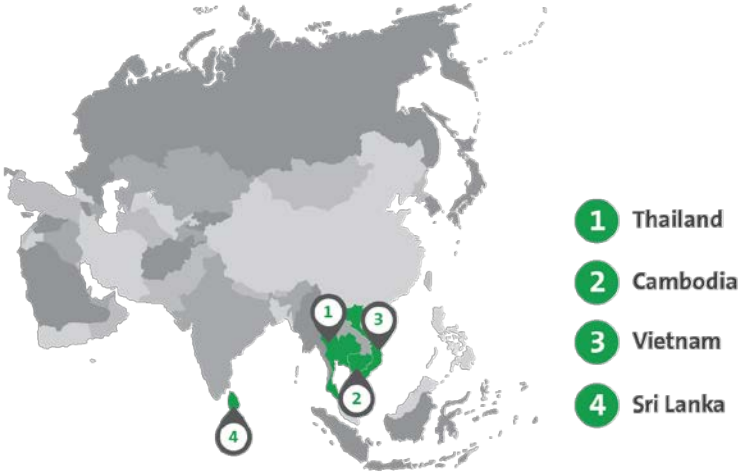
INSEE Ecocycle

Sustainable Waste Management and Industrial Services

Regional Presence and Reach



THAILAND: INSEE Ecocycle Company Limited offers waste management services across Thailand and industrial services, particularly in the oil and gas, petrochemical and power generation sectors both domestically and internationally.

In Sri Lanka, Vietnam and Cambodia, waste management services are offered under the same INSEE Ecocycle brand, serving industrial sectors for both hazardous and non-hazardous wastes.

SRI LANKA: INSEE Ecocycle Lanka (Private) Limited partners with a leading multinational company to establish the country's first resource recovery facility to leverage circular economy principles.

VIETNAM: In Vietnam, Ecocycle is providing the waste management services to major leading companies and continue to expand the full range of services inclusive of industrial cleaning, recycling, consulting and on-site services

CAMBODIA: In Cambodia, Chip Mong Ecocycle is a pioneer in waste co-processing and is establishing itself as a professional and reputable sustainable waste management service provider.

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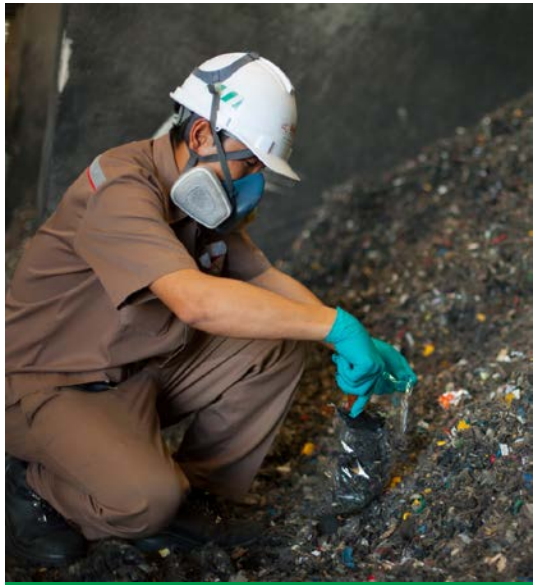
Our Services and Solutions



Waste Management

Industrial Services

Other Solutions

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Sustainability partnership

Business Co-creation to plug the leakage of plastics

INSEE ECOCYCLE

Sustainable Development

Our efforts to raise the industry standard, educate children through adoption of schools to sponsor the “Think Waste Wise” program, and amplifying these efforts throughout our service value chain, partnerships with large reputation multinational companies, adopting the extended producer responsibility (EPR) principle to take steps towards plastic pollution prevention.

