



# GORE® COVER FOR RECYCLING PARKS



## RECYCLING PARK: THE INTEGRATED APPROACH TO A COMPREHENSIVE WASTE TREATMENT PROGRAMME

### All waste streams collected in one plant for subsequent processing

- Source Separated Organics (SSO)
- Municipal Solid Waste (MSW)
- Refuse Derived Fuel (RDF) Biodrying

### Integrated process steps

- Separation and recycling
- Preparing for re-use
- Biodrying of RDF fraction
- Stabilization before landfill

### Various targets achieved

- Fulfilling regulatory requirements: Council Directive 99/31/EC of 1999 on the landfill of waste and regional requirements
- Proven waste volume reduction in the biological fraction up to 40%
- Drastically extending the lifetime of landfill capacity whilst recycling
- Building carbon credits
- AT<sub>4</sub> <10 mg O<sub>2</sub>/kg DM, DRI1000 etc. requirements



# GORE® COVER: ONE SOLUTION FOR A WIDE SPECTRUM OF TREATMENTS IN THE RECYCLING PARK

## Treatment of separated organic waste for high-quality compost

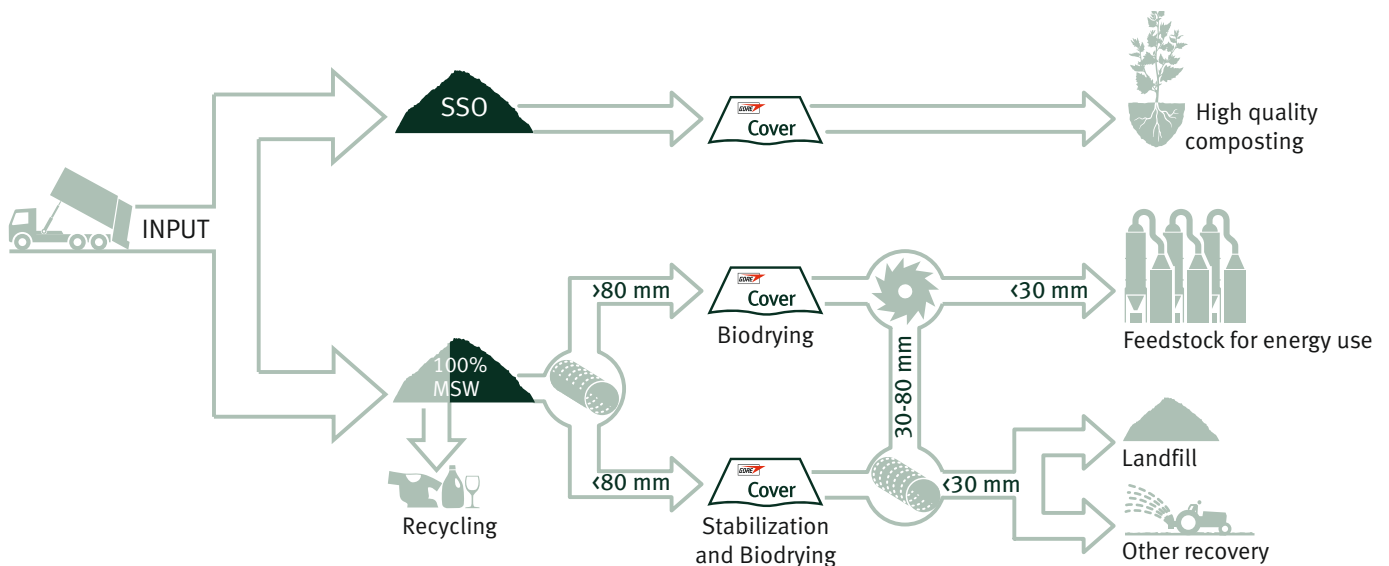
- from yard waste to food waste
- from green cuttings to digestate
- from source separated organics (SSO) to manure
- from catering waste to paper sludge
- from fish waste to slaughterhouse waste

## Treatment of municipal solid waste (MSW)

Mechanical Biological Treatment (MBT) to

- achieve the required stabilisation level (e.g. AT<sub>4</sub>, DRI100 or others) before landfilling
- create alternative fuels, Refuse Derived Fuel (RDF)
- produce Compost-Like Output (CLO)

