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WDRAŻANIE INNOWACJI W GOSPODARCE WODOCIĄGOWEJ

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ZAŁĄCZNIK

OFERTY TECHNOLOGICZNE Z BRANŻY WODOCIĄGOWEJ

ZAPYTANIA TECHNOLOGICZNE (TR) DOSTĘPNE W BAZIE EEN

Zainteresowane osoby proszone są o kontakt w ramach projektu EEN z :

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TR: **Usuwanie rozpuszczonych związków krzemu z wody**

TR title: **Removing Dissolved Silica Constituents from Water**

(Ref: 09 US 87GA 3EP3)

Streszczenie: Firma poszukuje propozycji metod lub strategii usuwania rozpuszczonych związków krzemu z wody, w warunkach zmiennego pH oraz stężenia innych rozpuszczonych związków organicznych.

Abstract: A company invites proposals for methods or strategies to remove dissolved silica constituents from water, under conditions of varying temperature, pH, and other dissolved species

Description: The client pumps large volumes of water containing dissolved silica into a typical water treatment train. Under varying temperatures and pH, silica precipitates out of solution and causes scaling in pipes and process equipment The conditions of the process water (temperature, pH, organic content, metal content, etc.) frequently vary, and hence a general approach to manage silica constituents is required. The chemistry of silica in water is quite complicated, and varies depending on temperature and pH. One of the issues with silica is its tendency to dissolve at high temperatures and/or high pH and precipitate out of solution when temperature and pH conditions change. This causes problems such as scaling. Current treatment methods (e.g. lime softening with MgO) are unable to reduce silica to the desired level without generating large amounts of solid waste. Possible approaches might include, but are not limited to:

• Removing silica via chemical and/or physical methods to force precipitation

• Catalytically enhancing polymerization of dissolved silica in order to promote precipitation

• Combinations of existing technologies if applicable to process water with varying conditions

• Modified lime softening processes that generates less solid waste than existing process.

The successful technology will reduce dissolved silica in industrial-scale.

TR: **Bioreaktor do oczyszczania ścieków w procesie anaerobowym**

TR title: **Biological reactor for wastewater treatment in the anaerobic process**

(Ref: 08 IT SUTC 0JMD)

Streszczenie: Firma zlokalizowana w południowych Włoszech produkująca zbiorniki ze stali nierdzewnej, wykorzystywane w procesach oczyszczania cieczy w sektorze rolniczym, poszukuje dostawcy wyposażenia do anaerobowych reaktorów biologicznych.

Abstract:. A company located in southern Italy producing containing systems in stainless steel useful for liquid treatment in the agro-food and livestock sectors, is looking for anaerobic biological reactors to be distributed to its customers.

Description: A company located in southern Italy, producing tanks, autoclaves, kettles and storage cells in stainless steel, useful for liquid treatment in the agro-food and livestock sectors, is looking for systems for treatment of wastewater generated in farming. They should be anaerobic biological reactors equipped with an anaerobic chamber, with an inlet supplying wastewaters from beneath and a sediment trap (UASB (Upflow Anaerobic Sludge Blanket)-type reactor)(cheese, winery, olive oil, manures, etc.). The offer should specify the type of wastewater treated by the reactors, and should ensure that the quality of the output water complies with the Mediterranean countries (European or not) regulations.

TR: **Monitoring nurtu mórz i rzek**

TR title**: Sea and river currents monitoring**

(Ref: 08 IT 53U6 0IJP)

Streszczenie: Włoska firma z sektora MSP działająca w sektorze energii odnawialnych, pracuje nad nowym urządzeniem generującym energię elektryczną z nurtu mórz i rzek. Innowacyjne rozwiązanie w postaci turbiny kinetycznej charakteryzuje się wielokierunkową osią. Firma jest zainteresowana współpracą z centrami badawczymi, które dysponują danymi uzyskanymi z badań nurtów rzek i mórz, np. prędkość (m/s lub węzłów), kierunek, czas badań, lokalizacja oraz rodzaj wykorzystywanego sprzętu.

Abstract: An Italian SME operating in the field of technologies for renewable energy is developing a new device to generate electrical energy from sea and river currents that utilises an innovative solution of kinetic turbines characterised by a multidirectional axis. The company is interested in developing collaborations with research centres that have at disposal data gathered from studies on sea and river currents: speed (m/s or knots), direction, survey timing, localisation and instrumentation used.

Description: An Italian SME operating in the field of technologies for renewable energy is developing a new device to generate electrical energy from sea and river currents that utilises an innovativesolution of kinetic turbines characterised by a multidirectional axis. The company has already realised two preliminary projects in two different locations in the Mediterranean area and the system is patent pending. The state of the art of the technologies using sea and river currents to generate electrical energy comprises two main way to keep the turbines into the water: structures placed on the dephs or floating structures. Unlike the systems available on the market the solution foreseen a structure placed on the land in the proximity of the costal area and connected to the sea by a long transmission share. The company is interested in developing collaborations with research centres that have at disposal data gathered from studies on sea and river currents: speed (m/s or knots), direction, survey timing, localisation and instrumentation used.

