COMPANY BROCHURE:
WASTE TREATMENT PLANTS
FOR AN EFFECTIVE UTILIZATION

ALL FROM ONE COMPANY.
FROM THE DESIGN TO COMMISSIONING
EFFICIENT RECYCLING IS BENEFICIAL TO YOUR COMPANY AND FOR ENVIRONMENT. A DOUBLE PROFIT.

Sutco RecyclingTechnik has specialized in the development, production, installation, commissioning, after-sales service and maintenance of recycling systems for more than 30 years.

An efficient and technical solution for a better environment is of top priority to us: for the benefit to the operator, for the benefit to the environment. Economy and ecology in a partnership which pays.
THE WHOLE SECTION OF WASTE SORTING.

THE HISTORY

In 1985 Sutco is founded als Sutco Maschinenbau GmbH and expands in 1991 to Poland with its Sutco Polska (production) and in 1993 with its Sutco Inżynierskie (engineering office). In 2003 the company is renamed Sutco RecyclingTechnik GmbH under the umbrella of the LM-GROUP.

Then, the development takes its quick course. Sutco Polska moves to Katowice, and in 2006 Sutco Iberica is founded in Barcelona. In 2011 Sutco purchases the remaining shares of the OKLM joint venture and establishes the Sutco UK in Great-Britain. In 2012 Sutco decided to move into the international market with its agency in Singapore and since 2013 with their own company in Brazil, the Sutco Brasil. Due to its full order books, the company successfully expands nationally and internationally. On the basis of projects in Scandinavia, Eastern Europe and Asia the plant engineering company opens up new markets and develops new overall concepts for the extraction of secondary raw materials, according to the global requirements.

The erection of a new building in 2017 starts the extension and reconstruction of the Sutco headquarters in Bergisch Gladbach, which was completed in 2018. In its modernized and significantly enlarged company headquarters, Sutco will be able to provide a wide range of diversified recycling solutions for municipal and private waste management.

THE GROUP

In combination with the Ludden & Mennekes Entsorgungs-Systeme GmbH engineering company, which has specialised in environmental technology, as well as the Sutco affiliates Sutco Polska, Sutco UK, Sutco Iberica, Sutco Brasil as well as the developer and designer of powerful channel bale presses, the unoTech GmbH, we can offer our customer decisive benefits: large and reliable production capacities, coverage of the national and international markets as well as continuous further development thanks to the intercommunication within the group of companies.

Today, the LM-GROUP consists of eleven operative companies, employing more than 550 staff members. Using its core brands, the LM-GROUP can cover all areas of a functional recycling economy.

“For the preservation of resources and sustainability.”
We regard waste as a value. This means: perfect sorting processes according to the most different materials. Then remains paper, plastics and metal of all possible variations and materials. And with possibilities of using these secondary raw materials.

**WE ATTACH GREAT IMPORTANCE TO THE HIGHEST TECHNICAL AND ECONOMIC REQUIREMENTS FOR OUR PLANTS.**

Our successful customer relations are based on our experience and highly qualified staff members and - equivalently - advanced state-of-the-art production plants in combination with the LM-GROUP. Within the group more than 550 employees, engineers, technicians, as well as production, mounting and commissioning specialists see to its smooth implementation of all projects, from the planning to its operative realisation. Using their expertise and creativity, the committed team supports our customers in all planning, implementation and service issues of demanding treatment and sorting systems.

**EMPLOYER SUTCO®. YOUR CAREER WITH US.**

We are aware of the future and do our utmost for shaping it in all respects. The issue of waste is nationally and internationally more topical than ever before. To be able to further meet the needs and requirements of the market, Sutco is expanding successfully and reliably. To this effect, we are enlarging our team successively. We employ staff members in all areas: Executives, engineers, project managers, merchants and workmen. Also, we can offer interesting technical and commercial apprenticeships as well as different dual courses to committed people and school leavers. Our contribution to a sustainable future.

“Recycling is added value. Whoever preserves resources will have investment opportunities.”
PERFECT SORTING- AND TREATMENT PLANTS.