SUSTAINABLE DEVELOPMENT GOALS

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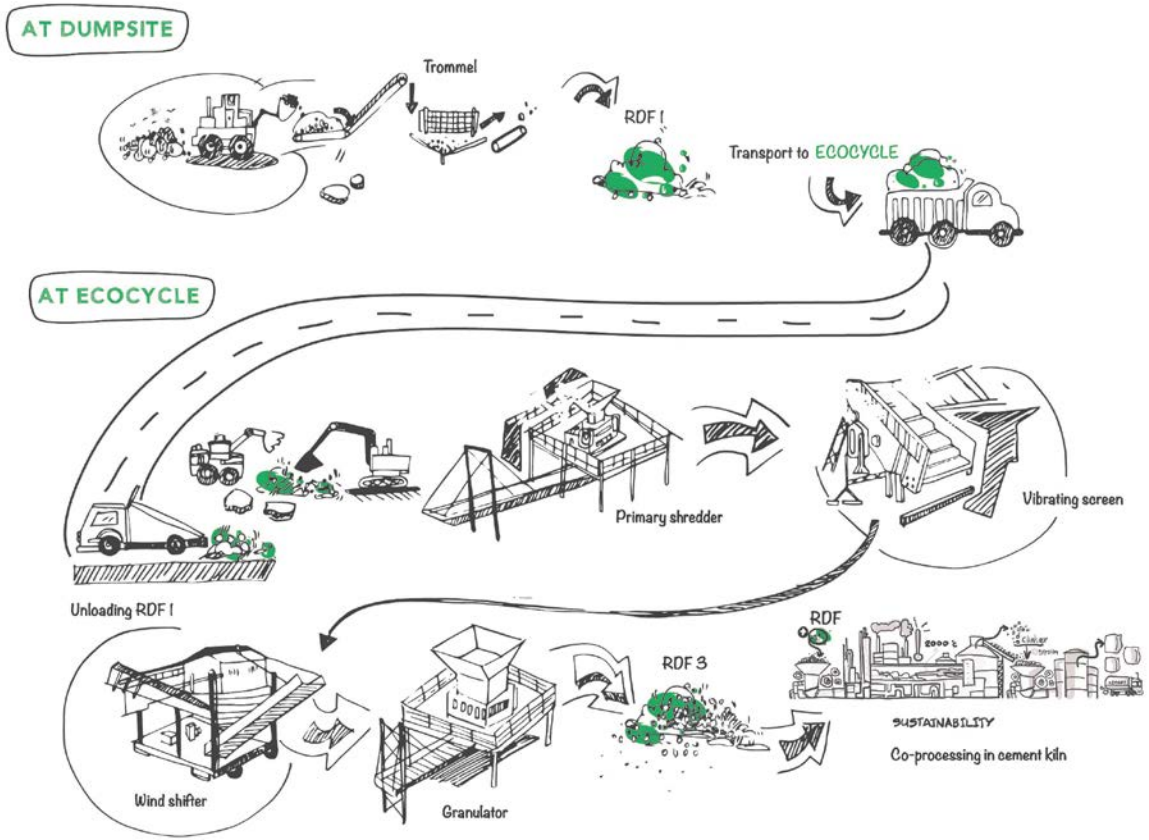
Utilization of RDF in Cement Kiln

...Dig up plastics from landfill,
separate from soil and other materials,
shred down to below 50 mm,
homogenize and deliver to cement kilns
...to replace fossil fuel



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Doing our bit ...

80%

of marine plastics comes from land-based waste that flows from rivers into the ocean.

Since 2017, we removed

346,915 tons

of plastics from dumpsite mining projects.

Equivalent to

28.20 billion

of plastic bags removed from potentially leaking into waterways and onto beaches

Volume of RDF substituting Coal in cement production totally

270,000 tons

Equivalent to GHG Emission reduction

378,237

tonCO2eq

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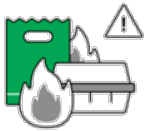
Refuse Derived Fuel (RDF) Drop-off

คัดแยกออกจากขยะเปียก
แห้ง ไม่ส่งกลิ่นเหม็นเน่า
Segregate with no food waste

Combustible!



