removably attached to the lower leg covering by a magnetic connection. According to preferred embodiments, the magnetic connection is realized through magnetic tags included in the lower leg covering and the foot cover, for example sewn into the textile fabric of these assembly components. The magnetic tags or any equivalent magnetic attachment means such as a magnetic strip are provided in the lower leg covering and in the foot cover in a manner that enables attaching the foot cover to the lower leg covering by overlaying corresponding tags or equivalent magnetic means, thereby establishing the attachment through magnetic attraction between corresponding tags or equivalent means. The magnetic force is configured to enable realizing the attachment easily and quickly by bringing corresponding magnetic tags or strips into each other's vicinity. At the same time, the magnetic attachment force is such that it enables easily releasing the attachment by pulling the foot cover away from the lower leg covering.



Thermoplastic material for immobilization purposes

Patent number: EP4600294

Publication date: 2025-08-13

Applicant(s): Orfit Industries N.V. (<https://www.orfit.com/>)

Inventor(s): HUSSEIN NAJI; CUYPERS STEVEN

Summary

This invention discloses a thermoplastic composition and material for producing immobilization devices that conform to and stabilize body parts, particularly for use in radiation therapy and diagnostic imaging. The composition comprises a major portion of a first polymer or its non-crosslinked regrind by-product with a melting temperature below 100°C, a minor portion of a second regrind by-product that is at least partially chemically crosslinked, optionally a thermoplastic elastomer, and additives. This formulation enables production of thermoplastic sheets that can be molded directly on a patient at low temperatures, providing sufficient melt strength and working time for detailed shaping while minimizing shrinkage and patient discomfort. The material achieves mechanical properties comparable to chemically crosslinked masks but without requiring post-processing crosslinking steps, simplifying manufacturing and reducing costs. The inclusion of regrind by-products enhances sustainability. The thermoplastic sheets are preferably produced by extrusion and can be formed into sheets of 1 to 4 mm thickness. The resulting immobilization devices offer high stability, comfort, and reproducibility essential for clinical applications.



Method for manufacturing a composite material, in particular a method for manufacturing a composite material from mycelium

Patent number: WO2025209949

Publication date: 2025-10-09

Applicant(s): PERMAFUNGI (<https://www.permafungi.be/en>)

Inventor(s): JACQUET JULIEN

Summary

This invention provides a novel process for manufacturing composite materials from fungal mycelium by mixing a predetermined fungal inoculum with a particulate substrate composed primarily of fibers containing intrinsic nutrients, without adding any external nutritive materials. The mixture is incubated under controlled temperature (10-30°C) and relative humidity (20-95%) conditions to promote mycelium growth, which binds the substrate particles into a composite material. The process includes optional sterilization or pasteurization of the substrate to minimize contamination and can be performed in molds to produce shaped objects. Additional fresh substrate can be added during incubation, and aeration is applied to optimize fungal development. Post-processing steps such as dehydration prevent fruiting of the mycelium, and further treatments like milk of lime application or mechanical/laser etching can be applied to enhance the final material. The method also contemplates using a substrate pre-inoculated with a second fungal inoculum to accelerate mycelium formation and improve yields. The composite materials produced are suitable for manufacturing various objects including insulating panels, packaging, protective elements, coffins, funeral urns, and furniture. This process reduces contamination risks, simplifies manufacturing, lowers costs, and improves product quality and yield compared to existing methods that require added nutrients.



Image © PERMAFUNGI <https://www.permafungi.be/en>

Additive manufacturing with pyrolyzed lignocellulosic filler and foaming agent

Patent number: WO2025191175

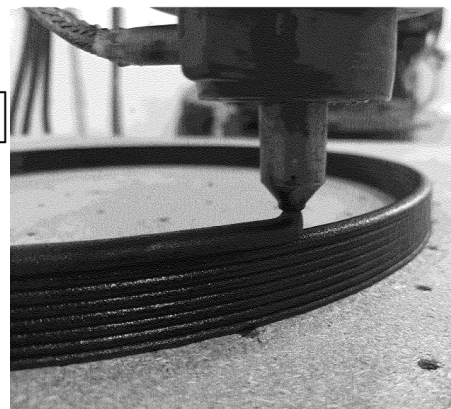
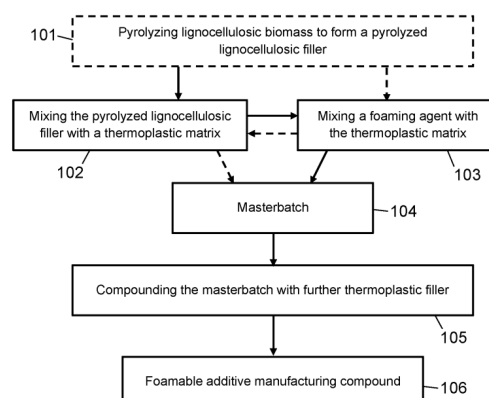
Publication date: 2025-09-18