Ecopolitics requires and promotes efficient and environmentally beneficial recycling:
Almost no landfill – but useful recycling – is not only a requirement (such as the EC Waste Directives), but the need of the moment if long-term market success is desired.

"Municipal solid waste, commercial and industrial waste, packing waste, waste paper, mixed waste from constructional sites, Slag from the incineration."
Thanks to the excellent sorting technology, Sutco systems can achieve a high output of fractions of valuable material from the household waste. Using trommel screens, magnetic technology, ballistic separators and near-infrared devices (NIR) and/or manual sorting processes, the material is sorted to form different fractions.

The material (metals, cardboard, plastics etc.) which is sorted out is subjected to further processing or is converted to form substitute fuel which is processed by a shredder to form a marketable fraction.

The organic fraction which was screened is treated in further processes by the Sutco BIOFIX composting process or by our partner who can offer simple and suitable composting technologies. The household waste including a biological fraction is treated by our MBT (mechanical-biological waste treatment)

The Sutco plan of 5 levels allows a household waste system to be constructed modularly from a simple to a high-tech design.

Organic waste  
(garden and kitchen waste)  
Mineral materials  
Paper/cardboard  
Plastics  
Textiles  
Metals  
Leather  
Glass  
Wood  
Rubber  
... and others.

MUNICIPAL SOLID WASTE/MSW

... is waste which is collected in a mixed and unsorted manner. Approx. 300 kg of household waste is generated in the European households per capita every year. Household waste mainly contains materials, such as:

Automatic separation in connection with a high throughput provides better sorting purity.
The process of the mechanical-biological waste treatment (MBT) allows an ecologically favourable treatment of waste. Input material consisting of household waste, household-like industrial waste as well as green, biological and mixed waste is separated to provide materially (secondary raw materials/recyclables) and thermally usable materials (fuel, RDF, SRF).

The organic fraction is treated biologically to reduce and stabilize the mass and the volume of waste to be landfilled. The mechanical treatment of the coarse fraction is prepared by the following components: bag opener, conveyor equipment, trommel screen, non-ferrous and ferrous separators, crushing equipment, air classifiers, ballistic separators, NIR sensors and baling equipment. This is aimed at treating as much waste as possible to recover recyclable materials such as paper, cardboard, cardboard boxes, film, PE, PPP, PET, iron and non-ferrous materials as recyclables as well as mixtures such as mixed plastics, wood and paper as substitute fuels.

The separated fine fraction can be treated biologically by one of the different processes of Sutco Recycling Technik (BIOTIK tunnel and WENDELIN). The organic material is biodegraded and converted to become a compost-like substrate. The Sutco MBT process features flexibility since all treatment processes and the treatment of the waste react to deviations from the volume and quality of the delivered waste. The concepts are designed according to the different capacities.

Biological treatment may also be used for processing organic waste from different origins. In addition to the aerobic process technology, Sutco Recycling Technik can also offer biological treatment to its customers for recovering energy/biogas by fermentation plants.

Using MBT Combi Plus, we can also offer modular concepts in this area to our customers.
WASTE TO ENERGY

Household, organic and industrial waste are significant sources of raw materials and energy. Recyclable material can be recovered from waste. Electricity and heat can be generated from different waste fractions.

Mechanical waste treatment is designed both for separating recyclable material and preparing of waste for other process steps.

Screening, classification, separation, crushing and mixing are the process steps. The combination of different process steps makes sure that the properties of the waste fractions are adapted to the downstream fermentation plant in a targeted manner.

In these plants, micro-organisms generate usable biological gas from the organic waste components. Biological gas, which mainly consists of methane, can e.g. be converted in a block-type thermal power station to provide electricity and heat.

Wherever natural untreated residual material is used, the output products can be used for fertilization after composting.

“Alternatives to conservative energy recovery is becoming increasingly important – worldwide.”
COMMERCIAL WASTE

is waste from commercial enterprises and institutions, providing a large fraction of valuable resources for the global raw material industry. Sutco industrial waste systems have a high degree of automation to sort valuable material such as PE, PET, PP, wood, film, paper, non-ferrous and ferrous material.