เผาไหม้ได้

ตัด ฉีก บดย่อยได้
Able to shred

ตัวอย่าง ขยะที่สามารถนำไปเป็นเชื้อเพลิงขยะ หรือRDF ได้

ซอง ถุง และ พลาสติกต่างๆ
Non-recyclable plastics, multi- layered

โฟมและหีบห่ออาหาร เครื่องดื่ม
Foam and food packaging

กระดาษเคลือบมัน เคลือบพลาสติก
Paper and Plastic-coated papert

สิ่งทอ เศษผ้า
Textile and Fabric

บรรจุภัณฑ์
Consumer products packaging

SABINA เปลี่ยนชุดชั้นในเก่าเป็น "พลังงานสะอาด"

เผยแพร่: 2 ก.พ. 2565 13:59 ปรับปรุง: 2 ก.พ. 2565 13:59 โดย: ผู้จัดการออนไลน์

- BRA-CYCLE campaign with SABINA
- Drop –off point at INSEE Ecocycle Saraburi

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Awards and Recognition

We are a recognized leader in corporate social responsibility and sustainability. Award recognition is an affirmation that these efforts have a positive impact

Green Industry 5
กระทรวงอุตสาหกรรม
อุตสาหกรรมสีเขียวระดับที่ 5
การรับรองเลขที่ GI 5-003-2563

Certificates of Achievement for Green Industry Level 5 (Green Network), from Ministry of Industry

reduce reuse recycle 3Rs
กับการจัดการของเสียภายในโรงงาน

3Rs Award

CSR-DIW

CSR-DIW Award

Gold Medal Awards on the Standard of Industrial Waste Processor by Department of Industrial Works in 2010, 2011, 2012, 2013, 2014, 2015, 2017, 2018, 2019, 2020

ZERO WASTE TO LANDFILL

Zero Waste To Landfill Award

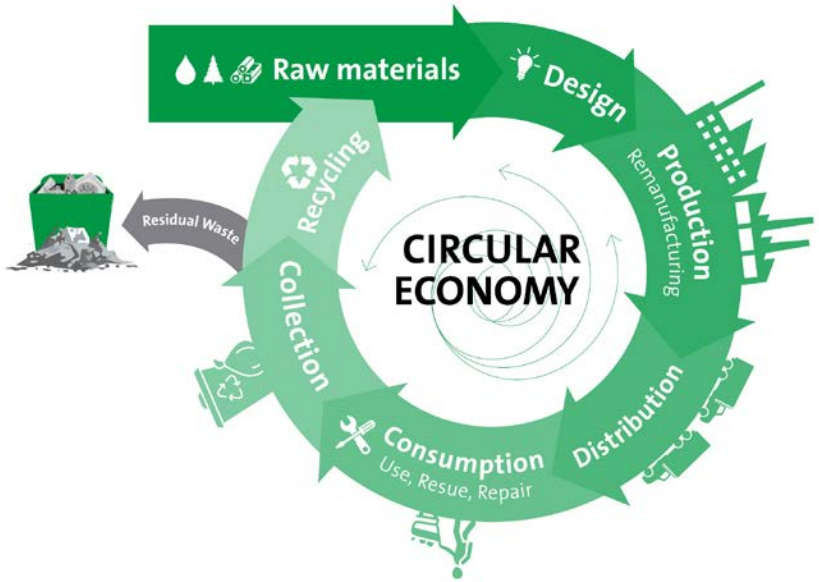
อินทรี อีโคไซเคิล คว้ารางวัลอุตสาหกรรมสีเขียวสูงสุด ระดับ 5

By BizFocus December 23, 2021 Font size Print Email

งานรับรางวัลอุตสาหกรรมสีเขียว และสัมมนาแล
Green Industry Fo

อินทรี อีโคไซเคิล คว้ารางวัลอุตสาหกรรมสีเขียวสูงสุด ระดับ 5 ผู้ให้บริการกำจัดกากอุตสาหกรรมรายแรกและรายเดียวในไทย

Waste Management in Circular Economy



Co-processing can make an important and structural contribution to the improvement of waste management. Specifically, pre- and co-processing can make important contributions to CO2 reduction and the circular economy transition through:

- A reliable elimination of harmful substances and their residues through controlled high processing temperatures, following a consensus that it is better to destroy them than allow them to cycle through a circular economy production system
- **Best use of residual waste which reached its end-of life status and can't be recycled anymore**
- Conservation of primary resources (raw materials and fuels) by replacing them with secondary resources
- Energy recovery from waste materials for which recycling facilities are not yet available or recycling technologies are financially not feasible.

