More Efficient Transnational Technology Transfer in the Environmental Sector

Solid Waste Management Seminar and Brokerage Event

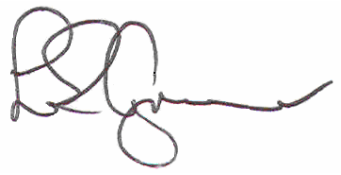
Today's challenges in Solid Waste Management are driven largely by the Landfill Directive, and this in turn is stimulating the innovation process towards the development and commercialisation of new, sustainable technologies for converting Solid Waste to Useable Resources. Competition is driven not only by the opportunity for accelerated return-on-investment in this sector, but also by the ability to demonstrate "Best Practice" technology for securing long-term access to Solid Waste Streams.

Many European countries have adopted wide ranging practices such as Zero Waste and Waste-to-Energy, as well as the established Re-use, Recycling, Treatment, and Landfill Disposal methods. With continued levels of economic growth, there is a need for renewed Research & Development, not only for the systems required for the sustainable conversion of Waste-to-Resource, but for the whole spectrum of systems needed for more efficient collection, transportation, separation, and treatment.

Knowledge and expertise must also be directed towards the sustainable movement of the Waste-to-Resource Ratio. The protection of the environment and the efficient use of our resources will not be compromised if the correct practices are adopted.

Our Seminar and Technology Brokerage Event is part of a series to be held across Europe, initiated through the METTTES PROJECT, which is associated with The Innovation Relay Centre Network's Thematic Group Environment. The objective is to provide a platform for accelerating the transfer of essential "Best Practice" Environmental Technology.

We at Enterprise Ireland's Technology Transfer Department are very pleased to welcome our clients, IRC colleagues, associates and new contacts, to our Solid Waste Management Seminar and Technology Brokerage event, and we trust that your visit to Glasnevin will prove fruitful and enjoyable.



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What is the Innovation Relay Centre Network?

The mission of the IRCs is to support innovation and transnational technological co-operation in Europe with a range of specialised business support services. IRC services are primarily targeted at technology oriented small and medium-sized enterprises (SMEs) but are also available to large companies, research institutes, universities, technology centres and innovation agencies.

The first Innovation Relay Centres were established in 1995 with the support of the European Commission. The aim was to create a pan-European platform to stimulate transnational technology transfer and promote innovation services.

IRC staff (a total of nearly 1,000) are experienced specialists with backgrounds in business, industry and research. To-date they have facilitated more than 1,000 transnational transfers of technology – signed agreements for the sale, licensing, distribution or joint development of new technologies.

Today, 71 regional IRCs span 33 countries – 25 EU Member States, Bulgaria, Romania, Iceland, Israel, Norway, Switzerland, Turkey and Chile.

Want to find out more?
www.ircnet.lu

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Solid Waste Management

Technology Profile

Title: New Technology for the strategic management of waste-collection operations

Ref: TR IE 18808

Technology Description

Abstract:

An Irish SME is involved in the integration of waste-management processes, and is currently seeking new technologies for upgrading existing waste-collection operations. There are requirements for improved collection systems to become part of the integrated management approach to dealing with solid waste. These will essentially optimise the wheeled-bin and multi-bag arrangements in order to present pre-sorted waste to the Materials Recovery Facility (MRF)

Description:

New technologies for the strategic management of household and trade waste collection operations, where fully integrated waste management operations are to be established.

The technologies required for the integrated system should be fully commercialised and flexible to deal with the collection of household and trade waste, which is the responsibility of local authorities.

Specific Technical Requirements:

Waste collection systems for housing development scheme incorporating household and trade waste. The requirement is for a collection and transport system that will include a modern "pay by weight" facility for unsorted fractions, together with a fleet management logistics control option.

Areas of application:

Waste Management and Materials Handling: Waste collection system for the population equivalent of 400,000 (200,000 households). There exists a combination of wheeled-bin and bag collection for household waste, bin and skip arrangements for trade waste, and various collections of recyclable material including newspapers, green waste, glass, bulky waste and cans. The total is currently 180,000 tonnes annually. Improved systems are required for the integrated management process.

Intellectual Property Rights:

Others (registered design, plant variety right, etc)

Collaboration Type:

Technical Co-operation

Manufacturing Agreement (Subcontracting & Co-contracting)

Commercial Agreement

Type of Partner Sought:

The partner will be actively involved in the development of waste collection systems, and will be aware of the integrated management process, which in many areas is the preferred option. They should be focused on the strategic management of waste collection operations, and flexible in their approach to participation in large-scale projects, where partnership/working groups would be formed to meet agreed performance targets.

