



Thummaide

Waste processing centre



ipalle



EMAS

Management
environmental
certification
EN ISO 14001
EN ISO 14004



Daily action for the Environment

Founded in 1976, IPALLE is the Inter-municipal organisation for the management of the Environment. It unites 30 municipalities, i.e. more than 400 000 inhabitants.

WALLONIE PICARDE

- Antoing
 - Ath
 - Belœil
 - Bernissart
 - Brugelle
 - Brunehaut
 - Celles
 - Chièvres
 - Comines-Warneton
 - Ellezelles
 - Enghien
 - Estaimpuis
 - Flobecq
 - Frasnes-lez-Anvaing
 - Lessines
 - Leuze-en-Hainaut
 - Mont-de-l'Enclus
 - Mouscron
 - Pecq
 - Péruwelz
 - Rumes
 - Silly
 - Tournai
- ## SUD-HAINAUT
- Beaumont
 - Chimay
 - Froidchappelle
 - Lobbes
 - Momignies
 - Sivry-Rance
 - Thuin



Its sectors of activity are the **management of waste** and the **purification of used water**

In order to achieve its missions,

IPALLE has a range of effective tools:

- The Waste Valorisation Centre of Thumaide
- A network of 26 container parks with mutualisation system and free access for particulars
- A network of some 500 glass containers located on the streets
- A selective door-to-door collection service of household packaging waste (FOST Plus)
- 3 composting plots for green waste (Ath, Templeuve and Thumaide)
- Co-operation with the social economy sector for the selective collection of reusable bulky household waste (Resources)
- Numerous purification centres, pumping stations and hundreds of km of collectors
- Numerous pro-environment actions such as a lorry for the cleaning of graffiti, etc.
- Co-operation with private companies (Dufour, Shanks, Sita, Van Gansewinkel and Vanheede) and an associated inter-municipal organisation, the IDEA (municipalities of Anderlues, Binche, Boussu, Braine-le-Comte, Chapelle-lez-Herlaimont, Colfontaine, Dour, Honnelles, Ecaussines, Erquelines, Estinnes, Frameries, Hensies, Jurbise, La Louvière, Lens, Le Roeulx, Manage, Merbes-le-Château, Mons, Morlanwelz, Quaregnon, Quévy, Quiévrain, Saint-Ghislain, Seneffe, Soignies).

IPALLE also means men and women who work every day on the well-being of the inhabitants of Wallonie Picarde and Sud-Hainaut. More than 320 employees today contribute to the preservation of our environment.

Not forgetting that IPALLE has received an environmental certification ISO 14 001 and an EMAS registration (which guarantees the compliance with the environmental regulation in all points) over the various sectors.



The Chair's message

Welcome to the Thumaide plant!

Thumaide was commissioned in the late 1970s and is the flagship of our inter-municipal organisation but a lot has changed since then!

It boasts higher energy recovery rates than European standards, one of the most efficient gas treatment systems, comprehensive clinker processing resulting in a ready-to-use aggregate, an automated infectious hospital waste transfer chain (one of only two facilities in Belgium), a bulky waste shredding plant and a green waste composting unit. Successive investment programmes have gradually transformed the Thumaide plant into Wallonia's top waste facility, providing cost-effective, high-quality service to the community, municipalities, hospitals and manufacturing.

All these tools expertly built and run by a crack team operate to rigorous, unremitting management standards. Indeed, 17 straight years of EMAS certification (an environmental management system) clearly demonstrate the quality of the service provided.

Given the fundamental challenge of preserving our environment, refuse management must strive for "zero waste", re-using goods and recycling. When these options aren't available, energy recovery prevents waste going to landfill sites and its value from being lost. Throughout Europe, where energy recovery from incineration is the most popular option, recycling schemes are the most advanced too. Energy recovery and recycling go hand in hand.

Incineration helps to recover non-recyclable polluting substances and to use the energy they contain. It also provides a lasting solution for residual waste from sorting and recycling plants. Energy recovery means that the circular economy can subsequently grow safe and sound as the quality of the circuit is guaranteed.

The Thumaide energy recovery facility has four incineration lines that supply the grid with enough electricity to power more than 65,000 homes, making it the biggest electricity producer in the Walloon part of Picardy.

The waste industry is constantly evolving and IPALLE fits in perfectly with the circular economy's virtuous circle. Thumaide consequently plays its part in developing this worthwhile venture to assist the sustainable development of our region.

Pierre WACQUIER,
Chair



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EMAS
Management
environmental

Waste processing centre

Thumaide

Waste processing Centre of Thumaide



Thumaide today means...