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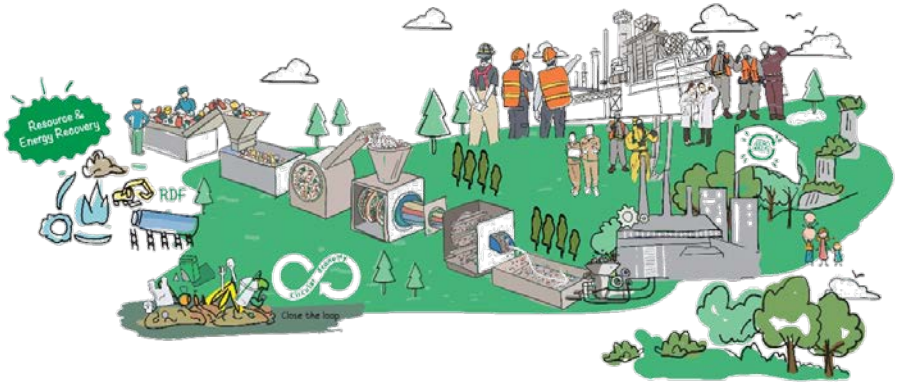
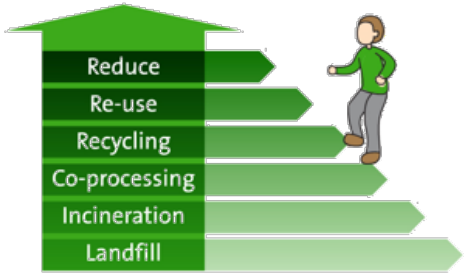
Closed-Loop Solutions

TRANSFORMING WASTE INTO RESOURCE…maximize resource efficiency, increase community resilience and reduce environmental footprints.

Clients becoming more concerned about their environmental footprint, climbing up the Waste Hierarchy and where they fit into a circular economy, seeking for advance technology and **Closed-Loop solutions** reuses and upcycles waste into innovative new materials and products.





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OPTOCE Project - Thailand

Study of Dumpsite Pre-operation phase

Scope of Study

OBJECTIVES

- To demonstrate that non-recyclable plastic wastes can be mined from dumpsites and energy-recovered in INSEE ECOCYCLE's Saraburi Plant in order to increase the in-country plastic-waste treatment capacity and to reduce the leakage of plastics to the ocean.
- To share lessons learned in a regional multi-stakeholder forum enabling awareness raising, capacity building and replication.

OUTCOME

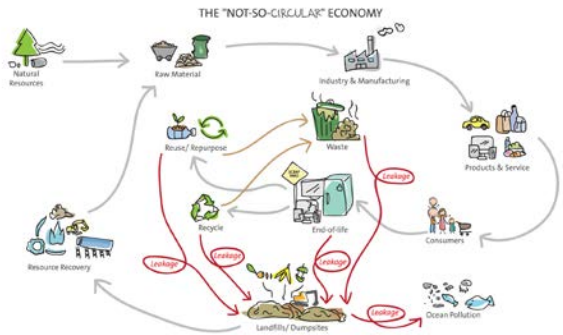
- That plastic recovery contributes to improved resource efficiency and circular economy;
- That private sector's involvement and performance in environmentally sound plastic-waste treatment is improved; and
- That awareness about the need for sound plastic waste management is strengthened.

- **Pre-operating phase**
  - Analyze the compositions of municipal solid waste (MSW) in the closed dumpsite before operating
  - Taking waste samples: 15 points at 150 kg each point
  - Sample will be classified into different materials and send to Laboratory to measure parameters inclusive of Heating Value, Moisture, Ash and Chloride
  - Sample will be classified based on Resin codes

- **Operating phase**
  - Utilize RDF in cement kiln, study in different scenarios such as using coal with Industrial waste and RDF
  - Emission measurement

Challenge in Waste Management

A lack of proper infrastructure and a lack of will on the part of private enterprises has led to poor waste management, with very few end-of-pipe solutions and low recycling rates. Businesses need to take the lead and find ways to address leakages in this "not-so-circular" economy.