TR: **Technologia odzysku ciepła z wód kopalnianych.**

TR title: **Water source heat pumps**

(Ref: 08 ES 24D4 0IBM)

Streszczenie: Hiszpańska kopalnia węgla posiadająca kilka kopalni podziemnych, z których rocznie wypompowuje się 30 milionów metrów sześciennych wody, poszukuje technologii wymiany ciepła z wód kopalnianych. Firma chce wykorzystać wypompowaną wodę do ogrzewania i chłodzenia nowego budynku oraz przedsiębiorstw powstających na terenach otaczających kopalnie. Celem firmy jest nawiązanie współpracy z przedsiębiorstwami lub centrami badawczymi zaangażowanymi w podobne projekty. Firma poszukuje pomp ciepła różnych rozmiarów oraz projektantów tychże pomp.

Abstract: A Spanish coal mining company has several underground mines from which 30 million cubic meters are pumped every year. The company wants to take advantage of the pumped water for heating and cooling new building and industry developments in the surrounding area of its mines. The objective of the company is to find technical co-operation from Industries or research centers involved in similar projects. They also need different sizes of heat pumps and project designers for water source heat pumps.

Description: The company is currently developing a new project on space cooling and heating intended for industrial and domestic customers based on heat pump technology. The source will be mine water. In the central area of the Principality of Asturias, located in the North of Spain, a large coal field has been mined since the early years of the 19th century in several exploitation units which along all these years have created an underground void network that represents an actual big water reservoir from which some value added can be obtained. Actually more than 30 million cubic meters of water are pumped every year with temperatures ranging from 19 to 24 degree Celsius. Furthermore, all the pumping stations are situated within an intensively populated area and close to a university, a hospital and other public services big buildings. The company's idea is to take advantage of the water they pump for heating and cooling new building and industry developments in the surrounding area of their mines. Currently they are undertaking their two first space heating projects involving about 1000 kW for a University building and 4300 kW for a Public Hospital. The objective of the company is to find technical co-operation from Industries, Universities or Technological Centers which are involved in similar projects. They also need different sizes of heat pumps and project designers for water source heat pumps.

TR: **Innowacyjne produkty, procesy i materiały wykorzystywane w domowych systemach zaopatrzenia w wodę**

TR title: **Innovative products, materials and processes for domestic water-delivery devices**

(Ref: 09 GB 41n8 3DP0)

Streszczenie: Duża firma z Wielkiej Brytanii specjalizująca się w projektowaniu, wytwarzaniu oraz dystrybucji elementów wyposażenia łazienek i kuchni poszukuje nowatorskich produktów, materiałów i procesów służących do rozprowadzania wody. Firma kładzie nacisk na oszczędność wody i energii. Firma posiada środki na projekty związane z ostatnim etapem rozwoju. Firma zainteresowana jest zarówno umowami handlowymi, jak i technicznymi.

Abstract: A large UK company specializes in the design, manufacture and supply of bathroom and kitchen products. They are interested in finding novel products, materials and processes for domestic water-delivery devices. The focus is on water and energy saving and inclusive design. The company has resources for final stage development projects. It operates nationwide. Both commercial and technical agreements are of interest.

Description: A large UK company specializes in the design, manufacture and supply of bathroom and kitchen products for consumer and commercial/institutional use. The company supplies direct to plumbers merchants, bathroom showrooms and DIY retailers throughout the country. They have access to extensive design and development facilities and are able to bring any new product to market quickly. Proposed innovations must be cost-effective and protected or protectable. The company is focused on acquiring technologies and products that reduce water and energy consumption, but also inclusive designs. Product areas of interest include: water-delivery components: taps/faucets/mixers/fillers/valves; shower handsets and hoses; controls; tap inserts/cartridges; power/electric showers bathroom/kitchen sanitary ware; enclosures & screens; decorative functional products: heating panels; towel rails; mirrors; ventilation/extraction. Technology areas of interest include: more effective use of water, reducing water consumption; recycling and re-use of water; sensing & control systems (intuitive, touch sensitive, predictive, intelligent); improved thermostatic & safety controls/mechanism for mixing hot/cold water; use of heat recovery/kinetic energy technologies within products to reduce energy consumption; water heating technology – localized heating to replace electric heater/boiler use; water monitoring products (+ energy usage) to inform/assist consumer knowledge.

TR: **Wykorzystanie roślin wodnych do redukcji eutrofizacji w rzekach i jeziorach**

TR title: **Aquatic Plant Solution Technology to Reduce Eutrophication in Rivers and Lakes**

(Ref: 09 ES 25E2 3CTP)

Streszczenie: Katalońskie centrum technologiczne w Hiszpanii, posiada know-how do monitorowania procesu eutrofizacji w wodach rzek i jezior. Centrum chce nawiązać współpracę technologiczną związaną z możliwością wykorzystania roślin wodnych do redukcji stężenia związków biogennych w systemach wodnych (w szczególności na terenach przybrzeżnych). Poszukiwana technologia powinna być wspierana przez zaawansowany system GIS (Globar Information System).

Abstract: A Catalan technological centre based in Spain holds a know-how in monitoring eutrophicated systems and seeks a technological collaboration in the use of aquatic plants to reduce, nitrogen, phosphate and organic matter and pesticides in aquatic systems (riparian zones in particular). The technology sought would include advanced GIS (Global Information System) support.

