

## OBJETIVOS DE DESARROLLO SOSTENIBLE



## BOLETÍN BIOCIRCULARIDAD: BIOENERGÍA Y BIOPRODUCTOS

### Biochar y sus aplicaciones: panorama de patentes 2024–2025

El biochar es un material carbonoso poroso producido mediante la conversión termoquímica de biomasa. La pirólisis es la ruta de obtención más común, aunque también puede obtenerse mediante torrefacción, licuefacción hidrotérmica o gasificación. Su estructura porosa se genera por la eliminación de materia orgánica volátil durante el proceso. Sus propiedades, como el área superficial específica, el tamaño de poro y los grupos funcionales presentes en su superficie, dependen de la especie de biomasa y de las condiciones de conversión, como son la temperatura, el tiempo de reacción, la velocidad de calentamiento, la presión y la configuración del reactor.

#### Usos del biochar



Gracias a su elevada porosidad, su alto contenido de carbono y su versatilidad química, el biochar ha encontrado aplicaciones en múltiples sectores. En agricultura, mejora la calidad del suelo, aumenta la retención de nutrientes y agua, actúa como fertilizante y contribuye al secuestro de carbono a largo plazo. En el ámbito ambiental, se utiliza como adsorbente de contaminantes de agua y aire, en la remediación de suelos, en el tratamiento de aguas residuales y en la eliminación de metales pesados y compuestos orgánicos. En energía e industria, sirve como soporte de catalizadores para biodiésel, gas de síntesis y fotocátalisis, así como componente en pilas de combustible, supercondensadores y carbón activado. En materiales avanzados, su incorporación en biocompuestos y en procesos de fabricación aditiva o impresión 3D permite reforzar plásticos y mejorar propiedades mecánicas y eléctricas. En el sector farmacéutico, se emplea como adsorbente de fármacos o toxinas. Adicionalmente, el biochar ha comenzado a explorarse en construcción e infraestructura, como aditivo en cementos y morteros para mejorar la durabilidad y resistencia, así como en asfaltos y alquitranes para aumentar la estabilidad térmica y la vida útil de pavimentos, contribuyendo también a la captura de carbono en materiales de construcción sostenibles.

Para ilustrar la diversidad y el desarrollo de estas aplicaciones, la Tabla 1 recopila solicitudes de patente de entidades europeas publicadas entre 2024 y 2025 sobre el uso de biochar. Están clasificadas según los principales sectores de aplicación: materiales compuestos para fabricación aditiva/ impresión 3D, materiales de construcción, materiales bituminosos y asfaltos, aplicación en agricultura y revegetación, aplicaciones industriales, materiales avanzados (composites, electrodos y almacenamiento de energía) y adsorbentes y recuperación de nutrientes. Esta clasificación evidencia el creciente interés en la valorización del biochar como material multifuncional y sostenible, y permite observar de forma clara cómo la investigación y el desarrollo se traducen en protección ambiental, eficiencia industrial y nuevas tecnologías. El texto completo de cada documento puede consultarse en la base de datos Espacenet, haciendo doble clic en el número de publicación.

**Tabla 1.** Solicitudes de patente de entidades europeas publicadas entre 2024 y 2025 sobre el uso de biochar

<b>Materiales compuestos para fabricación aditiva / impresión 3D</b>		
<b>Nº Publicación</b>	<b>Solicitante (País)</b>	<b>Título</b>
<a href="#">ES2973592A1</a>	Univ Cadiz (España)	Composite material specifically formulated for the additive manufacturing technique using light-curing resin and obtaining procedure
<b>Materiales de construcción</b>		
<b>Nº Publicación</b>	<b>Solicitante (País)</b>	<b>Título</b>
<a href="#">WO2024184427A2</a>	Alive Labs Ltd (Gran Bretaña)	Bioreceptive composition, method and construction element
<a href="#">CZ38022U1</a>	Intecores SRO (República Checa)	A thermal insulation material containing biochar for filling hollow building elements
<a href="#">WO2025002592A1</a>	Kuse Mera et al. (Alemania)	Wall construction made of stone slabs as a CO2 sink with carbon fibres consisting of biomass
<a href="#">WO2024133424A1</a>	Made of Air GmbH (Alemania)	Shaped objects based on modified biochar and a polymer and methods for producing them
<a href="#">WO2024227688A1</a>	Made of Air GmbH (Alemania)	Granulate from biochar and tannin binder and shaped objects obtained therefrom
<a href="#">EP4520892A1</a>	Saint Gobain Denmark AS (Dinamarca)	A load bearing sub-floor insulation layer comprising a granular product, a sub-floor construction, and a method of producing a load bearing sub-floor insulation layer
<a href="#">WO2024083983A1</a>	Saint Gobain Weber France (Francia)	Cementitious composition comprising slag and biochar
<a href="#">EP4461712A1</a>	Spurgin Leonhart (Francia)	Concrete incorporating at least one portion of biochar in the composition thereof
<a href="#">WO2024260871A1</a>	Y-Mattec A/S (Dinamarca)	A modified biochar and concrete mixtures comprising modified biochar

## Materiales bituminosos / asfaltos

Nº Publicación	Solicitante (País)	Título
<a href="#">WO2025073967A1</a>	Totalenergies Onetech (Francia)	Bituminous composition comprising biochar and a plasticising agent
<a href="#">WO2024141631A1</a>	Totalenergies Onetech (Francia)	Composition bitumineuse comprenant du biochar, procédé de préparation et utilisations
<a href="#">WO2025234958A1</a>	Yozgat Bozok Ueniversitesi (Turquía)	Cellulose-based industrial plant stalks and pyrolytic biochar for use as a modifier and stabilizer in stone mastic asphalt mixtures

## Aplicaciones en agricultura y revegetación

Nº Publicación	Solicitante (País)	Título
<a href="#">WO2025177000A1</a>	Biochar Innovations Ltd (Gran Bretaña)	Fertiliser granules
<a href="#">WO2024094236A1</a>	Ecoone Europe SRO (República Checa)	A method of formation of rainfall over the arid earth's surface near the coast
<a href="#">WO2025147196A1</a>	Moeniralam Soraya (Países Bajos)	Organic fertilizer and soil amendment comprising eggshell powder, eggshell biochar, mosambi peel powder, and banana peel powder
<a href="#">PL442420A1</a>	Politechnika Bydgoska im Jana i Jdrzeja Sniadeckich (Polonia)	Method of stimulating the growth of tomato and radish seedlings in in vitro culture conditions using growth medium with the addition of biochar
<a href="#">WO2024114863A1</a>	Schierbecker Handels GmbH & Co KG (Alemania)	Fertilisers for nutrient introduction and soil improvement from charcoal, especially plant charcoal, and loaded microalgae
<a href="#">WO2024189381A1</a>	Tumblebug Ltd (Gran Bretaña)	Manure processing method
<a href="#">PL443188A1</a>	Univ Rzeszowski et al. (Polonia)	Method of producing pelleted biochar and its use in the production of soilless substrate

## Aplicaciones industriales

Nº Publicación	Solicitante (País)	Título
<a href="#">WO2024165796A1</a>	Aperam (Luxemburgo); Econick (Francia)	Method for manufacturing a stainless steel
<a href="#">WO2024013653A1</a>	Elsafrá II SPA (Italia)	Method for direct reduction of iron oxide-based material for the production of steel, iron sponge or cast iron
<a href="#">WO2025045682A1</a>	Lanxess Deutschland GmbH (Alemania)	Recovering phosphorus in the form of its chlorides from sewage sludge ash
<a href="#">WO2025068733A1</a>	Lhoist Rech et Developpement SA (Bélgica)	Stabilized agglomerated compositions made using byproducts from steelmaking operations

## Materiales avanzados (composites, electrodos y almacenamiento de energía)

Nº Publicación	Solicitante (País)	Título
<a href="#">WO2025073772A1</a>	Aalto Univ Foundation SR (Finlandia)	Biochar-containing polymer composites
<a href="#">GB2638249A</a>	Carbon Cell Ltd (Gran Bretaña)	A foam precursor composition
<a href="#">WO2024118003A1</a>	Gida Ve Yem Kontrol Merkez Arastirma Enstituesue Mueduerluegue (Turquía)	Obtain of graphene oxide with magnetic properties from fruit seeds, which are food waste
<a href="#">WO2025113789A1</a>	Ithaka Inst for Carbon Strategies (Suiza)	Prepreg, prepreg body and a method to produce a prepreg
<a href="#">WO2025163035A1</a>	Made of Air GmbH (Alemania)	Modified biochar, methods for its production and applications thereof
<a href="#">WO2025224223A1</a>	Made of Air GmbH (Alemania)	Composite materials from matrix polymers and biochar and methods for their production
<a href="#">WO2025122818A1</a>	Michelin & Cie (Francia) et al.	Interliner for a pneumatic tire comprising biochar
<a href="#">WO2024133695A1</a>	Nordic Bio Graphite AB (Suecia)	A novel biorefinery method of making green graphite products
<a href="#">WO2024232766A1</a>	Rescue Energy Spolka Z Ograniczona Odpowiedzialnoscia (Polonia)	Method for producing bimodal carbon nanostructures for use in supercapacitors

## Adsorbentes y recuperación de nutrientes

Nº Publicación	Solicitante (País)	Título
<a href="#">WO2024245810A1</a>	Consejo Superior de Investigaciones Científicas (España)	Method for the production of activated charcoal
<a href="#">WO2025144323A1</a>	Dokuz Eylul Univ (Turquía)	Biochar ash emerging as a solid by-product from updraft fixed-bed gasification reactor and production of activated carbon from biochar ash and using it as an adsorbent agent
<a href="#">WO2024213945A1</a>	Univ do Porto (Portugal)	Adsorbent composition modified by a metal, its preparation method, method of adsorbing phosphorus or phosphate, composition comprising adsorbed phosphorus or phosphate, and its use as a fertilizer

# PATENTES BIOENERGÍA

Biocombustibles sólidos (pellets, biochars, bio RDFs, bio SRFs, etc.)		
Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2025202540A3</a>	Andritz OY (FI)	<b>Preparation of fossil-free coke from lignin.</b> The present invention relates to a method for the production of fossil-free coke from lignin comprising the steps of providing lignin, subjecting the lignin to increased pressure, subjecting the lignin to increased temperature, whereby a combination of increased pressure and temperature releases volatile organic compounds (VOCs), and recovering coke. The present invention relates also to an apparatus (1000) for the production of fossil-free coke from lignin, a use of the apparatus (1000), and the coke obtainable by the method.
<a href="#">WO2025207947A1</a>	Aprovecho Res Center (US)	<b>Air supply systems for combustion of granular biomass fuels.</b> An air supply system for a pellet stove has an air supply system providing primary and secondary combustion air, the secondary combustion air being introduced into a burn pot above the primary air. The system and methods for the use thereof improve the emissions performance of stoves burning solid fuel in granular form, including solid biomass fuel. Stoves incorporating such air supply systems have reduced emissions, including reduced emissions of one or more of carbon monoxide, particulate matter (PM2.5), and black carbon.
<a href="#">WO2025262286A1</a>	Dall Energy APS (DK)	<b>Method and system for production of biochar and energy from moist solid fuels.</b> Moist solid fuels can be converted into biochar and thermal energy with a low content of Perfluoroalkyl and polyfluoroalkyl substances (PFAS), volatile organic compounds (VOC's) and NOx by means of a stage-divided system where the conversion process of the solid fuel is in separate stages: drying, pyrolysis, gasification, gas-combustion and energy recovery. The energy recovery stage supply energy to the dryer and excess energy can be used for other purposes.
<a href="#">WO2025231678A1</a>	Harbin Inst Technology (CN)	<b>Method for preparing biochar by blending and hydrothermally carbonizing sludge and straw.</b> The present invention relates to the technical field of municipal sludge and industrial sludge treatment methods. Disclosed is a hydrothermal carbonization-based method for comprehensively treating iron-containing sludge and straw, comprising the following steps: 1) crushing and sieving straw, primarily dehydrating iron-containing sludge, and adding a catalyst for catalytic wet oxidation treatment; 2) adding wet-oxidized iron-containing sludge and a crushed and sieved fiber to a raw material storage tank and adding a dehydrating agent for dehydration treatment; 3) preheating a raw material conveying tank and then feeding the material into a reactor for a hydrothermal carbonization reaction; 4) collecting the resulting biochar slurry to a collecting tank for cooling; and 5) adding an appropriate amount of pulverized coal to the material and then carrying out plate press dehydration, or directly carrying out plate press dehydration, the material being used as a solid fuel. The present invention integrates two techniques, i.e., anaerobic digestion and hydrothermal carbonization, for sludge treatment, and the process is optimized from material and energy balance perspectives, so that the solid fuel and biochar substances are generated while sludge reduction is realized; moreover, the operation cost of the process is reduced, and the generated hydrothermal carbon can be either returned to the field for use or be used as an additive to promote anaerobic digestion, and also exhibits magnetism and can be recycled.
<a href="#">WO2025220593A1</a>	Idemitsu Kosan Co (JP)	<b>Biomass solid fuel and method for producing biomass solid fuel.</b> A biomass solid fuel contains: semi-carbonized pellets containing a semi-carbonized biomass in which biomass is semi-carbonized; and a hydrophobic substance covering at least part of the surfaces of the semi-carbonized pellets. The content of the hydrophobic substance with respect to the total mass of the biomass solid fuel is 0.0999 mass% to 30.0 mass%.
<a href="#">WO2025205247A1</a>	Idemitsu Kosan Co (JP)	<b>Biomass fuel production method and biomass fuel.</b> This biomass fuel production method comprises: a step for obtaining a semi-carbonized product having a carbon content of less than 61% by mass by heating and semi-carbonizing a biomass; and an oxidation step for oxidizing the semi-carbonized product by heating the semi-carbonized product under an atmosphere having an oxygen concentration of 3% by volume to 13% by volume under a condition of 120°C to 220°C for 12min to 240 min.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">W02025263341A1</a>	Kao Corp (JP)	<b>Method for producing granular material.</b> A method for producing a granular material according to the present invention includes: a heating and stirring step in which an object to be processed including waste is stirred while being heated in an accommodation part, which is the internal space of a processing tank, thereby generating a granular material; and a first accommodation step in which, after the heating and stirring step, a new object to be processed is accommodated in the accommodation part. In the heating and stirring step, the accommodation part is heated to 180°C to 400°C inclusive by a first heating unit that heats the wall part of the processing tank and a second heating unit that supplies heated gas to the accommodation part, and the object to be processed is stirred by rotating, in the accommodation part, a stirring shaft having a shaft portion and a plurality of blade portions provided on the outer peripheral surface of the shaft portion at intervals along the rotation axis. In the accommodation step, the new object to be processed is accommodated in the accommodation part with at least some of the granular material remaining such that the bulk of the generated granular material exceeds at least a part of the shaft portion.
<a href="#">EP4663721A1</a>	Michael Richter GmbH (DE)	<b>Method for producing wood briquettes from green waste.</b> The invention relates to a method for producing wood briquettes from green waste, which operates in batches and comprises the following process steps, which are carried out in the order specified: (1) green waste provided from different sources is collected at a storage site until a sufficient batch of green waste raw material is available for batch processing; (2) the green waste is removed from the storage area and mechanically shredded; (3) the shredded green waste is separated, whereby soil particles are removed; (4) the green waste with reduced soil content is dried; (5) the dried green waste is further mechanically shredded; (6) the further shredded green waste is separated, whereby a wood component to be further processed is obtained from the means of separation; (7) the wood component to be further processed is dried and coarsely shredded; (8) the coarsely shredded wood component is mechanically finely shredded; (9) the finely shredded wood component is sieved, whereby a fine wood component is obtained from the wood component by means of sieving; (10) the fine wood component is briquetted.
<a href="#">EP4660280A1</a>	Perpetual Next Tech BV (NL)	<b>Method and apparatus for the preparation of biocoal from biomass for gasification.</b> The invention relates to a processing method for processing biomass comprises:- preparing biocoal from biomass; and- grinding the biocoal; wherein a normalized bulk density of the biocoal after grinding is above 0.75 metric tons per cubic meter, the normalized bulk density being calculated according to $\text{normalizedbulkdensity} = \frac{\text{tappedbulkdensity}}{\text{drymassedyield}}$ wherein the tapped bulk density is the density of the biocoal after grinding in metric tons per cubic meter, and the dry mass yield indicates a ratio of the biocoal mass before grinding to the initial mass of dried biomass from which dried biomass the biocoal is prepared.
<a href="#">EP4660285A1</a>	Perpetual Next Tech BV (NL)	<b>Cooling system for hot biocoal.</b> An apparatus for cooling pyrolysis coal, the apparatus comprising:- a cooling structure with a coal inlet and a coal outlet, the cooling structure being configured to receive pyrolysis coal mostly having a temperature above its ignition temperature at the coal inlet, to maintain the pyrolysis coal separate from ambient air and to dry cool the pyrolysis coal while moving the pyrolysis coal towards the coal outlet; and- a spraying device configured to disperse water; wherein the spraying device is configured to disperse the water at the pyrolysis coal inside the cooling structure in proximity to the coal inlet.