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Dumpsite Information

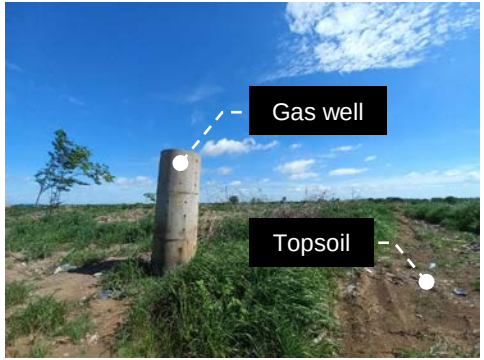
Dumpsite was established in Jan 1998 until 11 Dec 2003 with daily incoming waste around 400 tons per day, waste was dumped at this site for 5 years and permanently close since 2003

Total closed landfill is around 28 Rai (48,000 m2), accumulated waste is totally 339,000 tons

Site dimension:

- Length = 400 m.
- Width = 150 m.
- Height = 4-5 m.
- Area = 60,000 sq.m.

Closed dumpsite for 10 years



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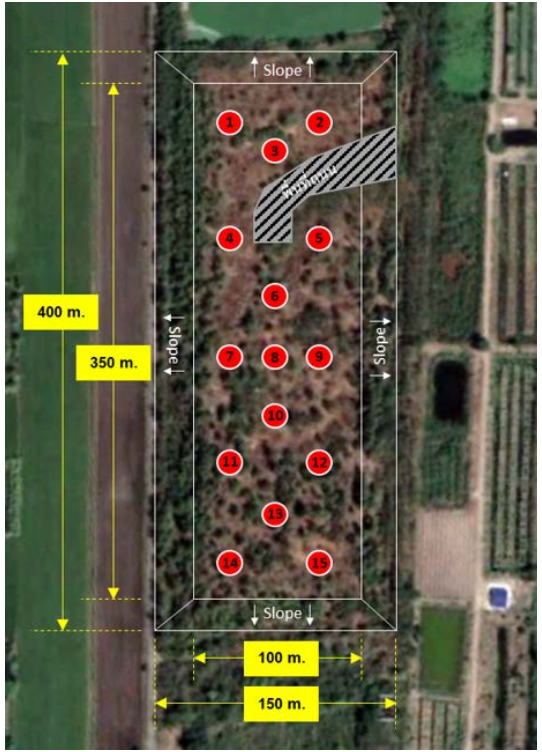
Sampling procedure



Test date: 17-20 August 2022

Sampling procedure

- 15 samples with 150 kg each design for 60,000 m2 as shown in the scheme. Totally 2.25-ton waste sampling.
- Waste segregation must be taken in each material type.

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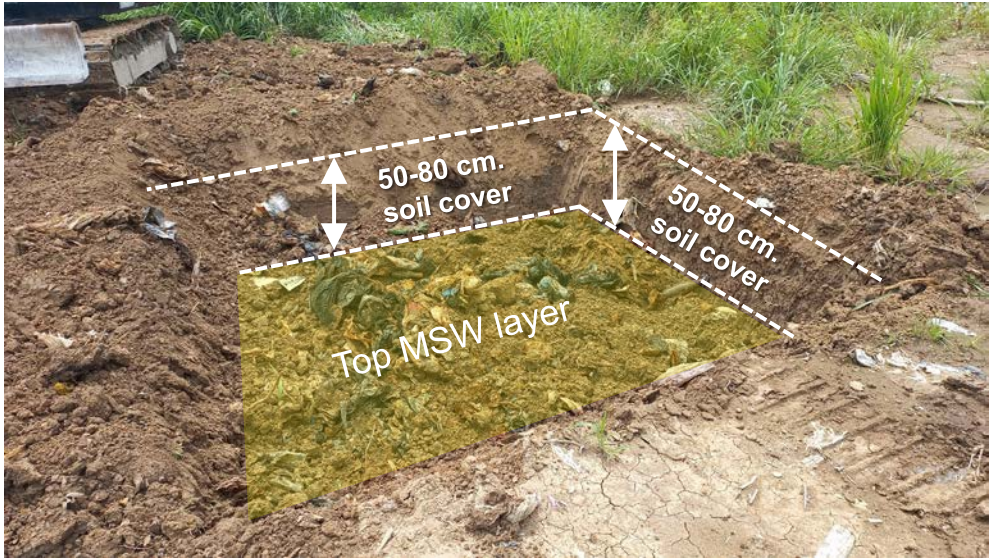
Waste characteristics

1. Topsoil removal

- Topsoil cover layer 50-80 cm.



