

OBJETIVOS DE DESARROLLO SOSTENIBLE



BOLETÍN BIOENERGÍA Y BIOPRODUCTOS

Los Biocombustibles en la Unión Europea

Bajo la Directiva de Energías Renovables de octubre de 2023, los países de la Unión Europea tienen el compromiso de garantizar que, para el año 2030, al menos el 14% del consumo final de energía en el transporte provenga de fuentes renovables, incluyendo un mínimo del 3.5% de biocombustibles avanzados. Esta medida se alinea con los esfuerzos más amplios de la UE para reducir las emisiones de gases de efecto invernadero y promover una transición hacia fuentes de energía más limpias. Además, se establece la obligación para los proveedores de combustible de asegurar el cumplimiento de estos objetivos, fomentando así el uso de biocombustibles sostenibles y avanzados.

Estas políticas de biocombustibles en Europa son una parte integral de los esfuerzos para abordar los problemas ambientales y reducir la dependencia de los combustibles fósiles. La UE ha implementado directrices y objetivos ambiciosos que buscan no solo reducir las emisiones, sino también abordar las críticas y desafíos que enfrenta la implementación de estas políticas. La disputa entre biocombustibles de primera y segunda generación, junto con las preocupaciones sobre la competencia con la producción de alimentos y el cambio indirecto en el uso de la tierra, ha llevado a la revisión y ajuste de las políticas en busca de mayor sostenibilidad.

En este contexto, la UE ha establecido normas estrictas para garantizar la sostenibilidad de los biocombustibles, incluyendo la reducción de emisiones y el respeto a los derechos humanos. Además, la búsqueda de nuevas tecnologías y enfoques más sostenibles, así como el estímulo a la producción de biogás y biometano, son aspectos clave de las políticas europeas para avanzar hacia un futuro más verde y sostenible en el sector de los biocombustibles.

La Tabla 1 recoge diversos proyectos en el ámbito de los biocombustibles, desarrollados en el marco del programa Horizonte Europa desde el año 2023. Esta muestra refleja el firme y continuo compromiso de la Unión Europea con la investigación y la innovación, reafirmando su posición de liderazgo en el campo de las energías renovables.

Tabla 1. Proyectos Horizonte Europa

<p>LyticPol: Understanding the new oxidative paradigm of biomass waste upcycling (01/04/24-31/03/26)</p> <ul style="list-style-type: none"> • Syddansk Universitet (Dinamarca)
<p>GlaS-A-Fuels: Single-Atom Photocatalysts Enhanced by a Self-Powered Photonic Glass Reactor to Produce Advanced Biofuels (01/03/24-31/08/27)</p> <ul style="list-style-type: none"> • Coordinador: Idryma Technologias Kai Erevnas (Grecia) • VSB - Technical University of Ostrava (República Checa) • Leibniz-Institut für Polymerforschung Dresden EV (Alemania) • Core Kentro Kainotomias Amke (Grecia) • Università degli Studi di Trieste (Italia)
<p>FUEL-UP: Production of advanced bioFUELS via pyrolysis and UPgrading of 100% biogenic residues for aviation and marine sector, including full valorisation of side streams (01/01/24-31/12/27)</p> <ul style="list-style-type: none"> • Coordinador: SINTEF AS (Noruega) • B.T.G. Biomass Technology Group BV (Países Bajos) • Deutsches Zentrum für Luft - und Raumfahrt EV (Alemania) • Türkiye Petrol Rafinerileri Anonim Sirketi (Turquía) • SINTEF Ocean AS (Noruega) • Ranido, SRO (República Checa) • ...
<p>GAMMA: Green Ammonia and Biomethanol fuel MARitime Vessels (01/01/24-30/06/27)</p> <ul style="list-style-type: none"> • Coordinador: VERKIS HF (Islandia) • Fraunhofer Gesellschaft zur Förderung der Angewandten Forschung EV (Alemania) • Ballard Power Systems Europe AS (Dinamarca) • Aurelia Design B.V. (Países Bajos) • Amethyste (Francia) • Amnis Pura (Portugal) • ...
<p>FUELPHORIA: Accelerating the sustainable production of advanced biofuels and RFNB0s - from feedstock to end-use (01/10/23-31/09/27)</p> <ul style="list-style-type: none"> • Coordinador: Ethniko Kentro Erevnas Kai Technologikis Anaptyxis (Grecia) • Bio Base Europe Pilot Plant VZW (Bélgica) • Viñas del Vero SA (España) • CSIC (España) • Bioaerio Lagada Anonymi Etaireia (Grecia) • Universitat Rovira i Virgili (España) • ...
<p>BioTheRoS: Collaborative Actions to Bring Novel Biofuels Thermochemical Routes into Industrial Scale (01/10/23-31/09/26)</p> <ul style="list-style-type: none"> • Coordinador: Ethniko Kentro Erevnas Kai Technologikis Anaptyxis (Grecia) • B.T.G. Biomass Technology Group BV (Países Bajos) • BEST - Bioenergy And Sustainable Technologies GmbH (Austria) • Fundación CIRCE (España) • Wirtschaft Und Infrastruktur GmbH& Co Planungs KG (Alemania) • Motor Oil (Hellas) Diilistiria Korinthou A.E. (Grecia)
<p>FuelGae: Sustainable On-site and Innovative Technologies for Advanced Transport BioFuels from MicroalGae (01/10/23-30/09/27)</p> <ul style="list-style-type: none"> • Coordinador: CSIC (España) • Teknologian Tutkimuskeskus VTT Oy (Finlandia) • Ethniko Kentro Erevnas Kai Technologikis Anaptyxis (Grecia) • Instituto Tecnológico del Embalaje, Transporte y Logística (España) • RTDS (Austria) • Oulun Yliopisto (Finlandia) • ...
<p>ICARUS: International cooperation for sustainable aviation biofuels (01/10/23-31/09/26)</p> <ul style="list-style-type: none"> • Coordinador: Centre for Renewable Energy Sources and Saving Fondation (Grecia) • SINTEF Energi AS (Noruega) • Nederlandse Organisatie Voor Toegepast Natuurwetenschappelijk Onderzoek TNO (Países Bajos) • Laboratorio Nacional de Energia e Geologia I.P. (Portugal) • Norges Teknisk-Naturvitenskapelige Universitet NTNU (Noruega) • Universidad del País Vasco (España) • ...

Circular Fuels: Production of sustainable aviation fuels from waste biomass by coupling of fast pyrolysis with solar energy (01/10/23-30/09/26)

- Coordinador: Aalto Korkeakoulusaatio SR (Finlandia)
- Teknologian Tutkimuskeskus VTT Oy (Finlandia)
- Lunds Universitet (Suecia)
- Ranido, sro (República Checa)
- Technische Universitaet Wien (Austria)
- CNRS (Francia)
- ...

SUSTEPS: Sustainable, secure and competitive energy through scaling up advanced biofuel generation (01/09/23-31/08/27)

- Coordinador: Turkiye Bilimsel ve Teknolojik Arastirma Kurumu (Turquía)
- Syddansk Universitet (Dinamarca)
- Forschungszentrum Julich GmbH (Alemania)
- Bogazici Universitesi (Turquía)
- ARDITEC (Francia)
- Erinn Innovation Limited (Irlanda)
- ...

GAFT: Production of High-quality Fatty Acids Feedstock for use in SAF Production (01/07/23-02/07/25)

- GAFT BV (Países Bajos)

AlgalBB: Development of Cost-Effective Process for Phyco-Remediation of Dairy Wastewater and Valorization of Algal Biomass for Production of Biofuel and Biochemical: A Sustainable Approach towards Bio-Refinery (22/05/23-21/05/25)

- Norges Miljo-Og Biovitenskaplige Universitet (Noruega)

CIRCULAIR: Resource-efficient production of sustainable aviation biofuels (01/01/23-31/12/26)

- Coordinador: Bauhaus Luftfahrt EV (Alemania)
- Aarhus Universitet (Dinamarca)
- Aalborg Universitet (Dinamarca)
- Universitaet Hohenheim (Alemania)
- Universidad Complutense de Madrid (España)
- Topsoe AS (Dinamarca)

ELOBIO: ELectrOLysis of BIOmass (01/01/23-31/12/26)

- Coordinador: CNRS (Francia)
- Karlsruher Institut fuer Technologie (Alemania)
- Fraunhofer Gesellschaft zur Forderung der Angewandten Forschung EV (Alemania)
- Universidad de Castilla La Mancha (España)
- Universidad Politécnica de Madrid (España)
- Stichting Nederlandse Wetenschappelijk Onderzoek Instituten (Países Bajos)
- ...

REFOLUTION: Refinery integration, scale-up and certification for aviation and marine biofuels production (01/01/23-31/12/26)

- Coordinador: SINTEF AS (Noruega)
- Teknologian Tutkimuskeskus VTT OY (Finlandia)
- B.T.G. Biomass Technology Group BV (Países Bajos)
- Deutsches Zentrum fur Luft - und Raumfahrt EV (Alemania)
- Universitaet Rostock (Alemania)
- CEPSA (España)
- ...

UNPRECEDENTED: Unrevealing the mechanisms involved when producing biodiesel from waste oil using a combined experimental and theoretical methodology (01/01/23-31/12/26)

- Coordinador: Norges Miljo-Og Biovitenskaplige Universitet (Noruega)
- Instituto Superior de Engenharia de Lisboa (Portugal)

CLG-G3BioF: Development of Chemical Looping Gasification of microalgae for the 3rd-Generation BioFuels production (01/01/23-31/12/25)

- Coordinador: CSIC (España)
- Universidad Pública De Navarra (España)

PATENTES BIOENERGÍA

Biocombustibles sólidos (pellets, biochars, bio RDFs, bio SRFs, etc.)		
Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023203120 A1 20231026	Europeenne de Biomasse (FR)	Method for optimising the production of furfural during steam cracking of lignocellulosic biomass. The present invention relates to the field of recovering by-products obtained during the production of black pellet-type fuel having a high calorific value, from lignocellulosic biomass. More precisely, the invention relates to a method for optimising and promoting the production of furfural during a steam cracking process.
WO 2023194461 A1 20231012	Europeenne de Biomasse (FR)	Method for optimising the production of levoglucosenone during steam cracking of lignocellulosic biomass. The present invention relates to the field involved in the valorisation of by-products obtained during the production of black pellet-type fuel having a high calorific value from lignocellulosic biomass. More precisely, the invention relates to a method for optimising and valorising the production of levoglucosenone during a steam cracking process.
MX 2021001313 A 20220803	Francisco Javier Castillo Cabello (MX)	Organic pelletized biofuel with a high calorific value based on agricultural waste. The present invention relates to a sustainable process of continuous supply with a high calorific value, meeting the needs of the industry. Said process consists of obtaining organic bio-fuel pellets by dehydrating, grinding, and compacting waste for automated and dosed burners, generating temperatures above a thousand degrees, avoiding polluting and decreasing the cost, optimizing the traditional process. Said pellets are from fruit waste, offering a high technological innovation, energy efficiency, and reduced emissions, manufactured with waste from the agricultural and food sector. Also, it promotes the circular economy, reducing pollution from fuels and positively contributing to environmental pollution by reducing and eliminating emissions. The present invention is friendly to the environment, achieving social contribution and economic impact to brickyards and steam boilers, making its operation safer and cleaner.
EP 4293093 A1 20231220	Gidara Energy BV (NL)	Process and process plant for converting feedstock comprising a carbon-containing solid fuel. The present invention provides process for converting feedstock comprising a carbon-containing solid fuel, such as biomass and/or carbon-containing solid waste material, to synthesis gas and downstream processing of the synthesis gas, the process comprising the following steps:(a) converting the feedstock in a gasifier, the gasifier comprising a fluidized bed zone and a post-gasification zone to produce synthesis gas;(b) obtaining the synthesis gas produced in step (a) downstream of the gasifier;(c) recycling a portion of the synthesis gas of step (b) into at least one upstream process unit, such as the gasifier, being arranged upstream of a position in the process from which said portion is recycled.
WO 2023214226 A1 20231109	Girolami SRL (IT)	System for biomass combustion with bottom fuel feeding. Biomass combustion system with bottom fuel feeding method capable of allowing the use of biomass fuel of various kinds such as pellets, shells, pits and/or chips, characterized in that it comprises a combustion chamber, a hopper, a fume extraction system, at least a dosing screw, at least a rotary valve, at least a feed screw adapted to carry said biomass fuel in said combustion chamber, at least two support bearings adapted to keep said feed screw in position, a brazier plate with at least a spark plug adapted to ignite combustion, and at least an air box.
EP 4257661 A1 20231011	Inkoh Holding AG (CH)	Method for the preparation of vegetable carbon. Process for the production of biochar comprising the steps of - providing the starting material in the form of natural wood, - crushing the starting material into pieces with a maximum edge length of 45 mm, - drying the starting material to a water content of a maximum of 20 percent by weight, - pyrolysis of the dried pieces of the starting material in a reactor in the absence of oxygen to produce biochar, - quenching the biochar after pyrolysis by adding water, the pyrolysis being carried out in the temperature range 720 ° C to 800 ° C and the residence time in the reactor being a minimum of 60 minutes, in particular the residence time in Reactor is between 60 and 80 minutes. The invention further relates to a method for producing activated carbon.
WO 2023203560 A1 20231026	Kehati Michal (IL)	Fire starter comprising dried citrus peels, and preparation methods therefor. The present invention provides an improved fire starter that includes inter alia citrus peels processed in a unique form to enable fast, "green" and smooth charcoal lighting and methods of preparation therefor.