## Syngas

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#"><u>WO2025260197A1</u></a>	Airex Energie Inc (CA)	<p><b>Burner system for biomass synthesis gases.</b> A system for burning a synthesis gas obtained from biomass thermal treatment, may have: a combustor having a central axis and including a combustion head, the combustion head having: a central flame outlet configured to emit a flame, a first gas outlet extending around the central axis and located radially outwardly of the central flame outlet relative to the central axis and configured to inject a first gas into the combustor along a first direction having an axial component relative to the central axis, and a second gas outlet extending around the central axis and located radially outwardly of the first gas outlet, the second gas outlet configured to inject a second gas in a swirling motion, the swirling motion intersecting the first direction to induce a mixing of the first gas and of the second gas for combustion of a mixture by the flame; an air circuit in fluid communication with one of the first gas outlet and the second gas outlet; and a synthesis gas circuit with the other of the first gas outlet and the second gas outlet; wherein the first gas is one of the air and the synthesis gas, and the second gas is the other of the air and the synthesis gas. A method for burning a synthesis gas obtained from biomass thermal treatment is also provided.</p>
<a href="#"><u>WO2025231044A1</u></a>	Apte Anand (US)	<p><b>An apparatus and a process for generation of syngas from solid fuel with steam.</b> A gasification apparatus produces syngas from waste materials without oxygen. The gas generator features a gas crossflow and up-flow design with drying, pyrolysis, and carbon reaction zones. A furnace heats gas from the gas generator, adding steam and heating it to 800-950°C for high methane syngas or 1000-1050°C for low methane syngas in a convective or convective and radiant coil. The hot product gas supplies the generator's heat needs via a manifold, while excess gas enters a heat recovery boiler to produce steam for reforming. The syngas primarily contains CO and H<sub>2</sub>, with minimal CH<sub>4</sub>, H<sub>2</sub>O, and CO<sub>2</sub>, offering high concentrations of valuable components. The apparatus eliminates tar and higher hydrocarbons, is fully scalable, and adjusts methane content by controlling gas flow through the coils while meeting the heat demands of all zones.</p>
<a href="#"><u>EP4624552A1</u></a>	Cogasol Energy Sarl (LU)	<p><b>Method and installation for three-stage gasification from carbon contained feedstock.</b> The present invention relates to a method of generating a producer gas (Synthesis gas - syngas) from carbon contained feedstock. The method is a three-stage gasification, including pre-gasification - pyrolysis; gasification of pyrolysis vapor-gas mixture; gasification of solid fuels. As feedstock can be used any carbon contained feedstock like Refuse Derived Fuel (RDF), medical waste, agricultural waste, tires, automobile shredder residue (ASR or car-fluff), residues and waste materials, biomass such as straw, wood or grass, but also from the biogenic solid or liquid waste resulting from the food industry, sewage sludge from waste water treatment, spent high-salt solutions from wood pulping, known as black liquor, and products from animal carcass processing, such as animal meal. Method for three-stage gasification from carbon contained feedstock, including gasification processes preceded by reduction of water content, pre-gasification - pyrolysis of the pre-dried and optionally ground feedstock, at a pressure that is lower or higher than atmospheric; after the gasification process, the gas is cooled; the process of pre-gasification - pyrolysis takes place at temperatures between 240 and 900 °C, at a pressure that is lower or higher than atmospheric; gasification processes take place at temperatures between 800 and 2200 °C, at pressures that are lower or higher than atmospheric; the required amount of oxygen for the gasification process is introduced by adding air or mixture pure oxygen and water vapor and/or other inert component in gas form, like CO<sub>2</sub> etc.; the gasification fluid from the gasification stage can be used alone or in combination with other gases, as a heater - heating agent in the preceding pre-gasification stage - pyrolysis; the waste heat from the gasification processes can be used to generate low or high pressure and/or preheated steam and/or for preheating the air needed for gasification, and/or for heat recuperation for pyrolysis agent, in several steps of agent preheating; the products from pre-gasification - pyrolysis: a vapor-gas mixture and a solid phase - charcoal or coke can be used alone or in combination as a fuel in the gasification stage; granulation of pyrolysis solid product - coke or charcoal, alone or with some additives like heavy tars from gasification and/or with small fraction of feeding materials, with low temperature melting point like small plastic particles etc.; direct continuous or periodic gasification of pyrolysis vapors with air or air/steam or oxygen/steam or oxygen/CO<sub>2</sub> in the burner on gasifier; direct continuous or periodic gasification of carbon granules with air or air/steam or oxygen/steam or oxygen/CO<sub>2</sub> in the stationary bed in gasifier; all gases from pyrolysis vapor gasification or pyrolysis vapors itself pass through heated to high temperatures carbon granules, located on stationary bed of gasifier.</p>

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2025242642A1</a>	Fjell Biodry AS (NO)	<b>Waste processing system and method.</b> Disclosed herein is a syngas production system for producing syngas from fish waste, the system comprising: a gasifier; and a feedstock input that is configured to supply a feedstock comprising fish waste to the gasifier; wherein the gasifier is configured to generate syngas by performing a gasification process on the received feedstock.
<a href="#">WO2025236783A1</a>	Inst Eng Thermophysics CAS (CN)	<b>Method and apparatus for preparing syngas by staged biomass gasification.</b> The present disclosure belongs to the technical field of biomass gasification, and provides a method and apparatus for preparing syngas by staged biomass gasification. The method for preparing syngas by staged biomass gasification comprises: introducing a biomass fuel and a first gasification agent or carrier gas into a first fluidized bed reactor, and extracting volatiles from the biomass fuel via a pyrolysis reaction or partial gasification reaction, to produce a tar-containing gas-solid mixture and semi-coke particles; after separating the tar-containing gas-solid mixture with a first gas-solid separator, obtaining a tar-containing mixed gas and solid particulates of first particle size; transporting the tar-containing mixed gas and a third gasification agent into a downer reactor, and thermally cracking the tar in the tar-containing mixed gas via a thermal cracking reaction, to produce a tar-free syngas.
<a href="#">WO2025203134A1</a>	Myrechemical SRL (IT)	<b>Method to improve the energy efficiency of carbon conversion processes relevant to syngas produced by biomasses, wastes and/or waste derived fuel into syngas and its subsequent conversion in methanol and methanol derived chemicals.</b> A method to improve the overall efficiency of carbon conversion within a gasification process of biomasses, wastes and/or waste derived fuel into syngas, where the produced syngas is further converted into chemicals characterized by the fact that a stream of pure CO <sub>2</sub> (equal to 5-20% of the produced CO <sub>2</sub> stream) is injected in the feeding system and, thus, in the gasification section wherein said biomasses and/or waste materials, preferably industrial or municipal wastes, are converted in a CO/H <sub>2</sub> rich mixture, or raw syngas, by means of gasification with oxygen at high temperature and at almost atmospheric pressure (0, 1-0, 5 barg) and wherein such pure carbon dioxide (CO <sub>2</sub> ) stream avoids any backflow from the conversion reactor to the feeding system and also the amount of carbon dioxide (CO <sub>2</sub> ) recycled to the gasificator reactor, is both one of the syngas components and also a reactant in the subsequent conversion of syngas in methanol or in methanol derived chemicals such as DME or SAF.
<a href="#">WO2025253198A1</a>	Nguyen Hong Long (VN)	<b>Volumetric continuous biomass gasification apparatus.</b> The invention provides a volumetric biomass gasification apparatus that operates continuously and burns the generated biomass gas to generate heat, using organic materials as fuel. The biomass gasification apparatus according to the invention has an L-shaped body, including a fuel feeding chamber, primary air box, reaction chamber, secondary air box, ash discharge unit, and air supply fan.
<a href="#">WO2025201610A1</a>	Sempercycle APS (DK)	<b>Improved syngas production with improved integrated hydrogen production.</b> The invention relates to a method for producing syngas from carbonaceous feedstock comprising two or more different compositions of carbonaceous material (e.g. plastics, textiles, biomass, organic matter, natural gas, biogas, carbon dioxide, waste gases), the method comprising: Gasification of the waste feedstock by feeding the feedstock into a primary reaction zone, hereby generating a first output stream; Feeding the first output stream from the first reactor into a secondary reaction zone hereby generating a second output stream; Feeding the second output stream into a cleaning and conditioning reaction zone, hereby generating a third output stream Feeding the third output stream from the cleaning and conditioning reaction zone into a product synthesis reaction zone hereby generating a fourth output stream; Separating the fourth output stream from the product reaction into a fifth liquid crude product stream which is sent for further treatment (e.g., distillation) and at least a sixth and a seventh gas stream; At least part of the sixth gas stream is recycled to the product synthesis reaction zone; At least part of the seventh gas stream is looped back to the primary reaction zone for further conversion; Gasification parameters for the first and the second reaction zones are controlled to take into account the composition and amount of the recycled gas streams; and Providing a solid oxide electrolysis system (SOEC) to create a hydrogen and oxygen input to the process; Providing a heat exchanger system to provide a steam input to the SOEC system, where the hot side of the heat exchanger system is receiving a hot output stream from the second reaction zone or from the methanol synthesis process and where the cold side of the heat exchanger system is receiving a water input to generate the steam input to the SOEC system.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2025217390A1</a>	Sungas Renewables Inc (US)	<b>Heat recovery and integration with feed drying in gasification processes.</b> Gasification processes are disclosed, which can implement one or more strategies for valuable integration of process heat, such as that available in the gasifier effluent at various stages of refinement, by its transfer into a heated dryer feed for the energy-intensive function of feed drying. The utilization of low-grade heat in particular, by its recycle for drying of the carbonaceous feed that is converted to syngas, can result in both process efficiency and syngas product quality advantages. Higher temperatures, associated with gas streams to be maintained above their dew points under elevated pressure, allow for a favorable temperature approach between a given gasifier effluent, from which process heat is transferred, and heat-containing fluid(s), into which this heat has been transferred and which provide all or a portion of a heated dryer feed.
<a href="#">WO2025262367A1</a>	Teknologian Tutkimuskeskus VTT OY (FI)	<b>Producing synthesis gas.</b> According to the present invention, there is provided a process for producing a synthesis gas, by first carrying out a digestion of an organic biomass, and subsequently reacting the thus obtained biogas stream with a reagent mixture containing a carbonaceous material, to cause a reduction of the CO <sub>2</sub> into carbon monoxide (CO), with simultaneous release of hydrogen, whereby synthesis gas is obtained.

## Biogás

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">EP4640299A1</a>	Air Liquide (FR)	<b>System and method for treating biogas.</b> Installation (1) for treating a gas stream (10), in particular biogas, comprising methane and carbon dioxide, the installation (1) comprising a first cold source (6) and a gas circuit for the gas stream (10), the gas circuit comprising, arranged in series and fluidically connected by a set of pipes, a first compressor (2), a first purification unit (3) configured to produce a first methane-enriched gas stream (11) with less than 5% carbon dioxide, and a carbon dioxide-enriched gas stream (12), a first heat exchange system (4, 5), and a second purification unit (7) configured to produce a second methane-enriched gas stream (13) with less than 400 ppm of carbon dioxide, and a methane-depleted gas stream (14).
<a href="#">WO2025242308A1</a>	BTS Biogas SRL/ GmbH (IT)	<b>Plant for producing biogas, pretreatment device and method for operating a plant for producing biogas.</b> The invention refers to a plant for producing biogas, having at least one pretreatment tank (2) in which a substrate (14) is accommodated, the substrate (14) containing at least one organic substance (10) or being formed by at least one organic substance (10) which has at least one fermentation-inhibiting and oxidizable component. Furthermore, at least one oxidation device (8) is provided, which is arranged at least partially in the at least one pretreatment tank (2). Furthermore, at least one control device (11) is provided, by means of which the at least one oxidation device (8) can be controlled in such a way that a predetermined amount of a gaseous or liquid oxidizing agent (9) can be supplied to the substrate (14) at predetermined times in such a way that at least a part of the at least one oxidizable component is oxidized by means of the oxidizing agent (9) and a pretreated substrate is present in the pretreatment tank (2). Finally, at least one fermenter tank (3) is provided in which at least a part of the pretreated substrate can be fermented. The invention further refers to a pretreatment device and method for operating a plant for producing biogas.
<a href="#">WO2025262530A1</a>	Consorzio per la Ricerca e la Dimostrazione Sulle Energie Rinnovabili (IT)	<b>Integrated slow oxidative pyrolysis process and anaerobic digestion for the production of biomethane.</b> The invention concerns an integrated process of slow oxidative pyrolysis (SOP) of an organic material, e.g. biomass, and an anaerobic co-digestion (AD) process of the aqueous phase of APL pyrolysis in order to enhance the production of biomethane.
<a href="#">WO2025257079A1</a>	DMAS BV (NL)	<b>Production of biogas.</b> The present invention relates to a method for producing biogas from organic material in a container comprising a bottom part and a lid, wherein the method comprising the steps of (i) adding the organic material to the bottom part of the container; (ii) covering the container with the lid; and (iii) allowing the organic material to ferment for a period of at least 2 days producing biogas; wherein the lid is provided with a gas-outlet for obtaining the biogas.