Besides a pure recovery of valuable material, our treatment equipment has also been designed for producing substitute fuel by the use of near-infra-red devices.

We can offer tailor-made concepts according to the Commercial Waste Regulations of the Federal Republic of Germany according to the legal requirements.

Manual sorting equipment is used to sort polymers, paper and film again to provide optimal quality. In addition, this system technology makes sure that other input material (such as construction debris and bulky waste) can be treated, if required.

“Up-to-date treatment means multi-tasking. The objective can only be achieved by components which can be combined flexibly.”
The term of substitute fuel or secondary fuel is used to mean all non-fossil fuels which may be produced from selectively extracted and product-specific industrial waste such as bulky or household waste. All this waste has a large fraction of paper, plastic, cardboard, wood, etc.

The process can be divided by two basic criteria: the composition of waste and the use of the fuels. For example, customers from the lime and cement industry have strongest requirements for the material composition in the form of no metal, no water, no harmful substances, the calorific value etc.

Sucto substitutiv fuel systems are designed to meet these quality requirements by the buyers of the substitutiv fuels, i.e. the treatment process starts with a pre-sorting process and/or a selection of materials, followed by coarse crushing, sieve classification and a magnetic separation of iron. Wind shifters are used for separating the highly calorific material. Near-infrared sensors are required for producing quality-assured substitute fuels, above all for sorting out ecologically harmful materials. All this requires a high degree of innovative technology for producing substitute fuels efficiently. Thus, Sucto substitute fuel systems prove themselves by an especially high plant standard at high flexibility and operational safety.
of plastics, compound materials, aluminium or tin plate as well as glass have been subject to a special obligation since the packaging directive came into effect: manufacturers, importers and distributors have to take back these packagings after use and must then return them to an environmentally beneficial disposal. Using dual systems, these materials are separately identified and collected, and the familiar high rates per material flow have to be adhered to when they are used.

Therefore, the handling of this waste requires sophisticated sorting systems with an economical and efficient treatment technology for a maximum of type purity. This requirement is met by proven units.

The positioning of these core units such as the trommel screen, magnetic separator, NIR separator, eddy current separator and ballistic separator ensure a clear separation of the packagings. The positioning of the ballistic separator which provides a separation of light surfaces and heavy rolling material and thus facilitates the optical identification unit is just important for sorting in the direction of polymers. Proper planning and positioning allow Sutco systems to sort high-quality products which can be marketed excellently.

“A high degree of fraction purity allows good marketing.”
The fully automatic Sutco composting plant produces fully fledged substitute soil material e.g. for landscaping.

Sutco composting systems operate fully automatically and provide for a material-related use. The input material is defibred, mixed, digested in automatic turning processes and subjected to biological processes. After the aeration and dewatering via a central control system, a high-quality substitute soil material is available for landscaping.
This a windrow turning device for large volumes. For this process the biowaste is delivered in a closed treatment plant as well as classified and homogenized by a trommel screen. The screen overflow > 80 mm is crushed and then dumped to the screen again. The material to be composted < 80 mm is transferred by conveyors from the screening machine directly to the enclosed composting hall. There, an approx. 3 m high windrow is placed.

The WENDELIN turning machine is designed for removing, loosening, homogenizing and wetting the material to be composted on the one hand for piling it up again on the other hand.

A bridge which can be moved over the entire space is installed across the composting field. This bridge has a transverse carriage with bucket wheels attached to it. The rotating bucket wheels remove the material to be composted from the bottom to the top, and a conveyor belt moves it some meters to the rear to the new windrow.
WASTE PRESS WATER DIGESTION

This is an alternative fermentation process which significantly improves the energy balance and the processing capacity of composting plants. The process presses out the organic components of the organic and residual waste as a liquid phase prior to composting, using it for the generation of biogas. Thus, energy can be generated in waste plants.