- 1 More than 90 persons for the running and maintenance of the site
- 2 4 boiler-furnaces
- 3 Energy recycling of the incinerated waste
- 4 A composting centre for plant waste
- 5 A sorting/crushing unit for bulky waste
- 6 Automated handling installation for hospital and medical waste (type B2)
- 7 Treatment unit of slag for recycling
- 8 A co-incineration unit for sewage sludge
- 9 5 effective smoke purification systems
- 10 Targeted communication actions
- 11 EMAS certification (officially obtained on 14 November 2003)
- 12 A support committee for the local residents



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Waste processing centre

Thumaide



Recycling waste as energy



The 4 furnaces of the Thumaide centre are active 24/7 under the supervision of the station teams. Thumaide's installations allow to recycle household waste generated by households in Wallonie picarde, Sud-Hainaut and the region of Mons-Centre into energy, but also other flows of waste, originated from the needs of our society, such as:

- bulky waste, originating from the container parks and municipal collection, after extracting recyclable fractions (wood, iron, aluminium etc.)*,
- household waste of the neighbouring region Mons-Borinage/Centre,
- hospital and medical waste *
- ordinary non-recyclable industrial waste (plastic, cardboard, pallets etc.),
- sorting rejects (PMC or composting),
- sludge of the purification plants that cannot be re-used in agriculture*,
- various waste originating from our purification plants (screening, fat...).

*see the relevant information sheets



1

1 The waste lorries are weighed on arrival at the site. After the first documentary check, radioactivity detection and visual check, their load is emptied in the waste pit.



2

2 The pit is maintained at a lower level so as to avoid foul-smelling odours escaping to the outside. This air flow contributes to the combustion of waste in the furnace.



3

3 After first being homogenised in the pit with a grappling hook, the waste is inserted in the furnace with a hopper. It is then evenly spread on the incineration grid consisting of metallic bars.

Waste is the only fuel that supplies the boiler-furnaces. Burners are used for starting and stopping of the furnaces.

4 In order to collect the energy generated by the combustion of waste, a steam boiler is placed above the fire.

The boiler produces steam that is released in a turbo-alternator unit which in turn produces electricity.

5 The energy recycling amounts to approximately 600 kWh per ton of waste, or more than 314 million kWh per year, of which some 263 million are re-injected in the grid, with the balance supplying the factory in itself. That production corresponds to the average consumption of 75 000 households.



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LES INSTALLATIONS

Site	<ul style="list-style-type: none"> +/- 16 hectares Incineration capacity of the whole site: more than 1 600 ton per day, i.e. more than 400 000 t/year. 																								
Unloading hall Pit	<ul style="list-style-type: none"> 13 unloading bays 																								
Receiving pit	<ul style="list-style-type: none"> Volume : - stacking excl. (hydraulic level): 8 800 m³ or +/- 3 000 t - with stacking: 15 000 m³ or +/- 5 100 t 																								
Furnace energy supply	<ul style="list-style-type: none"> 3 rolling bridges 3 2 of Grappling hooks + reserve Capacity of the grappling 9m³ or +/- 4.5 ton per grappling 																								
Furnaces	<ul style="list-style-type: none"> 9 Quantity: 4 Furnace temperature: between 1 000 and 1 100°C Pre-heating of the air: : 160°C <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th></th> <th>FURNACES 4 and 5</th> <th>FURNACES 6 and 7</th> </tr> </thead> <tbody> <tr> <td>Type</td> <td>Grid at 26°</td> <td>Grid at 26°</td> </tr> <tr> <td>Dimension (W x L) : m x m</td> <td>6 x 8</td> <td>6 x 8</td> </tr> <tr> <td>Bars</td> <td>Chrome fount</td> <td>Chrome fount</td> </tr> <tr> <td>Thermal power</td> <td>38 MW_{th}/furnace</td> <td>39 MW_{th}/furnace</td> </tr> <tr> <td>Capacity:</td> <td>16 t/h à PCI : 8 500 kJ/kg</td> <td>13,2 t/h à PCI : 10 600 kJ/kg</td> </tr> <tr> <td>Staying time of the OM</td> <td>30-60 minutes</td> <td>30-60 minutes</td> </tr> <tr> <td>Surface exchange boiler</td> <td>5 300 m² (F4) 5 200 m² (F5)</td> <td>5 300 m² (F6) 5 300 m² (F7)</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Type of refractories: SiC refractory tiles + SiC monolithic concrete Parameters of fire control: IR pyrometer located on the 2nd floor Elimination of the NO_x: non-catalytic device (implemented in late 2006) 		FURNACES 4 and 5	FURNACES 6 and 7	Type	Grid at 26°	Grid at 26°	Dimension (W x L) : m x m	6 x 8	6 x 8	Bars	Chrome fount	Chrome fount	Thermal power	38 MW _{th} /furnace	39 MW _{th} /furnace	Capacity:	16 t/h à PCI : 8 500 kJ/kg	13,2 t/h à PCI : 10 600 kJ/kg	Staying time of the OM	30-60 minutes	30-60 minutes	Surface exchange boiler	5 300 m ² (F4) 5 200 m ² (F5)	5 300 m ² (F6) 5 300 m ² (F7)
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Auxiliary burners	<ul style="list-style-type: none"> Fuel burners: 1 per line (4,5,6 and 7) Thermal capacity of the burners: 17 MW_{th} 																								
Slag extractors	<ul style="list-style-type: none"> Under water extractor Capacity of the extractor: 12,5 m³/h (F4, F5, F6, F7) Maximum speed: 40 runs/hour (F4, F5, F6, F7) 																								
Boiler	<ul style="list-style-type: none"> Natural circulation boiler Maximum steam flow per line: - F6 : 44 t/h - F7 : 44,8 t/h - F4 and F5 : 2 x 43,33 t/h Pressure: - F6 and F7 : 45 bars - F4 and F5 : 42,45 bars Steam temperature: - F6 and F7 : 395°C - F4 and F5 : 365°C 																								
Turbo-alternator unit	<ul style="list-style-type: none"> Condensation turbine Maximum power at exit: turbine F6 and F7 : 18,9 MWe Turbine F4 and F5 : 18,5 MWe Condensors pressure: 100 mbara 																								
Electricity production	Annually of approximately 314 million kWh including 263 million (theoretical kWh of 75 000 households) re-introduced in the grid.																								