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<a href="#">WO2025229234A1</a>	Envirogas Spolka z Ograniczona Odpowiedzialnoscia (PL)	<b>A method and system for upgrading biogas to biomethane.</b> A method for purifying biogas to biomethane, comprising the following successive steps: (a) passing raw biogas through a first buffer tank (Z1) equipped with a demister and an activated-carbon filter (F1) and compressing the pre-purified gas in a compressor (C1) to 6-12 bar; (b) raising the temperature of the compressed biogas to 200–300 °C; (c) removing sulphur compounds in one or more desulphurization reactors (R1, R2) filled with a zinc-oxide (ZnO) sorbent bed at 200–300 °C; (d) cooling the desulphurized gas to 30–40 °C while condensing and removing liquid; (e) upgrading the cooled gas in a two-stage pressure-swing adsorption (PSA) unit (A1–A8) containing sorbents for CO <sub>2</sub> , N <sub>2</sub> and O <sub>2</sub> , wherein in the first stage (A1–A4) adsorption is carried out at line pressure, producing biomethane with ≥ 98vol% CH <sub>4</sub> , which is forwarded to a gas grid or to a condensate tank (S1), and in the second stage (A5–A8), vacuum pressure-swing adsorption (vPSA) is performed at [–1] to 25kPa, the methane-rich product being recycled to the suction side of the compressor (C1); and (f) catalytically oxidizing the residual methane contained in the PSA off-gases in a methane-oxidation reactor (R3) using air, oxygen-enriched air or pure oxygen.
<a href="#">WO2025238599A2</a>	Grab Leo Nicolas (CH)	<b>Apparatus and method for the efficient utilization of biomass by anaerobic fermentation.</b> A device (500) for modifying the liquid fermentation medium (91) in an anaerobic fermentation bioreactor (10), comprises a first ion separation unit (200) configured to receive a first input stream (201) of aqueous solution in the form of liquid filtered fermentation medium (93) from an anaerobic fermentation bioreactor (10) and a second input stream (202) of aqueous solution, and configured to transfer ions from said first input stream to said second input stream, thereby forming a first output stream (203) of aqueous solution with decreased ion content in comparison to the first input stream (201) and a second output stream (204) with increased ion content in comparison to the second input stream (202). The device further comprises means (100, 106) for retrieving an aqueous solution in the form of liquid filtered fermentation medium (93) from a liquid fermentation medium (91) in an anaerobic fermentation bioreactor (10) and feeding said aqueous solution (93) as the first input stream (201) to the first ion separation unit (200); and means (100, 107) for returning the first output stream (203) of the first ion separation unit (200) as a modified liquid fermentation medium (92) to an anaerobic fermentation bioreactor (10).
<a href="#">EP4667087A2</a>	Haffmans BV (NL)	<b>Systems and methods for biogas upgrading using sweep gas.</b> A system for separating a gas mixture is provided. The system includes a source of a gas mixture and a membrane separation stage including a gas separation membrane module. The membrane separation stage is in fluid communication with the source of the gas mixture, and the gas separation membrane module is configured to separate the gas mixture into a retentate stream and a permeate stream. The gas separation membrane module also includes a membrane having a permeate side and a retentate side. A sweep stream is provided to the permeate side of the membrane, the sweep stream comprising a portion of the retentate stream.
<a href="#">WO2025215331A1</a>	Lesaffre & Cie (FR)	<b>Method for preparing a biogas.</b> The invention relates to a method for preparing biogas from a substrate, comprising a step of anaerobic digestion of said substrate in the presence of fermented molasses, the fermented molasses content being between 0.01% and 15% by weight of substrate, to a composition for improving the production of biogas, and to the use of fermented molasses or of a composition for improving the production of biogas as an additive in a method for preparing biogas from a substrate.
<a href="#">WO2025248998A1</a>	Panasonic Ip Man Co Ltd (JP)	<b>Woody biomass washing waste liquid saccharification method and methane fermentation method.</b> The present disclosure addresses the problem of providing a woody biomass washing waste liquid saccharification method that eliminates the need for a temperature adjustment when a woody biomass washing waste liquid is saccharified and can substantially increase saccharide concentration post-saccharification. A woody biomass washing waste liquid saccharification method according to the present invention is a saccharification method for a washing waste liquid obtained when woody biomass is washed. The woody biomass washing waste liquid saccharification method includes a washing step and a saccharification step. At the washing step, woody biomass is washed with water. At the saccharification step, an oxidizing agent is added to a washing waste liquid obtained at the washing step, and the washing waste liquid is saccharified to obtain a saccharified waste liquid.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">EP4644525A1</a>	Vorn Bioenergy GmbH (DE)	<b>Biogas production by anaerobic fermentation.</b> The present invention relates to a system for biogas production from organic waste materials, comprising an organic waste material treatment unit; a phenolic compound oxidation unit; an anaerobic fermentation reactor; a digestate solid-liquid separation unit; and a biogas separation and/or utilization unit. Further, a process for biogas production from organic waste materials is disclosed comprising the steps of (a) treating the organic waste materials; (b) oxidizing phenolic compounds in the organic waste materials to form the pre-treated feedstock; (c) subjecting the pre-treated feedstock to anaerobic fermentation to produce biogas; (d) using the biogas directly and/or separating biomethane from any other components of the biogas obtained from the organic waste materials; and (e) separating the solid and liquid components of the digestate. The present invention avoids the drawbacks of the prior art and provides an improved system and process for biogas production by anaerobic fermentation.

Bioalcoholes (bioetanol, biometanol, etc.)		
Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2025238408A1</a>	Bhikan Pendharkar Mr Mayur et al. (IN)	<b>A method for synthesizing furfural and ethanol by combination of biochemical processes.</b> This invention discloses a method for the synthesis of furfural and ethanol from green coconut (Cocos nucifera L.) husk. The method involves chemical reaction for furfural production and a biological fermentation for ethanol synthesis. In the chemical step, the green coconut husk undergoes acid hydrolysis in a high-pressure reactor, yielding furfural. The residual waste from this step is then utilized as a substrate for fermentation by <i>Saccharomyces cerevisiae</i> , producing ethanol. The integrated approach efficiently converts the cellulosic and hemicellulosic components of the green coconut husk into two industrially valuable compounds, furfural and ethanol, from a single agricultural waste stream. The invention provides a cost-effective and environmentally sustainable method for resource utilization and waste reduction.
<a href="#">WO2025249558A1</a>	Cosmo Energy Holdings Co Ltd (JP)	<b>Method and system for producing basic chemical.</b> The present invention relates to a method for producing a basic chemical that includes supplying and reacting carbon dioxide and hydrogen in a bioreactor. The bioreactor is provided with chemosynthetic bacteria, and the hydrogen is supplied by supplying a dissolved hydrogen solution to the bioreactor.
<a href="#">WO2025250285A1</a>	Lanzatech Inc (US)	<b>The disclosure is directed to an apparatus and method for recovering ethanol from a fermentation broth.</b> The fermentation broth may comprise a fermentation product such as ethanol, microbial biomass, and at least one impurity. The method comprises separating at least microbial biomass from the fermentation broth to generate a process stream and removing at least one of the impurities from the process stream. The at least one impurity is removed from the microbial biomass depleted process stream by (1) contacting with at least one carbon bed, copper-containing adsorbent bed, silver-containing adsorbent bed, metal copper, and or metal silver; (2) distilling with a basic or acidic chemical compound; and or (3) adding a chemical compound to react with sulfur-containing compounds followed by distilling. The purified fermentation product is recovered.
<a href="#">CN120774378A</a>	Naimanki Lyujian New Energy Tech Co Ltd (CN)	<b>Method for jointly preparing hydrogen and methanol by utilizing biomass waste, hydrocarbon solid waste and sewage sludge.</b> The invention belongs to the field of environmental protection, and provides a method for jointly preparing hydrogen and methanol from biomass waste, hydrocarbon solid waste and sewage sludge, and the method comprises the following steps: S1, gasifying and cracking the hydrocarbon solid waste to obtain fuel oil, alkane combustible gas, metal, carbon black, carbon dioxide, carbon monoxide gas and high-temperature waste heat; and S2, carrying out anaerobic fermentation on the biomass wastes and the sewage sludge to generate biogas, and desulfurizing the biogas to obtain biological methane and carbon dioxide. According to the method for jointly preparing hydrogen and methanol from biomass waste, hydrocarbon solid waste and sewage sludge, the biomass waste, the hydrocarbon solid waste and the sewage sludge can be treated respectively, generated heat energy, gas and water can be mutually utilized, hydrogen is prepared firstly, and then green methanol is prepared from hydrogen, carbon monoxide and carbon dioxide gas.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">CN120738061A</a>	Nanjing Shiqi Biochemical Tech Co Ltd (CN)	<b>Fermentation medium for regulating and controlling target product of clostridium aerovorans and fermentation method of fermentation medium.</b> The invention discloses a fermentation medium for regulating and controlling a clostridium aerovorans target product and a fermentation method of the clostridium aerovorans target product. The medium comprises a basic component and a regulating component, the basic components comprise ammonium chloride, potassium chloride, magnesium sulfate heptahydrate, sodium chloride, monopotassium phosphate, yeast powder, calcium chloride dihydrate, sodium selenite, nickel chloride hexahydrate, biotin, folic acid, pyridoxine hydrochloride, thiamine, riboflavin, nicotinic acid, D-calcium pantothenate, cobalamin, para aminobenzoic acid and lipoic acid; the adjusting component comprises sodium tungstate, ferrous sulfate and sodium molybdate, sodium tungstate and ferrous sulfate have a forward adjusting effect on increasing the yield of acetic acid, ethanol and butanol in the target product, and sodium molybdate has a reverse adjusting effect on the target product. By optimizing the proportion of trace elements in the culture medium, the clostridium metabolism efficiency is improved, synthesis of a target product is regulated and controlled, and the method is particularly suitable for industrial production of acetic acid, ethanol, butanol and the like.
<a href="#">WO2025222263A1</a>	Richetti Rafael (BR)	<b>Cereal ethanol and process for producing ethanol using wet cereal grains.</b> The invention relates to cereal ethanol and to a process for producing ethanol using wet cereal grains, such as corn, barley, rice, oats, rye and wheat, inter alia. The main objective of the process is to increase starch availability for the fermentation process, since it includes anaerobic storage phases of grains obtained directly from the harvest, followed by a maceration phase, thereby allowing alcoholic fermentation to occur naturally from the beginning of the process. This increases starch availability, enabling full utilization of the fermentation potential of the grains, lowering the pH, and allowing their preservation. An additional distinguishing feature is the possibility of storing the grains after maceration for a period of up to three years, their also being immediately usable. Thus, it is not necessary to dry the grains obtained from the harvest for storage, and, for the production of ethanol using processes known in the art, they no longer need to be rehydrated at the beginning of the process, resulting in technical and environmental advantages due to the drastic reduction in water consumption during the process.
<a href="#">US2025320536A1</a>	Sixring Inc (CA)	<b>Carbon intensity of first-generation bioethanol.</b> A process to manufacture a value added product by blending a stream of cellulose-based hydrolysate with a non-cellulose based hydrolysate, wherein said process comprising the steps of: providing a high purity cellulose comprising of less than 1.5% lignin; exposing said high purity cellulose to a saccharification process to produce a cellulosic hydrolysate comprising sugars obtained from the hydrolysis of cellulose and hemicellulose; exposing said cellulosic hydrolysate to another sugar hydrolysate obtained from a saccharification of a non-cellulose based sugar source material, thus obtaining a combined hydrolysate stream; processing said combined hydrolysate stream to produce SAID value-added product; and optionally, purifying and/or separating said at least one value-added product from the rest of the fermentation stream to yield a purified value-added product.
<a href="#">CN120736953A</a>	Univ Henan Technology (CN)	<b>Method for synthesizing green methanol by low-temperature baking and upgrading of agricultural and forestry wastes and application of green methanol.</b> The invention discloses a method for synthesizing green methanol by low-temperature baking and upgrading of agricultural and forestry wastes and application, and the method comprises the following steps: baking agricultural and forestry waste raw materials to obtain baked raw materials; the method comprises the following steps: pretreating a baking raw material, placing the pretreated baking raw material in a two-section fixed bed, and pyrolyzing the pretreated baking raw material in a first-section fixed bed at 700 DEG C to obtain pyrolysis gases CO <sub>2</sub> , CO, CH <sub>4</sub> and H <sub>2</sub> , solid semi-coke and tar; the tar and the pyrolysis gas are reformed and modulated in a second-section fixed bed at 800 DEG C to obtain a green carbon source CO <sub>x</sub> ; a carbon source CO <sub>x</sub> and green H <sub>2</sub> are introduced into a methanol synthesis system, and green methanol is synthesized after proportion adjustment. According to the method, the agricultural and forestry wastes are fully utilized, the components of the synthesis gas are improved through low-temperature baking, so that the agricultural and forestry wastes are recycled, and the industrialization process of a biomass-to-methanol technology is effectively promoted.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2025240457A1</a>	Univ North Carolina et al. (US)	<b>Conversion of biomass into industrial chemicals using engineered bacteria.</b> Described herein are engineered extremely thermophilic bacterium including a heterologous gene encoding a bifunctional alcohol dehydrogenase. Also described herein are systems and methods for enhancing selective recovery of desirable products from plant biomass.
<a href="#">KR20250146502A</a>	Univ Sogang Res & Business Development Found (KR)	<b>Method for continuous production of bioethanol using ionic liquids.</b> The present invention relates to a method for continuous production of bioethanol using an ionic liquid, and more particularly, to a method for continuous production of bioethanol in which anaerobic microorganisms are cultured to produce ethanol and ethanol is separated from the culture solution at the same time using a phosphonium series ionic liquid. According to the present invention, ethanol production and separation are carried out simultaneously, so that high-concentration ethanol can be continuously produced.