Specific area of activity of the partner:

Development of waste collection systems & operations.

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Solid Waste Management | Technology Profile

Title: New Industrial Dryer Technology for wood waste and solid biomass

Ref: TR IE 18812

Technology Description

Abstract:

An Irish SME provides engineering support for the manufacturing industry and is looking for new efficient drying technology to meet the demands of the market for the processing of solid-biomass-based fuels. The company wishes to collaborate with an organisation that has proven dryer technologies, for handling biomass material such as wood waste, food waste and the organic fractions of municipal waste. Of particular interest is the application for wood waste from wood processing industries.

Description:

An Irish company has over 30 years experience in the design and manufacture of equipment for handling solid materials, and wishes to acquire new, efficient dryer technology for reducing the moisture content of wood waste and other solid waste materials.
They are seeking a collaboration partner for the development of this high-growth industry - the preparation of RDF (Refused Derived Fuel) and wood pellets.

Specific Technical Requirements:

Dryer technology for reducing the moisture content of solid waste materials, using continuous-throughput high-volume material handling systems. The technology must conform to all International Health & Safety Standards.

Areas of application:

Industrial Dryers; Biomass Processing

Intellectual Property Rights:

Others (registered design, plant variety right, etc)

Collaboration Type:

License Agreement
Technical Co-operation
Manufacturing Agreement (Subcontracting & Co-contracting)
Commercial Agreement

Type of Partner Sought:

The partner will be actively involved in the design, development and manufacture of dryer equipment for process industries, and will have a thorough understanding of the requirements for handling solid waste materials, such as wood waste.

Specific area of activity of the partner:

The partner will be expected to provide all the necessary inputs for successful technology transfer to the Irish company including specifications, training and know-how.

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Title: Technology for the recovery of precious and semi-precious metals, from the recycling of waste electrical and electronic materials

Ref: TR IE 18813

Technology Description

Abstract:

An Irish SME involved in recovery and recycling of waste material wishes to develop and diversify its process technology. They are seeking collaboration with an organisation that has expertise and experience in recovery of precious and semi-precious metals from waste electrical and electronic material. This material will have already undergone fragmentation processing and will be ready for further separation and sorting, to extract valuable metals and polymers.

Description:

An Irish company is recovering and recycling waste material including WEEE (Waste Electrical & Electronic Equipment) material, and wishes to further separate, extract, and recover precious and semi-precious metals. The company will be interested in collaboration with a partner that has proven technologies in the field of recovery of materials from WEEE processing.

Specific Technical Requirements:

Technologies for the separation and extraction of:

- Aluminium and Copper particles (<0.1 mm).
- Copper, Gold, Palladium, and Silver Particles (<0.1 mm).
- Polymers - HIPS (High Impact Polystyrene) and ABS (Acrylonitrile Butadiene Styrene) 10 - 20 mm

Areas of Application:

Materials; Metals and Alloys

Intellectual Property Rights:

Others (registered design, plant variety right, etc)

Collaboration Type:

License Agreement
Technical Co-operation
Commercial Agreement

Type of Partner Sought:

The partner will be able to assist the company in assessing, evaluating, and delivering the best available technologies for separation and extraction of the recycled material components.

Specific area of activity of the partner:

The partner should have expertise in providing solutions for metal recovery and extraction from mixed electrical and electronic waste, and will be able to provide all the necessary equipment, training and technical support.

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Title: Sorting and separation technology for Mixed Solid Waste

Ref: TR IE 18814

Technology Description

Abstract:

An Irish SME involved in the recycling and Recovery Industry wishes to acquire the technology for sorting and separating municipal and industrial waste into material more suitable for further processing into recyclable materials and RDF. The technology required will be used to sort and separate the main recyclable fractions (glass, metals and plastics) from the organic biomass materials in mixed waste streams. These materials will then be converted into RDF (Refuse Derived Fuel)

Description:

An Irish SME is involved in the collection, separation and processing of different waste streams, and is looking for state-of-the-art systems which can deal with municipal and industrial waste, to produce separate waste streams suitable for conversion to recycled products and RDF (Refuse Derived Fuel).

Specific Technical Requirements:

The technology must be fully developed, and operating in practice compliant with all the relevant EU Directives.