Applicant(s): CARBOGANIC (<https://www.carboganic.eu/>)

Inventor(s): TAMBUYSER BART; AERTS YANNICK

Summary

This invention relates to masterbatches and foamable additive manufacturing compounds comprising a thermoplastic matrix, a pyrolyzed lignocellulosic filler, and a foaming agent, designed for additive manufacturing processes. Unlike prior art where foaming occurs before printing, this invention maintains the compound in a substantially unfoamed but foamable state until foaming is activated during additive manufacturing. This approach preserves the foam's cellular structure, enhances printing speed by volume expansion during deposition, and enables the production of large, lightweight, and strong printed products. The pyrolyzed lignocellulosic filler improves structural integrity, reduces moisture content, acts as a nucleation and dispersion agent for the foaming agent, and provides lightweight reinforcement that prevents sedimentation. Masterbatch formulation ensures homogeneous distribution of components, improving reproducibility and uniformity of printed products. The foamable compounds are compatible with various thermoplastic matrices such as PLA, PP, and PET, and can be processed via fused granular fabrication or fused filament fabrication. The resulting printed products exhibit uniform cellular structures with good thermal insulation, reduced weight, and enhanced mechanical properties, suitable for applications requiring lightweight and strong materials. The invention also offers environmental benefits by utilizing sustainable biomass fillers and enabling recyclable and reusable compounds.



Method to manufacture a shaped high-density foam flake composite product and three-dimensionally shaped sound absorption member

Patent number: EP4488024

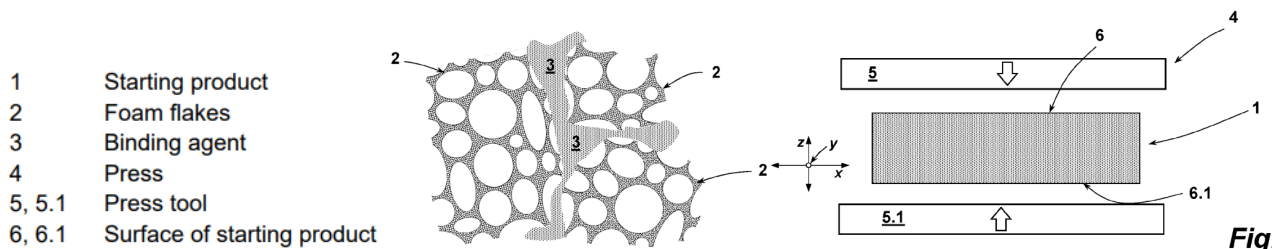
Publication date: 2025-01-08

Applicant(s): Carpenter Engineered Foams Belgium BV

Inventor(s): BRACKE KRISTIAAN; DE THAEY ROB; GONTIER MATHIEU

Summary

This invention discloses a novel two-step method for manufacturing three-dimensionally shaped high-density foam flake composite products. Initially, a low-density foam flake composite sheet containing foam flakes bonded by a thermoplastic binding agent is compressed at a temperature where the binding agent is molten, pressing the binding agent into surface cavities of the foam flakes and significantly increasing the density by reducing thickness. This produces a semi-finished high-density sheet with smooth surfaces and enhanced inter-flake bonding. Subsequently, the semi-finished sheet is reheated to melt the binding agent and thermoformed in a mould held below the binding agent's melting temperature, enabling complex three-dimensional shaping without tearing. The method supports uniform or non-uniform compression, infrared heating, and bonding of additional layers using the superficial binding agent at various stages. The resulting shaped product exhibits improved mechanical integrity, manufacturability, and can be used as a mass layer in sound absorption systems or other applications. The process also promotes sustainability by utilizing recycled foam flakes and bi-component fibres, offering a cost-effective and versatile solution for producing high-density shaped foam composites.



Thermoplastic polyurethane multifilament yarn for a textile product

Patent number: EP4603625

Publication date: 2025-08-20

Applicant(s): Huntsman International LLC; Huntsman (Europe) BV

Inventor(s): KIEWIDT ANN-CHRISTIN; MICHEL OLAF; GIANNINI GIACOMO; VERBEKE HUGO

Summary

The present invention discloses a thermoplastic polyurethane multifilament yarn for textile products, produced from a TPU material comprising a thermoplastic polyurethane component, a polystyrene component (5 to 20 wt%), an ultraviolet absorber, and a hindered amine light stabilizer. The polystyrene component reduces the melt viscosity and extruder torque during filament production, enabling melt spinning at lower temperatures and yielding filaments with a matte, non-sticky surface suitable for multifilament yarn formation. The UV absorber and hindered amine light stabilizer are selected for thermal stability, exhibiting minimal decomposition within the TPU melting temperature range, thereby preventing discoloration such as yellowing caused by aromatic isocyanate-based TPU components. The TPU material preferably includes modified polystyrene and uses methylene diphenyl diisocyanate (MDI) or its prepolymer as the aromatic isocyanate. The TPU material exhibits a Shore A hardness of at least 80, preferably 85 to 98. The invention further covers textile products comprising the TPU multifilament yarn, such as shoe uppers, and methods of producing the yarn by melt extrusion or melt spinning at temperatures below the thermal decomposition points of the UV stabilizers. This invention addresses prior art limitations by improving filament processability, UV resistance, and aesthetic stability, enabling recyclable textile products with enhanced performance.

