RECYCLING

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GAIKER

TECHNOLOGY CENTRE

GAIKER, on the front line of Recycling in Europe

GAIKER has been, and still is, present at the most important R&D&I projects, Discussion Forum and Thematic Networks about recycling in Europe.

Among the activities we undertake, we must highlight the fact that our Centre has suffered, from a technological point of view, the pioneer experiences in Spain for the Recycling of Containers and Packaging (Sasieta, 1992-1994), White Line Electrical Appliances (Autonomous Community of the Basque Country, 1993-1995), Electric-electronic equipments' waste (Bizkaia, 1994-1997 and Basque Country from 1997 up to now) and Mobile Telephony (Autonomous Community of Madrid, since 2001).

GAIKER's contribution to the Recycling sector has been focused on the development, procurement and adaptation of the technologies needed to handle the different waste streams

GAIKER's contribution to the Recycling sector has been focused on the development, procurement and adaptation of the technologies needed to handle the different waste currents. Equally, GAIKER has contributed to the definition of the collection logistic and the development of recovered materials, paying particular attention to plastic materials.

When talking about Recycling, referring to the activities carried out by GAIKER is a must.

LINKED TO THE INDUSTRY,... providing support for the Authorities

All of the activities of GAIKER's Recycling Area have been focused on the recycling industry, without forgetting the compulsory compliance with existent and future regulations in the field of products and waste.

Prior to the industry's needs, more than 30 projects of Technological Gathering for the development and adaptation of technologies have been carried out in the fields of disassemble, separation, classification and reuse of materials derived from waste. These projects have resulted in more than 40 acts of R&D with companies, contributing with solutions for very diverse waste, including containers and packaging, white line electrical appliances, cable waste, electric-electronic equipment, tyres, construction and demolition materials and end of life vehicles, among others.

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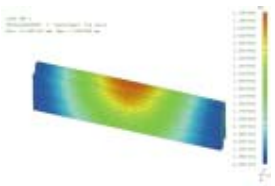
INTERNATIONAL SCOPE
Co-operation to guarantee success

The establishment of a wide network of contacts in the field of European Recycling has allowed GAIKER to have a more than significant presence to implement R&D projects in an international scenario.

Thus, GAIKER has taken part as R&D supplier in more than 25 European projects, since 1992. The programs we have attended have been Brite-Euram II and III, GROWTH, QLF and IMS. Likewise, GAIKER has played an active role in the EUREKA and LIFE programs.

This presence in European programs and projects has led GAIKER to consolidate as a rightful member in the main European thematic networks that cover issues related to Recycling:

- TRAWMAR
- TRA Polymer Materials
- TRA Mechanical Recycling
- DOGMA
- ECOLIFE I
- ECOLIFE II
- AWARENET



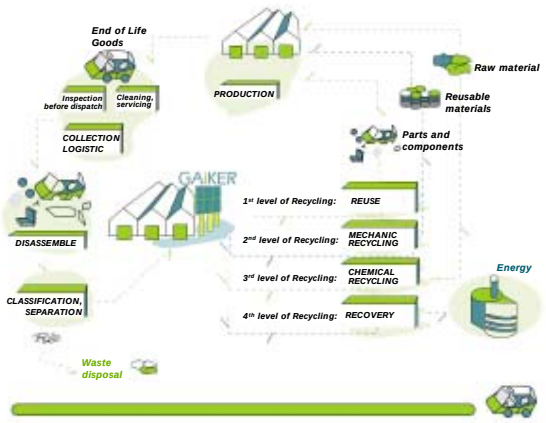
GAIKER leads the project to create the Virtual European Recycling Centre **(VERC)**

At the same time, GAIKER has participated with two experts in the European Recycling Forum and is a member of CARE ELECTRONICS' Board of Directors.

GAIKER's know-how has led us to head the project to create the Virtual European Recycling Centre (VERC), namely, a service centre, targeted at improving the European recycling industry's competitiveness. (See http://www.verc.net).

CLOSING
the product´s Life Cycle

GAIKER's technological contribution covers several subjects: from the conception of products (eco-design, design for recycling) to the appropriate management of their waste, without forgetting the possibilities/steps to reuse products, subsets and/or components, separation, classification and recycling of recovered materials or their energetic recovery.



GAIKER's technical contribution covers a wide range of subjects

RATIONAL USE
OF NATURAL RESOURCES

From GAIKER we support the rational use of natural resources by the industry. The eco-design and design for recycling methodologies add up to those in order to minimise the use of materials in transformation processes that are "eco-efficient".

The achievement of added value from waste (mines in the new millennium), the increasing incorporation of recycled materials for the production of new products and the improvement of processes and products constitute our targets. In order to fulfil them, we are working on methodologies for Life Cycle Analysis (LCA), Life Cycle Cost Analysis (LCC), eco-design and design for recycling, and we offer them to the industry, in the same language. Cost reduction, minimising dumping and environmental improvement are thus incorporated into our offer.