## Biodiésel

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">CN120758368A</a>	Binzhou Weiqiao Guoke Advanced Tech Research Institute (CN)	<b>Candida tropicalis strain, fungicide, and preparation method and application of candida tropicalis strain and fungicide.</b> The invention relates to the technical field of microorganisms, and discloses a candida tropicalis strain. The candida tropicalis strain is a candida tropicalis SDU2 strain, the classification name is Candida tropicalis, the preservation number is CGMCC No.34306, the preservation date is April 23, 2025, the preservation unit is China General Microbiological Culture Collection Center, and the preservation address is Institute of Microbiology, Chinese Academy of Sciences, No.3, Beichen West Road, Chaoyang District, Beijing. The candida tropicalis SDU2 strain has grease production capacity and high-temperature tolerance, and can convert waste biomass into biodiesel. The microbial inoculum prepared from the candida tropicalis SDU2 strain can be synchronously saccharified and fermented with biomass, so that the problem of high cost caused by poor strain adaptability in the traditional biomass high-valued comprehensive utilization process can be solved. The invention further discloses a candida tropicalis agent as well as a preparation method and application thereof.
<a href="#">CN120866031A</a>	Hebei Jingu Recycling Resources Dev Co Ltd (CN)	<b>Enzyme recycling device for preparing biodiesel from waste cooking oil.</b> The invention provides an enzyme recycling device for preparing biodiesel from waste cooking oil, which comprises an oil storage tank with an oil storage cavity, and the oil storage tank is provided with a feed port and a discharge port; the recovery tank and the oil storage tank are arranged in a spaced mode, the recovery tank is provided with a recovery cavity, and a feeding port and a discharging port are formed in the recovery tank; the graded recycling mechanism is arranged in the recycling tank and is provided with a first filtering part and a second filtering part, the first filtering part is used for filtering and storing impurities in the mixed waste oil, and the second filtering part is used for filtering and storing the immobilized bio-enzyme in the mixed waste oil; and the circulating pipeline is respectively connected with the feed port of the oil storage tank, the feed port of the recovery tank, the discharge port of the oil storage tank, the discharge port of the recovery tank, the second filtering part and the oil storage cavity. According to the enzyme recycling and circulating device for preparing biodiesel from waste cooking oil, the oil storage tank and the recycling tank are independently arranged, separation of impurities and enzyme is achieved in combination with the grading recycling mechanism, the enzyme is directly sent back to the oil storage tank through the circulating pipeline, and adaptability and practicability are good.
<a href="#">CN120775885A</a>	Nanjing University of Technology (CN)	<b>Molecular modification design method for improving lipase esterification activity and mutant thereof.</b> The invention provides a molecular modification design method for improving esterification activity of lipase. The method comprises the following steps: calculating a channel structure of lipase to be modified through CAVER ANALYST 2.0, determining a modification site through comprehensive measurement of other calculation tools, establishing a mutant library by adopting NNK degenerate codons for site-saturated mutation, and screening out excellent mutants with improved esterification performance by adopting a microwell plate screening method based on a copper soap complexing method. According to the candida antarctica lipase B mutant M5 disclosed by the invention, in various different types of esterification reactions, the catalytic efficiency of the mutant M5 is improved by 4.5 times or more than that of a wild type. The molecular modification design method disclosed by the invention can be used for improving the esterification performance of the lipase and has relatively wide esterification reaction application applicability, so that the lipase mutant can play an important role in industrial application in the fields of foods, medicines or biodiesel and the like.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">KR20250161998A</a>	Seedbio Inc (KR)	<b>Method for producing biodiesel using emission and suction control by perlite material in the pretreatment process of waste cooking oil.</b> The present invention relates to a novel method for producing biodiesel using an enzymatic process, wherein fats and alcohols serve as substrates and enzymes act as catalysts. This method employs porous materials such as perlite to regulate the discharge and absorption of methanol and glycerol, which inhibit enzyme activity. The biodiesel production method of the present invention enhances production efficiency, enzyme reuse rates, glycerol separation and reuse rates, whilst also offering energy-saving benefits.
<a href="#">CN120790217A</a>	Shanghai Xiangwei New Energy Tech Co Ltd (CN)	<b>Preparation method and application of transition metal phosphide catalyst.</b> The invention relates to the technical field of catalysis, and particularly discloses a preparation method and application of a transition metal phosphide catalyst. The invention relates to a preparation method of a transition metal phosphide catalyst. The preparation method comprises the following steps: (1) carrier pretreatment: taking a carrier and carrying out dipping treatment by using an alkali solution or an acid solution; (2) active metal loading: dipping the pretreated carrier obtained in the step (1) in a solution containing active metal, and adding 1-hydroxyethylidene-1, 1-diphosphonic acid at the same time; and (3) phosphating treatment: phosphating the carrier loaded with the active metal in the step (2) in an inert atmosphere to obtain the transition metal phosphide catalyst, in the step (2), a functional auxiliary agent accounting for 3-5% of the weight of the carrier is also added, the functional auxiliary agent is composed of titanium oxide, zirconium oxide and cerium oxide, and the weight ratio of titanium oxide to zirconium oxide to cerium oxide is (2-3): (1.4-1.6): 1. The transition metal phosphide catalyst prepared by the invention is improved in the aspects of low-temperature fluidity improvement and durability of biodiesel.
<a href="#">CN120796405A</a>	Shanghai Zhongqi Environment Tech Co Ltd (CN)	<b>Method for preparing pure biodiesel by catalyzing kitchen waste oil with enzyme.</b> The invention relates to the technical field of catalysis, and particularly discloses a method for preparing pure biodiesel by catalyzing kitchen waste oil with an enzyme. The invention relates to a method for preparing pure biodiesel by catalyzing kitchen waste oil with enzyme, which comprises the following steps: mixing kitchen waste oil, alcohol and a compound enzyme catalyst, and carrying out enzymatic exchange reaction to obtain biodiesel, the compound enzyme catalyst is prepared by coordination of ytterbium ions and a lipase active center, and the water tolerance is less than or equal to 25%. According to the compound enzyme catalyst and the $Yb < 3 + >$ activated compound lipase, the activity of the lipase is improved, the influence of the water content in the kitchen waste oil on the purity and quality of a final product is reduced, the biodiesel production process is simplified, and high production efficiency and economical efficiency are achieved.
<a href="#">CN120738172A</a>	Shanghai Zhongqi Environment Tech Co Ltd (CN)	<b>Pure biodiesel catalyst prepared from kitchen waste oil and preparation method thereof.</b> The invention relates to the technical field of catalysts, and particularly discloses a catalyst for preparing pure biodiesel from kitchen waste oil and a preparation method of the catalyst. The invention relates to a catalyst for preparing pure biodiesel from kitchen waste oil. The catalyst comprises a carrier and lipase adsorbed on the carrier, the carrier is a Ce-La co-doped MCM-41 molecular sieve; the preparation method comprises the following steps: mixing cerous nitrate, lanthanum nitrate and water, adding an MCM-41 mesoporous molecular sieve, stirring, mixing, filtering, collecting a filter cake, drying, and roasting to obtain a carrier; the lipase solution and the carrier are mixed, adsorbed and dried, and the pure biodiesel catalyst prepared from the kitchen waste oil is obtained. According to the catalyst disclosed by the invention, the Ce-La co-doped MCM-41 molecular sieve is used as the carrier, so that the loading capacity of lipase is improved, the stability of the catalyst in a methanol reaction system is improved, and the yield of biodiesel catalytically produced by the catalyst in the methanol reaction system is improved.
<a href="#">CN120838418A</a>	Univ Inner Mongolia Agri (CN)	<b>Catalyst for preparing alkyl biodiesel as well as preparation method and application of catalyst.</b> The invention discloses a catalyst for preparing alkyl biodiesel as well as a preparation method and application thereof, and belongs to the technical field of biodiesel. Stearic acid is used as a raw material for preparing the alkyl biodiesel, a catalyst of xanthoceras sorbifolia bunge shell carbon loaded metal nickel (Ni/XC) is adopted, and the alkyl biodiesel is prepared under the condition of no additional hydrogen. The stearic acid is converted into the alkyl biodiesel (the main product is heptadecane) through the deoxidation reaction, the deoxidation reaction is promoted by the metal-acid bifunctional sites loaded on the catalyst, the formation of carbon deposition can be inhibited, and the recyclability of Ni/XC is improved.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">CN120758294A</a>	Univ South China (CN)	<b>Preparation method of biodiesel and application of biodiesel in preparation of biodiesel by taking waste edible oil as raw material.</b> The invention discloses a preparation method of biodiesel and application of the biodiesel in preparation of the biodiesel by taking waste edible oil as a raw material. The polynuclear metal catalyst is composed of an organic ligand and metal ions (titanium ions), and the method uses the catalyst with low cost and high catalytic transesterification reaction performance to catalyze alcoholysis of triglyceride, vegetable oil and animal fat in different alcohol solvents, thereby preparing the high-performance and renewable biodiesel. The invention not only provides an efficient and environment-friendly biodiesel preparation method, but also provides a new technical approach for resource utilization of the waste edible oil and fat, has important economic and social benefits, can realize high-value utilization of the waste oil and fat and reduce environmental pollution, and simultaneously promotes sustainable development of the biodiesel industry.
<a href="#">CN120843184A</a>	Yuyao Qianmu Electronic Tech Co Ltd (CN)	<b>Biodiesel blending production device.</b> The present invention relates to the technical field of biodiesel production, and discloses a biodiesel blending production apparatus, which comprises a tank body, and further comprises: a feed hopper arranged at the top of the tank body; the feeding pipe is arranged between the feeding hopper and the tank body; the supporting legs are arranged at the bottom of the tank body and used for providing supporting force for the tank body; the discharging pipe is arranged at the bottom of the tank body and is used for discharging the grease separated from the microalgae out of the tank body; the hydraulic cylinder is connected to the inner wall of the top of the tank body, the efficient crushing effect on microalgae cell walls is achieved by arranging the crushing mechanism, the hydraulic cylinder drives a first conical disc to move downwards to extrude microalgae, meanwhile, a first sliding block slides in a spiral sliding groove to enable a vertical shaft to rotate, a second conical disc is driven to rotate, and the microalgae is ground through relative movement of the first sliding block and the second conical disc; the vortex-shaped spiral groove can further push the microalgae to the material leakage opening. And extrusion and grinding are combined in the crushing process, so that the crushing effect of the microalgae cell walls is further improved, and a foundation is laid for subsequent oil extraction.

## SAF (Sustainable Aviation Fuels)

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2025243245A1</a>	BP PLC (GB)	<b>Aromatics blending for high sustainable aviation fuel blend ratios with synthetic paraffinic kerosene.</b> The present disclosure relates generally to jet fuels. More particularly this disclosure relates to sustainable jet fuel. One aspect of the disclosure provides a sustainable aviation fuel comprising 50-92% vol% of a synthetic paraffinic kerosene (SPK) component having an aromatic content of less than 4 vol% as determined by ASTM D1319; and 8-50 vol% of a petroleum-derived aromatic-containing compound having at least 20 vol% aromatics as determined by ASTM D1319, wherein the sustainable aviation fuel has a 10% volume boiling point of no more than 205 °C as determined by test method IP 123; a final boiling point of no more than 300 °C as determined by test method IP 123; a viscosity at -40 °C of no more than 12 cSt as determined by ASTM D445; and an aromatic content in the range of 8-25 vol% as determined by ASTM D1319.
<a href="#">CN120843144A</a>	China Nat Chemical Construction Investment Group Anhui Engineering Co Ltd et al. (CN)	<b>Method and system for preparing aviation kerosene through gasification coupling of green hydrogen and biomass.</b> The invention belongs to the technical field of biomass conversion and synthetic fuel, and relates to a method and system for preparing aviation kerosene through gasification coupling of green hydrogen and biomass. The method comprises the following steps: electrolyzing water to prepare green hydrogen, and reusing a byproduct oxygen for biomass oxygen-enriched gasification; gasifying the biomass in a fluidized bed with the oxygen partial pressure of 0.5-1 MPa and the temperature of 800-1000 DEG C to prepare synthesis gas; the synthesis gas is mixed with electrolytic hydrogen after being subjected to pressure swing adsorption, methanol solution contact, low-temperature filtration and reduced-pressure purification, and the volume fraction of fed hydrogen is stabilized at 70%-80% through online analysis and closed-loop control; synthesizing crude oil in a Fischer-Tropsch system taking methanol as a medium and a carrier and oxalic acid as a regulator; rectifying to obtain an aviation kerosene fraction, and hydrocracking/isomerizing and recombining heavy components by adopting a Pt-based catalyst. According to the invention, the feeding hydrogen partial pressure stability and the product yield are effectively improved, and the quality consistency of aviation kerosene is ensured.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">KR20250154754A</a>	Greenepile (KR)	<b>Method for producing sustainable aviation fuel from biomass.</b> A method for producing sustainable aviation fuel from biomass is provided, characterised by comprising the steps of: feeding biomass into a hydrothermal liquefaction (HTL) reactor; injecting hydrogen into the fed reactor and subjecting it to high-temperature treatment at a temperature of 150 degrees Celsius or above; and fractionating the high-temperature treated reaction product into liquid and solid fractions.
<a href="#">SE2450477A1</a>	Plagazi AB (SE)	<b>System and method for production of a hydrocarbon compound, preferably for sustainable aviation fuel.</b> The present disclosure relates to a system (100) for production of a hydrocarbon compound, preferably for sustainable aviation fuel, from a feedstock comprising an organic material. The system comprises a plasma gasification unit (2), a control unit (23) and a reaction chamber (15) being operable to drive a reaction of carbon monoxide gas and a flow of hydrogen gas in presence of a catalyst into a hydrocarbon compound. The disclosure further relates to a method for production of a hydrocarbon compound, preferably for sustainable aviation fuel, and to a sustainable fuel comprising the hydrocarbon compound.
<a href="#">CN120754904A</a>	Qingdao Inst Bioenergy & Bioprocess Tech CAS (CN)	<b>Composite catalyst, preparation method thereof and preparation method of biological aviation kerosene.</b> The invention belongs to the technical field of preparation of biological aviation kerosene, and particularly relates to a composite catalyst, a preparation method thereof and a preparation method of the biological aviation kerosene. The isomerization catalyst and the cracking catalyst are combined, the active site of the composite catalyst is optimized, the yield of the biological aviation kerosene and the proportion of isomerization products are increased, the catalyst cost is low, and the technological process is flexible and controllable.
<a href="#">CN120733784A</a>	Shandong Haike Chemical Ind Co Ltd et al. (CN)	<b>Hydroisomerization catalyst as well as preparation method and application thereof.</b> The invention discloses a hydroisomerization catalyst and a preparation method and application thereof, and belongs to the technical field of biological aviation kerosene preparation. The hydroisomerization catalyst comprises a composite carrier and a catalytic active component loaded on the composite carrier, the composite carrier is an SAPO-11/ZSM-5 composite molecular sieve which is modified by La2O3 and P; the composite carrier has a mesopore-micropore hierarchical pore structure, the pore diameter of mesopores is 10-30nm, the pore diameter of micropores is 0.5-0.6 nm, and the total pore volume is greater than or equal to 0.8 cm <sup>3</sup> /g; the catalytic active component is a combination of Pt, Ir and Pd. The method is applied to preparation of biological aviation kerosene, the cracking rate is reduced to 8-10%, the yield of C10-C16 isoparaffin is increased to 75-80%, the isomerization selectivity reaches 88-92%, the 1000h activity is reduced to be smaller than or equal to 5%, the catalyst can efficiently catalyze animal and vegetable oil and other raw materials to be directionally converted into the C10-C16 isoparaffin needed by the biological aviation kerosene, and the method is suitable for industrial production. The indexes of the biological aviation kerosene are improved, the C10-C16 isomeric components can be subsequently rectified and extracted, a product with a higher additional value is obtained, and the method is suitable for industrial production.
<a href="#">WO2025247755A1</a>	Shell Int Research (NL) et al.	<b>Process for producing kerosene from renewable sources.</b> A process for improving yield of kerosene from a renewable feedstock involves hydrotreating a renewable feedstock and hydrocracking at least a portion of the hydrotreated effluent. The hydrocracked effluent is isomerized. The isomerized effluent is separated to produce an offgas stream, at least one fuel stream having a kerosene boiling point range, and a heavy fraction having a boiling point greater than the kerosene boiling point range. At least a portion of the heavy fraction is recycled to the hydrocracking zone.
<a href="#">WO2025247756A1</a>	Shell Int Research (NL) et al.	<b>Jet fuel component.</b> A renewable jet fuel component has a total iso-paraffin content of up to 90 wt.%, a C7-C14 paraffins content of at least 40 wt.%, a C15-C18 paraffins content of at most 60 wt.%, a C17-C18 paraffins content of at most 40 wt.%, a C18 paraffins content in a range of from 2 to 10 wt.%, and a C18 paraffins content of at most 1 wt.%, wherein the iso-paraffin branching is such that a weight ratio of the sum of wt.% amounts of paraffins with more than 2 branches, to a sum of wt.% amounts mono-branched paraffins, is in a range from 1 to 2, wherein the ratio of total iso-paraffins to n-paraffins is more than 11.2, and wherein the renewable jet component has a freezing point of less than -60°C, a flashpoint of 40°C or more and a density of 770 kg/m <sup>3</sup> or less.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2025219299A1</a>	Topsoe AS (DK)	<b>Hydroprocessing of renewable feeds for producing hydrocarbon products.</b> The invention relates to a process and plant for producing a hydrocarbon product from a renewable hydrocarbonaceous feedstock. The process includes hydroprocessing the renewable hydrocarbonaceous feedstock, which involves conducting the feed stream to a catalytic hydrodeoxygenation (HDO) unit to produce a hydrodeoxygenated effluent stream. This stream is then conducted to a hot separator and a cold separator, with portions of the overhead stream recycled back to the catalytic HDO unit. The bottom stream from the hot separator is conducted to a stripper, with the overhead stream combined with the bottom stream from said cold separator. Impurities are removed from the combined stream, and the resulting sour gas stream is conducted to a separator. The bottom stream from the stripper is conducted to a catalytic hydroisomerization (ISOM) unit to produce an isomerized effluent stream, which is then conducted to a cold separator. The hydrocarbon product, such as jet fuel for use as sustainable aviation fuel and/or hydrotreated vegetable oil (HVO), is then separated from the bottom stream of the cold separator.
<a href="#">EP4640794A1</a>	Totalenergies Onetech (FR)	<b>Method for preparing jet fuel from lignin oil.</b> The present invention relates to a method for preparing jet fuel from a mixture of phenolic compounds, preferably from lignin oil, comprising a hydrodeoxygenation step under specific conditions. The present invention also relates to a mixture of hydrocarbons and jet fuel obtained by this method.