Description: Constructed wetlands based on macrophytes can be used to restore ecosystems by creating humid zones and simultaneously purifying the wastewater. In particular, planting a wetland with aquatic plants such as macrophytes in riparian zones with high productivity may be an economic way for removing contaminants from shallow groundwater. The requestors have expertise in R&D and innovation projects specialized in the improvement of potable water and of water for other specific uses. The technological centre holds a know-how in monitoring eutrophicated systems and seeks a technological collaboration in the use of aquatic plants to reduce organic matter in aquatic systems. In particular, the technology sought would include advanced GIS (Global Information System) support, hydrodynamics simulation together with an aquatic plant solution (i.e. where the selected plants will be positioned on the basis of the extent of eutrophication, the geographical situation of the reservoir, the water temperature, amount of sunlight, etc.). As a result, eutrophication is reduced as well as the level of DBP's (disinfection by-products), and the quality of the water is improved. Suitable plant-based solution for cold climates able to reduce nitrogen, phosphate and pesticides in waters that discharge on rivers.

OFERTY TECHNOLOGICZNE (TO) DOSTĘPNE W BAZIE EEN

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TO: **Technologia recyklingu szkła do produkcji materiału filtracyjnego.**

TO title: **Glass Recycling Expertise for Filter Media**

(Ref: 09 GB 42O1 3EPY)

Streszczenie: Firma z sektora MSP z siedzibą w Północnej Anglii rozwija technologię, wiedzę oraz sieć dostaw przetwarzania dużych ilości szkła recyklingowego. Uzyskany produkt szklany ma zastosowanie w procesach filtracji wody i w materiałach ściernych. Produkt posiada znaczną przewagę nad obecnie używanymi technologiami. Firma poszukuje współpracy na zasadach joint venture lub umów producenckich.

Abstract: An SME based in the North of England have developed the technology, expertise and supply chain to enable them to process large amounts of recycled container glass. The glass product has applications in water filtration and abrasives markets with significant advantages over currently used technologies. The company is looking for joint venture or manufacturing agreements.

Description: Container glass is now widely collected across Europe for recycling. The material is cheap and readily available but finding a use for the large volumes of recycled glass commonly collected can be difficult. A research company based in the North of England have the know-how and facilities to recycle large volumes of container glass into useful granulated product. The glass is granulated to exact specifications and enhanced in such a way as to make it useful for a number of applications such as water purification. This could be the purification of wastewater in sewage

treatment, swimming pool filtration systems, cartridge filters or as an enhancement media for reed bed systems. The product is also suitable for use in the abrasives industry, where silica is now being replaced with less harmful materials in grit blasting equipment and abrasive tools. Glass has a number of advantages over traditional silica based and other filter media. Glass does not bio-foul in the way that traditional systems would. This means that the filter media lasts longer and performs better. The use of glass can also save energy in the filtration process due it being easier to pump liquid through it. Backwashing of the filter media is made easier due to this. The material may also be considerably cheaper to use when a total lifecycle analysis is carried out for the application under consideration. Some materials such as silica based grit blasting material are now being phased out due to their harmful effects if inhaled. Glass is inert and therefore inherently less harmful. Granulated glass products would therefore be a suitable replacement blasting medium.

TO: **Wyposażenie dla oczyszczalni ścieków na bazie materiałów niemetalowych**

TO title: **Equipment for wastewater treatment plants based on non-metallic materials**

(Ref: 09 DE 1486 3EEK)

Streszczenie: Bawarska firma z sektora MŚP oferuje specyficzne niemetalowe materiały dla wyposażenia oczyszczalni ścieków. W porównaniu do konwencjonalnego sprzętu zrobionego z metalu, proponowane urządzenia zapewniają wysoką wytrzymałość, niski poziom zużycia energii oraz łatwość użycia i konserwacji. Firma poszukuje współpracy technicznej z partnerami przemysłowymi z całej Europy, preferuje firmy, które konstruują oczyszczalnie ścieków.

Abstract: A Bavarian SME applies specific non-metallic materials for equipment for wastewater treatment plants like chain scrapers, sludge and flotation scrapers and API separators. Compared to conventional equipment made of metal, these non-metallic systems offer high durability, low energy consumption and ease of handling and maintenance. The company is looking for technical cooperation with industrial partners all over Europe, preferably companies who construct wastewater treatment plants

Description: Non-metallic components are in many cases technologically superior to conventional materials such as steel. The low weight of special

non-metallics, new options in design, high durability, low energy consumption, ease of handling and maintenance makes them a good choice for applications in water and wastewater treatment. A Bavarian SME is a pioneer in the use of non-metallic materials in wastewater technology. They develop and produce chains, chain scrapers, sludge and flotation scrapers, API separators and other equipment for municipal and industrial wastewater treatment plants, made of special synthetic materials. Compared to conventional metallic equipment the provided systems are robust, durable, wear-restistant, require low maintenance effort, produce less noise in use, and are more energy-efficient. The technology is already on the market and applicable and adjustable for all kinds of municipal or industrial wastewater treatment. The company is looking for partners all over Europe, preferably for companies who construct municipal or industrial wastewater treatment plants. Together with their partners they intend to develop and offer highly efficient and custom-tailored solutions in wastewater treatment throughout Europe. They will train these partners about the advantages and the use of non-metallic equipment in wastewater treatment plants.