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023214907 A1 20231109	Valmet OY (SE)	Method and system for processing lignocellulose biomass material. The Method for processing a lignocellulose biomass material with a moisture content below 10 weight-%. The method comprising thermally treating (1) the lignocellulose biomass material with steam at elevated pressure and temperature in at least one reactor; steam explosion discharging (2) the lignocellulose biomass material and blow steam from the at least one reactor; forming (3) pellets and/or briquettes from at least part of the discharged thermally treated lignocellulose biomass material. The method further comprises, prior to said thermally treating, adding (4) an acid catalyst to the lignocellulose biomass material. A corresponding system is also provided.

Syngas

Nº Publicación	Solicitante (País)	Contenido técnico
EP 4289917 A1 20231213	GDL (FR)	Method for producing synthetic gas from hemp. The present invention relates to a method for producing synthetic gas from hemp, the hemp being harvested at or after full bloom and the method comprising subjecting at least part of the harvested hemp to a pyro-gasification step.
WO 2023201091 A1 20231019	Mote Inc (US)	Method of producing syngas from biomass utilizing tail gas for tar removal. A system and method for the generation of syngas from the gasification of biomass is disclosed herein. Some aspects of the disclosure are directed to a biomass gasification method that employs a tail gas by-product as a fuel.
WO 2023201018 A1 20231019	Mote Inc (US)	Heat integration/recovery at syngas cooler outlet. A system and method for the generation of syngas from the gasification of biomass is disclosed herein. The system makes use of heat generated during gasification and subsequent steps, and recycles this heat to other process streams within the system.
WO 2023205161 A1 20231026	Mote Inc (US)	Application of low-grade waste heat to biomass. A system and method for the generation of syngas from the gasification of biomass is disclosed herein. The system makes use of heat generated during gas compression, and recycles this heat to other process streams within the system, such as biomass drying.
WO 2023208349 A1 20231102	Schlaeffer Patrick (AT)	Device and method for the pyrolysis of fuel. The invention relates to a device for the pyrolysis of fuel (B, B2, B4) for the heating of a burner, comprising a pyrolysis reactor (2), a gasification reactor, an air separator located between the pyrolysis reactor and the gasification reactor, and a solids separator located downstream of the pyrolysis reactor. The pyrolysis reactor has a pyrolysis interior space with a first fuel feed device into the pyrolysis interior space and the gasification reactor has a gasification interior space with a second fuel feed device and with at least one air feed device into the gasification interior space. As seen in a height direction (H), the gasification reactor is located below the pyrolysis reactor, and the pyrolysis interior space of the pyrolysis reactor is communicatively connected to the gasification interior space of the gasification reactor located under it by means of the air separator located between the pyrolysis reactor and the gasification reactor. An outlet of the pyrolysis reactor is provided for pyrolysis gas coming from the pyrolysis interior space, the outlet being fluidically connected to the downstream solids separator. When the device is in operation, the solids separator is designed to purify the pyrolysis gas and thus to produce a purified product gas (P) which can be fed to the burner.
WO 2023181585 A1 20230928	Science & Scholarship Found (JP)	Energy gas/liquid generation vertical furnace system and generation method, fuel production method, transport device, and method. In the present invention, 30 mass% of biomass and 70 mass% of non-biomass material are charged into a vertical furnace of an energy gas/liquid-generating vertical furnace system from above by a charging device. The charged materials contain 15 to 75 mass% of moisture; at least air or other oxygen-containing gas is blown into the vertical furnace through a lower tuyere; and at least one or more selected from among oxygen/oxygen-enriched air or preheated air, energy liquid, and energy gas are blown in through a middle tuyere and an upper tuyere respectively. The temperature inside a furnace lower part of the vertical furnace is maintained at a high temperature at which hydrogen gas can be generated by means of reduction of water in the furnace. A transport device on which the vertical furnace system is mounted. A method for producing fuel with use of the energy gas/liquid generated using the vertical furnace system.

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023196766 A1 20231012	Thiessen Randall J et al. (US)	Method and apparatus for a combined tire pyrolyzer/gasifier and biomass gasifier. A gasifier system that combines the use of dirty fuels with clean fuels such as biomass. The heat created produces steam for the co-generation of mechanical power and electricity. The dirty fuels are converted in a gasifier or a pyrolyzer into various useful products that include syngas, heat, and oils. Syngas that is produced by the dirty fuels normally emits pollutants when combusted that require scrubbing. However, when the syngas is combusted into a biomass gasifier the dirty fuel emissions are scrubbed by being reformed into a much cleaner syngas/producer gas. Heat transferred from the dirty fuels gasifier/pyrolyzer syngas increases the efficiency of the clean fuels gasifier that results in increased amounts of steam for electricity/power production. In lieu of producing steam, the syngas from the clean fuel gasifier can be used to fuel an engine for power production. Other outputs from the clean-fuels gasifier include biochar and ash.
ES 2955373 A1 20231130	Univ Sevilla (ES)	Dual fluidized bed module for solar-powered biomass and waste gasification and associated installation and operation method. Dual fluidized bed module with input of fluctuating solar energy and installation for obtaining syngas, and associated operating method, where the dual fluidized bed module comprises a gasification unit, a combustion unit, separate sealing chambers, a cyclone and extraction elements for the extraction of solid heat-carrying particles that are heated and stored in an installation that comprises a heating unit. concentrating solar energy and in separate storage tanks, where said solid heat-transfer particles are introduced into the gasification unit to produce a syngas through an external solar energy contribution that is fluctuating.
WO 2023199367 A1 20231019	Walter Tosto SPA et al.(IT)	System for the neutral/negative CO2 production of syngas from solid fuels with high hydrogen content for uses at high temperature. The present invention concerns an autothermal process by means of concentric boiling fluid double bed for the production of syngas by means of gasification with biomass steam, in the presence of a granular material, comprising the following steps: continuous gasification under stationary bed condition of said granular material in boiling fluidisation regime of biomass with water vapour, at a temperature comprised between 700 and 900°C and pressure close to the atmospheric pressure, with thermochemical transformation of the fuel into raw syngas and char, said raw syngas comprising heavy hydrocarbons (tars) in the steam state and any harmful compounds in traces, in a first reaction volume; combustion in boiling fluidised bed with air of the char and of auxiliary fuel in a second reaction volume; wherein said second reaction volume is a vertical cylindrical volume and said first reaction volume is an annular cylindrical volume external to said second reaction volume, in functional connection (transfer of matter and of heat) with said second reaction volume; transfer of said granular material from said first reaction volume to said second reaction volume and vice versa, through siphons maintained in a condition of incipient fluidisation with water vapour; the transfer velocity of said granular material between said first and second reaction volumes being such that the thermal difference does not exceed 20°C; separation from the raw syngas obtained in said step of gasification of the elutriated solid particulate matter entrained by means of hot filters and hot conditioning of the syngas; the hot conditioning comprising the following sub-steps: catalytic conversion in the presence of water vapour (steam reforming) of the heavy hydrocarbons (tars) with increase of the fraction of hydrogen and carbon monoxide in the final gaseous product; and elimination of any harmful compounds in traces. The invention further concerns a system for the production of syngas according to the process.

Biogás

Nº Publicación	Solicitante (País)	Contenido técnico
ES 2954372 A1 20231121	Agrolinera Astur SL (ES)	Improved anaerobic slurry treatment proces. Improved anaerobic slurry treatment process, with a transport phase that comprises: a) a first stage of movement of a tank vehicle to a storage tank for emptying and transfer of the contents in anaerobic conditions to the biogas plant or to the Intermediate Treatment Center; b) a previous phase of collection, control, treatment and storage of slurry, prior to the transportation phase, which includes a search for the location of a first collection point with a storage tank under anaerobic conditions; obtaining or confirming an appointment for discharge; transportation of slurry; registration and identification and connection of the tank to the anaerobic tank; downloading a first portion, and; sampling and analysis such that, when predetermined quality limits are met, a download of the remaining portion is carried out; payment, and; communication with a central server.

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023222485 A1 20231123	Air Liquide (FR)	Plant and method for producing biomethane. The invention relates to a plant and method for producing deoxygenated biomethane having an oxygen concentration below a determined threshold, in particular below 100 ppm, from biogas, the plant comprising: - a membrane-permeation treatment unit which is able to produce biomethane and is configured to produce biomethane having a molar concentration below a first determined threshold, for example less than 5% CO ₂ and less than 1% O ₂ , in particular less than 3% CO ₂ and less than 0.7% O ₂ , from a stream of biogas having a CO ₂ concentration above a second threshold, for example from 15 to 60% carbon dioxide, - a compressor configured to compress the biogas, and - at least one catalytic reaction unit comprising at least one bed of at least one oxidation catalyst configured to deoxygenate the biogas and/or the biomethane and/or the partially purified biogas.
WO 2023180545 A1 20230928	Airco Process Tech A/S (DK)	Method for recovering methane and carbon dioxide from biogas. The present invention relates to methods for treating biogas to provide an upgraded biogas and a purified carbon dioxide product, combining biogas upgrading processes using physical absorption with a carbon dioxide liquefaction process. In particular to the present invention relates to methods for providing a carbon dioxide-rich intermediate from the biogas upgrading process which is suitable for carbon dioxide liquefaction. It further relates to methods for recovering carbon dioxide and/or methane in the liquefaction process.
WO 2023186707 A1 20231005	Engie (FR)	Method and device for conditioning biogas in compact form. The invention relates to a method for conditioning biogas in compact form, the method comprising: - a step of receiving a biogas stream comprising at least methane; - a step of measuring a flowrate of biogas at the inlet; - a step of injecting a carbon dioxide stream into the biogas stream according to the measured flowrate, configured so that the fraction of carbon dioxide represents between 40% and 56% of the molar mass of the mixture comprising at least carbon dioxide and methane; - a step of compressing the mixture to a pressure higher than or equal to 80 bara; - a step of cooling the compressed mixture to a temperature of between -50°C and 5°C to bring the mixture to a liquid or supercritical state; and - a step of releasing the mixture.
EP 4265587 A1 20231025	Ignaciuk Henryk et al. (PL)	Method for treating substrate with a significant nitrogen content, especially containing poultry manure to producing biogas and a method for producing biogas using a substrate. The object of the invention is a processing method of nitrogen-rich substrate, particularly poultry manure, for the production of biogas involving a nitrification process, in which poultry manure is mixed with slurry or liquid fraction of post-fermentation sludge from biogas production, or any mixture of the above, with the weight ratios of manure dry mass to slurry dry mass and post-fermentation sludge dry mass do not exceed 84% or 87%, respectively. The substrate derived in this way is continuously mixed under oxygen supply for the process of nitrification and lowering the contents of ammoniacal nitrogen to under 3.5 g N-NH ₄ /dm ³ , which is followed by denitrification process in anaerobic conditions. When the ammoniacal nitrogen content is reduced to less than 2.6 g N-NH ₄ /dm ³ , the substrate is acidified to pH 3-4.5. The object of the invention further encompasses a method of biogas production with the use of the nitrogen-rich substrate obtained according to the above method.
WO 2023208306 A1 20231102	Nature Energy Green Hydrogen AS (DK)	Integration of digester and thermo-chemical digestate treatment equipment with recovery of nutrients. The invention relates to a method for recovering a nutrient rich stream from a combined anaerobic digestion process and thermo-chemical process, the method comprising: Providing a feedstock, preparing the feedstock for anaerobic digestion, feeding the feedstock into an anaerobic digester for producing a biogas and a residual digestate, using the digestate as a feedstock to thermo-chemical process for producing biooil, a water stream and a solid residue and upgrading the solid residue to a fertilizer and/or soil improvement product.
WO 2023194550 A1 20231012	Thoeni Ind GmbH (AT)	Multilevel application system for a plug flow fermenter. What is disclosed is a biogas plant having a plug flow fermenter with a first discharge opening and a second discharge opening, a pump apparatus for withdrawing fermenter contents through the first discharge opening and the second discharge opening and releasing the fermenter contents withdrawn into a discharge conduit; and a control device configured to control the withdrawal of fermenter contents through the first discharge opening and the second discharge opening into the pump apparatus and hence to adjust characteristics of the fermenter contents withdrawn in the discharge conduit. A method of operating a biogas plant and a corresponding computer program product bring about control of withdrawal of fermenter contents through the first discharge opening and the second discharge opening, in order thus to adjust characteristics of the fermenter contents withdrawn in a discharge conduit.