## Biohidrógeno

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">CN120843610A</a>	Henan Yuhao Energy Co Ltd (CN)	<b>Method for enhancing anaerobic hydrogen production by using antibiotic mushroom dregs.</b> The invention provides a method for enhancing anaerobic hydrogen production by using antibiotic mushroom dregs, and belongs to the technical field of biological energy sources. The invention aims to solve the problems of environmental pollution and low resource utilization rate due to the fact that antibiotic mushroom dregs are generally treated in an incineration mode as hazardous wastes at present, and the current situation that the cost of biological hydrogen production is relatively high due to the fact that commercial nitrogen sources such as yeast powder are generally used in an existing anaerobic hydrogen production process. So far, the technical scheme that the antibiotic mushroom dregs are simultaneously used as an enhancer and a nitrogen source in the anaerobic hydrogen production process does not exist, so that the high-value utilization of the antibiotic mushroom dregs is realized, and the hydrogen production cost is reduced. Therefore, the invention provides a new technical path, and aims to synergistically solve the problems of resource utilization of the antibiotic mushroom dregs and low-cost hydrogen production. The method is technically characterized by comprising the following steps: drying, crushing and sieving antibiotic mushroom dregs, adding a carbon source, a buffer substance, a trace element solution and a vitamin solution to obtain an antibiotic mushroom dreg reinforced anaerobic hydrogen production culture solution, inoculating hydrogen production microorganisms, and fermenting to obtain hydrogen. According to the present invention, the antibiotic residue can be adopted as the only nitrogen-containing substrate in the hydrogen production system to perform fermentation, and compared with the commercial nitrogen source, the antibiotic residue adopted as the nitrogen source provides the reinforcement effect on the hydrogen production fermentation; the method has the advantages of environmental friendliness, low cost and simplicity in operation.
<a href="#">CN120865969A</a>	Huaian Dejia New Mat Co Ltd et al. (CN)	<b>Reaction device for preparing hydrogen-rich synthesis gas through biomass gasification.</b> The invention discloses a reaction device for preparing hydrogen-rich synthesis gas through biomass gasification. The reaction device comprises a reactor, a feeding system, a discharging system, a circulating system and a heat source system, the top of the reactor is provided with a gas outlet and a stirring device, and the bottom is provided with a first discharge port; the stirring device comprises a stirring shaft, a stirring motor mounted at the top of the reactor and stirring blades arranged on the stirring shaft, and an output shaft of the stirring motor extends into the reactor and is fixedly connected with the stirring shaft; a heat source gas distribution pipe is arranged below the bottommost sieve plate, extends out of the reactor and is connected with a heat source system; the discharging system is a Y-shaped discharging port and comprises a vertical outlet, a side face outlet and an inlet connected with the first discharging port. Two ends of the circulating system are respectively communicated with the side outlet and the upper part of the reactor; and an outlet of the feeding system extends above the uppermost sieve plate in the reactor. The device can continuously control the material cracking time, and is small in occupied area and high in gasification efficiency.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">US2025353771A1</a>	Itility LLC (US)	<b>Low-emission generation of renewable biohydrogen and biomethane from organic waste.</b> There is disclosed a system, method and apparatus for generating renewable energy from common waste streams in a low-carbon manner. This system is modular and applicable to operations of a range of sizes. The system comprises a waste homogenization system; a feedstock preparation component involving dilution, nutrient adjustment, and mixing; a pretreatment tank; a hydrolysis tank; and an optional photosynthetic bioreactor. Through use of the system, organic waste is converted into biohydrogen (H <sub>2</sub> ) and/or biomethane (CH <sub>4</sub> ). The choice between producing each gas individually or in combination is controlled via selective treatment of the incoming waste.
<a href="#">WQ2025207505A1</a>	Ohio State Innovation Foundation et al. (US)	<b>Hydrogen and nitrogen generation using chemical looping schemes.</b> Exemplary methods, systems, and techniques relate to generating nitrogen (N <sub>2</sub> ), hydrogen (H <sub>2</sub> ), and carbon dioxide (CO <sub>2</sub> ). Certain embodiments of the instant disclosure include 3-reactor chemical looping systems that utilize biomass as a carbonaceous fuel to generate hydrogen. Certain embodiments on the instant disclosure may utilize nitrogen from depleted air or oxygen-free air from a combustor reactor. Generated nitrogen and hydrogen in an adjustable ratio may be sent to the Haber Bosch process for the formation of ammonia.
<a href="#">CN120843609A</a>	Univ East China Science & Tech (CN)	<b>Method for improving clostridium anaerobic fermentation hydrogen volume yield and hydrogen production rate and application.</b> The invention discloses a method for improving clostridium anaerobic fermentation hydrogen volume yield and hydrogen production rate and application. According to the method, biochar is added into a dark fermentation culture medium for anaerobic fermentation to obtain hydrogen. According to the method, the clostridium can be adsorbed on the surface and inside the biochar, so that the clostridium is prevented from being directly contacted with a high-concentration glucose-containing culture medium to a certain extent, the inhibition effect of high-concentration glucose is reduced, and the hydrogen production rate and the glucose utilization rate are increased. Moreover, the biochar is alkaline after being dissolved in water, so that the rapid reduction of the pH of the culture system can be relieved. Meanwhile, the porosity of the biochar is also developed, and the biochar can adsorb part of organic acids such as acetic acid and butyric acid generated by glucose metabolism, so that the inhibition effect of the organic acids on hydrogen production is relieved, and the hydrogen production rate and the glucose utilization rate are further improved. In addition, the method also has the characteristics of low cost, simplicity and convenience in operation and the like, and large-scale industrial application is easy to realize.
<a href="#">CN120796330A</a>	Univ Xian Medical (CN)	<b>Hydrogen-producing escherichia coli E.coli-BSO biological compound system and preparation method thereof.</b> The invention relates to an Escherichia coli (E. coli-BSO) biological compound system for biological hydrogen production. The biological composite system breaks through the limitation of a traditional single microorganism and material hydrogen production system, bismuth stannate (BSO) nanoparticles and escherichia coli are combined through electrostatic interaction, and a novel composite system with the microbial metabolism hydrogen production capacity and the nanometer material photocatalytic performance is constructed. The system creatively integrates the inherent hydrogen production metabolic pathway in escherichia coli cells and the excellent visible light absorption capacity and photocatalytic electron transfer performance of the BSO nano material, and solves the problems that the light energy utilization rate of pure microorganisms is low, and hydrogen production of pure photocatalytic materials depends on exogenous electron donors. Experiments prove that under visible light irradiation, the hydrogen yield of the composite system reaches 0.8 mmol within 4 hours, the hydrogen production efficiency is improved by 1.5 times compared with that of pure escherichia coli, and the efficiency bottleneck of an existing biological hydrogen production technology is remarkably broken through.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">CN120758575A</a>	Univ Xian Sci & Technology (CN)	<b>Biological hydrogen production method for coupling coal seam microbial community and beet pulp waste.</b> The invention discloses a biological hydrogen production method for coupling a coal seam microbial community and beet pulp waste. The biological hydrogen production method comprises the following steps: step 1, collecting coal seam microorganisms; step 2, sample pretreatment; 3, preparing a culture solution; step 4, flora enrichment culture; and 5, constructing a biological hydrogen production system to obtain hydrogen-rich gas. Microorganisms adopted in the method are original microorganisms in underground in-situ coal seam or ground coal-bed gas well drainage and mining water, sugar industry waste beet pulp is adopted as a hydrogen production substrate, and aiming at the bottlenecks of high strain cost, limited substrate applicability and the like in an existing biological hydrogen production technology, the coal seam microorganisms and sugar industry waste residues are coupled, so that the yield of hydrogen is increased. A low-cost hydrogen production system is constructed, so that the economic cost in the microbial hydrogen production process is reduced, and the beet pulp has the advantages of being safe, easy to obtain, low in cost and high in gas production rate, has the advantages of being easy and convenient to operate, economical, efficient, environmentally friendly and the like, and has a good industrial application prospect.
<a href="#">CN120866425A</a>	Univ Xiangtan (CN)	<b>Biological hydrogen production method and system based on waste molasses two-stage fermentation coupling in-situ separation.</b> The invention discloses a biological hydrogen production method and system based on waste molasses two-stage fermentation coupling in-situ separation, and the method comprises the following steps: collecting hydrogen through a metal nano-catalysis pretreatment technology in combination with thermophilic bacteria-mesophilic bacteria composite flora synergistic fermentation and two-stage pH regulation technology and integration of a membrane separation in-situ hydrogen purification device. The method provided by the invention has the following technical effects: (1) Fe3O4-coated C nanoparticles are introduced in the pretreatment stage, so that the sucrose conversion rate is increased to 98.2%; (2) the clostridium thermocellum and the enterobacter aerogenes are subjected to composite inoculation according to the proportion of 3: 1, and the utilization limitation of a single strain substrate is broken through; (3) constructing a 6.0-to-7.5 gradient pH regulation strategy to realize the optimal activity excitation of the hydrogenase system; (4) arranging a hollow fiber membrane assembly outside the fermentation tank to realize real-time separation of hydrogen (purity gt; 99%) and metabolic inhibition are removed. According to the method, the hydrogen yield reaches 3.8 mol H2/mol cane sugar, and the technical advantage that the hydrogen yield is increased by 217% compared with that of a traditional method is achieved.
<a href="#">CN120758262A</a>	Xuke Hydrogen Alcohol Beijing Liquid Yangguang Res Institute Co Ltd (CN)	<b>Device and method for preparing green hydrogen through biomass pyrolysis gasification.</b> The invention discloses a device and a method for preparing green hydrogen through biomass pyrolysis gasification, relates to the technical field of green hydrogen preparation, solves the problems of blockage and corrosion caused by ash melting and slagging in a pure oxygen gasification process, and also solves the problem of low energy utilization rate. The device for preparing green hydrogen through biomass pyrolysis gasification comprises a pyrolysis reaction device, and the pyrolysis reaction device comprises a pyrolysis reaction tank connected with a high-temperature heat carrier conveying screw, a biomass raw material storage bin, a biomass raw material conveying screw and a pyrolysis solid-phase product conveying screw. According to the invention, biomass raw materials are converted into biochar and pyrolysis oil gas by adopting a pyrolysis technology, so that effective cutting of biomass ash is realized, and the problems of blockage, corrosion and the like caused by ash melting and slagging in a pure oxygen gasification process are effectively avoided; the gasification technology is adopted to directly carry out pure oxygen gasification reaction on high-temperature pyrolysis oil gas, sensible heat and latent heat in the pyrolysis oil gas are fully utilized, and the energy utilization rate is high.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">CN223430135U</a>	Zhonghuan Lyutan Puyang Boiler Co Ltd (CN)	<b>Multifunctional biomass fuel heat energy hydrogen preparation all-in-one machine.</b> The utility model relates to the technical field of hydrogen preparation, and discloses a multifunctional biomass fuel heat energy hydrogen preparation all-in-one machine which comprises reaction equipment, a supporting column is fixedly installed in the middle of the inner wall of the reaction equipment, a carbon plate is fixedly connected to the top end of the supporting column, and connecting blocks are fixedly connected to the front side and the rear side of the carbon plate. A convex block is fixedly connected to the left side of the carbon plate, L-shaped grooves are formed in the front side and the rear side of the inner wall of the reaction equipment, the outer wall of the connecting block is in sliding connection with the L-shaped grooves, a machine shell is fixedly connected to the left side of the reaction equipment, a cleaning box is fixedly connected to the inner wall of the machine shell, and sliding grooves are formed in the front side and the rear side of the cleaning box. According to the utility model, when the carbon plate is replaced, the electric telescopic rod II is started to fix the pneumatic clamp and the convex block, and the convex block moves along with the electric telescopic rod II, so that the adsorbability is prevented from being reduced in the use process of activated carbon.