Areas of Application:

Waste Management

Intellectual Property Rights:

Others (registered design, plant variety right, etc)

Collaboration Type:

License Agreement
Technical Co-operation
Commercial Agreement

Type of Partner Sought:

The partner will ideally have successfully developed and implemented a number of turnkey options, suitable for handling various waste streams including municipal waste.

Specific area of activity of the partner:

They must be able to deal directly with the Irish SME to design and develop a suitable system at a purpose-built urban facility in Ireland.

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Title: Pyrolysis of products containing hydrocarbon

Ref: TO DE 19072

Technology Description

Abstract:

Research and development in the field of recovery of raw materials from waste products

Description:

A German company developed the technology of pyrolysis. That is a thermal decomposition to the exclusion of oxygen. Macromolecular chains are shortened into shorter, saturated and unsaturated fragments in that process.
At temperatures of 600 to 900 degree Celsius develop pyrolysis oils, gases and solid residues. The company is looking for a partner joining the preparation of the technology ready for the market.

Innovations and Advantages:

The German innovative process can be used to pyrolyse feed stock containing hydrocarbon especially used tyres and biological waste materials. The material is fed into a reactor and in a low temperature range pyrolysed. It is very important that the material is feed from the top as a whole and not in pieces, if possible. Several different materials could be provided so that the reactor operates with different materials without changes in the process control. The process is fairly simple in its construction and in its operation and assures a constant quality of the carbon.

The technology is able to produce 3 main products:
- Carbon (90% pure carbon) as a soft fine-grained activated charcoal.
- Oils (45% middle oil or heating oil)
- Metal (high grad material)

Areas of Application:

Recycling of material containing hydrocarbon. Sellable products; metal, carbon and oil.

Intellectual Property Rights:

Patent pending

Collaboration Type:

Technical Co-operation

Type of Partner Sought:

Recycling, Metal or chemical industry
Joint development and construction of an industrial plant for pyrolysis.

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Solid Waste Management | Technology Profile

Title: Engineering of plants for sorting, recycling and treatment of waste, engineering and supply of plants for metal separation.

Ref: TO DE 19119

Technology Description

Abstract:

Basic and detailed engineering of plants for sorting, recycling and treatment of industrial waste, especially shredder residue. Feasibility studies in the fields of industrial and post-consumer waste and waste management. Supply of turnkey processing plants and special equipment for the treatment of SR metals (sensitive and optical metal sorting, screening)

Description:

The German company offers its comprehensive and professional services to scrap recycling companies, in particular those operating shredder plants. They develop solutions for the processing and recycling of shredder and other production waste generated by scrap recycling aggregates or for automated sensor-controlled non-ferrous metal processing. They also prepare complete recycling concepts and assist in implementation in case that comprehensive disposal services to waste disposal facilities are required.
Since 1998, they have been actively engaged in all fields relating to shredder residue processing and recycling.
The company offers shredder operators economically viable solutions for dry-mechanical processing of shredder heavy fraction. From screening to Fe-, non-ferrous- and stainless steel separation, we design and deliver turnkey plants. The solutions are characterized by a very high purity of the separated metals, in particular regarding the fines content, which in most existing facilities is only poorly separated. In addition the company provides optimum process concepts for the recycling of industrial waste for generation of high quality and high grade substitution fuels as well as tailored concepts for thermal drying of sewage sludge to a TS of > 90% to municipal and industrial wastewater treatment installations.

Innovations and Advantages:

Experience and know-how gathered in many years and projects
Close co-operation with University ensures access to latest research results
Tried and tested shredder residue processing developed in co-operation with Volkswagen
Waste reduction
Meeting of European directives
Solutions are tailored to individual problems

Areas of Application:

References include separation of PVC from shredder residues, development of alternative recovery possibilities for substitute fuels, analysis and optimization of internal flow of residues, engineering of a screening and metal separation plant for shredder residue.

Intellectual Property Rights:

Patent granted

Collaboration Type:

Technical Co-operation
Commercial Agreement

Type of Partner Sought:

Companies interested in the know-how, expertise and technologies for co-operation to find the optimum solution to their individual problems. Co-operation in engineering of plants.

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Solid Waste Management | Technology Profile

Title: Know-how, process design and practical solutions for treatment of complex industrial effluents and waste gases.

Ref: TO DE 19120

Technology Description

Abstract:

Small German company specialises in bioprocesses to solve complex environmental problems. Industrial effluents and waste gases are treated individually to reach lower sludge production, lower energy consumption and better process efficiency. End-users are sought to adapt the processes to their requirements as well as engineering partners for joint development, engineering and construction.