Modern non-metallic components are more durable and easier to design and to handle than conventional equipment. Even when they are subjected to the highest demands they are superior in terms of energy consumption operational safety and maintenance.

TO: **Mikro-turbina zasilana wodą**

TO title: **Micro hydropower turbine**

(Ref: 08 DK 20A9 0J0Z)

Streszczenie: Duńska firma stworzyła mikro-turbinę zasilaną wodą o wydajności energii od 1 do 20 KW. Turbina jest niezwykle prosta w instalacji oraz w obsłudze. Wynalazca poszukuje partnerów na zasadach licencyjnych w celu produkcji i sprzedaży.

Abstract: A Danish company has developed a micro hydropower turbine with capacities from 1KW to 20 KW. The turbine is remarkable simple to install and has a simple regulation principle. The inventor seeks license partner for production and sale.

Description: Traditionally, micro hydropower turbines are built after the same principles as larger turbines either as complicated fully regulated turbines or more simple unregulated turbines. This new turbines is based on a simple 3 step regulation principle that secures an efficiency almost as good

as the efficiency of fully regulated turbines and much better than the efficiency from simple unregulated turbines. Furthermore the turbine has an automatic self flushing system which minimizes the risk of blockage. The water is fed to turbine from flexible tubes and the turbine is mounted flexible. The installation therefore does not require large concrete foundation but a simple pile foundation is sufficient. A prototype of the patented turbine is running in Denmark. It is designed to be attached to the public grid of power supply but can also be used as a stand alone power plant. The inventor is looking for a technology for production sale and commercialization. There are many rivers in Europe with milldams or natural water falls with potential hydropower resources. The increasing cost of energy and access to a simple solution like this could make a number of these sites profitable as sources for hydropower. The main innovative aspect is the simple principle of regulation. High efficiency/cost ratio. Self flushing (insensitive to blockage of moving parts). Easy installation. Water hammer protection unnecessary.

TO: **System do oczyszczania ścieków w środowisku**

TO title**: Sewage treatment in aquaculture**

(Ref: 05 DE NSNA 0C0D)

Streszczenie: Firma z północno-zachodnich Niemiec opracowuje kompaktowy system biofiltracji ścieków. Obszary zastosowania systemu są różnorodne. System może być stosowany w zarówno w agroturystyce jak i w oczyszczaniu ścieków w gospodarstwach domowych. Firma poszukuje partnerów, zainteresowanych dalszym rozwojem systemu i jego zastosowań w różnych warunkach (współpraca techniczna lub umowy handlowe z pomocą techniczną).

Abstract: A company from Northwest Germany is developing a compact biofiltration system applied to wastewater treatment. The application areas are manifold. It could be applied in aquaculture as well as for treatment of domestic sewage. The company is looking for partners who are interested in further development of the system for different applications under different conditions (technical co-operation or commercial agreement with technical assistance).

Description: Traditional applications of sewage treatment in inland water and costal and harbor regions are complex and costly. As a rule and result mineral nutrients are oxidized and remain in the water. The developed new system based on a biological principle:

It is possible to culture algae varieties in half-open plastic tubes; nutrient-rich water or water from areas with domestic sewage is forwarded to the growing algae by solar-driven pump. Around 80% of the mineral nutrients are detracted from the water and converted in biomass in a short time. The system uses its potential for an uptake of nitrogen (as nitrate or ammonium). The new system floats on the water; size and shape could vary according to the demands made to the system. The produced biomass could be used as a renewable resource for different further applications (fish feed, food additives, organic fertilizer, texture elements etc.). The system could run with different algae varieties, proven are varieties for the moderate climate (e.g. North Sea), but the system could also run with more thermophile algae varieties. A prototype run for 14 month in coastal waters and could significantly reduce nitrate and phosphate. The company is looking for partners who are interested in a further development of the system for different applications under different conditions. In opposition to established techniques, this method is based on self-contained loops for sewage treatment, and is a renewable resource for different applications. The construction allows easy up- and down-scaling according to the customer requests.

TO: **Innowacyjne urządzenia i metody do biologicznego oczyszczania ścieków**

TO title: **Novel biological waste water treatment method and device**

(Ref: 09 EE 21C2 3EBD)

Streszczenie: Estońska firma inżyniersko-budowlana opracowała innowacyjną technologię oczyszczania ścieków. Technologia może być stosowana do oczyszczania ścieków pochodzących z gospodarstw agroturystycznych lub gospodarstw domowych. Technologia może być wykorzystywana niezależnie od pory roku. Oczyszczane ścieki są wykorzystywane jako nawozy dla produktów biologicznych (drewno na opał, pasze dla zwierząt, rośliny oleiste), dzięki czemu mogą one stanowić źródło dochodu. Firma głównie poszukuje partnerów zainteresowanych współpracą nad wspólnym rozwojem projektu.

Abstract: An Estonian company in the business of construction and engineering has invented a novel waste water treatment method and device. It can be used for cleaning waste water from agricultural or household

sources. It is operational all year round. Treated sewage water is used as a nutrient to grow biological products that can be a source of income (firewood, animal feed, oil plants). The company is mainly looking for partners interested in the joint further development.