Nº Publicación	Solicitante (País)	Contenido técnico
ES 2951608 A1 20231023	Tkin Orma SL (ES)	Closed aerobic reactor. The procedure and apparatus for composting organic waste is intended for the valorization of the solid phase of digestate from biogas generation plants through a composting process in which the time and space required to obtain compost is reduced. . Specifically, it refers to a procedure and apparatus for the aerobic digestion of waste with a maximum humidity of 80%, without coarse solids. The waste can come from various sources, such as digestate from biomethanation processes, sludge from agri-food industries and livestock waste.
WO 2023242357 A1 20231221	Topsoe AS (DK)	Biogas feed for carbon monoxide production. The present invention relates to a carbon monoxide plant and process for effective use of biogas. The carbon monoxide plant comprises: a first biomass feed, a biomass digester, a reformer section, a CO2-removal section and a cryogenic separation section. A process for providing a CO-rich product stream from a first biomass feed, using the plant of the invention, is also provided.
WO 2023222979 A1 20231123	Suez Int (FR)	Wastewater treatment method with maximization of biogas production comprising an electro-oxidation step. The invention relates to a method and a plant for treating wastewater and associated sludge that makes it possible to eliminate the carbon and nitrogen with maximization of biogas production. The process comprises: (a) a step of treating wastewater producing a first effluent having a reduced content of carbonaceous material and a second effluent having an increased content of carbonaceous material, (b) a step of treating at least one portion of the first effluent producing a third effluent having a reduced nitrogen content, carried out without use of a biological nitrification under aerobic conditions and comprising at least one step of electro-oxidation during which at least one portion of the ammonium ions contained in the first effluent are oxidized to nitrites and/or nitrates, and/or to dinitrogen, (c) a step of anaerobic digestion of the second effluent to produce biogas and a digestate.

Bioalcoholes (bioetanol, biometanol, etc.)

Nº Publicación	Solicitante (País)	Contenido técnico
RO 137695 A2 20231030	Cristescu Ion (RO)	Ethanol fuel preparation plant. The invention relates to a plant for preparing ethanol fuel, which is a homogenous discontinuous-continuous modular chemical system by recycling the reaction masses. According to the invention, the plant consists of an absorber (A) for absorbing the acid catalyst aqueous solution into the starch mass, which communicates upon pressure, through a vertical cylindrical pipe (1b) with tap/valve, with a catalytic reactor (G) for starch acid hydrolysis to glucose, which communicates, in its turn, through a horizontal cylindrical pipe (3e) with tap/valve, with another enzymatic catalytic reactor (E) for glucose conversion to ethanol and carbon dioxide in the presence of zymase enzymes, the enzymatic catalytic reactor (E) further communicating, through a pipe (5b) with a distiller (C) for distilling and concentrating ethanol fuel azeotrope of 95.5% concentration.
WO 2023213963 A1 20231109	G2B Biosolutions Aps (DK)	Method of reducing water consumption in bioethanol production process. The present invention provides a method for making ethanol and a protein feed or food product from a feedstock comprising starch, such as grain and grain-derived products, preferably combined with CO2 capture to increase yields further. The method facilitates a reduction in water usage compared to traditional ethanol plants, without affecting quality and quantity of the end products.
KR 20230143829 A 20231013	Korea Inst Ocean Sci & Tech (KR)	Method for producing bio-Alcohol using clostridium sp. and medium comprising acetate. The present invention relates to a method for producing bioalcohol using culture of Clostridium strains and a medium for the same. The method for producing bioalcohol of the present invention is Clostridium sp. using a medium composition to which acetic acid is added. It is possible to produce high-concentration bioethanol without the side effects of inhibiting bacterial growth and reducing CO consumption. Therefore, the method for producing bioalcohol and the medium composition for the same of the present invention can be usefully used in the process of selectively producing bioethanol from synthesis gas.
WO 2023159251 A1 20230824	Novozymes AS (DK) et al.	Method for carrying out the combined operation of a bioethanol production unit and a biogas unit. The present invention concerns a method for carrying out the combined operation of a bioethanol production unit and a biogas unit, wherein a yield enhancing composition is added to the whole stillage that is fed to the mashing step or the biogas unit, the outflow of the biogas unit, the thin stillage that is fed to the mashing step, added to the residual materials resulting from purification of the corn oil or protein product that are fed to the biogas unit, the wet cake that is fed to the mashing step or the biogas unit; and/or biomass added to any one of the preceding steps.

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023148756 A1 20230810	Praj Industries Ltd (IN)	An integrated process for the production of ethanol and protein from rice distillery. The present disclosure relates to an integrated process for obtaining ethanol and proteins from cereal grains (broken rice), the process comprising milling the grains, obtaining a slurry of the milled grains, partially hydrolysing the slurry, saccharifying the partially hydrolysed slurry to obtain saccharified slurry, adding a pre-fermented slurry to the saccharified slurry to obtain ethanol and distilling out the ethanol and separating the remaining as a whole stillage; separating the whole stillage into thin slop and DWG, treating a slurry of the DWG with cellulase enzymes to provide treated DWG slurry, separating the treated DWG slurry into wet cake and filtrate, washing and separating the said wet cake into protein concentrate and a liquid and optionally treating the obtained protein concentrate with alkali or hydrolysing enzymes to obtain purified protein hydrolysate or isolate.
US 2023390739 A1 20231207	Techcycling Llc (US)	Method for the production of butanol using a titanium-based bimetallic heterogeneous catalyst. The present invention relates to a method for the production of butanol using a titanium-based bimetallic heterogeneous catalyst comprising a support of titanium dioxide doped with cobalt cations and transition metal nanoparticles impregnated in the support. The method describes the production of butanol as a single product, it is environmentally responsible and cost-effective. The present invention also describes a manufacturing process of the titanium-based bimetallic heterogeneous catalyst with enhanced selectivity, activity, and stability, among other advantages.
WO 2023217703 A1 20231116	Topsoe AS (DK)	Process and plant for producing renewable fuels. Process and plant for producing methanol, the process comprising the steps of: a) providing a raw synthesis gas stream; b) water gas shifting at least a portion of the raw synthesis gas stream, thereby producing a shifted synthesis gas; c) preparing a separate hydrogen containing stream and a separate oxygen containing stream by electrolysis of a water feedstock; d) introducing at least a portion of the separate hydrogen containing stream into shifted synthesis gas, thereby producing a methanol synthesis gas; and e) converting the methanol synthesis gas into said methanol.
EP 4239075 A1 20230906	Univ Muenchen Tech (DE)	Process for the production of ethanol and/or fermentation by-products from a starch-containing biomass. The present invention relates to a process for the production of ethanol and/or fermentation by-products from a starch-containing biomass as well as a spirit prepared by the process for the production of ethanol and/or fermentation by-products from starch-containing biomass.
MX 2020004028 A 20220114	Univ Popular Autonoma del Estado de Puebla (MX)	Method for producing ethanol from vinase enriched with separate cellulose from multilayer packaging. The present invention has managed to obtain a product with high added value from two residues that are very frequent, abundant, and highly polluting, such as multilayer containers and stillage. In this situation, this invention reports multiple benefits in different technological areas; On the one hand, it allows reusing, and thus revaluing, multilayer packaging waste and waste from the alcohol production industry, that is, stillages, which have a great beneficial environmental impact. Also, it allows bioethanol to be obtained, with a high-quality standard, from waste products, which prevents the bioethanol production industry from consuming agricultural grains, such as corn, sorghum, etc., preventing the costs of these inputs increase. Additionally, polyethylene and aluminum are also revalued for reuse, with the consequent environmental and economic benefits.
CN 116814707 A 20230929	Univ South China Agricult (CN)	Method for improving efficiency of producing ethanol by saccharification and fermentation and application of method. The invention discloses a method for improving the efficiency of producing ethanol by saccharification and fermentation. According to the method, saccharomycetes of MDR1 protein with an overexpression amino acid sequence as shown in SEQ ID NO: 3 are used for saccharification and fermentation to produce ethanol. After the MDR1 protein of the saccharomycetes is over-expressed by using the method disclosed by the invention, the inhibition of byproduct furfural and the like generated in the process of producing ethanol by saccharification and fermentation of the saccharomycetes on the growth of the saccharomycetes can be reduced, the growth activity of the saccharomycetes is improved, and the efficiency of producing ethanol by saccharification and fermentation is further improved; and the method can significantly improve the ethanol production efficiency of the saccharomycetes in a furfural environment, and the ethanol yield is increased by nearly 10 times compared with that of a control group.