### Otros biocombustibles (incluye renewable gasoline, bio-oils, dimetil éter, etc.)

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WQ2025217645A1</a>	Chevron USA Inc (US)	<b>Renewable gasoline blends.</b> The present invention is directed to a blended fuel composition comprising 1% - 100% renewable gasoline wherein the renewable gasoline meets all applicable ASTM D4814 specifications. The blended fuel composition after appropriate oxygenate blending has a minimum Anti-Knock Index (AKI) rating of at least 85, or at least 87. The renewable content can be from renewable naphtha, fractionated renewable naphtha, reformed or isomerized reprocessed renewable naphtha, renewable fluid catalytic cracking (FCC) gasoline, renewable iso-octane or alkylate, renewable LPG, renewable reformat or bioformate, bio-naphthas, and any mixture thereof.
<a href="#">US2025320416A1</a>	Chevron USA Inc (US)	<b>Supported hydroprocessing catalyst fines for renewable fuel production in slurry platform.</b> A method is disclosed for preparing a slurry catalyst for use in upgrading a renewable feedstock. The method includes the steps of (a) providing a rework material obtained from a process of making a supported hydroprocessing catalyst, the hydroprocessing catalyst comprising a support and an active component supported thereon, wherein the rework material has an average particle size of from 1 to 300 µm; (b) mixing the rework material with a liquid component to form a slurry catalyst precursor, wherein the liquid component is selected from the renewable feedstock and a liquid carrier, wherein the liquid carrier is a polyol and/or a recycled renewable feedstock comprising heavy and/or unconverted fractions from a slurry hydroprocessing process; and (c) sulfiding the slurry catalyst precursor forming the slurry catalyst.
<a href="#">CN120864948A</a>	Haike Tech Innovation Services Jiangsu Co Ltd et al. (CN)	<b>Preparation method and application of bio-based isododecane.</b> The invention provides a preparation method and application of bio-based isododecane, and belongs to the field of organic chemical industry. The preparation method of the bio-based isododecane comprises the following steps that biomass aviation kerosene is added into a vacuum rectifying tower to be subjected to vacuum rectification, a rectification product is extracted from a side line of the bottom of the vacuum rectifying tower, and the concentration of C12 fraction in the rectification product is larger than or equal to 92%; adding the rectified product into a flash tower to remove residual light components, so that the impurity content of the light components is reduced to be less than or equal to 0.8%; adding a flash product into a molecular distillation instrument at the vacuum degree of 1t; carrying out distillation treatment under the condition of 1Pa, wherein the purity of the obtained crude product is greater than 98.5%; and carrying out adsorption treatment on the crude product through an activated carbon-molecular sieve composite bed layer to obtain the cosmetic-grade bio-based isododecane. The preparation method has the advantages of low energy consumption and high selectivity, and the prepared bio-based isododecane meets the standard for cosmetics and can be applied to manufacturing of cosmetics.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">CN120864949A</a>	Haike Tech Innovation Services Jiangsu Co Ltd et al. (CN)	<b>Preparation method of bio-based isohexadecane.</b> The invention provides a preparation method of bio-based isohexadecane, and belongs to the technical field of organic chemical industry. The preparation method comprises the following steps: first-order rectification: taking biomass aviation kerosene of which the isoparaffin content is greater than or equal to 70% as a raw material, feeding the biomass aviation kerosene raw material into a first-order rectification tower, and carrying out first-order rectification to obtain a first product; second-order rectification: feeding the first product into a second-order rectification tower, and carrying out second-order rectification to obtain a second product; isomerization catalysis: adding the second product into an isomerization reactor for isomerization reaction to obtain a third product; and composite adsorption deodorization: adding the third product into an adsorption column with the precision of 50-100 nm, and carrying out adsorption deodorization to prepare the bio-based isohexadecane. The preparation method disclosed by the invention is simple and efficient in production process, simple and convenient to operate and energy-saving, can obtain high-quality bio-based isohexadecane meeting cosmetic indexes, and is applied to cosmetic manufacturing.
<a href="#">US2025304869A1</a>	Honda Motor Co Ltd (JP)	<b>Method for producing liquid fuel.</b> What is provided is a method for producing a liquid fuel in which it is possible to increase the amount of carbon monoxide by supplying hydrogen and define a supply ratio between hydrogen and steam so that the H <sub>2</sub> /CO ratio after gasification reaches two or higher. A method for producing a liquid fuel by which a liquid fuel is produced from a biomass raw material, the method having a gasification step of generating a synthesis gas from the biomass raw material, an electrolysis step of generating hydrogen from water with electric power generated using renewable energy, a liquid fuel production step of producing a liquid fuel using the synthesis gas generated by the gasification step and the hydrogen generated by the electrolysis step as raw materials, and a control step of controlling the gasification step and the electrolysis step, in which a mass of a biomass raw material (B), a mass of steam(S) and a mass of hydrogen (H) that are introduced into the liquid fuel production step satisfy the following formula (1) to formula (4). $H/B \leq -0.031 \times S/B + 0.079(1)$ $H/B \geq -0.028 \times S/B + 0.056(2)$ $S/B \geq 0.5(3)$ $H/B > 0(4).$
<a href="#">WO2025207441A1</a>	Shell USA Inc (US) et al.	<b>Process for producing fuel, base oils, and/or chemicals from renewable feedstocks.</b> A renewable feedstock is pretreated and then hydrotreated to produce an effluent. The effluent is separated into a liquid stream and an offgas stream. At least one of the offgas streams comprises hydrogen sulphide. The offgas stream is passed to a biological desulfurization unit where a majority of the hydrogen sulphide is converted to bio-sulphur. At least a portion of the bio-sulphur is recycled to the pretreating step.
<a href="#">CN120838314A</a>	Univ Qingdao Science & Technology (CN)	<b>Coupling power generation process for directly synthesizing dimethyl ether through plasma co-gasification.</b> The invention provides a coupling power generation process for directly synthesizing dimethyl ether through plasma co-gasification. According to the invention, the production process is simplified, the supercritical CO <sub>2</sub> Brayton cycle is integrated, and efficient waste heat and power generation recovery is realized. In order to utilize carbon dioxide in waste gas, an alkaline electrolytic cell hydrogen production process and a carbon dioxide hydrogenation methanol process are systematically introduced. Model verification and sensitivity analysis confirm the reliability of the system and reveal the significant influence of key operation parameters on the system performance. The invention provides an innovative path for efficient utilization of biomass and clean production of methanol and dimethyl ether, and effectively balances resource utilization and environmental protection.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">CN120843151A</a>	Univ Zhengzhou Light Ind (CN)	<b>Method for enhanced hydrodenitrogenation of bio-oil.</b> The invention discloses a bio-oil enhanced hydrodenitrogenation method, which comprises the following steps: adding bio-oil, a catalyst, formic acid and deionized water into a reaction kettle, uniformly stirring to obtain a mixed solution, continuously stirring for reaction, and after the reaction is finished, carrying out suction filtration and distillation to obtain reformed bio-oil. The preparation method of the catalyst comprises the following steps: mixing corn straw and ammonium molybdate, adding deionized water after mixing, stirring and dipping, and then carrying out vacuum drying and calcining to obtain the catalyst. In the catalytic reforming process, formic acid is innovatively introduced to serve as a hydrogen source, the gas-liquid interface transmission resistance of a traditional gaseous hydrogen source is eliminated through the homogeneous hydrogen supply characteristic of liquid formic acid, the flammable and explosive risk of high-pressure hydrogen is avoided, the process safety is improved, meanwhile, formic acid is subjected to in-situ decomposition on the surface of the catalyst to generate active hydrogen species, and the catalytic reforming efficiency is improved. And a synergistic catalysis mechanism is formed with a platinum-like active site of the catalyst, so that the kinetic advantage of the hydrodenitrification reaction is enhanced, and an efficient, safe and environment-friendly bio-oil hydrodenitrification process system is constructed.
<a href="#">US2025368899A1</a>	UOP LLC (US)	<b>Biomass oleothermal liquefaction process.</b> A process for upgrading a biomass feed stream comprises liquefaction and deoxygenation in one step. The process comprises reacting the biomass feed stream over a catalyst in the presence of hydrogen in a reactor to produce a reactor effluent stream. The reactor effluent stream is separated to provide a liquid effluent stream comprising bio-oil. An oil stream is added to the reactor in an oil to biomass weight ratio of less than about 2:1. A bio-oil stream is taken from the liquid effluent stream. The bio-oil stream may be processed to produce one or more fuel streams.
<a href="#">JP7788605B1</a>	Yokoi Akira (JP)	<b>Method for producing fuel oil.</b> A method for producing a highly fluid fuel oil, primarily composed of saturated hydrocarbons, using vegetable oils as raw material under relatively mild conditions. [Solution] A method for producing fuel oil from vegetable oils, comprising: (a) a decarboxylation step using a decarboxylation catalyst to remove carbonic acid from ester groups of the vegetable oils to produce hydrocarbons; (b) an isomerisation step using an isomerisation catalyst to isomerise the resulting hydrocarbons; (c) a hydrogenation step using a hydrogenation catalyst to hydrogenate the resulting isomerised hydrocarbons; to produce a fuel oil comprising saturated hydrocarbons, characterised in that the decarboxylation step, the isomerisation step and the hydrogenation step are performed in this sequence, and in that the decarboxylation step, the isomerisation step and the hydrogenation step are each performed at a pressure of 1.0 MPa or less.

# PATENTES BIOPRODUCTOS

Biomateriales (de construcción, medicina, embalaje, etc.)		
Biocomposites y biofibras		
Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2025257602A1</a>	Ahlstrom OYJ (FI)	<b>Cellulosic nonwoven, methods of manufacture thereof and articles comprising the same.</b> The present disclosure provides a home-compostable and heat-sealable cellulosic nonwoven, methods for manufacturing the same, and an article including the same. The cellulosic nonwoven includes: a first ply including first fibers and a heat-sealable binder, wherein the heat-sealable binder includes a non-fibrous biodegradable polymer; a second ply including second fibers and a sizing agent, wherein the sizing agent is hydrophobic, wherein the first fibers and the second fibers each independently include cellulosic fibers, and wherein the second ply is disposed on the first ply.
<a href="#">WO2025242279A1</a>	Algisor ASA (NO)	<b>Absorbent materials.</b> The invention provides absorbent articles which are formed from or which incorporate a cellulose / alginate-containing material, wherein said material comprises cellulose fibres and alginate from a brown seaweed, and wherein said material is obtained by a process comprising at least the following steps: (i) providing a brown seaweed, or part thereof; (ii) dividing the brown seaweed, or part thereof, into a plurality of portions; (iii) washing the plurality of portions with water whereby to remove water-soluble components and recovering the residual wet residue; (iv) converting at least a portion of calcium alginate present in said residual wet residue into a water-soluble alginate whereby to provide a residue containing cellulose fibres and water-soluble alginate; and (v) de-watering said residue containing cellulose fibres and water-soluble alginate whereby to provide said absorbent cellulose / alginate-containing material as a dry residue.
<a href="#">WO2025242763A1</a>	Carpanzano Fabrice (FR)	<b>Method for producing a thermal and/or acoustic insulating material.</b> The invention relates to a method for producing a thermal and/or acoustic insulating material substantially containing banana fibres, the method comprising: (a) collecting banana fibres containing a water content greater than 30% by weight, (b) subjecting the fibres to a first mechanical pressing carried out so as to reduce the water content of the fibres between 15% and 30% by weight, (c) shaping the fibres obtained in step (b) into a plate or panel by subjecting them to a second mechanical pressing, said pressing being carried out under a pressure of between 1000 kg/cm <sup>2</sup> and 6000 kg/cm <sup>2</sup> , for a period of between 2 minutes and 30 minutes, at a temperature of between 150°C and 200°C.
<a href="#">EP4671329A1</a>	Ceska Zemedelska Univerzita v Praze (CZ)	<b>Composite material based on foamed wood, its production method and use thereof.</b> The present invention relates to a composite material based on foamed wood, which comprises a wood component with particle size in the range of from 1 nm to 5 mm, hemp protein as a stabilizer, and a foaming agent, wherein said wood component is in the form of wood flour, wood fibers, lignin and/or industrial hemp; and wherein the foaming agent is selected from the group comprising synthetic and natural foaming agents, wherein- synthetic foaming agents are selected from the group comprising fatty alcohol ethoxylate of the general formula R(OCH <sub>2</sub> CH <sub>2</sub> ) <sub>n</sub> OH, fatty alcohol ethoxysulfate of the general formula R(OC <sub>2</sub> H <sub>4</sub> ) <sub>n</sub> OSO <sub>3</sub> H, alkaline salt of fatty alcohol ethoxysulfate of the general formula R(OC <sub>2</sub> H <sub>4</sub> ) <sub>n</sub> OSO <sub>3</sub> M, alkaline salt of fatty alcohol sulfate of the general formula ROSO <sub>3</sub> M and poly(ethylene glycol) methyl ether methacrylate of the general formula H <sub>2</sub> C=CCH <sub>3</sub> CO <sub>2</sub> (CH <sub>2</sub> CH <sub>2</sub> O) <sub>n</sub> CH <sub>3</sub> , wherein R is (C <sub>8</sub> to C <sub>22</sub> )alkyl, n is an integer in the range of from 1 to 12, and M is selected from K <sup>+</sup> , Na <sup>+</sup> and NH <sub>4</sub> <sup>+</sup> ; - natural foaming agents are selected from yeasts of the Saccharomycetaceae family, wherein said composite material has density in the range of from 30 kg/m <sup>3</sup> to 610 kg/m <sup>3</sup> and pore size in the range of from 0,1 nm to 4 mm. The invention further relates to a method of production of said composite material and to its use.
<a href="#">EP4670964A1</a>	Consiglio Nazionale Ricerche (IT)	<b>Multi-layer slab comprising wood and biodegradable and bio-based plastic.</b> A multilayer slab (1, 1a, 1b, 1c) comprising at least two wood layers (2a, 2b, 2c) and at least one plastic layer (3a, 3b), wherein said at least one plastic layer (3a, 3b) secures the wood layers (2a, 2b, 2c) to one another; and wherein said at least one plastic layer (3a, 3b) is made of a biodegradable and bio-based plastic, i.e., of a biodegradable bioplastic; in particular wherein said plastic is bio-based according to ISO 16620-2:2019; in particular wherein said plastic is biodegradable according to EN 14995:2006.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">EP4656374A1</a>	Gerflor (FR)	<b>Multilayer structure for producing a floor or wall covering, heterogenous, printed and based on linoleum.</b> The invention relates to a multi-layer structure (1) for producing a floor or wall covering comprising a backing layer (2) based on linoleum reinforced by a reinforcing reinforcement (3), a wear layer (4) made of thermoplastic polymer that is transparent at least to light in the visible range and bonded to the backing layer (2), and a decorative print layer (5) positioned between the wear layer (4) and the backing layer (2), characterised in that it comprises a cross-linked varnish layer (11) deposited on an underside of the backing layer (2).
<a href="#">EP4640424A1</a>	Grupo Garnica Plywood SAU (ES)	<b>Structural LVL beam.</b> Structural LVL beam comprising a plurality of LVL boards (2), each of said LVL boards (2) comprising a face veneer (20), a counterface veneer (21) and a plurality of core veneers (22-26) disposed between the face veneer (20) and the counterface veneer (21), said veneers (20-26) being glued together, at least one of said veneers (20-26) being of pine and at least one of said veneers (20-26) being of eucalyptus (20-26), the plurality of LVL boards (2) being longitudinally assembled by means of glued joints (10).
<a href="#">ES3039482A1</a>	Hyperin Grupo Empresarial SL (ES)	<b>Biodegradable compound used for the manufacture of insulating and fire-resistant materials with permanent fire resistance, preferably obtained from organic materials of natural origin.</b> Biodegradable compound used for the manufacture of insulating and fire-resistant materials from naturally occurring organic materials, primarily from recycling, to promote the circular economy. The proposed biodegradable compound can be used for the manufacture of slabs, panels, bricks, blocks, containers, trays, household products, packaging, containers, furniture, etc., or for the manufacture of biocement. This proposed compound demonstrates permanent fire stability.
<a href="#">WO2025262242A1</a>	Isik Goekce Aydan (TR)	<b>Mycelium composite production method.</b> The present invention relates to the production of biocomposite materials through the co-cultivation of mycelium and algae. This innovative method integrates sustainable practices and utilizes waste materials to create carbon-negative, durable, and biodegradable composites suitable for various applications, including interior design, construction, automotive and packaging.
<a href="#">WO2025262063A1</a>	WP Trading Alphen aan den Rijn BV (NL)	<b>Biodegradable packaging material and polyester (pre)polymers for the making thereof.</b> There is provided a biodegradable container or plate material, preferably a packaging material for horticultural use such as a plant pot, comprising: a. 10-99 wt.% of a substrate of a material comprising at least 50 wt.% natural fibres, and b. 0.5-90 wt.% of a polyester coating, preferably 2-30 wt.%, wherein the biodegradable container or plate material has a water absorption of less than 40% following 24 hrs immersion in water at 25°C; a biodegradable container or plate material comprising a layer of cellulose-based material provided with a composite surface layer comprising cellulose-based material and a polyester derived from an aliphatic polyalcohol with 2-15 carbon atoms and an aliphatic polycarboxylic acid with 3 to 15 carbon atoms, wherein the polycarboxylic acid comprises less than 50 wt.% of tricarboxylic acid, calculated on the total amount of polycarboxylic acid; methods for making such materials, and polyester resins for the manufacture of said materials.