Description: An Estonian company in the business of construction and engineering and the award winner from several international environmental competitions (including Baltic ECO) has invented a novel waste water treatment method and device. There are two underlying principles for their inventions: 1) Any sewage has a certain value as a source of energy or as a raw material; 2) A treatment plant and process are expected to give also some economical contribution. In accordance with these principles sewage is firstly treated with mechanical, biochemical, microbiological and stimulating electromagnetic processes to make sewage "digestible" for plants. Secondly, the treated sewage water is used as a nutrient to grow biological products. This enables to benefit economically from growing animal feed cultures or oil plants. Also the wood from the trees that have to be cut down in the regular intervals is a good heating material. The method for purification of the waste water consists of the phase of settling, the aerobic phase including treatment with the biological filter, the phase of after-settling and the phase of treatment in a filtering substrate. The filtering substrate consists of macro-particles and includes also the microorganisms and roots of plants cultivated within the substrate. Treatment in the phase of after-settling is carried out with the plants, animal organisms and microorganisms cultivated within the water medium and in presence of the magnetic field. The process goes on by gravity, isolated from the environment and under the natural light. The apparatus for purification of the waste water includes a rotating biological filter comprising spiral perforated tubes. The treatment plant can be used all the year round, even in the cooler climate zones. At the same time it gives some economical contribution from growing biological products. The sewage water is viewed as a useful concentrate of nutrients for growing botanical and zoological nutriment. Bio-chambers that use the heat from the ground and the natural light can host a whole ecosystem with many species in a very high concentration growing in the waste water. They have experimented with different species: willows, shellfish and several water plants. The company is looking for partners to further develop the usage of sewage water for growing biological products. It can be used for cleaning waste water from agricultural or household sources, especially from the animal farms and for growing biological products. After the cleaning process the water can be used in the fish farming, watering the plants or wood processing.

TO: **Przyjazne dla środowiska środki do korekcji wody chłodniczej**

TO title: **Environment-friendly chemical cooling water treatment**

(Ref: 09 NL 60AF 3EKR)

Streszczenie: Mała Duńska firma opracowała przyjazne dla środowiska dodatki hamujące wytrącanie się soli i rozwój procesów korozji w systemach chłodzenia wody. Tradycyjnie w tym celu stosowane były środki niedegradowalne lub ciężkodegradowalne takie jak poliakrylany i fosforany. Firma odniosła sukces w zamianie tych związków na środki biodegradowalne. Firma poszukuje partnerów do umów handlowych wraz ze wsparciem technicznym.

Abstract: A small Dutch company developed environment-friendly additives to inhibit salt precipitation and/or corrosion in cooling water systems. Traditionally, non- or hardly degradable compounds, e.g. zinc, polyacrylates and phosphonates have been applied. The company has succeeded in exchanging such compounds for biodegradable alternatives. The company is looking for commercial agreements with technical assistance

Description: Deposition of inorganic salts on surfaces such as metal and concrete in aqueous systems is a widespread problem. This so-called scaling can occur in, for example, processing of paper pulp, oil drilling, cooling water systems as well as in laundry machines. It can result in loss of heat transfer, corrosion, tube blocking, etc. Numerous products have been claimed either to prevent or to inhibit the formation of deposits by dispersing the inorganic salts into water. As these systems often have metal constructions, water treatment products can be formulated with corrosion-inhibiting compounds as well. Owing to blow-down, all these compounds will sooner or later come into contact with wastewater, surface water or other water sources. Well-known active raw materials are zinc, polyacrylates (and derivatives) and phosphonates. Zinc salts do not degrade biologically and are toxic for fish and plankton. Both zinc and polyacrylates accumulate in the environment. The effects of this accumulation towards the ecosystems are not completely known yet. Phosphonates can form complexes with nutrients for algae, resulting in hampered growth. Later on, phosphonates decompose in water into phosphate, which as such can contribute to a strong undesired increase of microbiological growth. After an extensive literature search, a number of compounds has been selected and sometimes modified chemically. These materials have been explored in several simulation

systems for cooling water treatment, especially with respect to hardness stabilisation, dispersion and corrosion inhibition. Based on these results, biodegradable mixtures have been formulated to study in detail. A number of formulations that meet the requirements have been tested in several cooling water systems. These products are metal-free and contain low amounts of both phosphor and nitrogen. They are based on both biodegradable (bio) polymers and adsorption inhibitors. As a result of the research project efficacious, economically acceptable and environment-friendly products have been obtained, which can serve as an alternative for the traditional non- or difficult biodegradable water treatment products. The applicability is valid for once-through and open re-circulating cooling water systems with a Langelier Saturation index from -0.5 up to +2.5. Innovations and advantages of the offer. For a long time it has been assumed that polyacrylate (derivatives) are the ultimate products to prevent salt precipitation in aqueous systems. The major drawback is their accumulation in ecosystems However, this new technology demonstrates that polyacrylates can be exchanged for economically acceptable and environment-friendly products. Upon using the new technology, the ecosystems will not be contaminated with non- or hardly biodegradable water treatment chemicals. Advantages: - New products to prevent scaling and/or corrosion, even under very severe conditions. - Products meet the most severe environmental criteria. Competitive treatment costs.- Easy implemented in current systems. In addition to cooling water treatment, the technology can be applied to prevent scaling and/or corrosion in paper pulp processing, oil drilling, mining as well as in detergents.