Description:

Small German company is a specialist for modern, tailor-made solutions for complex environmental problems. Bioprocesses are the focal point of their activities, particularly the bio-treatment of complex effluents, containing persistent pollutants, waste gases and sludge's.
In this context they develop, prepare and produce designed starter cultures for hazardous, complex effluents and deliver special carrier materials. Furthermore they design special processes for chemical, pulp and paper, etc. industries. Processes include micro aerobic pre-treatment of persistent pollutants, anaerobic-aerobic treatment of complex industrial effluents, nitrification and denitrification of effluents with inhibitory components and biological waste gas treatment in optimized bio trickling-filters.
Due to many years of experience, extensive know-how and references, individual solutions can be offered, tailored to specific problems.

Innovations and Advantages:

Higher process efficiency and stability
- Lower sludge production
- Lower energy consumption
- Better process economy

The company disposes of special expert know how to develop solutions for special environmental problems like the biological removal of complex pollutants such as halo organics, pesticides, intermediates, heterocycles, nitrogen removal, etc.

Areas of Application:

The company disposes of special expert know how to develop solutions for special environmental problems like the biological removal of complex pollutants such as halo organics, pesticides, intermediates, heterocycles, nitrogen removal, etc.

Intellectual Property Rights:

Patent granted

Collaboration Type:

Technical Co-operation
Commercial Agreement

Type of Partner Sought:

As environmental technologies have to cope with fluctuating flow rates and loads as well as fluctuating concentrations and kinds of pollutants, it is virtually not possible to "copy" environmental bioprocesses unchanged from one application to the other. They need to be adapted to every particular case by experimental determination of basic process data and relating process design individually case by case. This adaptation is to be carried out in close co-operation with the co-operation partner and/or the end user
Furthermore co-operation in engineering and construction of plants and/or waste water and waste gas treatment is sought.

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Title: Bio-treatment of waste gases in bio-trickling filters using adapted biomass

Ref: TO DE 19125

Technology Description

Abstract:

Small German company offers technology for bio-treatment of industrial waste gases in bio-trickling filters using adapted biomass immobilized on absorbing, porous carrier material. Volatile pollutants are almost completely removed. The process can be adjusted individually. End-users are sought to adapt the processes to their requirements as well as engineering partners for joint development, engineering and construction.

Description:

The advanced bio-treatment of complex, industrial waste gases, removing the volatile pollutants almost completely, requires more sophisticated technologies than classical bio filters, because of the varying composition and concentration of the pollutants, presence of acidifying pollutants (organohalogenes, amines, ammonia, etc.), which are converted biologically into mineralic acids (HCl, H2SO4, HNO3 ,etc.)
Require easy operation (optimal filter humidity, good mass transfer, low pressure drop, easy regulation and maintenance) for their bio-treatment increased requirements must be fulfilled:
Adaptation of the applied biomass on complex organic molecules (halogenated, sulfonated, nitrated and/or sulphur containing organic compounds), fast and complete neutralization of the biologically produced organic and/or mineralic acids, optimal supply of the biomass with food (substrate), optimal mass transfer from the gaseous into the liquid phase and maintenance of the required humidity in the filter bed containing the biomass.
All these targets can be achieved in optimized bio-trickling filters, using specially adapted activated biomass immobilised on adsorbing, porous carrier cubes.

The specialized biomass will be adapted and prepared for every medium separately, resulting in a comparably fast start-up period and high pollutant removal efficiency.
The adsorbing, porous carrier is very light (ca. 30 to 40 kg/m³ filter bed), but characterized by
· A high water uptake of > 250 % b.w. of water (important for the bioactivity!), comparably low pressure drop in the filter bed and is colonized by micro-organisms very fast (within 90 min).

Innovations and Advantages:

The polluted, previously humidified waste gas enters the reactor in the lower section and moves upwards through the bio-trickling filter bed, containing the highly adapted biomass, immobilized by the adsorbing, porous -carrier cubes. In the first step, the pollutants are adsorbed on the surface active carrier and oxidized biologically (mineralized) in the next step. In order to maintain the necessary conditions for a good activity of the micro-organisms with humidity, in the bio-trickling filter, the filter bed is from time to time sprayed with wash water, containing the necessary nutrients, micronutrients and pH-adjusting caustic (optionally).

Area of Application:

Upgrading of fishmeal treatment plant, treating waste gases of plastics recycling plant, of agrochemicals plant, of municipal composting plant and of waste water treatment plant.