Biodiésel

Nº Publicación	Solicitante (País)	Contenido técnico
KR 20230146863 A 20231020	Chang Ho Seob et al. (KR)	Continuous reaction system for biodiesel/biodiesel raw material and bio-heavy oil production using heat exchanger and cavitation reactor. The present invention relates to a continuous reaction system for producing biodiesel/biodiesel raw materials and bio heavy oil using a heat exchanger and a cavitation reactor that optimize material reaction through a heat exchanger and a cavitation reactor to dramatically improve production yield and reactivity according to the process. , its composition is that biodiesel production raw materials, methanol, and basic catalyst are produced as reactants through the reaction process, the reactants are separated into biodiesel and glycerin, and the reactants from which the glycerin is separated are purified to continuously produce biodiesel. In the continuous reaction system for biodiesel production, a plurality of tanks that individually supply and store the biodiesel production raw materials, methanol, and basic catalyst; and pumps that circulate the liquid supplied to each of the plurality of tanks through pipes. A circulation unit consisting of; and, a cavitation reactor that activates the reaction between the biodiesel production raw materials circulated by the pumps, methanol, and a basic catalyst; and, connected to the cavitation reactor through a pipe, and flowing into the cavitation reactor. It includes a heat exchanger that causes a heat exchange reaction in the raw materials.
WO2023225377 A1 20231123	Desmet Belgium (BE)	Novel process for producing biodiesel with reduced monoacylglycerol content. Post-treatment process for crude biodiesel containing residual monoacylglycerol (MAG) and comprising contacting said crude biodiesel with a concentrated alkaline solution, double counter-current washing each followed by a phase separation and drying. The process is economical in chemicals and washing water.
US 2023348801 A1 20231102	Next Chemx Corp (US)	Membrane-based treatment of biodiesel compositions to remove impurities. Treatment of a biodiesel composition to remove impurities such as glycerol from the biodiesel composition using a membrane support. The biodiesel composition flows on one side of the membrane support and an acidic washing solution flows on the opposite side of the membrane support. Glycerol and other low molecular weight impurities having an affinity towards water are transported from the biodiesel composition to the acidic washing solution through the membrane support. The membrane support may include a plurality of hydrophilic polymer hollow fibers disposed in a support module.
KR 20230138641 A 20231005	New Energy Res & Development Inc (KR)	Micro reactor for producing bio-diese in which several disk-shaped panels are overlapped to form reaction passages. The present invention distributes alcohol through a plurality of alcohol distribution ports formed on a first circumference, and maintains oil through a plurality of alcohol distribution ports formed corresponding to the plurality of alcohol distribution ports on a second circumference defined outside the first circumference. A distribution port forming portion distributing through the holding dispensing port, disposed above the distributing port forming portion, each between an alcohol inflow end at a position corresponding to the alcohol dispensing port and a holding inlet end at a position corresponding to the holding dispensing port. A first reaction flow path forming part formed with a plurality of first reaction flow paths connecting the first reaction flow path forming part, and disposed on an upper side of the first reaction flow path forming part, and a plurality of reactant guide holes are connected to the alcohol inflow end of each of the first reaction flow paths and the A reactant guide port forming portion formed at a position corresponding to a predetermined mixing point between the holding inflow ends and guiding the reactants upward, and disposed on an upper side of the reactant guide port forming portion and flowing in through the plurality of reactant guide ports. It includes a second reaction flow path forming portion that forms a second reaction flow path that guides the reactants.
WO 2023222648 A2 20231123	Novozymes AS (DK)	Process for reducing free fatty acids. The present invention relates to a process for enzymatic (trans)esterification/esterification of free fatty acids and glycerides. In particular, the invention relates to this process using a drying operation for water removal from enzyme reaction mixture continuously or by separating the glycerol phase from the reaction mixture, then drying the glycerol phase and recirculating to reform the reaction mixture, especially in biodiesel applications, which facilitates reduction of FFA in the biodiesel.
WO 2023209070 A1 20231102	Novozymes AS (DK)	Production of fatty acid alkyl esters. The present invention provides a process for producing fatty acid alkyl esters. The process comprises providing a substrate comprising triglycerides, diglycerides, monoglycerides, free fatty acids, or any combination thereof, and reacting the substrate with an enzyme composition comprising an sn-1,3 position lipase and an sn-2 position lipase to produce fatty acid alkyl esters.

Nº Publicación	Solicitante (País)	Contenido técnico
CN 116836757 A 20231003	Pinghu Chenxing Tech Industrial Co Ltd (CN)	Method for producing biodiesel by using rare earth compound and solid superacid catalyst. The invention discloses a method for producing biodiesel by using a rare earth compound and a solid superacid catalyst, which comprises the following steps: mixing biolipid, an alcohol substance and the rare earth compound, and completing esterification reaction by circulating reflux of the mixture between a reaction kettle and a fluidized bed filled with the solid superacid catalyst to prepare the biodiesel. According to the method, the catalytic effect and the biodiesel yield can be improved, the product does not need to be washed, and waste liquid discharge pollution is avoided.
CN 116925852 A 20231024	Sichuan Jinshang Environmental Protection Tech Co Ltd (CN)	Method and system for producing low-condensation-point biodiesel from waste animal and plant oil. The invention discloses a method and system for producing low-condensation-point biodiesel from waste animal and vegetable oil, and the method comprises the following steps: firstly, carrying out esterification reaction on the waste animal and vegetable oil and mixed alcohol under the catalysis of organic acid to generate a primary mixture; performing oil-water separation on the primary mixture to obtain primary mixed oil; and finally, carrying out secondary esterification reaction on the primary mixed oil and the mixed alcohol to generate the low-condensation-point biodiesel. The organic acid is methanesulfonic acid, and the mixed alcohol comprises 80-88 wt% of methanol, 10-15 wt% of isopropanol and 2-5 wt% of n-butyl alcohol. According to the method, the mixed alcohol esterification reaction is adopted, so that the modified biodiesel with a lower condensation point compared with biodiesel produced by methanol can be obtained, and the condensation point of biodiesel blended fuel and the utilization rate of the biodiesel are improved; in addition, the modified biodiesel produced by the invention can also be used as an additive to be added into other biodiesel to adjust the condensation point of other biodiesel, so that the application range of other biodiesel is expanded.
WO 2023180925 A1 20230928	Versalis SPA (IT)	Fermentation process for the production of lipids from oleaginous yeasts. Fermentation process for the production of lipids in the presence of at least one oleaginous yeast comprising: - a first step of growth of the oleaginous cell biomass wherein the respiratory quotient (RQ) of said at least one oleaginous yeast is kept at a constant value comprised between 0.85 and 1.2, preferably comprised between 0.9 and 1.15, more preferably equal to 1.1; - a second step of lipid production wherein the respiratory quotient (RQ) of said at least one oleaginous yeast is kept at a constant value comprised between 1.2 and 2.6, preferably comprised between 1.3 and 2.55, more preferably equal to 1.4. The lipids thus obtained can be advantageously used in the production of biofuels which can be used as such, or mixed with other fuels in diesel engines for automotive or aviation.
CN 116925853 A 20231024	Yichang Yilvqing Environmental Protection Tech Co Ltd (CN)	Method for preparing biodiesel from kitchen waste recovered grease. The invention discloses a method for preparing biodiesel from kitchen waste recovered grease, and belongs to the technical field of resource reutilization. The method comprises the following steps: sequentially carrying out hot water washing, centrifugation, sedimentation and vacuum dehydration treatment on the recovered grease; hot methanol steam is introduced into the dehydrated grease for esterification reaction, gas generated by azeotropy is recovered through condensation, and condensate is purified; carrying out oil-water separation on the esterification product; carrying out water washing and vacuum dehydration treatment on the esterified oil phase; carrying out ester exchange reaction on the dehydrated grease and methanol, and recovering gas evaporated by the reaction through condensation; if the water content of the condensate is less than or equal to 4%, taking the condensate as a raw material for transesterification; if the water content of the condensate is greater than 4%, carrying out purification treatment; carrying out centrifugal separation on the ester exchange product to obtain biodiesel and glycerol; combining condensate obtained after esterification and ester exchange, and carrying out distillation purification; and combining the esterified and ester-exchanged water phases and adjusting the water phases to be acidic, and carrying out sedimentation treatment on the oil phase.

Bio-jet fuels

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023194338 A1 20231012	Axens (FR)	Renewable kerosene fuel having excellent properties at low temperatures. The present invention relates to a kerosene base comprising at least 60.0 wt.% of a mixture of C _{3n} hydrocarbons and C _{4n} hydrocarbons, where n is a natural number selected from between 3 and 4, at least 80 wt.% of the total weight of the kerosene base being isoparaffins, said kerosene base having excellent properties at low temperatures. The present invention also relates to any composition comprising said kerosene base, to a method for its preparation and to its use as fuel in the field of aviation.

Nº Publicación	Solicitante (País)	Contenido técnico
CN 116925804 A 20231024	Dalian Inst Chem & Physics, CAS (CN)	Method for preparing polycycloalkane aviation kerosene from lignin-derived phenols and formaldehyde. The invention discloses a method for preparing polycyclic aviation kerosene from lignin-derived phenolic compounds and formaldehyde. Phenolic compounds derived from agricultural and forestry wastes and formaldehyde are polymerized under the action of solid acid to form an aviation kerosene precursor, then the aviation kerosene precursor is subjected to hydrodeoxygenation through a bifunctional catalyst to obtain polycyclic aviation kerosene, and compared with traditional chain aviation kerosene, the polycyclic aviation kerosene is high in density and heat value and can be used as a substitute of traditional aviation fuel. The catalyst used in the method is rich in raw material source, low in price and easy to separate; the whole production process is simple to operate.
WO 2023214001 A1 20231109	Totalenergies Onetech (FR)	Process for obtaining hydrocarbons, and associated plant. Said process involves the following steps: (a) converting a C1 to C6 alcohol stream to produce a mixture containing paraffins, olefins, aromatics, and water; (b) separating the water from the mixture to form a water-depleted mixture; the water-depleted mixture is separated and/or treated to recover hydrocarbons; The process includes adding, in step (a) of converting the C1 to C6 alcohol stream, a carbon dioxide-containing stream, and conjointly converting the carbon dioxide to carbon monoxide in step (a) of converting the C1-C6 alcohol stream.

Biohidrógeno

Nº Publicación	Solicitante (País)	Contenido técnico
CN 116814387 A 20230929	Huaiyin Inst Technology (CN)	Biomass hydrogen optimization system and method. The invention discloses a biomass hydrogen optimization system and method. The system comprises a hydrogen production environment parameter detection unit, a central processing unit and a control unit, the hydrogen production environment parameter detection unit is used for acquiring environment parameters, the central processing unit is used for analyzing the environment parameters, and the optimal hydrogen production environment is obtained through algorithm optimization; the control unit is used for adjusting the temperature, the PH value and the reactor according to the optimal parameters obtained by the central processing unit; according to the method, the hydrogen production efficiency is improved, the growth and metabolic activity of dark fermentation organisms can be promoted through the appropriate temperature and PH value, and the yield of hydrogen is increased; resources and energy are saved, and resource and energy waste caused by the fact that the temperature and the PH value deviate from the ideal range is avoided; the operation process is simplified, environmental parameters are automatically monitored and controlled, the burden of operators is relieved, the technical requirements of operation are reduced, sustainable operation of the system is ensured, and the economic cost is reduced.
CN 116835765 A 20231003	Hynar Water Group Corp (CN)	Wastewater treatment device for biological hydrogen production through dark-light fermentation. The invention relates to the technical field of biological energy sources, in particular to a wastewater treatment device for dark-light fermentation biological hydrogen production, which combines dark fermentation biological hydrogen production with anaerobic ammonia oxidation reaction to remove part of organic matters and nitrides in wastewater and solve the problem that high-concentration ammonia nitrogen in wastewater inhibits hydrogen production efficiency. The light fermentation biological hydrogen production further utilizes the dark fermentation product to produce hydrogen, and converts sulfide into sulfate, so as to degrade the influence of organic acid and sulfide in the wastewater on the subsequent water treatment technology, reduce the biotoxicity and improve the energy conversion efficiency. A nitrification reactor is combined with dark fermentation hydrogen production, and an anaerobic ammonia oxidation process is circularly performed to improve the nitrogen removal efficiency of a water body, so that an organic wastewater hydrogen production process and wastewater treatment integrated device is realized.
WO 2023194811 A1 20231012	Kpit Tech Limited (IN)	Modular system and method for generating hydrogen from biomass. The present invention relates to a modular system and method for generating high purity hydrogen from biomass. Method comprises step of gasifying, by a gasifier, biomass into syngas, followed by step of treating, by an acid-alkali scrubber and a de-oxygenator, the syngas to remove H ₂ S, HCl, HCN, Ammonia, and Oxygen present in the syngas. Method further comprises step of mixing, in a static mixer, the gas stream with steam, followed by step of enabling, by HTS and LTS reactors, a reaction between CO and the steam present in the gas-steam mixture to produce a gas stream of CO ₂ and Hydrogen. Method further comprises step of passing, through a CO ₂ remover, the gas stream to separate CO ₂ and provide CO ₂ free gas stream, followed by step of passing, through a PSA, and/or a VPSA, the CO ₂ -free gas stream to provide the H ₂ gas.