TO: **Technologia wytrącenia pierwiastków biogennych z wód w jeziorach**

TO title: **Technology for restoration of lakes by nutrient-precipitation**

(Ref: 08 DE 1699 0IPU)

Streszczenie: Mała niemiecka firma działająca na rynku od 15 lat specjalizująca się w technologiach środowiskowych, opracowała innowacyjną technologię wytrącania pierwiastków biogennych z wody w celu poprawy czystości jezior. Firma poszukuje partnerów do współpracy handlowej oraz porozumień dotyczących ewentualnej produkcji.

Abstract: A small German company, for almost 15 years specialized in environment technologies, developed an innovative nutrient precipitation technology for implementation of restoration in different types of lakes and improvement of transparency of the water body. The company is looking for partners for commercial cooperation, manufacturing agreements with technical assistance and joint further development.

Description: A German company has developed an innovative technology by nutrient precipitation for restoration of lakes. This technology bases on the application of different types of poly-aluminium-chloride and similar products on the basis of aluminium or iron and intends to reduce the nutrient load to such an extent that critical algae mass propagation may not occur, as well as to reduce an internal (directly within the lake) re-fertilization from the lake sediment. The main advantage of this technology is its efficiency in precipitation of phosphorus and the fast use as well as the results to be expected. This efficiency is caused by the special process to mix the chemical with air and water. This results from the individual particularities of the water body to be restored. After the assessment of the properties of the lake and the determination of the required quality status of the lake, a mixture of dosed phosphorus with air and water will be prepared in an in-house procedure. The substances will be applied or disseminated in the lake at different depths from boat or stationary platform, if necessary in combination with deep-water aeration. This technology is harmless for the lake ecosystem as well as for humans. No residues of this mixture will remain on the bottom of the lake. The water will be transparent depending on requirement and necessity. It is the objective of the method to reach the water body status in an optimum, durable, cost-effective way without any danger for environment, flora and fauna as well as for humans. This technology is: efficient in precipitation of phosphorus; economic, because low price by the application of this technology; friendly for environment, humans and water bodies; - no ecotoxical effects and - fast and helps achieve durable results. The technology described in this offer is applicable for different catchment areas, different lakes and rivers and in the field of hydraulic engineering

TO: **Fizyczno - mikrobiologiczne oczyszczanie wody wykorzystywanej w procesach kataforezy**

TO title: **Physical-microbiological treatment of water used in the process of cataphoresis**

(Ref: 09 ES 24D8 3DAU)

Streszczenie: Hiszpańska firma opracowała nowy system oczyszczania wody używanej podczas procesu kataforezy. Oczyszczanie to zmniejsza aktywność mikrobiologiczną oraz korozję, eliminuje już istniejące osady oraz zapobiega ich pojawianiu się na powierzchniach poddanych kataforezie. Firma instaluje opisaną technologię w dużych przedsiębiorstwach motoryzacyjnych i poszukuje lokalnych firm związanych z oczyszczaniem wody i produkcją powłok, które mogłyby udzielić wsparcia technicznego systemom już zainstalowanym.

Abstract: A Spanish company has developed a new physical pre-treatment of water used in cataphoresis. This pre-treatment reduces microbial activity and corrosion, eliminates already existing incrustations and inhibits its possible appearance in the surfaces treated by cataphoresis. The company is installing this technology in big automotive industries and would like to find local companies dedicated to water treatment or coatings that would give technical support to the systems that are already installed.

Description: Several automobile industries already use this new system of microbiological control to pre-treat water that is used in the process of cataphoresis by immersion, in which bodyworks are protected against corrosion. In this method the water passes through a modified pipe where it is subjected to a variation of electric frequency. During this process all bacterial colonies present in the water are indiscriminately eliminated. Thanks to this property the system protects the bodywork`s surfaces against the appearance of biofilms of microorganisms and extra-cellular polymers. As, at the same time, it also avoids the formation of incrustations, the components treated achieve a longer life-span. At the moment this method is used only for the treatment of surfaces, but other applications for solving similar problems are also possible. The results obtained by this method are much superior to the conventional chemical treatments used for the same purpose. Furthermore, as this new system is completely physical, it doesn`t need any chemical support, which is an important fact with respect to the environmental protection and work security. As the system doesn`t have any mechanical parts, it suffers no wear and therefore no maintenance is needed

TO: **Oczyszczanie ścieków w przemyśle spożywczym**

TO title: **Waste Water treatment in the food industry**

(Ref: 09 DK 20B2 3DW4)

Streszczenie: Duńska firma opracowała nowatorski proces obniżenia ilości związków organicznych w ściekach z przemysłu spożywczego. Firma poszukuje partnerów do wprowadzenia procesu w nowych i istniejących systemach oczyszczania ścieków lub partnerów zainteresowanych wspólnym rozwojem oraz nowym zastosowaniem opatentowanej technologii.