## INTEGRATED RECYCLING PROCESSES STEP BY STEP. REDUCED LANDFILL. VALUABLE OUTPUT.



## GORE® COVER VALUES FOR RECYCLING PARKS

- One technology concept for different treatment steps
  - easy to operate
  - easy maintenance
  - easy to expand
- Investment and treatment costs per ton are lower compared to MBT building technology or incineration
- Highest system flexibility to meet peak season
- Regulatory requirements are proven by e.g.
  - VOC study (California, 2009)
  - Odor emission study (Germany, 2006)
  - In vessel approval (Germany, 2002)
  - UBA emission study (Germany, 2008)
- Lowest possible emission rate compared to all other technologies:
  - Reduced emissions from an industry average of 47 kg to 12 kg per ton
  - Stabilization Requirements; AT<sub>4</sub> value (e.g. Poland 2012)

# RECYCLING PARKS REFERENCE



## CASE STUDY 1: SPAIN

**Households:** 75,000 households with 300,000 inhabitants

**In operation:** since 2009

**Input quantity:** 190,000 tons/year

**Input material:** Municipal Solid Waste (MSW) without separate collection

**Regulatory requirements:** Meeting national legal requirements for stabilized waste to landfill

### Output

- Recyclables: Separation of paper, cardboard, PET, plastic, FE/NE, textile, glass
- RDF like material for energetic use
- CLO: for agricultural applications
- Landfill: extended lifetime by factor >5

Mass balance per year		
	Tons/year	%
Input	160,000	100
Recyclables	78,400	49
CLO	19,200	12
Mass reduction	28,800	18
Landfill	33,600	21

## CASE STUDY 2: HUNGARY

<b>Households:</b>	54,000 households with 270,000 inhabitants
<b>Municipalities:</b>	112 pooling in one Recycling Park since 2009
<b>In operation:</b>	
<b>Input quantity:</b>	160,000 tons/year
<b>Input material:</b>	Municipal Solid Waste (MSW), Source Separated Organic (SSO)
<b>Regulatory requirement:</b>	Hungarian national law on waste treatment, landfill requirements

Mass balance per year		
	Tons/year	%
Input	160,000	100
Recyclables	55,000	34
RDF	27,000	17
Mass reduction	28,000	17
Compost	20,000	13
Landfill incl. CLO	30,000	19

### Output

- Recyclables: Separation of paper, cardboard, PET, plastic, FE/NE, textile, glass
- RDF material for energetic use
- CLO: use as daily landfill cover – not to be used in agriculture
- Compost: high end quality supplied for agriculture and private gardeners
- Landfill: legal requirements fulfilled





## CASE STUDY 3: ITALY

**Households:** 330,000 households with 1,350,000 inhabitants

**Municipalities:** One province supplying into one Recycling Park

**In operation:** Starting 2011

**Input quantity:** 624,000 tons/year

**Input material:** Municipal Solid Waste (MSW)

**Regulatory requirement:** Stabilized material IR1000 fulfilling national requirements

### Output

**Recyclables:** Separation of paper, cardboard, PET, plastic, FE/NE, textile, glass, RDF material for energetic use

**Landfill:** legal requirements fulfilled

Mass balance per year		
	Tons/year	%
Input	624,000	100
Recyclables	312,000	50
RDF	69,000	11
Mass reduction	93,000	15
Landfill	150,000	24



## WELL COVERED. WELL DONE.

- Comparing cost of ownership GORE® Cover is the most economic solution for the treatment of solid waste (Composting, Stabilization before landfill and Biodrying)
- GORE® Cover eliminates the need for buildings for the composting of organic waste
- GORE® Cover is accepted as in-vessel technology worldwide
- GORE® Cover offers solutions for green waste, food waste, other source separated organics, biosolids and MSW
- Static composting with positive aeration using membrane technology has the lowest possible emission rate

### More than a cover – it's a complete system

- Support with site layout, commissioning, training and marketing of compost
- Back up for the efficiency and profitability of the site throughout its entire life-cycle via on-site check-ups
- Availability of a whole range of complementary customer services
- Web-based service platform for coordination of system components and spare parts (24 hours / 7 days a week)
- Training and support for owner and operator
- Demonstration packages and trial set-ups available on request

### Experienced Partners for your Waste Treatment Solution

- GORE® Cover is sold by partners and system suppliers all over the world

Please contact us to find your best partner for your local need



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