Intellectual Property Rights:

Patent granted

Collaboration Type:

Technical Co-operation

Type of Partner Sought:

Industry- as end users
Contractors- as cooperation partners

Solid Waste Management

Technology Profile

Title: Environmentally friendly recovery of specific materials under ELV (motor vehicles) and WEEE Directives

Ref: TR IE 19121

Technology Description

Abstract:

The company was set-up to develop environmentally friendly technology opportunities arising under the WEEE, RoHS & End-of-Life Vehicle Directives. We have carried out extensive research into various processes and techniques applying to materials which have arisen following the introduction of these regulations. We have developed certain processes to liberate specific valuable materials.

Description:

We would welcome a relationship with an existing European recovery & recycling company as we wish to extend the range of material which can be used in our current facility.

Areas of Application:

Recovery

Recycling

Refining

Collaboration Details:

License agreement

Technical Co-operation

Joint Venture Agreement

Commercial Agreement

Intellectual Property Rights:

Others (registered design, plant variety right, etc)

Title: Valuable material recovery system for specific WEEE and ELV material

Ref: TR IE 19139

Abstract:

Irish SME is involved in specific material recovery under existing EU Directives. The company is technology based and has further recovery opportunities.

Description:

We currently have segregation technology for specific material including plastics. We need to expand our technology to cater for more diverse material with wider plastic content.

Areas of Application:

Waste material of all types but especially WEEE and metal bearing fragments.

General waste industry

Primary Manufacturers

Intellectual Property Rights:

Others (registered design, plant variety right, etc)

Collaboration Type:

License agreement

Technical Co-operation

Joint Venture Agreement

Commercial Agreement

Type of Partner Sought:

Existing provider of mixed plastic separation technologies

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Solid Waste Management | Technology Profile

Title: Municipal Solid Waste Steam Autoclaving and Recyclable Recovery, with Combined Power Generation utilising the cellulose fibre output.

Ref: TO IE 19189

Technology Description

Abstract:

An Irish SME is a long established Environmental Services Company and is very active internationally. Core skills range from engineered landfill construction, Brownfield remediation, landfill gas management, waste water treatment, construction waterproofing, mining waste containment and storm water attenuation. The company offers waste to energy facilities with Autoclaving as the front end waste treatment and Pyrolysis for back end power generation.

Description:

The users of the technology will achieve immediate results in terms of meeting their landfill diversion targets which will be of particular interest to all local authorities. Private waste collection companies will also benefit significantly by preserving their dwindling void space in landfill. If the gate fee for use of the facility is set similar to the current landfill gate fee, plus the landfill tax, it will be an attractive option for local authorities. The Technology Offer provides the recipient with a cost efficient alternative to landfill in dealing with MSW
The combination of Steam Autoclaving and Pyrolysis provides effective treatment allowing the bypass of the engineered landfill phase of waste disposal.

Innovations and Advantages:

The technology uses a combination of the long established “steam sterilisation” autoclave processing, combined with Pyrolysis to effectively provide Font-End waste treatment and Back-End power generation.
Autoclaving has advantages over other MBT technologies which sets it apart:
• All waste is sterilised before separation ensuring clean recyclables
• There is no manual handling involved
• The organic fraction of the waste is recovered as a fuel
• 85% of the MSW input is re-usable
• Source segregation of waste is not necessary

Current Stage of Development:

Available for Demonstration – field tested

Intellectual Property Rights:

Other (registered design, plant variety right etc.)

Collaboration Type:

License agreement
Technical Co-operation
Joint Venture Agreement
Commercial Agreement

Type of Partner Sought:

Waste Management Companies, Local authorities with responsibility for waste management

Specific area of activity of the partner:

Waste Management organisation with long-term control of solid waste streams

Tasks to be performed by partner:

Partner to identify facility location and provide the necessary approvals support.

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Solid Waste Management | Technology Profile

Title: An Innovative Cutting Edge Waste Disposal, Containment & Transportation Technology

Ref: TO MT 19261

Technology Description

Abstract:

A Maltese technology developer has produced an innovative concept consisting of a sealed waste storage device as well as a complimentary recovery vehicle and waste recovery strategy. Its main objective is to eradicate shortcomings in conventional waste recovery and transportation methods. The company is looking for waste management contractors or providers for waste management technologies who seek innovative solutions to meet environmental & urban requirements.

Description:

The technology is a patented waste receptacle that is available in a number of ranges varying in size and volume. The containers compliment a 'bring in site' concept and also facilitate and promote waste segregation schemes. They can also be colour and bar coded and can be installed subterraneously.