Abstract: A Danish company has developed a novel process for lowering the ammount of organic matter in waste water from the food industry. The Danish company is searching for partners to adapt the process in new and existing waste water treatment systems or partners interested in joint development regarding new ways of using their patented technology.

Description: The Danish company has developed a novel process for lowering the ammount of organic matter in waste water from especially the food industry. This process can decompose up to 20 kg of COD per hour. The Danish company is searching for partners to adapt the process in new and existing waste water treatment systems or partners interested in joint development regarding new ways of using their patented technology.

The Danish company is offering itself as a development partner and offer their novel process on a licence basis as a built in technology for other companies working with waste water treatment. Other kind of cooperation is also of interest. This novel process removes up to 400 kg COD pr. unit pr. day (based on a 25 m3 process volume unit). This process can reduces the amount of COD in waste water from a typical food industrial company with app. 75-90%. The main advantage of this process is that this technology is possible to scale in size and daily water flow so that it fits the actual need in both small and medium size companies within the food industry. This technology uses less the 1 kWh per kg decomposed COD.

TO: **System wypełniania zbiorników WC wodą z recyklingu**

TO title: **System to fill tank of WC with water from previous uses**

(Ref: 09 IT 55W9)

Streszczenie: Włoski wynalazca opracował w pełni zautomatyzowany i efektywny system, przystosowany do recyklingu wody. Woda z recyklingu

jest zmagazynowana w specjalnym zbiorniku, w celu zaopatrywania spłuczek ustępowych w toaletach. Zbiornik jest napełniany głównie wodą wykorzystaną w umywalkach, wannach i innych sprzętach służących do higieny lub urządzeniach gospodarstwa domowego. W razie braku wody z recyklingu system jest przystosowany do wykorzystania czystej wody wodociągowej. Firma jest zainteresowana umowami handlowymi.

Abstract: An Italian inventor has developed a fully automated and efficient system, able to recycle the water used previously collected in a tank, to supply the flushing cisterns of WC. The tank is fed mainly by water used in the bathroom sink, or other hygienic health (bath) or household appliances (washing machines). This system is able to use white water in case of absence of water recycled supply. He is looking for a commercial agreement.

Description: Today there is a requirement to seek new solutions to reduce excessive consumption of water. Investigations conducted in this area, has shown that domestic water consumption are heavily affected by water used to discharge WC. For this reason a system of water reuse is developed. This system is able to recycling employed water, previously, in washbasin, other hygienic sanitaria (like bath), and possible electrical appliances (like washing-machine) in the bathroom. This innovation is formed by a recovery tank, preferably positioned below the washbasin, connected, through a standard pipe of adduction, with the standard water domestic network that feeds the traditional box discharge WC. Through an appropriate valve, 2 sensors and a small pump managed and controlled by an electronic control unit has been able to obtain that water in Through an appropriate valve, 2 sensors and a small pump managed and controlled by an electronic control unit has been able to obtain that water in the tank is conveyed in the box discharge of WC after each discharge.

We must finally indicate that the system considered has the ability to function automatically also in the absence of water inside the above-mentioned recovery tank. In such cases is expected that this system enables the filling of the water box with white water, normally supplied by the domestic water supply at least until the recovery tank does not come back again fill. Have been suggested several ways to recycle water, but these solutions are complicated and not very functional as demonstrated by the fact that they have not had the slightest spread practice. The advantages of this invention are that this is an efficient, versatile, simple and cheap system that can be installed also in any existing bathroom.

TO: **Innowacyjna metoda biologicznego oczyszczalnia ścieków**

TO title: **A new concept of a biological wastewater treatment plant**

(Ref: 09 LU 70DB 3EI9)

Streszczenie: Firma z Luksemburga opracowała i opatentowała nowatorski system prowadzenia drugorzędnego i trzeciorzędnego oczyszczania ścieków. Zaletą tego systemu jest to, niskie zużycie energii, system jest mniej skomplikowany i bardziej wydajny niż procesy obecne stosowane na rynku. Firma jest zainteresowana zawarciem umowy licencyjnej.

Abstract: A company from Luxembourg has developed and patented a novel system to perform secondary and tertiary treatment of wastewater. The advantages of this revolutionary system are that it is less energy consuming, less complex and more efficient than existing processes on the market. The company is looking for a license agreement for the technology.

Description: The wastewater treatment system is built on a novel architecture which allow secondary and tertiary treatments. The reactor does not include any mobile parts nor any underwater machinery. The treatment method is based on two connected processes. First, a hydraulically process which relies on forced convection as well as on a clever architecture of the reactor. An active biomass biological reaction constitutes the second treatment process. By changing the configuration of the reactor - which is done in seconds via a valve - the system is able to do both secondary and tertiary treatments, e.g. nitrification and denitrification. Thus it is possible for the reactor to work alternatively in nitrification and denitrification in a repeatable cycle. In addition, it is possible to save energy because denitrification phases are totally autonomous, meaning a power source is not necessary during these phases. Lastly, the reactor enables the tertiary treatment of phosphorus removal using the method of chemical precipitation. Innovations and advantages of the offer: - brand new sewage treatment method - oxydation process and metabolization process of the activated liquid physically separated - metabolization compartment acting as a buffer for turbulences - separation of biological mass and clarifyed water by a dense selfgenerating biological structure needing no sustaining setting - secondary and tertiary treatment within the same reactor - no mobile parts nor underwater machinery.