A minimum of technical efforts for a maximum of gas. A highly energetic liquid phase is generated from the fresh biowaste and fermented in Biofilm fermenters highly efficiently. This makes the significant difference to current technologies where the entire biowaste including inert and wooden ingredients are subjected to an aerobic process in dry digestion plants.

OVERVIEW OF THE ADVANTAGES

- Fermentation of a highly energetic liquid phase, recovered from the biowaste in the bypass for the existing composting process
- Removal of easily available organic material from the solid waste: to facilitate a further aerobic treatment
- Simple fermentation system of modular design with low investment costs
- High throughputs and low dwell times in a fixed-bed fermenter with a fixed bacterial colonisation
- Very high methane content of 60 - 70% and thus a high energy content in the biogas
- Circulation of the fermentation residue for wetting the fresh biowaste; no waste water to be disposed of externally
- Low-wear plant equipment which is easy to operate and maintain
- Automatic sand separation in the current fermentation process
- Hygienization by thermophile and continuous fermenter flow possible
Waste paper, an important waste stream in Germany. Challenge: Valuable raw materials must be separated.

WASTE PAPER

The waste paper volume of paper, cardboard and cartons amounts to approx. 16 million tons in the Federal Republic of Germany alone and is thus the most significant waste stream. The special recycling achievement is the production of a high basic quality for a re-use in paper production. Interfering materials must be reduced carefully; just here the requirement „Recycling is producing“ is particularly apparent.

Using advanced screening and sorting equipment, Sutco plants can produce de-inking ware with a proper quality.

MIXED BUILDING DEBRIS

This category is mainly a mixture of construction debris, excavated earth, plastics films and containers, iron parts and others. In Sutco waste treatment plants the secondary valuable raw materials contained in that are separated. Pre-sorted by a mobile excavator, the waste is separated to form different grain sizes by a specially robust multi-stage trommel screen and is manually separated via the powerful conveying equipment by machines (e.g. metal separator, windsifting equipment etc.). The recyclable fraction such as stones, sand, earth etc. are recycled.
DRI RECOVERABLE MATERIAL FROM HOUSEHOLD WASTE/MRF

Wherever household waste is collected in a system of wet and dry waste within disposal districts as e.g. in the United Kingdom market, a dry material sorting system with equipment and systems tried and tested for years is available from our company.

Bag openers, plate screens or trommel screens, Fe-NE separators, NIR sensors, windshifters etc. can be used to sort out the marketable raw material.

The following material are regarded as dry recoverable materials:

- Paper
- Cardboard
- Ferrous tins
- Non-ferrous tins
- Mixed plastics
- Glass
- Film
- Residual material

TIMBER TREATMENT

The treatment of biological mass such as by timber treatment plants for the production of timber chips and/or timber pellets. The use of sustainably harvested forest timber for the generation of energy is neutral to the climate since the amount of carbon dioxide the trees retain from the atmosphere before it is released to atmosphere.

MATTRESS SORTING

With landfill space at a premium within the waste industry, mattresses are now becoming a major problem. Sutco has developed mattress sorting systems that supports sorting and separating of the mattress components. Through a series of mechanical and manual stages, foam, fibre and metals are separated and stored ready to recycle or re-use.

“Modern treatment is multitasking, only with flexible components this target is achievable.”
Slag or ash are residues from incineration processes either from the power station area (coal-fired or lignite-fired power plants) or e.g. from furnaces and/or waste incineration plants. The slag from incinerations are especially significant for the protection of the environment. When waste is incinerated, approximately 250 to 350 kg are generated from each ton of waste.

They have (as the waste itself) a most different composition as far as the content of mineral materials, iron scrap, water and heavy metals is concerned. Therefore, the slag must be treated prior to use as building material in road and street construction. Sutco RecyclingTechnik has erected several plants which satisfy the requirements for this use.

**PRE-SORTING**

In the process before the household and bulky waste is first separated large items are removed and crushed before returning to the process. The ferrous metals are then sorted via a separator. For producing a fuel as uniformly as possible it is important that the household and bulky waste fractions are sorted. The remaining material must be mixed well, i.e. a homogenization is a requirement for a uniform incineration. After mixing, the waste is transported via belts to the tailings bunker for incineration.