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Waste characteristics

2. Sample hole and sampling

- Sample hole dimension

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Waste characteristics

3. Waste sampling and classify in each material type

- Waste segregation in each 12-material type.

1. Flexible plastic packaging, bag
2. Multilayer flexible plastic
3. Rigid plastic containers
4. UHT cartons aluminum foil
5. Metal, Aluminum
6. Glass containers
7. Rubber material
8. Fabric material
9. Biomass all type
10. Stone, Rock
11. Electronic material
12. Other (Polystyrene, etc.)

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Waste characteristics **- Flexible plastic packaging, bag**

- Garbage bag, plastic bag
- Packaging excluding multilayer plastics
- Plastic straw, etc.

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Waste characteristics - **Multilayer flexible plastic**

- Food packaging
- Detergent packaging
- Etc.

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Waste characteristics - **Rigid plastic containers**

- Bottles, cups
- Noodle cups
- Etc.

Remark: Waste age over 10 years, so we won't detect microwave trays for ready-made meals.

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Waste characteristics - **UHT cartons aluminum foil**

- Aluminum foil
- Cartons of fruit juice
- Toothpaste tube

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Waste characteristics - **Metal, Aluminum**

- Mostly aluminum can (coffee can, canned fish)
- Spray can
- Stainless steel cutlery
- Steel pipe, paint bucket lid, Etc.

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Waste characteristics - **Glass containers**

- Mostly 60 cc and 620 cc Amber glass bottle
- 250 cc and 325 cc clear glass bottle
- A few 620 cc green glass bottle, etc.

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Waste characteristics - **Rubber material**

- Rubber shoe, rubber gloves
- Rubber wheels
- Etc.

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Waste characteristics - **Fabric material**

- Cloth, fabric gloves (absorb water).
- Etc.

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Waste characteristics - **Biomass all type**

- Wood, bamboo
- Coconut shell and husk
- Etc.

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Waste characteristics - **Electronic material**

- Fluorescent starter

- Alkaline battery

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Waste characteristics - **Other, please specify**

- Polystyrene

- Cutting Disc

- Lighter

- Transmission belt

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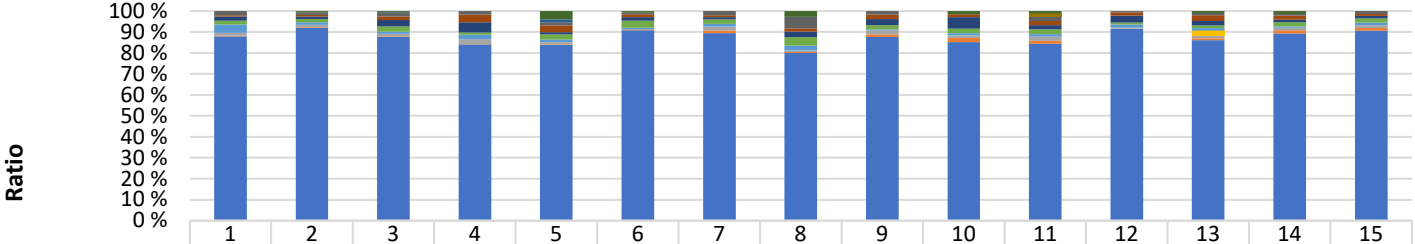
Waste characteristics