The main feature on the containers is a mechanical device that automatically opens and closes the container using a top lift single hook facility.

The containers may incorporate an 'add-on' telemetry transmitter system which allows the operator to monitor the volumes of the Smart Bins from a central office and to dispatch a recovery vehicle to the collection site only when necessary.

In addition, the technology facilitates the systematic and orderly storage of separated waste and can be bar-coded. Its design permits the stacking of a number of containers over each other and for them to be grouped accordingly. This feature makes it easier for the technology to be transported even on long haul destinations.

The technology recovery vehicle, on the other hand, is a specially designed carrier that incorporates a state of the art crane and digital scale which provides valuable data about each collection. The operator simply replaces a full container with a 'clean' container in one simple and efficient process without any spillage or discharge of contents on site. The concept pivots around the need for alternative waste related solutions and compliments Environment related Directives set out by the European Union that promote the sustainable management of municipal solid waste (MSW) and other waste streams.

The aesthetics of the container as well as its functions make it a cleaner and more effective product that will not only contribute to more efficient waste recovery configurations, but will also help reduce operators' average operating costs substantially. The proposed recovery strategy will improve sorting and handling of separated waste on a large scale and also prevents the cross contamination of waste streams. These attributes qualify the technology as a proactive waste management solution.

Innovations and Advantages:

• Unique container design and operation features.
• Container facilitates a collection and transportation of waste without the downfalls of conventional methods. It reduces odours, spillage and operating costs, whilst improving hygiene, aesthetics and effectiveness of collection procedures.

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Continued: An Innovative Cutting Edge Waste Disposal, Containment & Transportation Technology

Ref: TO MT 19261

• An onboard digital-scale provides valuable collection data, allowing the operator to better manage and control collection and disposal.
• An 'add-on' telemetry system will permit tracking of waste streams from source to point of disposal.
• The container's stacking feature permits systematic storage and transportation of waste.
• Helps promote waste segregation schemes
• Compliments waste collection monitoring systems
• Facilitates transportation of waste to long-haul destinations
• Facilitates systematic storage of separated waste
• Improves efficiency and effectiveness in waste collection procedures
• Reduces average operating costs substantially
• Reduces net cost of waste management
• Helps to avoid cross contamination of waste streams
• Useful for industrial/commercial purposes

Technical Specifications:

Capacity: 2200 litres standard (other capacities optional)
Tare: 268kg
Size: 900x1900x1400mm
Material: 3mm gauge rigid mild steel
Porthole size: 680 x 560mm (standard porthole – other portholes optional)
Coating: 3 coat durable and environment friendly paint (epoxy primer and build coat and 2 coat high-build semi-gloss aliphatic polyurethane finish)

Intellectual Property Rights:

Patent pending

Collaboration Type:

Licence Agreement

Financial Resources

Areas of application and customers target groups for this technology:
The main area of application is for Urban Waste Collection and Transport.

Type of partner sought:
Industry.

Specific area of activity of the partner:
Waste management contractors and waste management technology providers.

Task to be performed:
The partner could be a waste management contractor or is a provider for waste management technologies who seeks innovative solutions to meet environmental & urban requirements. The partner can potentially participate in providing technical expertise to optimise the technology; participate in licensing the technology.

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Solid Waste Management

Technology Profile

Title: Consultancy services for waste management and planning

Ref: TO IT 19477

Technology Description

Abstract:

An Italian company has matured a great experience in the waste management sector and is able to provide innovative solutions for an efficient waste collection and for the management of the monitoring activity. Commercial agreement with technical assistance is sought.

Description:

An Italian company has reached a very great experience in the waste management field and can provide qualified consultancy for an optimal waste collection, asset monitoring and also for the billing system implementation.
The company can offer tailored waste collection services, project and start up integrated waste management services all over Europe.

Innovations and Advantages:

The technology proposed can be applied in cities, but also in small communities and can make the operations related to the waste planning and management very rational and efficient.

Current Stage of Development:

Already on the market

Collaboration Type:

Commercial Agreement with Technical Assistance

Type of Partner Sought:

Industry
Enterprises and public administrations

Specific area of activity of the partner:
Activity related to the management of waste

Tasks to be performed:
The Italian company would like to find commercial partners for offering its services in the waste management field. The company will provide all the technical assistance required.