**BOTTOM ASH FROM WASTE INCINERATION (SLAG)**

"The treatment of slag and ash is one of the most sensitive tasks in the recycling industry."
Depending on the requirements and features of a waste treatment, Sutco can provide different and dedicated units, e.g. conveyors, apron conveyors, trommel screens, wind shifters, plate screens, dosing feeders, ballistic separators and much more. Here, the size of a waste disposal company does not matter. Our engineers will customize the required components to the inventory.

**Sutco inhouse components:**

- Trommel screen
- Disc screen
- Conveying equipment
- Chain belt conveyors
- Apron conveyors
- Ballistic separator
- Falling chute shifter
- Wind shifter
- 3-way shifter
- Zick Zack shifter
- Hard material separator
- Bag opener
- Dosing unit
- Compactor
- Scraper
- BIOFIX turning machine
- Tunnel composting
- Walking Floor systems
- Box feeder
- Anaerobic digestion
- Bridge-type turning device
- Channel baling press (vertical/horizontal)
- 2-Way baling press
- Pressing container
- Transfer station
- Steel construction
- Special construction
SUTCO® - A COMPANY OF LM-GROUP.

USING SYNERGIES

TOOTHED WHEELS
as a symbol for functional synergies - the technical unit of different processes, variables and tasks - and a coordination to one objective

OUR GOAL
First of all, demanding requirements for ourselves. This is the only way for us to be able to meet your requirements. To achieve this objective, we develop and inform ourselves continually.

SYNERGIES
mean the mutual and flexible exchange of know-how and capacities in combines; the transparency and openness of our companies create an efficient total potential for our customers' benefit.

OUR PRODUCTS

PLANT ENGINEERING

MECHANICAL TREATMENT
- Municipal solid waste/MSW.
- Mechanical biological plants/MBT.
- Mechanical treatment before fermentation.
- Waste to energy.
- Commercial waste.
- Substitute fuels RDF/SRF.
- Packaging waste.
- Mixed building debris.
- Waste paper.
- Dry recoverable material from household waste/MRF.
- Timber treatment.
- Mattress sorting.
- Pre-sorting.
- Bottom ash from waste incineration (slag).

BIOLOGICAL TREATMENT
- Composting system BIOFIX.
- Tunnel composting system.
- Line composting: WENDELIN - the new generation.

FERMENTATION TECHNOLOGY
- Organic waste press water digestion/BioPV.

SUTCO® WORLDWIDE
with references in Algeria, Azerbaijan, Albania, Belgium, Brazil, Germany, Dubai, Finland, France, Greece, Great Britain, Ireland, Italy, Japan, Jordan, Luxemburg, The Netherlands, Norway, Austria, Poland, Romania, Russia, Switzerland, Spain, Czech Republic, USA, Cyprus, Scotland, Singapore and other countries.

“Turnkey solutions from one hand.”
THE LM-GROUP

The preservation and protection of our environment is an important concern. Whenever natural resources get scarcer, recyclables must be recovered from waste and re-used. Efficient recycling management is ensured by sophisticated technological systems whose functionality and efficiency have been developed over decades, having established themselves in operation and being adaptable purposefully.

Using its know-how, the LM-GROUP can cover all areas relevant for waste management and can bridge the disposal phases by sophisticated machines safely and exactly.

L&M Entsorgungs-Systeme – Pressing technology for recyclable residual materials and waste.

Sutco® RecyclingTechnik – Treatment and sorting systems for waste management.

unoTech® - Fully automatic channel baling presses for compaction.

Using the slogans COLLECTING – SORTING – BALING the LM-GROUP is active at eleven sites with more than 550 employees.

“Within a group of companies specialized on environmental technology we can plan, design and implement strong and trend-setting plant solutions for disposal-based applications. Our systems are used worldwide.”

Michael Ludden, CEO of the LM-GROUP

“THREE COMPANIES – ONE STRONG PARTNER. LM-GROUP worldwide.”