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COLLECTION AND TRANSPORTATION
of Waste and Recycled Materials

ONE OF THE KEYS TO SUCCESS

A fundamental factor in any recycling schema is the one that is related to the steps of collection, handling and transportation of waste to the treatment plants, and from there to the market of recycled materials. From GAIKER, we are aware of this and are working to assess and select the appropriate logistics, to carry out detailed cost estimates and to plan and execute pilot experiences that allow for the implementation of recycling schemes with more possibilities for success.

In GAIKER, we are working to implement successful recycling schemes

Dissasemble

Having the appropriate disassemble technologies (automated or automatic) is a very competitive factor that can allow for one recycling agent to establish a difference between its competitors: they are necessary steps when treating complex waste and, in particular, for those that incorporate dangerous components that must be removed prior to any recycling or estimating operation.

From GAIKER, we are working on two main lines of disassemble technologies:

- *The development of automatic or semi-automatic handling prototypes for final products at the end of their working life, paying particular attention to waste from electric-electronic equipment and out-of-use vehicles (in co-operation with other centres).*

- *The development of new joining systems that allow for the automatic disassemble, upon the action of an external effect and that are based on the use of intelligent materials.*

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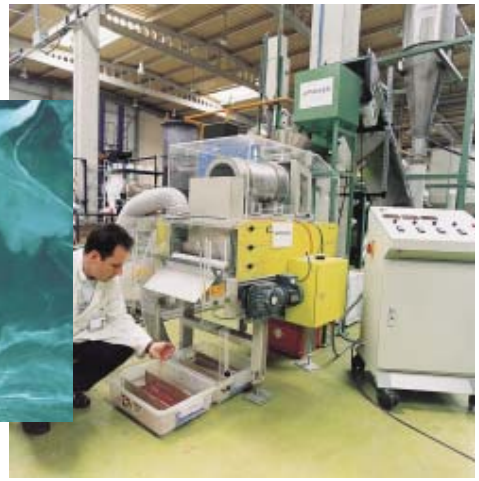
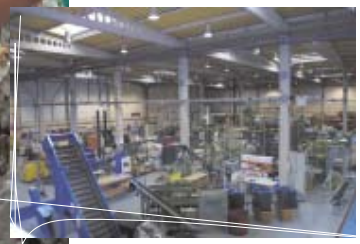


SEPARATION AND CLASSIFICATION TECHNOLOGIES



The key for recycling still lies on achieving good quality regarding separation, at a cost supported by the market value of recovered materials. It is therefore necessary to find a balance between effort (added cost) of separation and the purity (waste value) of recovered materials.

We combine different separation technologies, in pursue of the balance, keeping a close eye on each waste's features

In GAIKER, we combine different separation technologies, in pursue of the above mentioned balance, keeping a close eye on each waste's features and, above all, our clients' production needs (volumes to be treated, separation necessary flows, maximum allowed cost, etc.).

Separation technologies in GAIKER include the following:
- *Mechanical separation (griddle, sifting, etc.).*
- *Hydrodynamic separation (hydrocyclones, fluidizated bedding, etc.)*
- *Electrostatic separation (triboelectric, levitation, crown, etc.)*
- *Automatic identification (MIR, NIR, LIBS, Biased Light, Artificial Vision, etc.)*
- *Physio-Chemical separation (EFS, thermal, CPF, etc.).*

Reuse
of Recovered Materials

Recycling does not have an end in separation but rather must necessarily take recovered materials to the market for their incorporation into new products. The ideal situation of a closing of the cycle (close-loop recycling) is not always possible, unfortunately.

Characterisation, additives, compatibility, reprocessing, prototypes and prior series ... are included in our offer

The search for new uses of recycled materials includes the creation, design, development and approval of prototypes and, on many instances, the adaptation of production processes to new raw materials.

GAIKER's offer covers that need, with particular interest on plastic materials and on the use of complex compounds. Characterisation, additives, compatibility, reprocessing, prototypes and prior series ... are included in that offer.

Even in those cases where the production of products is more difficult, GAIKER is working on the development and approval of Residue Derived Fuels (RDFs), thus making it possible for the recovery of the energy present in waste, securely and efficiently, in incineration and co-generation processes.

GAIKER

Advanced Services

The approval and selection of available technologies, diagnostic and check services of technologies and the execution of Innovation Plans top our offer.

Together with these, training in recycling technologies and documentation services, prospective, technological alert and surveillance available at GAIKER make us the first ally of recycling companies near us.

APPLICATION FIELDS

Our main activity is focused on:
- Containers and Packaging.
- Electric-electronic Equipment.
- Tyres.
- Electrical Appliances.
- End of Life Vehicles.
- Construction and Demolition.

However, available technologies and knowledge are applicable to almost every and all waste post-consumption.

Our Clients are our main supporters. Among them, we can highlight the following:
- Eco-industries.
- Producers of Products and Components.
- Authorities and Public Entities.
- Producers of Recycling Equipment.
- Scraping Companies.
- Big Vendors.
- Industrial Associations.
- ....

GAIKER, first ally of recycling industries near us