Application Domain:
Consulting services
Water treatment equipment and waste disposal systems
Other pollution and recycling related

Market Application:
Waste management and planning

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Solid Waste Management

Technology Profile

Title: An innovative device for an efficient management and separation of urban waste

Ref: TO IT 19478

Technology Description

Abstract:

An Italian company, involved in the waste management sector, has developed an innovative device, which installed on common garbage bins, allows a more efficient management of urban waste, enhancing the separate collection of rubbish. Commercial agreement with technical assistance is sought.

Description:

Text The device is installed on common garbage bins and is constituted by a stainless steel dome. The dome is equipped with two hemispherical shells, which can be open by the citizen through an electronic key. The citizen has a volume of about 20 litres available for putting the rubbish that is collected in the garbage bins.
This product was studied for stimulating the users to separate the garbage and to help public administrations to manage the collection of urban waste. The device is installed only in garbage bins not dedicated to separate collection of rubbish. Each family can possess a personal electronic key which, when used for the disposal of garbage, charge a money amount equivalent of 20 litres of garbage. The application of the present device represents an optimal solution for the billing system implementation.

Innovations and Advantages:

The device allows a more efficient management of urban waste collection, because the administration can control and plan the collection in small centres or those centres that it is difficult to reach (mountains zones). The collection of cumbersome waste is avoided and also of waste produced in other centres. The management of payment is also more efficient and easier and can simplify the process also in tourist zones. The device was tested on different urban contexts and it was observed that it promoted the separate collection of urban waste. In few months, the separate waste collection has increased in a range of 40%-60% in the towns and villages where the device was applied.

Current Stage of Development:

Available for demonstration – field tested

Intellectual Property Rights:

Patent Applied For

Collaboration Type:

Commercial Agreement with Technical Assistance

Type of Partner Sought:
Enterprises and Public Administrations

Specific Area of Activity of the Partner:
Waste Management and collection and also commercialization of waste management innovative systems

Tasks to be performed of the Partner:
The Italian company would like to meet commercial partners in order to extend the market of the presented product in foreign countries. The entire necessary consultancy will be guaranteed.

IRC contact:

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Title: Hardware – software solution for an efficient control of garbage collection bins and urban furniture

Ref: TO IT 19480

Technology Description

Abstract:

An Italian company has developed a hardware – software instrument through which it is possible to manage urban garbage bins and all other devices necessary for waste collection. The system is based on the census of the suppliers distributed on the urban territory. All data collected are transferred in a database trough which it is possible to monitor, manage and organize the work in a very efficient way. Commercial agreement with technical assistance is sought.

Description:

An Italian company that has matured a great experience in the development of innovative solutions applicable in the waste management field has created a hardware – software system for an optimal management of the objects distributed on the urban territory. The technique is applied with great success in the control of waste bins. The system is based on the census of all objects present in the territory. All data are collected in a data base where, through a software, it is possible to create a maintenance card for each object indicated (each activity related to a single abject can be recorded). Thank to this, operators can have a complete overview of the territory and plan more easily and efficiently their work for an optimal management of operations.

Innovations and Advantages:

The innovative aspects is the flexibility of the instrument here presented, because it can be applied for the management and the organization of different facilities normally distributed in an urban territory (garbage bins, advertisement signs, public parks, plants cartography etc.). Main advantages are represented by the efficiency in waste management and in the planning of the disposition, on the urban territory, of the garbage bins, necessary for an optimal management of urban waste collection. The software can also supply statistical data or historical reports for single areas, quarter and streets.

Current Stage of Development:

Available for demonstration – field tested

Intellectual Property Rights:

Secret know-how

Collaboration Type:

Commercial agreement with technical assistance

Type of Partner Sought:
Public Administrations and Industries

Specific Area of Activity of the Partner:
Management and planning of urban waste collection or commercial enterprises selling management innovative solution on the territory

Tasks to be performed:
The partner should apply this solution on their territory or provide the commercialization of the product. The Italian company will provide all technical consultancy required for a correct implementation of the product and commercialisation

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Title: Separation and recycling of laminated layer and glass from windscreens

Ref: TR UK 19324

Technology Description

Abstract:

Automotive glazing repair and replacement

Description:

The company is seeking technology for the efficient recycling and separation of the components of laminated glass windscreens.