## Bioplásticos

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2025202804A1</a>	B PLAS Soc Benefit A Responsabilita Limitata et al. (IT)	<b>A biotechnological process for producing PHA.</b> A biotechnological process for producing PHA is described, comprising the steps of: subjecting an initial mixture containing a mixed bacterial mass to a biological selection process, so as to obtain a first intermediate mixture containing mainly selected bacteria able to store a carbonaceous source (for example VFA) in the form of PHA; introducing said first intermediate mixture in a tank reactor (120, 215) operating under anoxic conditions; introducing in said tank reactor (120, 215) also an aqueous nutrient solution, containing both the carbonaceous source (for example VFA) and nutrients, so as to obtain within said tank reactor (120, 215) a second intermediate mixture comprising PHA-containing bacteria; treating said second intermediate mixture with a solid-liquid separation apparatus (125, 220), for example a vertical axis centrifuge, a decanter centrifuge or any other device adapted to execute a centrifugal separation of the second intermediate mixture, so as to obtain a final mixture having a higher solids concentration with respect to that of the second intermediate mixture; subjecting the final mixture to a PHA extraction process.
<a href="#">EP4660311A1</a>	CO2bioclean GmbH (DE)	<b>Novel co-biopolymers.</b> The present invention discloses a method for producing PHA-copolymer using bacteria, by using a two-step process. In the first step the bacteria are grown under heterotrophic conditions using an organic substance as carbon source and exponential growth conditions. In a second step the bacteria are then cultivated under autotrophic conditions under an atmosphere of H <sub>2</sub> , CO <sub>2</sub> and O <sub>2</sub> , wherein the O <sub>2</sub> content is less than 10 % (v/v) and the pressure is more than 1 barg and at least one precursor for further monomers is added before and/or during this step, wherein the precursor is selected from an organic substance comprising at least 3 carbon atoms and at least 2 oxygen atoms, wherein the organic substance in its hydrolyzed form comprises at least two of carbon atoms, which are part of a functional group selected from COOH, C=O, C-OH. By this the production of PHA-copolymers with unique properties and at a high rate is possible.
<a href="#">EP4653483A1</a>	Ecole Nat Superieure de Chimie et al. (FR)	<b>PHA vitrimer.</b> The present invention relates to the field of plastics manufacturing, and more particularly to plasticisers. The invention relates to a vitrimer comprising, in a cross-linked form, an epoxidised oil, a cross-linking agent and a polyhydroxyalkanoate (PHA); its manufacturing process and its use.
<a href="#">WO2025239869A2</a>	Hitit Ueniversitesi Rektuerluegue et al. (TR)	<b>PLA-based agricultural waste and graphene-containing masterbatch and filament production method from these masterbatches.</b> The invention relates to the production of PLA (polylactic acid) masterbatches based on agricultural waste and graphene and filament production from these masterbatches. The invention provides for the reuse of agricultural waste and the preparation of biodegradable polymers reinforced with graphene.
<a href="#">WO2025255377A1</a>	Lyondellbasell Advanced Polymers Inc (US)	<b>PLA dispersion as filtration control agent in drilling fluids.</b> A well fluid containing submicron polylactic acid (PLA) particle dispersions for use as a filtration control agent have applicability in low temperature reservoirs and are easy to clean-up after treatment. Methods for the application of PLA containing drilling, completion or drill-in fluids are also discussed.
<a href="#">WO2025215069A1</a>	Novamont SPA (IT)	<b>Reuse of bioplastics in polymerisation.</b> The present invention relates to a process for reusing a polymer composition comprising at least one biodegradable polyester, starch and/or additives, comprising the steps of: (1) contacting said biodegradable polymer composition with a first solvent comprising from 50 to 100% by weight of cyclopentanone, obtaining a liquid fraction comprising at least one biodegradable polyester and a solid fraction comprising insoluble starch and/or additives; (2) separating said liquid fraction comprising at least one polyester from said solid fraction; (3) at least partially removing said first solvent from said liquid fraction; (4) reusing the polyester obtained from said liquid fraction in a polymerisation or thermoplastic transformation process, thereby obtaining a biodegradable polymer composition. Biodegradable polyesters obtained by means of the said reutilisation process, biodegradable polymer compositions comprising them, and biodegradable articles obtained therefrom constitute further objects of the invention.
<a href="#">WO2025264247A1</a>	Plantswitch Inc (US)	<b>Thermoplastic blends for injection molding.</b> This disclosure provides formulations and processes that reduce the injection molding cycle times for poly(hydroxyalkanoate) blends which may contain a succinate polymer such as poly(butylene succinate), a filler such as lignocellulosic biomass and other additives. Blending of PHA with the second polymer may increase biodegradability and compostability.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">EP4660232A1</a>	Ptscience Unipessoal Lda et al. (PT)	<b>Optical lens and manufacturing process thereof.</b> The present invention relates to optical lenses, particularly ophthalmic lenses, comprising bio-based and biodegradable materials and their manufacturing process. The lenses are composed of a thermoplastic aliphatic polyester, preferably polylactic acid (PLA), or polyhydroxyalkanoates (PHA), combined with metal oxide nanoparticles (ZrO <sub>2</sub> , ZnO, SiO <sub>2</sub> , MgO, TiO <sub>2</sub> ) and naphthopyrans. This composition significantly improves optical and mechanical properties while reducing environmental impact compared to conventional petroleum-based lenses. The manufacturing process employs rapid heat cycle moulding (RHCM) technology with Variotherm systems, ensuring precise temperature control and superior optical quality. The naphthopyrans function both as UV blockers (95-99% protection) and as mechanophoric materials that visibly change colour under mechanical stress, providing a visual indication of lens integrity. The invention offers exceptional optical performance with high Abbe numbers while addressing environmental concerns through biodegradability and reduced microplastic pollution.
<a href="#">WO2025257128A1</a>	Univ Degli Studi Roma La Sapienza (IT)	<b>Continuous process for polyhydroxyalkanoate production with mixed microbial cultures.</b> The present invention describes a continuous polyhydroxyalkanoate (PHA) production process with a mixed microbial culture (MMC), wherein the process comprises: subjecting the MMC to a feast phase in a first reactor (R1) which is a tubular reactor and to a famine phase in a second reactor (R2) which is a continuously stirred accumulation reactor (CSTR) for obtaining a selection of PHA producing bacteria, wherein the MMC is continuously recirculated without settling from the first reactor (R1) to the second reactor (R2) and from the second reactor (R2) to the first reactor (R1) at a recirculation flow rate, wherein the first reactor (R1) is continuously fed with a first feeding solution; and subjecting the PHA producing bacteria to a PHA accumulation step in a continuous accumulation unit consisting of one or two reactors, wherein the PHA producing bacteria is consisting of an effluent from R1 or R2, wherein the continuous accumulation unit is continuously fed with a second feeding solution, and wherein there is a continuous outlet flow rate downstream the accumulation step so that the PHA-rich biomass is continuously harvested at the downstream the accumulation step.
<a href="#">WO2025263926A1</a>	Univ Yonsei IACF (KR)	<b>Method for directly recovering polyhydroxyalkanoate in form of microbeads.</b> The present invention relates to a method for directly recovering polyhydroxyalkanoates in the form of microbeads using physical cell disruption. In the present invention, physical cell disruption and powdering processes were optimized to directly recover polyhydroxyalkanoates produced as bead-shaped particles in cells of bacteria producing polyhydroxyalkanoates as they are. By using the optimized polyhydroxyalkanoate preparation method of the present invention, polyhydroxyalkanoates can be prepared with high purity and high yield without an organic solvent, and polyhydroxyalkanoates in the form of microbeads can be directly obtained without a separate molding process. Therefore, the method can be used as a novel polyhydroxyalkanoate preparation platform that can be used for biomedical or cosmetic applications.

## Bioproductos químicos (biofertilizantes, biocosméticos, biofarmacéuticos...)

### Biofertilizantes, bioadhesivos, etc.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">ES3038020A1</a>	Agrotan Natura SL (ES)	<b>Device for the preparation of biological liquids with constant recirculating vortex.</b> The present invention relates to a device for the production of biological liquids, such as liquid biofertilizers and biostimulants, from solid matter, as well as the mass cultivation of microorganisms; which comprises a reactor with a cylindrical casing and conical bottom provided with a lower multiple distribution manifold with at least two upward return outlets for extracting the liquid and a recirculation system that conducts the fluid from the lower manifold to the upper part of the reactor, where it is mixed with pressurized air before re-entering, optimizing oxygenation and biological efficiency; such that its own hydrodynamics of synchronous forces allows it to move large volumes of liquid by means of a constant recirculating vortex, without the need for mechanical stirring means.
<a href="#">WO2025223629A1</a>	Bacess AS (DK)	<b>Composting method.</b> Disclosed is a method for composting organic material for the production of a biofertilizer having a desired content of one or more selected nutrients. It is a key feature of the invention that the organic material is hygienized/sanitized during the process whereby the number of harmful seeds and microorganisms are reduced or virtually eliminated.
<a href="#">WO2025221466A1</a>	Bioaccelergy Ventures Corp (US)	<b>Processes for producing biofertilizers from biomass and products produced.</b> The invention relates to a method of producing a phototrophic cyanobacteria based biofertilizer.
<a href="#">WO2025254585A1</a>	Cellfion AB (SE)	<b>Ionically conducting material for a membrane electrode assembly and uses thereof.</b> An adhesive material (7) adapted to be applied into any one of a proton exchange membrane (2), a catalyst layer (3, 4) and a gas diffusion electrode (5, 6) of membrane electrode assembly (1), wherein said adhesive material (7) comprises a colloidal dispersion of a cellulose nanomaterial, and wherein said adhesive material forms an interface layer between a membrane (2) and a gas diffusion electrode (5, 6) of a membrane electrode assembly.
<a href="#">WO2025234927A1</a>	Ecohelix AB (SE)	<b>Lignin based adhesives.</b> The present invention discloses an adhesive comprising a lignin derivative and a polyol plasticizer. The lignin derivative is selected from the group of lignin derivatives consisting of water soluble lignin carbohydrate complexes and mixtures thereof. The polyol plasticizer is a straight alkane polyol comprising 4 to 6 carbon atoms, each one carrying a single hydroxy-group, or mixtures thereof. Use of the adhesive for joining of cellulose based elements, as a replacement for a thermoplastic polymer in heat sealing or welding applications, as a grease barrier and methods of production, are also disclosed.
<a href="#">WO2025250634A1</a>	Optimum Growth Organics Llc (US)	<b>Methods for treating wastewater to produce biofertilizer.</b> Disclosed herein are systems and methods of wastewater digestion to produce a fertilizer. Some systems may include an anaerobic decomposition vessel configured to produce an anaerobic effluent. Systems may transfer the anaerobic effluent from the anaerobic decomposition vessel to a first aerobic decomposition vessel, preferably by a conduit, which connects the anaerobic decomposition vessel to the first aerobic decomposition vessel. Systems may transfer the first aerobic effluent from the first aerobic decomposition vessel to a second aerobic decomposition vessel, preferably by a conduit, which connects the first aerobic decomposition vessel to the second aerobic decomposition vessel. Systems may digest the first aerobic effluent in the second aerobic decomposition vessel in the presence of oxygen or an oxidizer, such as hydrogen peroxide, or ozone, to produce a second aerobic effluent while maintaining a pH from 5.5 to 6.2 or 7.1 to 7.8. Systems may filter at least the first or second aerobic effluent or both, where the second aerobic effluent comprises inorganic nitrogen in oxyanion form and has a carbon to nitrogen ratio greater than or equal to 3:1.
<a href="#">WO2025219385A1</a>	Plinius Labs NV (BE)	<b>Method for extracting phenolic compounds from a lignocellulosic biomass.</b> The current invention relates to a method for extracting phenolic compounds from a lignocellulosic biomass, wherein said phenolic compounds are phenolic aldehydes, phenolic acids, and/or phenolic ketones, the method comprising the steps of: (i) mechanochemically reacting said lignocellulosic biomass with a dry base, thereby agglomerating said lignocellulosic biomass with said dry base under pressure to form agglomerated bodies; and (ii) immersing said agglomerated bodies in an alcohol for a period of time sufficient to extract phenolic compounds from said agglomerated bodies, wherein said lignocellulosic biomass is derivable from one or more herbaceous crops, and wherein said dry base is a dry sodium or potassium base.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2025242795A1</a>	Rockwool AS (DK)	<b>Mineral fibre binder composition based on proteins, saccharide and a crosslinker, a method for making mineral fibre products and uses thereof.</b> The invention is directed to an aqueous binder composition for MMVF fibres comprising one or more protein(s) of non-plant origin; one or more saccharides, a crosslinker comprising at least two azetidinium functional groups, and one or more compounds selected from ammonia or amines and/or any salts thereof. Methods for producing MMVF fibres, MMVF fibre products and uses are also disclosed.
<a href="#">WO2025250015A1</a>	Trespa Int BV (NL)	<b>A resin formulation on basis of a lignin based resin.</b> The present invention relates to a resin formulation on basis of a resin comprising lignin, phenol and formaldehyde. The present invention also relates to a method for the preparation of such a resin formulation on basis of a resin comprising lignin, phenol and formaldehyde. In addition, the present invention relates to a method for manufacturing a paper impregnated with a resin formulation, too. The furthermore, the present invention relates to a method for manufacturing a laminate and to the use of a laminate.
<a href="#">EP4659922A1</a>	Unilin BV (BE)	<b>Method for producing glue-coated lignocellulosic material.</b> A method for producing glue-coated lignocellulosic material (1), wherein a glue (2) is applied upon lignocellulosic material (3) to form glue-coated lignocellulosic material (1), wherein said glue (2) comprises at least a first component (4) which is a dispersion of at least a raw material comprising amino acids and/or molecules containing amino acids, in water, and a second component (5) comprising isocyanates, wherein said first and second component (4, 5) are stored separately and said first and second component (4, 5) are brought to a continuous mixing unit (8), wherein said continuous mixing unit (8) continuously forms said glue (2) with the isocyanate being present in dispersed form, and method for producing a board material (10) with said glue-coated lignocellulosic material (1), and board material (10).