Conductive plastics

Patent number: WO2025103887

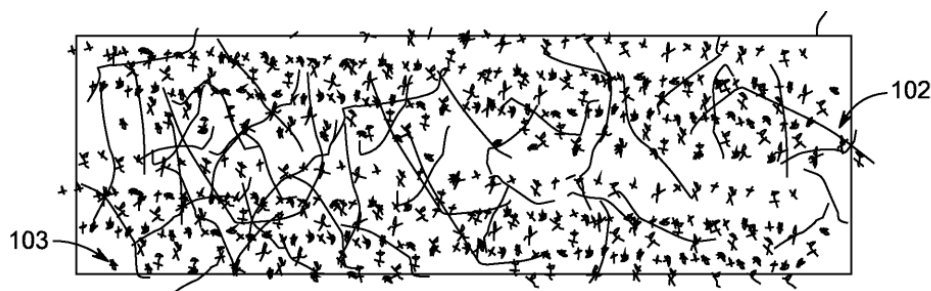
Publication date: 2025-05-22

Applicant(s): BEKAERT SA NV

Inventor(s): DEWITTE RIK

Summary

The invention provides a conductive plastic composition comprising a polymer matrix (50wt% to 85wt%), conductive fibrous additives (5wt% to 40wt%), and carbonous additives (at least 5wt%) such as carbon black or graphite with defined BET surface properties and particle sizes. This composition achieves effective electromagnetic interference (EMI) shielding across a wide frequency range (50 MHz to 100 GHz), suitable for applications in electronics, automotive, and telecommunications. The conductive fibrous additives include carbon fibers, metal-coated fibers, and metallic fibers like stainless steel fibers with high tensile strength and martensite content, enabling high conductivity at low volume fractions. Carbonous additives improve conductivity and thermal properties, with graphite enhancing thermal conductivity critical for high-frequency shielding. The invention also discloses a method for manufacturing the conductive plastic by mixing polymeric material with specified amounts of additives. The synergistic combination of conductive fibrous and carbonous additives reduces production costs and improves shielding and thermal performance compared to prior art conductive plastics. This conductive plastic offers a lightweight, cost-effective alternative to metal shielding materials, addressing the growing demand for EMI protection in high-frequency and high-data-rate applications.



		Thermal conductivity in plane/through plane (W/mK)				
Additive		SSF	CB		Graphite	
Loading	wt%		20wt%		40wt%	
Additive			0.32/0.35		0.74/3.12	
SSF	5wt%		0.35/0.4	(0.62/0.71)	1.1/3.74	(1.09/3.52)
SSF	10wt%				1.21/3.81	(1.09/3.52)
SSF	20wt%	0.3/0.36	0.48/0.59	(0.62/0.71)		

Candle wax composition and method of making candle

Patent number: EP4578932

Publication date: 2025-07-02

Applicant(s): BAOBAB COLLECTION SA (<https://eu.baobabcollection.com/>)

Inventor(s): LAHY ALAIN; AUGUSTO ARNAUD; DELEVAL ELÉONORE; GARDIES JONATHAN

Summary

This invention discloses a candle wax composition comprising a polymer additive, a UV stabilizer, a fragrance composition, a pigment composition, and wax, formulated to enhance candle performance and user experience. The polymer additive, present at 0.1% to 1.5% by weight, has defined viscosity and penetration properties that improve the candle's thermal stability, structural integrity, and aesthetic qualities such as opacity and gloss. The UV stabilizer, present at 0.1% to 1% by weight with a density between 0.8 and 1 g/cm³, protects the candle from UV-induced degradation, thereby prolonging its lifespan and maintaining scent stability. The fragrance composition, at 2% to 10% by weight, ensures a balanced and persistent scent release during burning. The pigment composition, optionally included up to 1.5% by weight, allows customization of candle color. The wax, primarily paraffin or slack wax, constitutes the majority of the composition, contributing to optimal burn time and steady fragrance diffusion. The method of candle production involves mixing these components at controlled temperatures (50°C to 70°C), positioning one or more wicks in a glass jar, and pouring the wax composition to form the candle. The wick is securely affixed to ensure uniform burning and safety. This invention provides a candle with enhanced UV resistance, improved structural and thermal properties, prolonged and intense fragrance release, customizable appearance, and safer, more efficient manufacturing and use.



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