Percentage of Waste characteristics



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Other	-	1,0	1,0	-	6,0	1,2	-	4,2	-	2,4	1,8	-	1,5	2,1	-
Electronic material	-	-	0,4	-	2,0	-	-	-	-	-	-	-	-	-	-
Stone, Rock	-	-	-	-	-	-	-	-	-	-	2,1	-	-	-	-
Biomass all type	3,0	1,8	2,6	2,6	2,3	1,2	3,0	8,2	2,7	-	3,3	0,9	1,5	1,2	2,1
Fabric material	1,0	1,2	2,6	5,4	4,8	2,0	1,5	2,4	3,0	2,1	3,0	2,4	4,2	3,0	1,5
Rubber material	3,0	1,8	4,4	7,4	1,8	2,6	1,5	4,0	4,5	8,1	3,0	5,1	3,3	1,8	1,8
Glass containers	2,8	2,4	3,8	1,6	3,5	5,0	3,3	6,0	3,0	3,3	3,3	1,2	1,8	3,0	3,0
Metal, Aluminum	5,8	1,8	1,6	3,2	2,0	1,0	1,8	3,4	0,6	1,5	1,8	2,4	1,8	0,9	1,8
UHT cartons aluminum foil	-	-	-	-	-	-	-	-	-	-	-	-	3,6	-	-
Rigid plastic containers	2,1	1,6	1,8	3,6	1,6	0,5	3,0	1,2	3,0	1,8	3,0	0,6	1,8	1,8	2,1
Multilayer flexible plastic	0,4	0,4	0,4	0,2	0,4	0,4	1,8	0,6	1,8	3,0	2,1	0,3	1,5	2,4	1,8
Flexible plastic packaging, bag	131,9	138,0	131,4	126,0	125,6	136,1	134,1	120,0	131,4	127,8	126,6	137,1	129,0	133,8	135,9

Sampling point No 1 -15

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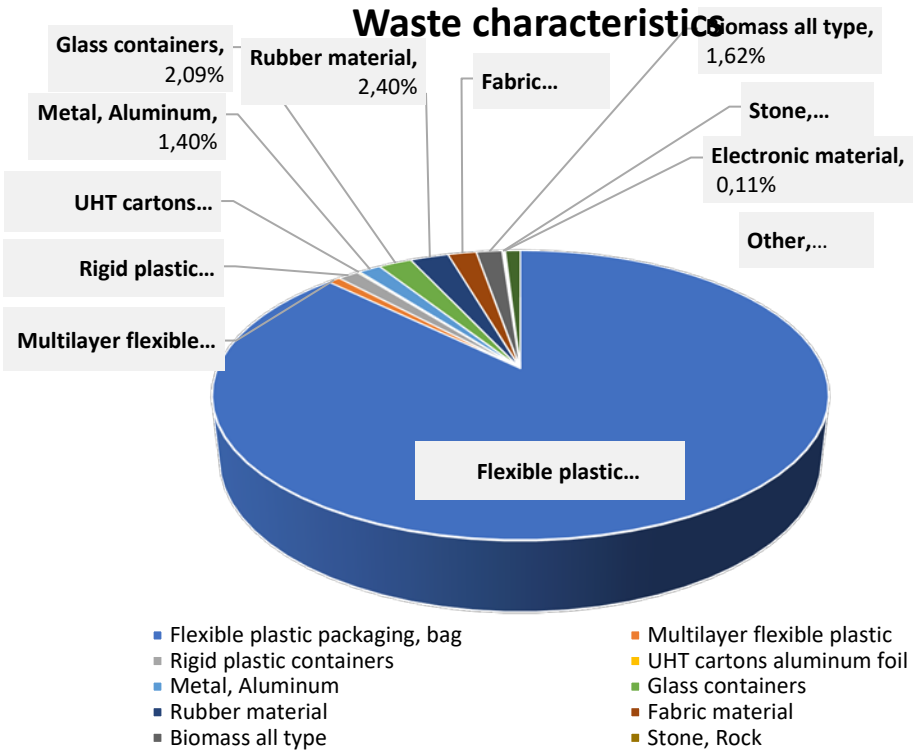
Waste characteristics

Mostly detected

- Flexible plastic packaging, bag
- Rubber material
- Glass containers
- Fabric material
- Biomass all type
- Metal, Aluminum
- Rigid plastic containers
- Other (Polystyrene, etc.)
- Multilayer flexible plastic
- UHT cartons aluminum foil
- Electronic material
- Stone, Rock



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