## Biocosméticos, Biofarmacéuticos

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2025214943A1</a>	Algaktiv SL (ES)	<b>Compositions for the treatment of hair loss and hair graying.</b> The invention is directed to a hair composition for treatment and prevention of alopecia or hair graying. More particularly, the invention, is directed to a composition comprising lutein and phycocyanin. The invention particularly relates to the field of anti-alopecia and anti-graying products.
<a href="#">EP4663180A1</a>	Cantabria Ind Farmaceutica SA (ES)	<b>Synergic combination of green aspalathus linearis and red aspalathus linearis extracts for use in treating a sun radiation-induced disease.</b> The present invention is a synergic combination of green <i>Aspalathus linearis</i> (RBG) and red <i>Aspalathus linearis</i> (RBR) extracts for use in the prophylaxis or treatment of a sun radiation-induced disease or disorder in a subject, its use in a cosmetic and non-therapeutical treatment of skin, mucous membranes, scalp and/or hair, and the pharmaceutical, nutraceutical and cosmetic compositions containing said combination.
<a href="#">EP4670729A1</a>	Erbozeta SPA (SM)	<b>Pharmaceutical or nutraceutical composition for use in the prevention and/or the treatment of uro-gynecological disorders.</b> The present invention relates to a pharmaceutical or nutraceutical composition, in the form of a unit dosage for oral administration, comprising collagen peptides, astragalus powder, centella asiatica extract, mononucleotides, hyaluronic acid, for use in the prevention and/or treatment of uro-gynaecological disorders selected from: genitourinary syndrome, vulvovaginal atrophy, scleroatrophic lichen, vulvovaginal itching, vulvovaginal dryness.
<a href="#">WO2025215622A1</a>	ISS Inclita Seaweed Solutions Lda (PT)	<b>Compositions comprising an extract of fucus spp., methods and uses thereof.</b> The present disclosure relates to a composition comprising 10-40 % (w/w) of an alcoholic extract of <i>Fucus</i> spp. and 60-90 % (w/w) of a seed oil; wherein the species of <i>Fucus</i> spp. is selected from the list consisting of: <i>Fucus serratus</i> , <i>Fucus spiralis</i> , <i>Fucus distichus</i> , <i>Fucus vesiculosus</i> , or mixtures thereof; and wherein the seed oil is selected from the list consisting of: almond oil, argan oil, linseed oil, sunflower oil, castor oil, or mixtures thereof. Furthermore, the present disclosure relates to topical compositions and ingestible products comprising said composition. The present disclosure also relates to the cosmetic use of said composition and to a method to obtain the extract of <i>Fucus</i> spp.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2025225693A1</a>	Nippon Catalytic Chem Ind (JP)	<b>Method for producing additive for cosmetics.</b> Provided is a method for producing, using a biomass raw material, an additive for cosmetics having performance equivalent to or superior to that of a conventional, fossil-fuel-derived additive for cosmetics. A method for producing an additive for cosmetics according to the present invention involves producing an additive for cosmetics that contains an acrylic polymer derived from a bio-raw material, said method comprising a step (i) for obtaining acetone from bioethanol, a step (ii) for obtaining isopropanol from the acetone, a step (iii) for obtaining propylene from the isopropanol, a step (iv) for obtaining acrylic acid from the propylene, and a step (v) for polymerizing a monomer containing acrylic acid and/or a salt thereof to obtain an acrylic polymer. The acrylic acid introduced in step (v) contains the acrylic acid obtained in step (iv).
<a href="#">WO2025252911A1</a>	Oreal (FR)	<b>Cosmetic use of an extract of at least one bacterium of the species staphylococcus epidermidis as a healing agent.</b> The present invention relates to the non-therapeutic cosmetic use of an extract of at least one bacterium of the species Staphylococcus epidermidis obtainable by at least one step of culturing at least one bacterium of the species Staphylococcus epidermidis, in the presence of a culture medium comprising i) at least one monosaccharide, ii) at least one peptone of vegetable origin and/or at least one yeast extract, and optionally iii) at least one microelement, as an active healing agent, and/or for promoting and/or accelerating the healing and/or repair and/or regeneration of keratin materials, preferably the skin. The present invention also relates to the non-therapeutic cosmetic use of a biomass extract of at least one bacterial strain of the species Staphylococcus epidermidis selected from the group consisting of bacteria deposited at the CNCM under serial numbers I-5688, I-5689, I-5904, I-5691, I-5692, I-5693, I-5694 and I-5695 as an active healing agent, and/or for promoting and/or accelerating the healing and/or repair and/or regeneration of keratin materials, preferably the skin, and also to a method for cosmetic treatment of keratin materials, employing said extract within a composition, especially a cosmetic composition.
<a href="#">EP4656178A1</a>	Provital SA (ES)	<b>Cosmetic use of atractylodes lancea root extract.</b> It refers to the cosmetic use of atractylodes lancea root extract for skin anti-aging. It refers also to a cosmetic method for skin anti-aging. The extract is suitable for skin anti-aging showing a retinol-like functionality, but without exhibiting the disadvantages thereof.
<a href="#">EP4666996A1</a>	Quiris Healthcare GmbH & Co Kg (DE) et al.	<b>Composition containing peptides of vegetable origin.</b> The present invention relates to a composition comprising at least a first peptide of a first vegetable origin having bioactive properties. In particular, the at least first peptide of a first vegetable origin has skin physiology and/or morphology modifying and/or anti-aging properties. This composition can be used as a cosmetic, a cosmeceutical, a dietary or food supplements, food for special medical purposes, or as a nutraceutical. The present invention is also directed to peptides having SEQ-ID:1 to SEQ-ID:62 which are bioactive.
<a href="#">WO2025262644A1</a>	Solime SRL (IT)	<b>Process for the preparation of concentrated water-soluble extracts.</b> The process for the preparation of concentrated water-soluble extracts, comprises the following phases of: e) provision of at least one plant substrate; f) extraction of at least one extract from the plant substrate; c) concentration of the at least one extract comprising the steps of: c1) subjecting the extract to controlled vacuum conditions; c2) applying a temperature below 65 °C to the extract to obtain a concentrated extract; the phase of concentration being earned out until a residual water activity value of the concentrated extract comprised between 0.500 aW and 0.100 aW is achieved.
<a href="#">WO2025262289A1</a>	Univ Castilla La Mancha (ES)	<b>Method for the production of apocarotenoids and uses thereof in the food, cosmetic, nutraceutical and pharmaceutical sector.</b> The invention provides methods and materials for recombinantly producing apocarotenoids in bacteria and transgenic plants, wherein said transgenic organisms expressing at least one heterologous gene from a plant species selected from Handroanthus impetiginosus, Paulownia tomentosa, and/or Physalis peruviana. Moreover, the present invention also relates to the genetic constructs comprising the at least one heterologous gene, at least a plasmid and/or at least a vector comprising the same, their use for the expression in bacteria and plants, and methods for obtaining such genetically modified bacteria and plants, which have a high concentration of apocarotenoids compounds, in particular crocins and picrocrocins. Furthermore, the present disclosure also refers to the compositions comprising such apocarotenoids products obtained and uses thereof.

## Bioaditivos alimentarios y nutracéuticos

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2025254925A1</a>	Cargill Inc (US)	<b>Process for insoluble fiber composition.</b> The present invention relates to a process for preparing for preparing an insoluble fiber composition having a reduced amount of sulphur dioxide. The present inventors have demonstrated that the sulphur dioxide content can be eliminated up to 100% without adversely affecting the nutritional value content of the insoluble fiber composition.
<a href="#">WO2025245049A1</a>	Cargill Inc (US)	<b>Clean label food ingredient.</b> The present invention relates to an improved starch food ingredient, a process and assembly for producing said starch food ingredient, uses of said starch food ingredient and compositions/food products comprising said starch food ingredient. In particular, the present invention relates to a starch food ingredient is a gelatinized and sheer thinned (e.g., drum-dried) partially hydrolyzed starch that can function as a bulking agent, a texturizer and thickening agent and methods/assemblies of producing the same.
<a href="#">WO2025259457A1</a>	Corn Products Dev Inc (US)	<b>Two step process of the manufacture of carbohydrate composition.</b> The technology disclosed in this specification relates to carbohydrate composition comprising a plurality of glucose polymers comprising a mixture of 1-2, 1-3, 1-4, and 1-6 linkages and having a defined ratio of a sum of the 1,6 and the 1,4 linages to the 1,3. The composition made in process comprising mixing a solution comprising glucose syrup with acid and heating the solution to evaporate a portion of the liquid and then decreasing the pressure on the mixture to obtain the carbohydrate composition. The compositions can be used in conjunction with high potency sweeteners to replace nutritive sweeteners to replace for example to replace lost bulk. Also, the composition can be used to provide dietary fiber to edible compositions or are used as bulking agents.
<a href="#">EP4670509A1</a>	Enzicas Bio SL (ES)	<b>Food ingredient, method of obtaining the same and its uses.</b> The present invention relates to a method for obtaining a food ingredient through the fermentation of a chestnut substrate with Aspergillus fungi, more specifically A. sojae or A. oryzae, and additionally, this invention pertains to the said food ingredient and its uses in the production of food products such as meat or dairy products.
<a href="#">WO2025247989A1</a>	Neggst Foods GmbH (DE)	<b>Poached egg substitute product on vegan basis.</b> The present invention concerns a vegan-based egg substitute product in form of a poached egg and a method of producing it.
<a href="#">WO2025237886A1</a>	Nestle SA (CH)	<b>Composition for prevention and treatment of inflammation or improving immune regulation.</b> The present invention relates to a combination comprising cellulose, xyloglucan and pectin in effective amount for use in preventing or treating an inflammatory condition and/or disease in a young individual, preferably in infant during weaning period. The present invention further relates to compositions and methods for preventing or treating an inflammatory condition and/or disease in a young individual, preferably in an infant during weaning period.
<a href="#">WO2025242791A1</a>	Nestle SA (CH)	<b>Composition comprising iron-containing green plant material concentrate in combination with compounds sensitive to oxidation or ironintolerant microorganisms.</b> A composition comprising an added iron source and at least one compound sensitive to oxidation and/or at least one iron-intolerant microorganism is disclosed. The at least one compound sensitive to oxidation is selected from fats, vitamins, polyphenols and mixtures thereof and the at least one iron-intolerant microorganism is probiotic bacteria. The added iron source is an iron-containing green plant material concentrate which comprises at least 500 ppm iron by dry weight of iron-containing green plant material concentrate.
<a href="#">WO2025245637A1</a>	Producteurs et Productrices Acericoles du Quebec (CA)	<b>Natural sweetener syrup based food products and methods of making the same.</b> The present document describes a natural sweetener compositions and methods of making the same, and more particularly, the subject matter relates to sweetener compositions comprising natural sweetener syrup, optional addition of water, and defibrillated edible vegetable fiber, and methods of making the same. The document also describes methods for the preparation of spreadable food composition as well as methods for the preparation of natural sweetener syrup powders.
<a href="#">EP4656055A1</a>	Smith Joshua et al. (US)	<b>Plant-based cheeses and processes for making the same.</b> The present disclosure relates to products, such as substantially plant-based cheese products. The substantially plant-based cheese products may have a first polysaccharide at a concentration of 5% w/w or less, a second polysaccharide at a concentration of 5% w/w or less, and a plant protein at a concentration of 5% w/w or less, and/or they may have a burst strength of between about 50 and 110 g as determined using a TA-108S-5i puncture method. Also disclosed are methods of making the same.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2025245540A1</a>	Steuben Foods Inc (US)	<b>Stable compositions.</b> Provided are healthier, cleaner stable compositions and methods of producing stable compositions where feathering is inhibited when a stable composition is added to beverages such as coffee. The stable composition may be plant-based and may be produced by combining protein and pectin in accordance with the methods of the present disclosure. The pectin may be sugar beet pectin. The protein may be a plant protein, such as a cashew protein from a cashew concentrate. A stable composition may have only three ingredients, including water, plant protein-containing concentrate and pectin and may be free of buffering agents, emulsifiers, added oils, gums or other stabilizing agents.

## Bioproductos alimenticios para animales

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2025255130A1</a>	Blue Buffalo Entpr Inc (US)	<b>System and method for producing protein products on commercial scale.</b> A system and method for producing, on a commercial scale, plant or reconstituted meat based products, such as pet food products having a main protein body and chunks of a non-protein component, by pumping of a protein slurry (15) to a heating device, such as a vacuum supply unit pumping the protein slurry. The heating device includes a heated die passage (275) through which the slurry (15) is directed, with the slurry (15) being heated along both inner and outer surfaces while transitioning into a heated protein product (35) which flows out of a die head (130) with the chunk ingredients intact and dispersed about the main protein body.
<a href="#">WO2025224672A1</a>	Ecofeed Innovations Holding Ltd (AE)	<b>A green waste processing method.</b> A green waste processing method is disclosed. The method comprises: preparing the green waste material, forming a green waste derived mixture, and thermo-processing the green waste derived mixture. Preparing the green waste material comprises: separating the green waste material into non-wood material and wood material; pre-grinding the separated non-wood material and controlling the hydration level of the separated non-wood material to a non-wood hydration ratio; and pre-grinding the separated wood material and controlling the hydration level of the separated wood material to a wood hydration ratio. Forming the mixture comprises: mixing the pre-ground non-wood material and pre-ground wood material together in a non-wood/wood ratio; and grinding the pre-ground non-wood material and pre-ground wood material. Thermo-processing the mixture comprises: pre-conditioning the mixture; and heating the mixture, under a pressure, to a temperature to produce a cooked green waste product.
<a href="#">WO2025226702A1</a>	Green Plains Inc (US)	<b>Back-end processing of co-products from ethanol plants.</b> Provided herein is a method of obtaining processed corn fermented protein (CFP), comprising: providing a composition that comprises mechanically separated CFP; removing water-soluble material from the composition; contacting the composition with an effective amount of an enzyme, a single cell organism that produces an enzyme, or a combination thereof, thereby producing enzymatically-treated CFP comprising enzymatic degradation products, wherein the enzyme is at least one of a proteolytic enzyme, a fiber-degrading enzyme, or a toxin-degrading enzyme; and removing enzymatic degradation products from the enzymatically-treated CFP, thereby forming processed CFP. Also provided herein is an animal feed comprising processed CFP (e.g., processed CFP made by a method described herein).
<a href="#">EP4635300A1</a>	Italfeed SRL Soc Unipersonale (IT)	<b>Compositions based on plant ingredients, probiotics and immunoglobulins and their use in the zootechnical field.</b> Object of the present invention is a composition comprising a mixture that comprises, or alternatively consists of, powdered plant raw materials and/or powdered plant ingredients, dry yeast, soluble fibers and/or prebiotics, probiotics, and egg products. Furthermore, object of the present invention is a composition comprising a mixture comprising, or alternatively consisting of, powdered plant raw materials and/or powdered plant ingredients, dry yeast, soluble fibers and/or prebiotics, probiotics and egg products, said composition being for use in a method to promote intestinal health by supporting the microbiota and for the treatment and/or prevention of disorders of the digestive system, preferably for the treatment and/or prevention of intestinal disorders, in the zootechnical field, particularly in the veterinary field.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2025228936A1</a>	Maripure ApS (DK)	<b>Red macroalgae processing method.</b> The present invention relates to a process for obtaining a composition comprising halogenated compounds from red macroalgae. Said process comprises the steps: a) providing red macroalgae; b) mixing the red macroalgae of step a) with cyclodextrin to bring the cyclodextrin in contact with the halogenated compounds to obtain cyclodextrin-halogenated compound complexes; and c) separating the cyclodextrin-halogenated compound complexes to obtain a composition comprising halogenated compounds. In particular, the present invention relates to a process for extracting and stabilising a composition comprising halogenated compounds and the use thereof to reduce methane production in a ruminant animal.
<a href="#">WO2025245651A1</a>	Markovits Rojas Alejandro et al. (CL)	<b>Method for feeding a crustacean or fish with one or more fatty acid alkaline metal salts.</b> The present invention relates to a method for feeding an aquatic animal in a hatchery or farm with feed containing one or more fatty acid alkaline metal salts. The invention also relates to a feed for fish or crustaceans containing one or more fatty acid alkaline metal salts, the use of said feed to increase the efficiency of biomass production, the survival rate and/or omega 3 fatty acid content of a crustacean or fish in a hatchery or farm. The invention also relates to a method for producing a processed product from fish or crustaceans fed with said feed, and a method for producing a feed for fish or crustaceans.
<a href="#">EP4643650A1</a>	Novel Vegan Crafts GmbH & Co KG (DE)	<b>Animal snack and method for producing an animal snack.</b> The invention relates to an animal snack. The animal snack contains 20 to 55% by weight of gluten, 3 to 25% by weight of glycerine, 1 to 20% by weight of at least one filler and less than 14% by weight of water.
<a href="#">US2025344723A1</a>	Nutreco Ip Assets BV (NL)	<b>Method of feeding (pre)ruminants.</b> The present invention provides a method of feeding a pre-ruminant or ruminant animal, said method comprising the step of administering to said animal a herbal oil/extract composition. Moreover, the invention provides a composition comprising such herbal oil/extract composition. Also, the invention provides a method of preventing and/or treating parasitic infections and diseases caused thereby such as cryptosporidiosis using such herbal oil/extract composition.
<a href="#">WO2025239306A1</a>	SDS Biotech Corp (JP)	<b>Coated preparation containing cashew nut shell oil, anacardic acid, cardol and/or cardanol and silica particles.</b> Provided is a preparation which contains silica particles to which a cashew nut shell oil, anacardic acid, cardol and/or cardanol has been adsorbed, wherein the surfaces of the silica particles are coated with a coat agent that comprises a fatty acid mixture including an unsaturated fatty acid and a saturated fatty acid.
<a href="#">WO2025236012A1</a>	Synergy Seed Blends Llc (US)	<b>Seed blends and methods of making same.</b> An animal feed product formed from a seed blend. The seed blend includes 6 - 7% chicory, 25 to less than 40% clover, and the remaining percentage of high sugar grass. The clover includes a hollow stem red and/or white clover. The high sugar grass includes one or more species of hollow stem high sugar grass.

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