Nº Publicación	Solicitante (País)	Contenido técnico
CN 116904231 A 20231020	Shandong Nuotai Environmental Protection Tech Co Ltd (CN)	Organic solid waste composite hydrogen production process. Belonging to the technical field of organic solid waste treatment, the invention relates to an organic solid waste composite hydrogen production process, which comprises the following steps: (1) pretreatment, (2) low temperature anaerobic carbonization treatment, (3) carbon separation, and (4) high temperature gasification hydrogen production. According to the method, the organic solid waste is carbonized through a low-temperature anaerobic carbonization technology, products obtained after carbonization are high-calorific-value combustible gas and carbon powder, the combustible gas and the carbon powder are combined with water and leachate to be subjected to a high-temperature gasification technology, all the combustible gas and the carbon powder are converted into clean energy, namely hydrogen and liquid or solid carbon dioxide to be recycled, and the environment is protected. And the emission of greenhouse gases such as carbon dioxide is reduced by more than 90%. According to the invention, the whole industrial chain mode of the organic solid waste industry is solved through a carbonization and hydrogen production composite technology, so that harmless, reduction and full-recycling treatment is carried out on urban organic wastes in environmental protection, high-grade and environment-friendly green hydrogen energy is obtained, and secondary pollution to the environment is avoided.
CN 116850995 A 20231010	Univ Central South (CN)	Preparation method and application of carbon-based monometallic catalyst for biomass gasification hydrogen production. The gasification hydrogen production. The preparation method comprises the following steps: placing tobacco stems in a high-temperature and high-pressure reaction kettle for hydrothermal carbonization reaction; carrying out activation reaction I on the carbonized tobacco stems and zinc chloride in a tubular furnace; carrying out activation reaction II on the preliminarily activated carbon and potassium hydroxide in a tubular furnace; placing activated carbon in a diluted hydrochloric acid solution to obtain an activated carbon carrier; placing the activated carbon carrier in an aqueous solution containing a metal source and a blender to obtain a precursor sample; and putting the precursor sample into a tubular furnace, and carrying out reduction reaction in a set atmosphere to obtain the carbon-based monometal catalyst. The catalyst prepared by the method takes carbon as a carrier, has a large specific surface area and a rich pore structure, changes of atmosphere and related conditions in the preparation process effectively regulate and control the particle size and dispersity of metal, avoids high-temperature sintering of the metal, and improves the metal loading rate by increasing the interaction of the carrier. The catalyst has excellent catalytic performance and can be used in the field of biomass gasification hydrogen production. Invention discloses a preparation method of a carbon-based monometal catalyst for biomass.
CN 116902916 A 20231020	Univ Guangdong Technology (CN)	Method for hydrogen production by promoting water-phase reforming of recyclable biomass alcohol derivatives through alkali liquor. The invention provides a method for hydrogen production by promoting water-phase reforming of recyclable biomass alcohol derivatives through alkali liquor. Alkali liquor and biomass alcohol derivatives are fed together through a high-pressure liquid phase pump and react in the presence of a catalyst, and the content of prepared hydrogen is greater than 95%; under the condition of alkali liquor co-introduction, the reaction activity of the catalyst and the hydrogen selectivity are balanced by regulating and controlling the ratio of Ni < 2 + > to Mg < 2 + > and the calcination temperature. Alkali liquor after reaction can be recycled, carbon dioxide is absorbed to become carbonic acid or bicarbonate, potassium hydroxide is regenerated from carbonic acid or bicarbonate and saturated calcium hydroxide, meanwhile, calcium carbonate can be calcined to produce high-purity carbon dioxide, and water is added into residual calcium oxide to form saturated calcium hydroxide. The method is easy to implement, the hydrogen production efficiency and the hydrogen production stability are remarkably improved through low-cost reaction condition improvement, and the alkali liquor can be recycled. Due to the high-quality hydrogen characteristic and excellent economical efficiency, the method has wide application prospects and practical significance.

Nº Publicación	Solicitante (País)	Contenido técnico
CN 116889881 A 20231017	Univ Shandong Science & Tech (CN)	Visible light response hydrogen production catalyst prepared from enteromorpha biomass graphene and preparation method of visible light response hydrogen production catalyst. The invention belongs to the technical field of semiconductor photocatalysts, and particularly relates to a visible light response hydrogen production catalyst prepared from enteromorpha biomass graphene and a preparation method of the visible light response hydrogen production catalyst. The catalyst comprises GO with a mass fraction of 2-10%, and also comprises dysprosium oxide and graphite phase carbon nitride with nitrogen defects. The preparation method comprises the following steps: preparing GO by adopting enteromorpha, and then carrying out microwave hydrothermal reaction on the GO and prepared Dy2O3/ND-g-C3N4 to obtain the GO/Dy2O3/ND-g-C3N4 catalyst. In the prepared catalyst, ND-g-C3N4 and GO have a synergistic effect, so that the visible light response hydrogen production catalyst GO/Dy2O3/ND-g-C3N4 has higher photocatalytic hydrogen production efficiency compared with pure Dy2O3 and a Dy2O3/ND-g-C3N4 photocatalyst, and especially when the mass fraction of GO is 6%, the hydrogen production rate is the highest.
CN 116836731 A 20231003	Univ Xi An Jiaotong et al. (CN)	Supercritical water gasification hydrogen production system and method suitable for high-concentration lignocellulose biomass. The invention belongs to the technical field of hydrogen production methods, and particularly relates to a supercritical water gasification hydrogen production system and method suitable for high-concentration lignocellulose biomass, preparation and pumping of high-concentration cellulose biomass slurry are achieved, chemical bonds of molecular structures of materials are not greatly broken in the slurry preparation process, and the high-concentration lignocellulose biomass slurry is prepared. Only a small amount of gas is generated, and meanwhile, the slurry is excellent in uniformity, stability and flowability; the physical and chemical properties of supercritical water are utilized, two-step gasification is adopted, the first-stage reactor is based on the supercritical water liquefaction principle, alkali salt recovery and macromolecule depolymerization are achieved, the reusability of alkali salt is improved through the causticizing device, the economical efficiency of the pulping process is improved, and low-cost slurry preparation is achieved; based on simplification of a material molecular structure in the first-stage reactor, carbon deposition and reactor corrosion in the second-stage reactor are greatly reduced, efficient gasification of lignocellulose biomass is realized, and high gasification efficiency of the system is ensured.

Otros biocombustibles (hidrobiodiesel, etc.)

Nº Publicación	Solicitante (País)	Contenido técnico
FR 3136767 A1 20231222	IFP Energies Now (FR)	Method for processing lignocellulosic biomass. The invention relates to a method for processing lignocellulosic biomass, the method using at least one reactor for processing the biomass, the reactor being provided with a feed device equipped with a biomass inlet and a biomass outlet, the biomass outlet being in fluid communication with an inlet of the reactor, such that - a residue is extracted from the biomass, as it passes through the feed device to the reactor, via an extraction outlet provided in the device, the residue being a solid and liquid mixture; - the residue is separated into a solid residue and a liquid residue; - at least some of the solid residue is added back into the feed device or into one of the feed devices.
WO 2023215593 A1 20231109	Lanzatech Inc (US)	Integration of renewable fuel and chemical production into nature based solution and natural climate change solution infrastructure. Improving overall carbon capture and improving overall production yield in chemical manufacturing facilities by integrating microbial fermentation into nature based solutions and natural climate solutions. Converting carbon sources, such as biomass, that would otherwise be discarded as waste to one or more products. In certain aspects, also disclosed are to processes for producing desirable products, such as ethylene, from industrial waste streams.
WO 2023220798 A1 20231123	Petroleo Brasileiro Sa Petrobras (BR)	Method for generating renewable products from bio-oil and oil streams from catalytic cracking. The present invention belongs to the field of fluid catalytic cracking processes (FCC) for producing fuels with a totally renewable content, more specifically for producing high octane rating gasoline (RON above 92 and/or MON above 83) and medium distillates. More specifically, the present invention relates to the coprocessing of bio-oil and oil streams in the presence of a zeolite catalyst having an intermediate pore size to produce more and better gasoline, reducing the amount of heavy fractions of low commercial value.

Nº Publicación	Solicitante (País)	Contenido técnico
CN 116836740 A 20231003	Univ Qingdao Science & Tech (CN)	Novel alpha-pinene-based biomass high-energy-density fuel. The invention discloses an alpha-pinenyl synthesized high-energy-density fuel and a preparation method thereof. The method is characterized in that alpha-pinene and phenol are used as raw materials, acid catalytic alkylation, catalytic hydrodeoxygenation and distillation purification are performed to obtain a hydrodeoxygenation product of a monoalkylated product with the content higher than 88% and the molecular formula of C ₁₆ H ₂₈ , and the product has the excellent comprehensive performance that the calorific value is 40.1 MJ/L, the density is 0.93 g/mL, the viscosity at -15 DEG C is 200 mm ² /s, and the freezing point is -65 DEG C; the performance requirements of high-energy-density fuel are met. The method opens up a new feasible way for low-cost preparation of biomass-based high-energy-density fuel and high-added-value deep processing of biomass resources such as alpha-pinene and phenol.

PATENTES BIOPRODUCTOS

Biomateriales (de construcción, medicina, embalaje, etc.)		
Biocomposites y biofibras		
Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023222244 A1 20231123	F List GmbH (AT)	Fiber-reinforced composite material, component, vehicle and method for manufacturing a fiber-reinforced composite material. The invention relates to a fiber-reinforced composite material including at least one matrix made of a biobased material and a plurality of natural fibers which are at least partially embedded within the matrix. The matrix includes at least one flame retardant arranged at least partially within the matrix. The natural fibers include at least one flame retardant arranged in at least a section of the natural fibers. The invention also relates to a component, preferably a paneling element, for use in an interior of a vehicle. The invention further relates to a vehicle and a method for manufacturing a fiber-reinforced composite material.
WO 2023190583 A1 20231005	Furukawa Electric Co Ltd (JP)	Cellulose fiber-reinforced resin composite, method for manufacturing cellulose fiber-reinforced resin composite, and cellulose fiber-reinforced resin molded body. Provided is a cellulose fiber-reinforced resin composite containing 101-400 parts by mass of cellulose fibers with respect to 100 parts by mass of a thermoplastic resin containing a polyolefin resin and an alkoxysilane-modified polypropylene resin. The total area of cellulose fiber aggregates when observed in a planar view is 1.00 mm ² /cm ² or less. Also provided are: a method for producing the cellulose fiber-reinforced resin composite; and a cellulose fiber-reinforced resin molded body.
EP 4276137 A1 20231115	Institut National de Rech pour L'agriculture L'alimentation et L'environnement (FR)	Composite powder, in particular suitable for additive manufacturing. The present invention relates to a composite powder, in particular suitable for additive manufacturing, wherein said composite powder comprises composite particles comprising: - at least one polymer matrix chosen among polyhydroxyalkanoates (PHA), and - at least one auxiliary matrix chosen among biobased fillers and biobased waxes.
WO 2023239335 A1 20231214	Marmara Univ Strateji Gelis Dai Bsk Muhasebe Birimi (TR)	A luffa fiber reinforced bio-composite material coated with metal elements and compounds thereof. The invention relates to a bio-composite material coated with various metals and compounds thereof using known coating methods such as Physical Vapour Deposition coating techniques (PVD coating), DC, RF magnetron sputtering, and thermal evaporation methods, thereby providing thermal conductivity and electro-magnetic shielding properties.
WO 2023187004 A1 20231005	PDA Ecolab (FR)	A continuous filament obtained from granulated cork, process for the manufacturing of a cork-based filament, and fabric thereby obtained. The present disclosure relates to a cork-based yarn or filament comprising : - at least one yarn, tow, monofilament or tape of natural or synthetic fiber; and - a molded outer structure coating the at least one yarn, tow, monofilament or tape, the outer structure being composed of granulated cork and/or micro-granulated cork and/or cork dust.