TO: **Prosty, precyzyjny i solidny zawór kontrolny przepływu wody i powietrza**

TO title: **Patented control valve for water and air flow that is simple, precise and reliable**

(Ref: 09 FR 3116 3EEG)

Streszczenie: Mała francuska firma sektora badań i rozwoju stworzyła elektryczny zawór kontrolny pozwalający na sprawdzenie systemów wodnych i powietrznych w celu wykrycia nieszczelności. Produkt jest autonomiczny pozwala na niezależne uruchamianie i zamykanie układu. Po wykryciu usterki zawór alarmuje i przekazuje informacje o zaistniałym problemie. Firma poszukuje licencjobiorców na produkcję i wprowadzenie.

Abstract: A small French R & D company created an electrical fluid control valve allowing to check a water or air system to detect micro-leaks and consumption defects and producing an alarm. The product is autonomous, allowing opening and closure of the system, detecting bad functioning, alerting and bringing a response to the problem. The company seeks to license the product, to manufacture and develop it.

Description: The association between electric control valve and leak detector allows creation of cost effective products with multiple functions. The products can be adapted to any fluid, liquid or gas, to any pressure and discharge or flow. There are 3 steps : 1rst detection, 2nd visualization, 3rd response. Firstly, the volumetric measure integrated in the smart electric control valve allows detecting of any leak downstream of the device. The system visualizes the detected leak value. According to this value, the device brings a response to this leak, and is capable of closing the circuit thanks to the presence of the security valve; The system can be distance monitored, thus complying with home automation systems. The electronic processing of the pulses results in very simple electronic programming. The electrical connection is possible by battery, storage battery or the electricity network. Thus is the system adapted to very low discharge / flow and can prevent any micro- flow at its beginning. For very high pressures, the materials have to be adapted, the system remaining unchanged. The electric control valve is permanently integrated in the system, it doesn't provoke any bad functioning of the circuit during its installation. With this system one can save water and at the same time secure networks of dangerous or polluting products. The system enables to save energy (a leak of compressed air, or gas, or refrigerant network). The device is patented. It is reliable and cheap. Innovations and advantages of the offer: - System adaptable to every fluid

without any limit concerning pressure or flow - No loss of charge - Visualization of all discharges and flows - Independent and permanently integrated system in the circuit, - Leak detection technology based on volumetric control , adapted to any fluid, any pressure, any flow, - Easy to install in a circuit, - Can regularly test the network, - Allows precise measurement, - Addresses all sorts of needs : industries, private particulars, communities, etc.

TO: **Techniczne know-how i kompetencje w produkcji wody pitnej i przemysłowej z wykorzystaniem procesu odwróconej osmozy.**

TO title: **Technical Know-how and Expertise for the production of Drinking Water and Process Water using Reverse Osmosis Technologies**

(Ref: TO-MLT-ENV-014)

Streszczenie: Mała maltańska firma konsultingowa oferuje know-how związane z przetwarzaniem wody, oczyszczaniem ścieków i recyklingiem wody na potrzeby produkcji napojów, farmaceutyków, produktów przemysłowych i elektronicznych. Oferowane usługi obejmują takie procesy jednostkowe jak: odwrócona osmowa, filtracja na złożach wypełnionych piaskiem i węglem aktywnym, usuwanie żelaza, a także dezynfekcję z wykorzystaniem UV i ozonu. Firma poszukuje partnerów poszukujących rozwiązań technicznych dla istniejących i planowanych projektów.

Abstract: A Maltese micro consultancy firm offers specific know-how related to water, wastewater treatment and water recycling for beverage production, pharmaceutical, manufacturing and electronic industries. Treatment processes include seawater and brackish reverse osmosis systems, sand and activated carbon filtration, iron removal and disinfection with UV and ozonation. This firm seeks to assist any partner seeking technical solutions for existing challenges for future projects.

Description: A Maltese consultancy firm provides know-how expertise in the various areas related to water treatment. These include reverse osmosis engineering, water treatment plant design, seawater and brackish water reverse osmosis systems, chemical and microbiological water analysis, and groundwater resource assessment. The specialization is related to seawater and brackish water. Such specialization is essential in regions where the availability of fresh water is scarce. In addition, since the know-how ranges over the various water treatment areas, comprehensive project solutions can

be advised. In addition, initial environmental audits, studies and impact assessments can be undertaken. This is considered to be an innovative offer as currently this know-how in the practical use of membrane processes for the treatment and recycling of process water is not readily available. This know-how is based on years of experience backed by the local widespread use in Malta of reverse osmosis technology for the production of drinking water and process water. Drinking water is an essential to ensure life, and thus this know-how can be of vital importance in regions where this drinking water cannot be sourced otherwise. The advantage of this offer is that all projects related to drinking and process water treatment can be professionally addressed. In addition, this firm specializes in production of drinking water using reverse osmosis technologies with a special interest to the leisure industry. Hence a cost saving potential can be evaluated for those leisure centers, such as hotels, that are situated close to seawater or brackish water sources.

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