Specific Technical Requirement:

N/A

Intellectual Property Rights:

Partnership or contractual agreement

Collaboration Type:

Technical Co-operation

Commercial Agreement

Type of Partner Sought:

Industry

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Title: Energy from Waste and Biomass

Ref: TR UK 19564

Technology Description

Abstract: Natural Energies is a renewable energies company comprised of the leading industrial, commercial and scientific experts in Ireland. The company aims to balance the energy and environmental demands of today's world through ecological energy production.
Natural Energies provide portfolio of leading technologies, products and research capabilities for environmental management and solutions within the waste sectors. Meeting today's energy demands from integrated energy and waste solutions

Description:

Waste issues and renewable energy production are inextricably linked. Seeking collaborative integrated technologies that offer comprehensive commercially sound solutions to both makes economic sense.

Natural Energies is a renewables energy technology company that recognise the benefits of providing an integrated collaborative solution and the commercial strength this provides.

To this end the company are seeking complimentary partners from the waste and recycling sector to team with on a 'preferred partner' status, in the confidence that the partnership delivers combined strength greater than the sum of its parts..

Intellectual Property Rights:

Other (registered design, plant variety right etc.)

Collaboration Type:

Joint Venture

Commercial Agreement

Type of Partner Sought:

Waste to Energy, Renewable Energy, Biomass Energy organisations that seek to grow through Technology Partnerships

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Title: A novel Pd-dissolution procedure from model spent catalysts has been pointed out.

Ref: TO IT 19593

Technology Description

Abstract: A novel Pd-dissolution procedure from model spent catalysts has been pointed out. The metal is extracted in mild conditions by using reagents obtained by reacting cyclic dithioxamides with halogens. These reagents are not-cytotoxic and are capable to dissolve metal Pd selectively and in a one-step reaction, while are inactive towards Pt and Rh contained in the scraps, differently from the methods currently in use which require unattractive reagents or time and reagents consuming pre-treatments

Description:

The three way catalytic converters (TWC) work by converting car exhaust gases through a monolith coated with precious metals such as Pd and, at lower extent Pt and Rh, which transform harmful gases (carbon monoxide, nitrogen oxides and unburned fuel) into non-harmful emissions such as water, nitrogen and carbon dioxide. However converters have a limited life-time (approximately 120.000 Km, but durability strongly depends on driving conditions) and the recovery of noble metals allows their reuse with environmental and economic relevance.

The proposed Pd-extracting procedure, based on the use of selective powerful reagents prepared in our lab by reacting cyclic dithioxamides with halogens, follow 3 main steps: i) grinding of the catalysts; ii) reaction of the powdered catalyst with a Methyl Ethyl Ketone solution of the selected reagent; iii) separation of the solution containing the produced Pd(II) complex from the catalyst support. Through this procedure at laboratory scale on model spent TWC (synthetic samples of Pd/CeO2-ZrO2/Al2O3, which have submitted to an accelerated ageing protocol - 1050 °C/200 h - to simulate the thermal deactivation of TWC) and by using the diiodine adduct of N.N'-dimethylperhydrodiazepine-2,3-dithione as selective reagent, an almost quantitative Pd-recovery (99%) has been obtained in mild condition and by using low-polluting and easy to handle reagent and solvents. Moreover, the obtained results are particularly remarkable taking into account: i) the low Pd-content of the samples; ii) the Pd-metal dispersion on the wash-coat where the metal strongly interacts with CeO2-ZrO2; iii) the strong sintering of the catalyst; iv) the presence of PdO crystallites.

Innovations and Advantages:

The proposed method represents an absolute novelty with respect to the already known procedures because of its capability of couple the effectiveness of the selected powerful reagents and a safe and mild procedure. The novelty, due to the use of reagents which couple in the same molecule complexing and oxidizing properties, and effectiveness of the chemistry, the mildness of operative conditions, the low hazard for operators and environment make the proposed method very appealing to be tested for industrial employments.

The recovery of palladium from catalysts is currently performed by pyrometallurgical chlorination, which exploits high temperature thermal treatment (450-1500 K) in a flow of highly toxic and/or aggressive gases such as Cl2, CO, COCl2, CCl4, S2Cl2 e SOCl2 or their mixtures, or techniques of dissolution with strong acids and oxidants (very risky for the operators) such as sulphuric acid, nitric acid or the hydrochloric/nitric acid mixture known as "aqua regia" which are not selective and require a further time and reagent consuming separation step. The proposed method represents a significant improvement since it shows a high effectiveness and works in a one step to selectively dissolve palladium in mild conditions and using reagents easy to handle and not-cytotoxic.

Current Stage of Development

Development phase – laboratory tested

Intellectual Property Rights:

Patent pending.

Type of Partner Sought:

Industry

Specific area of activity of the partner:

Catalysts, Noble Metals Recovery

Tasks to be performed of the partner:

Technological transfer of the method

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