Nº Publicación	Solicitante (País)	Contenido técnico
EP 4286470 A1 20231206	Raiz Instituto de Investig da Floresta e Papel et al. (PT)	Biocomposite of micronized fibers of eucalyptus kraft pulp, bioplastics and additives and its production process. The present invention relates to a biocomposite comprising micronized eucalyptus Kraft pulp fibers, a bioplastic and an additive. The biocomposite includes a bioplastic and from 10% to 50% by weight of micronized eucalyptus Kraft pulp fibers (based on the weight of bioplastic) and an additive from 1% to 30% by weight based on the total weight of the biocomposite, and wherein the bioplastic is selected from polylactic acid, polyhydroxybutyrate or cellulose acetate butyrate. The additive is an epoxidized vegetable oil or a sugar-based surfactant. Another aspect of the present invention relates to the biocomposite production process. The biocomposite is completely biologically based, demonstrating conditions of biodegradability at the same time as the mechanical properties necessary for its possible and different applications.
WO 2023232284 A1 20231207	Staedtler Mars GmbH & Co KG (DE)	Writing utensil comprising a PLA/PBS shaft base material. The invention relates to a writing utensil 1 comprising a lead 2 and a shaft 3, wherein the lead 2 is arranged in the shaft 3 in a stationary manner, and the shaft 3 has a shaft base material. The shaft base material comprises the following components: 60 to 75 wt.% of a filler/fillers, 15 to 30 wt.% of a binder mixture comprising PLA and a second binder selected from the group consisting of PBS and copolymers of the PBS, in particular PBSA, 0.2 to 6 wt.% of other additives such as adhesives, stabilizers, 1 to 10 wt.% of wax/waxes, and 0 to 4 wt.% of a dye, in particular a pigment.
WO 2023223229 A1 20231123	Stora Enso OYJ (FI)	Improved bonding resin. The present invention relates to a bonding resin useful for example in the manufacture of insulation, such as mineral wool insulation or glass wool insulation. The invention also relates to a method for preparing the bonding resin and to the use thereof.
WO 2023194663 A1 20231012	Sulapac OY (FI)	High heat resistant, biodegradable materials for injection molding. A composite material, methods of producing it, and articles manufactured therefrom. The composite material comprises a ternary polymer blend and a reinforcing materials comprising both hydrophilic lignocellulosic particles and inorganic filler. The ternary polymer blend comprises an elastic biodegradable polyester, polyhydroxyalkanoate, and biodegradable aliphatic polyester derived from α -hydroxy acid. The composite material can be shaped into articles, especially into three-dimensional thin articles.
WO 2023242517 A1 20231221	Univ de Lorraine (FR)	Method for preparing a thermoplastic cellulose material. The invention relates to a method for thermoplasticization of a cellulose material, said method comprising: i) bringing a fatty acid (FA) into contact with trifluoroacetic anhydride (TFAA); and ii) esterification of a cellulose material by reaction with the mixed anhydride obtained in step i), whereby a thermoplastic cellulose material is obtained, steps i) and ii) being carried out in the absence of solvent, in particular at ambient temperature.

Bioplásticos

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023192249 A1 20231005	Lifoam Ind Llc (US)	Polylactic acid-based custom product packaging and associated methods. Molded foam articles are provided. The molded foam articles are formed from polylactic acid and are capable of a number of post-processing or secondary uses. Forming the molded foam articles from polylactic acid advantageously extend the life of the molded bead foam article by permitting users to cut, heat, adhere, modify, and repurpose the molded foam articles.
WO 2023213870 A1 20231109	Nestle SA (CH)	Capsule for producing a beverage. The invention concerns a capsule for use in a beverage preparation machine, said capsule containing a soluble and/or extractable beverage ingredient, said capsule comprising : - a capsule body defining a chamber, - a top membrane closing the top opening, and adapted to be punctured for liquid injection into the capsule, and - a bottom membrane, provided inside the chamber so as to delimit between the top membrane and said bottom membrane an ingredient chamber, and - an opening device provided inside the chamber and adapted to open the chamber by relative engagement of said opening device with the bottom membrane under the effect of the liquid pressure increase in the ingredient chamber during injection of said liquid, wherein said opening device is made of a biodegradable material, and said biodegradable material is a polymeric composition, said polymeric composition comprising : - at least one polymer selected from the group consisting of polyhydroxyalkanoates (PHA), - at least one or more nucleants, - at least one or more mineral fillers.

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023245036 A2 20231221	Newlight Tech Inc (US)	Polyhydroxyalkanoate-based packaging films and articles made therewith. The present specification generally relates to aqueous based compositions of polyhydroxyalkanoate (PHA) and polymer blends of PHA for use with food contact items and similar packaging films. In particular, the invention pertains to a composition and an article of manufacture having a coating or laminate made up of poly(3-hydroxybutyrate) homopolymer (PHB) having a final coating thickness in the range of 0.1 to 2.0 mil thickness dry weight, or in a weight basis of about 3 to 70 grams per square meter coat weight basis. Methods of making the compositions of the invention are also described. The invention also includes articles and films comprising the compositions.
EP 4279586 A1 20231122	Shenzhen Bluepha Biosciences Co Ltd (CN)	Engineered microorganism expressing acetoacetyl coenzyme a reductase variant and method for increasing PHA yield. Provided is engineered microorganisms expressing acetoacetyl-CoA reductase variants and a method for improving the yield of PHA. Compared with the wild-type acetoacetyl-CoA reductase represented by SEQ ID NO. 31, the variant has one or more of the following mutations: (1) mutation of valine at position 141 to isoleucine or leucine; (2) mutation of methionine at position 12 to threonine, serine, alanine, leucine, lysine or isoleucine; (3) mutation of isoleucine at position 194 to valine, leucine or methionine; (4) mutation of glutamic acid at position 42 to lysine, glutamine, leucine, aspartic acid, proline, threonine, asparagine, or histidine; and (5) mutation of phenylalanine at position 55 to valine, alanine or isoleucine. The variants and their coding genes can promote the synthesis and accumulation of PHA by the strain and increase the yield of PHA.
WO 2023218474 A1 20231116	Shroff S R Rotary Institute of Chemical Tech Sric et al. (IN)	A process for extraction of polyhydroxyalkanoates (PHA) from secondary treatment wastewater sludge. The invention relates to a process for extraction of polyhydroxyalkanoate (PHA) biopolymer, from industrial wastewater secondary treatment sludge. More particularly, the invention relates to process for recovery of PHA from the mixed microbial culture of sludge coming from industrial wastewater secondary treatment by solvent extraction method.
WO 2023196777 A2 20231012	South Dakota Board of Regents (US)	Compositions and methods for degrading lignocellulosic biomass and producing polyhydroxyalkanoates. This disclosure relates to the field of bacterial strains and their ability to degrade lignocellulosic biomass. In a preferred embodiment, the present disclosure is directed to a <i>Geobacillus</i> sp. strain. Notably, we have found that the <i>Geobacillus</i> sp. strain has the capability to simultaneously hydrolyze and ferment lignocellulosic biomass to form polyhydroxyalkanoate (PHA). Most preferably, the hydrolysis and fermentation to form PHA takes place in a single step.
EP 4269465 A1 20231101	Sulzer Management AG (CH)	A plant and an efficient process for producing polylactic acid using lactide obtained from polylactic acid devolatilization. A process of producing polylactic acid comprising the steps of: a) providing a crude lactide composition comprising meso-lactide and at least one of L-lactide and D-lactide, b) separating from the crude lactide composition a meso-lactide enriched composition and a meso-lactide depleted composition, wherein the meso-lactide enriched composition contains at least 80 mol-% of meso-lactide based on the total content of lactide, c) polymerizing a polymerization composition comprising meso-lactide and at least one of L-lactide and D-lactide to a crude polylactic acid composition and devolatilizing the crude polylactic acid composition so as to produce a purified polylactic acid composition and a composition containing unreacted lactide, d) subjecting the meso-lactide enriched composition and at least a portion of the composition containing unreacted lactide to a purification comprising at least one crystallization step so as to produce a purified meso-lactide enriched composition, e) subjecting the meso-lactide depleted composition or a mixture of the meso-lactide depleted composition and a portion of the composition containing unreacted lactide to a purification comprising at least one crystallization step so as to produce a purified meso-lactide depleted composition, wherein the polymerization composition contains at least a portion of the purified meso-lactide enriched composition produced in step d).
WO 2023222042 A1 20231123	Univ China Petroleum East China et al. (CN)	Manufacturing method for high-molecular-weight polylactic acid. Provided in the present invention is a manufacturing method for polylactic acid, which method comprises the following steps: taking a lactate as a monomer raw material, and subjecting same to condensation polymerization under the action of a catalyst to obtain polylactic acid. In the method, a lactate is used as a raw material, the reaction efficiency is higher than that of the conventional dehydration polycondensation of lactic acid, the production cost is reduced, and the molecular weight and economic benefits of a polymer are increased.

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023220045 A1 20231116	Univ Colorado State Res Found (US)	Chemically circular polyhydroxyalkanoates. Polyhydroxyalkanoates (PHAs) have attracted increasing interest as sustainable plastics because of their biorenewability and biodegradability in the ambient environment. However, current semicrystalline PHAs face three long-standing challenges to broad commercial implementation and application: lack of melt processability, mechanical brittleness, and unrealized recyclability, the last of which is essential for achieving a circular plastics economy. Here we report a synthetic PHA platform that addresses the origin of thermal instability by eliminating α -hydrogens in the PHA repeat units and thus precluding facile cis-elimination during thermal degradation. This simple α,α -disubstitution in PHAs enhances the thermal stability so substantially that the PHAs become melt-processable. Synergistically, this structural modification also endows the PHAs with the mechanical toughness, intrinsic crystallinity, and closed-loop chemical recyclability.
WO 2023210998 A1 20231102	Yunbiotech Co Ltd (KR)	Method for producing polyhydroxyalkanoate. Disclosed is a method for producing a polyhydroxyalkanoate (PHA). The disclosed method for producing a PHA may comprise the steps of: partially dissolving a microbial biomass containing a PHA through a pretreatment process using a nonionic surfactant, and obtaining a pretreated biomass from the microbial biomass; obtaining a mixture in which the PHA is dissolved by dissolving the PHA of the pretreated biomass through a solvent extraction process using a non-polar, non-halogen solvent; forming a PHA precipitate by adding a precipitant to the mixture so as to precipitate the PHA; and recovering the non-halogen solvent from the mixture from which the PHA precipitate has been removed. The nonionic surfactant may comprise polyethylene glycol sorbitan monolaurate. The non-halogen solvent may comprise dimethyl carbonate (DMC).

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

Biofertilizantes, bioadhesivos, etc.

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023187290 A1 20231005	Bostik SA (FR)	Hot melt adhesive composition comprising a naturally sourced wax. The present invention relates to a hot melt adhesive composition comprising: i) a copolymer polymerized by metallocene catalysis; ii) 2% to 50% by weight, relative to the total weight of said composition, of a naturally sourced wax having a dropping point of 65°C to 105°C; iii) a tackifying resin; said hot melt adhesive composition having a viscosity of less than 3000 mPa.s at 130°C.
WO 2023242424 A1 20231221	Coooperatie Koninklijke Cosun UA et al. (NL)	Bio-based surfactants derived from carbohydrates. The present invention relates to new carbohydrate derivatives ((O) and (l-oxide)). The derivatives can be prepared via a method that involves direct amination. The derivatives can be used for various applications, for instance as surfactants.
WO 2023198682 A1 20231019	Ecole Polytechnique Fed Lausanne, EPFL (CH)	Biobased surfactants. Compound of the general formula (Ia), (Ib) and (Ic) R50 and R60 are different from each other and are selected from the group consisting of -R70, -ZR70, -Z-OH, -Z-NH2, -Z-SH, -Z-OC(O)R70, -OC(O)R70, -COOH and its corresponding salts, -C(O)NH2, -C(O)NH-R70, -C(O)N-(R70)2, -COOR70, -Z-COOH and its corresponding salts, -Z-C(O)NH-R70, -Z-C(O)NH2, -Z-C(O)N-(R70)2, -Z-COOR70, -CH(COOH)2 and its corresponding salts, -CH(COOR70)2, and -Z-SO3- wherein R70 is selected from the group consisting of a linear or branched C1 to C20 alkyl, (C1 to C10)-alkyloxy-(C1 to C10)-alkyl, C2 to C10 alkenyl, C6 to C12 aryl, C3 to C10 cycloalkyl, cycloalkylalkyl and cycloalkylalkenyl, wherein Z is a linear or branched C1 to C10 alkyl, linear or branched C3 to C10 cycloalkyl, a linear or branched C6 to C10 aryl or a (C1 to C10)-alkyloxy-(C1 to C10)-alkyl, cycloalkylalkyl and cycloalkylalkenyl.
WO 2023180806 A1 20230928	Fiberlean Tech Ltd (GB)	Resin reinforced with nanocellulose for wood-based panel products. Adhesive resin compositions, for the manufacture of wood-based panels, comprising thermosetting resin and nanocellulose, wood-based panels comprising said adhesive resin compositions, methods of using said adhesive resin compositions, and methods of preparing said adhesive resin compositions.
EP 4282912 A1 20231129	Henkel Ag & Co KGAA (DE)	Starch-based highly dilutable adhesives for tissue lamination. The present invention relates to adhesives for paper laminates, more particularly for tissue paper laminates comprising at least one tissue ply that is adhesively bonded to itself (e.g., it is folded over onto itself) or to another surface (e.g., another tissue ply or nonwoven, woven substrate, or the like), the adhesives being aqueous starch-based highly dilutable adhesives comprising at least one modified starch and having a viscosity as defined herein. Also encompassed are the uses and methods of use of such adhesives as well as the products, in particular the laminates obtained by these methods and uses.

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023243998 A1 20231221	KCC Corp (KR)	Fibrous material bound by using aqueous binder composition. The present invention relates to an inorganic fibrous material bound by using an aqueous binder composition, wherein the aqueous binder composition comprises a bio-derived raw material, a coupling agent, and a water repellent, and contains 7.0-9.0 weight% of solids of the aqueous binder composition with respect to a total weight of the bound inorganic fibrous material, wherein an inorganic fibrous material with a density of 48 kg/m ³ has a compressibility of 20 % or less for a load of 30 kgf, an inorganic fibrous material with a density of 64 kg/m ³ has a compressibility of 10 % or less for a load of 30 kgf, the maximum temperature of a heating furnace does not exceed the final equilibrium temperature by more than 20 °C when an inorganic fibrous material is added to and heated in the heating furnace at 750 °C, and a mass reduction at the end of heating may be 30 % or less.
WO 2023228951 A1 20231130	Nitto Denko Corp (JP)	Pressure-sensitive adhesive agent composition, pressure-sensitive adhesive sheet, layered body, and glucan derivative. The present invention provides a novel pressure-sensitive adhesive agent composition that includes a glucan derivative. A pressure-sensitive adhesive agent composition according to the present invention includes a glucan derivative G that has a glucoside bond A and a glucoside bond B of a different bonding style from the glucoside bond A. The glucoside bond A is, for example, a 1,6-glucoside bond. A pressure-sensitive adhesive sheet 1 according to the present invention is formed from the pressure-sensitive adhesive agent composition. A layered body 10 according to the present invention comprises the pressure-sensitive adhesive sheet 1 and a substrate sheet 2.
ES 2955862 A1 20231207	Parrotecnic SL (ES)	Liquid composition in the form of aqueous dispersion of polymerized, use of said composition as binding agent and coating agent with said binding agent. Liquid composition in the form of an aqueous dispersion of polymer, use of said composition as a binding agent and coating agent obtained with said binding agent, where the composition comprises: a monosaccharide, disaccharide or polysaccharide solubilized in an alkaline medium; a solution of alkaline organic or inorganic matter, capable of forming a solid upon drying; and a natural resin or varnish emulsion, or made from cooking vegetable oil with a natural resin or resinous exudation, and/or a synthetic resin emulsion. The liquid composition in the form of an aqueous dispersion of polymer is used as a binding agent in any construction material. The coating agent comprises the liquid composition in the form of an aqueous dispersion of polymer as a binding agent.
WO 2023192818 A1 20231005	The Williamette Valley Company Llc (US)	Adhesive mixture having an organic slurry dispersion and process for manufacture thereof. An adhesive mixture comprising an organic slurry dispersion for use in the manufacture of wood-based composites is described herein. The adhesive mixture includes an adhesive resin; water; one or more fillers, and an organic slurry dispersion. The organic slurry dispersion includes water; a natural biopolymer insoluble in the water, the natural biopolymer comprising lignocelluloses, lignocellulosic agricultural residue, lignin materials, lignin derivatives or mixtures thereof; and a defoamer. During manufacturing, the components of the organic slurry dispersion are combined and mixed by imparting a high degree of shear and mixing. The adhesive mixture may be applied to wood material for use in manufacturing a wood-based composite product.
WO 2023180983 A1 20230928	Univ King Abdullah Sci & Tech (SA)	Bio-lubricant with high viscosity and method for making it. A bio-lubricant composition includes a first component that includes a first triglyceride, which is part of a cooking oil; a second component that includes a first epoxidized triglyceride; a third component that includes a hydroxylated triglyceride; a fourth component that includes a first fatty acid ester moiety; a fifth component that includes a first epoxidized fatty acid ester; and a sixth component that includes a hydroxylated fatty acid ester. A mixture of the first to sixth components at room temperature have a viscosity between 40 and 200 centipoise, and the composition is substantially free of free fatty acids.

Biocosméticos, Biofarmacéuticos

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023194278 A1 20231012	Algaktiv SL (ES)	Cosmetic composition comprising lutein and a polysaccharide. The invention relates to algal-derived compositions comprising lutein and polysaccharides. The invention also relates to the use of the compositions as foodstuff, cosmeceutical, cosmetic, nutraceutical, nutritional supplement or pharmaceutical composition.

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023186945 A1 20231005	Basf Beauty Care Solutions France SAS (FR)	Cosmetic, nutraceutical or dermatological use of a lactobacillus crispatus strain and/or of a composition comprising same. The present invention relates to the cosmetic, nutraceutical use of a Lactobacillus crispatus strain and/or of a composition comprising same to decrease the pigmentation of the skin and/or of the mucous membranes and/or prevent the increase thereof, in particular to preserve and/or improve the complexion of the skin and/or of the mucous membranes, preferably to preserve and/or improve the radiance and/or the brightness and/or the uniformity of the complexion of the skin and/or of the mucous membranes, and/or to prevent the appearance and/or reduce the presence of pigmentary spots on the skin and/or mucous membranes and/or detoxify the skin and/or mucous membranes. The invention also relates to the Lactobacillus crispatus strain, or to a dermatological composition comprising same, for use in the treatment and/or prevention of diseases of the skin and/or mucous membranes associated with an increase in the pigmentation of the skin and/or mucous membranes, in particular in depigmenting and/or preventing hyperpigmentation of diseased skin and/or diseased mucous membranes.
WO 2023213835 A1 20231109	Biosynthis Sarl (FR)	Polyester, viscous mixture, process for preparing same and cosmetic composition. The invention relates to a mixture comprising: a) at least one polyester resulting from a reaction between at least one dicarboxylic acid dimer and at least one alcohol bearing at least two hydroxyl functions, the at least one polyester having a viscosity of at least 200 000 cSt at 40°C and a hydroxyl number of less than 30 mg KOH/g, b) at least one biobased hydrocarbon compound. The invention also relates to the process for obtaining the polyester and to the polyester. The invention also relates to a cosmetic composition comprising a mixture according to the invention and at least one compound chosen from non-volatile oils, volatile oils, glossy oils, pasty fatty substances, gelling agents, film-forming polymers, waxes, antioxidants, pigments, dyes, surfactants and an aqueous phase, and mixtures thereof.
EP 4272723 A1 20231108	Brasca Ind SRL (IT)	Wax of natural origin for cosmetic products. The invention relates to a wax of natural origin for cosmetic products consisting of a homogeneous phase of Helianthus annuus sunflower seed wax wherein hydrogenated castor oil is contained. The wax is obtained quickly cooling a molten solution obtained melting separately and then mixing together the aforesaid molten constituents in suitable ratios. The natural origin wax of the invention gives to the cosmetic products containing it useful properties in terms of stability and retains the same flowability of products containing plastic polymers such as polyethylene.
EP 4268903 A1 20231101	Covestro Deutschland AG (DE)	Cosmetic composition with a bio-based polyurethane dispersion. The present invention relates to a cosmetic composition, especially mascara, the preparation method and use thereof. The cosmetic composition comprises at least an aqueous bio-based polyurethane dispersion; at least a bis-diglyceryl polyacyladipate-2; at least a wax with a melting point not higher than 65°C; at least a wax with a melting point higher than 65°C; and optionally, a cosmetically acceptable medium; wherein the aqueous bio-based polyurethane dispersion has a solid content of 3% by weight to 9% by weight, and the bis-diglyceryl polyacyladipate-2 is in an amount of 3% by weight to 9% by weight, and the wax with a melting point not higher than 65°C and the wax with a melting point higher than 65°C have a weight sum of 4% by weight to 10% by weight and a weight ratio of 0.1 to 1.5, the above weight percentages being based on the total weight of the cosmetic composition.
WO 2023214953 A1 20231109	Honnes Saglik ve Enduestriyel Ueruenleri Anonim Sirketi (TR)	Nipple balm and cosmetic formulations containing encapsulated elderberry seed oil. The invention relates to a cosmetic formulation comprising water and elderberry seed oil encapsulated with phosphatidylcholine as a phyto-phospholipid complex, which does not contain synthetic components and which nourishes, protects, moisturizes and balances the skin.
WO 2023180600 A1 20230928	Monteloeder SL (ES)	Composition of plant extracts for reducing the effects of aging by preventing or delaying cellular senescence. Ageing is characterised by a gradual loss of physical and functional integrity, which progressively affects the health of the body. A particular feature of ageing is the increase in the number of senescent cells that have entered into a state of the irreversible cell cycle arrest after exceeding an inherent or environmental stress level. Although cellular senescence is essential for various physiological processes, it plays a detrimental role in a large number of age-related diseases. A first aspect of the invention provides a composition of plant extracts for reducing the effects of ageing, which comprises: at least 6.0 wt% asiaticosides, preferably from a Centella asiatica extract; at least 2.5 wt% verbascosides, preferably from a cistanche extract; at least 12.5 wt% hesperidin, preferably from a sweet orange extract; and at least 3.0 wt% punicalagins, preferably from a pomegranate extract. A composition like that described prevents the negative effects of ageing by reducing the number of cells that reach the state of senescence, owing to the ability of the formulation to prevent or reduce telomere shortening during cell division. This composition is particularly suitable for preventing the effects of skin ageing.

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023198519 A1 20231019	Oger Elodie (FR) et al.	Crocus sativus flower extracts, compositions comprising same, and uses thereof in oral care. The present invention relates to oral care compositions comprising Crocus sativus flower extracts, and the uses thereof to protect the oral cavity. The invention further relates to therapeutic compositions for use in the prevention and treatment of oral cavity conditions, in particular periodontitis and gingivitis.
WO 2023208806 A1 20231102	Oreal (FR)	Makeup process with the application of a composition comprising a polyphenol and a polyoxyalkylenated compound, and a dyestuff, followed by the application of an anhydrous or emulsified composition. The invention relates to a process for making up the skin and/or the lips, which consists in performing the following steps: 1) a coating agent formed in situ or beforehand by interaction by hydrogen bonds of at least one polyphenol X comprising at least two different phenol groups with at least one compound Y that is capable of forming at least two hydrogen bonds with said phenol groups of the polyphenol X, which is preferably nonionic, silicone-based or hydrocarbon-based, polyoxyethylenated and/or polyoxypropylenated, is applied to the skin and/or the lips; this step taking place in the presence of at least one dyestuff; 2) a composition (M) which is anhydrous or in the form of an emulsion is applied to the skin and/or the lips thus treated.
WO 2023222764 A1 20231123	Sensient Cosmetic Tech (FR)	Powder treatment, manufacturing method, composition and use. Composition in powder form comprising: - a powder, in particular a pigment, an inorganic filler, a polymer, alone or as a mixture; - 1 to 20% by weight of coconut oil relative to the total weight of the composition; or 1 to 20% by weight of an Aloe vera macerate in coconut oil, relative to the total weight of the composition.

Bioaditivos alimentarios

Nº Publicación	Solicitante (País)	Contenido técnico
EP 4285737 A1 20231206	Chitone Sp Zoo (PL)	Chitosan composition using as a stabilising and preserving agent for food products, method for obtaining the composition, use of the composition as a preserving and stabilising agent for the protection of food products. The subject of the invention is a chitosan composition in the form of an aqueous hydrogel containing water, chitosan, and carbon dioxide for use as a stabilising and preserving agent for food products. The final concentration of chemically unmodified chitosan, wherein the functional groups are hydroxyl groups, primary amine groups and N-acetyl groups of glucosamine, is in the range of 0.1 to 3.0%, w/w, while the final concentration of carbon dioxide in the final composition is in the range of 0.01 to 4.0%, w/w. The compositions use chitosan with a molecular weight from 50 to 400 kDa and a degree of deacetylation ranging from 20% to 99%. The invention also describes a method of preparation, use of the compositions, and various forms of the compositions and dedicated formula.
WO 2023232968 A1 20231207	Firmenich & Cie (CH)	Fat reduction in non-animal protein compositions. The present disclosure relates generally to fat-reducing compositions that can be used in combination with non-animal proteins to that allow for reduced addition of fat to achieve the desired juiciness and perceived fattiness. In some embodiments, the fat-reducing compositions are introduced to meat analogue products, such as beef, pork, or poultry products based on non-animal proteins, such as pea proteins, bean proteins, potato proteins, soy proteins, and the like. In certain aspects, the disclosure provides meat analogue products that include such flavor-enhancing compositions.
WO 2023187186 A1 20231005	Nestle SA (CH)	Wholesome sugar beet derived product having light colour and improved taste and mouthfeel and method of making thereof. The invention relates to a method of making a sugar beet derived product, said method comprising the steps of obtaining sugar beet pieces by peeling and cutting sugar beet; heat treating the sugar beet pieces; reducing the size of the sugar beet pieces; forming a sugar beet paste from the sugar beet pieces; and pasteurizing the sugar beet paste.
WO 2023242192 A1 20231221	Pfeifer & Langen GmbH & Co Kg (DE)	Syrup containing high concentration of cellooligosaccharides. The invention relates to a syrup comprising one or more cellooligosaccharides in dissolved form at an overall content of at least 10 wt.-%, preferably at least 12.5 wt.-%, more preferably at least 50 wt.-%, relative to the total weight of the syrup. Preferably, the cellooligosaccharides that are contained in the syrup in dissolved form are predominantly cellotriose and/or cellotetraose, i.e. among all cellooligosaccharides that are contained in the syrup in dissolved form, cellotriose and/or cellotetraose are the individual cellooligosaccharides preferably having the highest content compared to each of the other cellooligosaccharides that are contained in the syrup in dissolved form. The syrup is preferably oversaturated with respect to the one or more cellooligosaccharides in dissolved form and particularly useful as additive for foodstuffs, beverages, feed or cosmetic compositions.

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023193957 A1 20231012	Roquette Freres (FR)	Highly soluble tuber or cereal starch as replacer of maltodextrin. The invention is related to a highly soluble cereal or tuber starch having a content of oligosaccharides with a Degree of Polymerization (DP) of 1 and 2 of less than 7 %, a water solubility of more than 90 % in weight, a viscosity of less than 50 cP and an α -1,4 / α -1,6 ratio between 20 to 25 %, a method of preparation thereof, and its use in food applications.
WO 2023196990 A1 20231012	Terramino Inc (US)	Food products including carotenoids for improved coloring and methods of making the same. Food products and methods of making the same are described, wherein the food products and methods incorporate one or more carotenoids or carotenoid-containing compositions in order to provide the food product with a desired coloring. The desired coloring is maintained in the food product despite subjecting some or all of the ingredients of the food product to harsh conditioning steps (e.g., high pH conditions) during the process of preparing the food product. In some embodiments, the food product is a vegetarian or vegan food product. The food product may be a meat or seafood alternative.
WO 2023203446 A2 20231026	The Live Green Group Inc (US)	Plant-only replacement system for methylcellulose in food products and methods of preparation thereof. A plant-only replacement system for methylcellulose in food products is provided. The plant-only replacement system for methylcellulose is prepared by mixing a) 15 – 20% by weight of a plant-derived protein source, b) 10 – 25% by weight of a vegetable binding agent source, c) 15 – 20% by weight of a fruit, seed, and vegetable fiber sources, d) 15 – 20% by weight of a whole grain fiber source, and e) 5 – 15% by weight of a plant-derived starch source at a temperature ranging between 60 degree Celsius and 105 degree Celsius. The plant-only ingredients of the replacement system for methylcellulose effectively function as emulsifiers, stabilizers, texturizing, and thickening agents in food products, replacing the conventional, non-plant-derived, synthetic, or highly processed additives and ingredients.
ES 2954007 A1 20231117	Univ Burgos (ES)	Method of preparing a powder product, obtained by freeze-drying from a syrupy product. Method of preparing a powder product, obtained by freeze-drying from a syrupy product. Method for preparing a powder product from a syrup product, which comprises the steps of: i) preparation of a solution of syrup product with water; ii) preparation of a solution of optionally maltodextrin with water; iii) mixing of said solutions so that the proportion of total solids of syrup product plus optionally maltodextrin, compared to the final volume of syrup product plus optionally maltodextrin more water is 40% to 80%; iv) homogenization of the mixture at room temperature for 10-30 minutes; v) pouring the mixture into a mold; vi) freezing the mixture; vii) lyophilization of the mixture in a range of temperatures of the lyophilizer; viii) impact grinding of the resulting product, thus reaching a powdery solid that maintains the properties of the syrup product.
WO 2023222937 A1 20231123	Univ Cordoba (ES)	Method for extracting carotene blends from agri-food waste. The present invention relates to a method for obtaining and enriching carotene blends from agri-food waste, said method being based on the use of supramolecular biosolvents (bioSUPRAS). The invention further relates to the use of carotene blends thus obtained as a food additive.
EP 4285733 A1 20231206	We Care Comm V (BE)	Composition for making an instant beverage. Composition for making an instant beverage, characterised in that the composition is provided with 70-75% beverage mix and 25-30% additive, said additive containing 75-80% maltodextrine and 10-150 xanthan gum and 5-10% erythritol.

Bioproductos alimenticios para animales

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023209732 A1 20231102	Avt Natural Products Ltd (IN)	Weaning supplement composition for controlling diarrhoea and improving performance of weaning animals. The present invention discloses a fat encapsulated and/or water-soluble composition (weaning supplement composition), comprising standardized capsicum oleoresin, garlic and clove essential oils, that can be used as a supplement or additive in livestock, to help prevent diarrhoea, mortality, secondary infections and performance loss, in weaning animals.
WO 2023199151 A1 20231019	Biovet SA (ES)	Additive for animals consisting of dehydrated, activated and ground diatomaceous earth, and method for obtaining same. The present invention relates to an additive for animals, consisting of dehydrated, activated and ground diatomaceous earth, and to the method for obtaining said additive.

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023183970 A1 20231005	Boyle Norman et al. (AU)	Food waste recycling. Disclosed herein is a process for producing an animal feed having a defined nutritional profile from food waste. The process comprises accumulating successive batches of a plurality of food wastes that have been macerated and dehydrated, every batch of each of the plurality of food wastes having been sourced from the same one of a plurality of categorized producers of food waste and maintained at all times from others of the plurality of food wastes; independently mixing each of the accumulated batches of the macerated and dehydrated food wastes to produce a plurality of homogenized ingredients for an animal feed; analysing each of the homogenized ingredients to determine one or more nutritional parameters of the ingredient; and blending two or more of the homogenized ingredients to produce the animal feed having a defined nutritional profile.
WO 2023244209 A1 20231221	Hydrogreen Inc (CA)	Methods and systems for using hydroponically sprouted cereal grains for improving skeletal development in prepubescent ruminants. Processes and methods for hydroponically sprouted cereal grains are disclosed as a mechanism for improving skeletal development, increasing nutrient levels, and maintaining or increasing future milk yield in ruminants by administering to a ruminant a feed ration having at least one feed component comprising one or more hydroponically sprouted cereal grains.
WO 2023229970 A1 20231130	Hills Pet Nutrition Inc (US)	Pet food compositions comprising beta-1,3-1,6-galactan and polyphenolic isoflavonoids. Pet food compositions and methods are provided herein. The pet food composition typically includes a gut microbiome component comprising: (i) P- 1,3/1,6-galactan; (ii) polyphenolic isoflavonoids, wherein the pet food composition has a weight ratio of the (3-1,3/1,6-galactan of (i) to the polyphenolic isoflavonoids of (ii) of about 1:1 to about 5:1, and wherein the gut microbiome component is present in an amount effective to produce, after about 3 days post-ingestion by a pet, an increase in the weight ratio of propionate to branched short chain fatty acids in the feces and an increase in the weight ratio of short chain fatty acids to branched short chain fatty acids in the feces of the pet.
WO 2023212233 A1 20231102	Mars Inc (US)	Animal food composition comprising a source of glycyrrhizin. The present disclosure relates to an animal food composition comprising a source of glycyrrhizin for use for preventing and/or treating allergic inflammatory skin diseases wherein the said animal food composition is formulated to provide an animal a daily amount of glycyrrhizin in an amount of at least about 0.02 mg/kg of bodyweight.
WO 2023194823 A1 20231012	Nestle SA (CH)	Liquid animal digests including dairy fat. A liquid animal digest (LAD) comprising hydrolyzed animal tissue, antioxidant, and from about 0.1 wt% to about 5 wt% dairy fat based on a total weight of the LAD and a pet food composition comprising a kibble and LAD coated on or incorporated into the kibble.
WO 2023192262 A1 20231005	Phibro Animal Health Corporation (US)	A combination comprising bacillus and an essential oil and methods for making and using. Disclosed herein are embodiments of a combination and/or composition comprising a Bacillus composition comprising three or four direct fed microbial (DFMs) selected from Bacillus coagulans, Bacillus subtilis, Bacillus licheniformis and Bacillus amyloliquefaciens, and an essential oil composition, and optionally may further comprise yucca and/or quillaja, such as Yucca schidigera and/or Quillaja saponaria. The essential oil composition may comprise oregano essential oil. Also disclosed are embodiments of a feed composition comprising the disclosed combination and/or composition and a feed. Also methods for administering the combination and/or composition to a non-ruminant animal, particularly an avian, are disclosed. The combination and/or composition may provide a beneficial effect to the animal upon administration, such as, but not limited to, weight gain, feed conversion, and/or reducing bacterial load.
WO 2023212773 A1 20231109	Sea Forest Ltd (AU)	Process for preparing anti-methanogenic composition. The present disclosure is directed to the preparation of an anti-methanogenic oil composition from a biomass of red marine algae using a heterogeneous extraction liquid comprising an aqueous solution and at least one oil. The present disclosure is also directed to the anti-methanogenic oil composition, and methods and use thereof as an anti-methanogenic agent for administration to ruminants.
WO 2023242308 A1 20231221	Unibio AS (DK)	Oxidation stabilised biomass material and process. A process is provided for producing a biomass material which is stabilised against oxidation. In particular, the process comprises the steps of: treating the concentrated biomass material with an antioxidant; and adjusting the pH of the concentrated biomass material to a pH of 7.0 or below. By means of these steps, a synergistic stabilisation of the biomass material is seen. An oxidation-stabilised biomass material is also provided, as well as an aquatic feed product, comprising the oxidation-stabilised biomass material.

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Boletín elaborado con la colaboración de:

**Agencia Estatal
de Investigación**

C/ Torrelaguna, 58
28071 Madrid

Bioplat

C/ Doctor Castelo 10, 4ºD
28009 Madrid
Tel.: 91 074 54 28
E-mail: secretaria@bioplat.org
www.bioplat.org

CIEMAT

Avda. Complutense,40
28040 Madrid
Tel: 91 346 08 99
E-mail:uip@ciemat.es
www.ciemat.es

OEPM

Paseo de la Castellana, 75
28071 Madrid
Tel: 91 349 53 00
E-mail:carmen.toledo@oepm.es
www.oepm.es



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