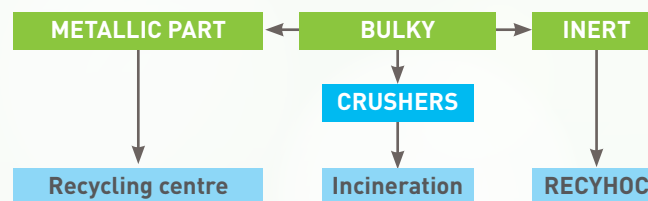
Managing bulky waste to recover the energy



Often condemned to simple disposal in the past, the bulky waste collected in the container parks is now transported to the Thumaide site (annual capacity: 30 000 ton). It there is recycled into energy after a final visual check to separate wood, ferrous and non-ferrous metal and inert objects.

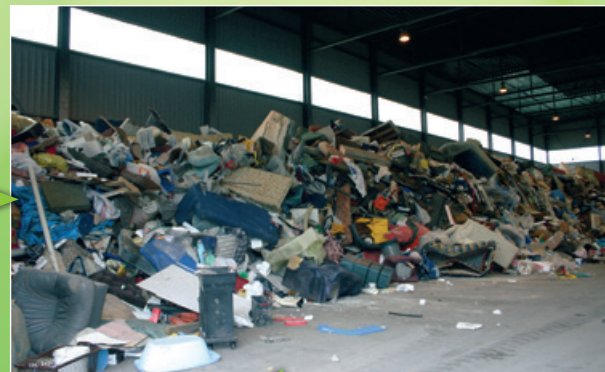


- 1 On arrival at the site, the bulky waste is roughly sorted with a handling device. As metallic and inert fractions could damage the cutters and cannot be directed to incineration anyway, they are evacuated. These so-called "parasite" fractions are stored in specific pits and then directed to material recycling paths.
- 2 After this sorting, a wheel loader transports the waste to the loading zone equipped with a buried rotating cutter.
- 3 A horizontal hydraulic plunger ensures the appropriate feed of that cutter with a hourly capacity of 25 ton. This unique crushing line reduces the granulometry of the bulky waste to 400 mm in length and 50 mm in width (maximum) for insertion in the furnaces.
- 4 The crushed waste is placed in two containers to be transported to the incinerator silo (see sheet about the recycling of waste under energy type).



THE INSTALLATIONS

Capacity	<ul style="list-style-type: none"> • 30 000 t/year
Storage	<ul style="list-style-type: none"> • Total surface of the hall: 2 160 m² • Storage zone: 1 800 m² • Height of the hall: 8 m
Crushing	<ul style="list-style-type: none"> • Capacity: 25 t/h • Power of the crusher: 2 x 132 kW • Reduction of dust by water pulverisation above the crusher. • Loading with bulldozer with dipper of 3.5 m³. • Reduction of the bulky waste to dimensions of 400 x 400 x 200 mm maximum.
Transit of the crushed waste to incineration.	<ul style="list-style-type: none"> • 2 30 m³ containers emptied in alternance • Double system with container lifting lorries and trailers to transport the crushed waste to the silo of the incinerator



Eliminate hospital waste



The progressive reinforcement of the law on atmospheric emissions has forced many incineration installations in hospital sites into closure. In order to respond to the problems faced by clinics and care establishments, IPALLE provides, under optimal safety conditions, processing of hospital waste of type B2 (cutters, needles or infected). The installation consists of two automatic handling chains that strictly meet the legal provisions, i.e.:

- checking the absence of radioactivity,
- the prohibition of mixing B2 waste with household waste stored in the pit,
- the maximum restriction of human contact with this type of waste,
- storage time limited to 24 hours maximum before incineration,
- checking the disinfection of the containers.



1 On arrival, the waste is conditioned in standardised containers, weighed and identified with a barcode-type optical reading system. This action ensures the full trackability of the waste (origin, date, time of arrival and time of processing).



2 Once identified, the containers are loaded on an automatic chain and taken to the hopper of the furnaces.



3 After unloading their cargo, the containers turn back to the lift which takes them back to the ground floor.

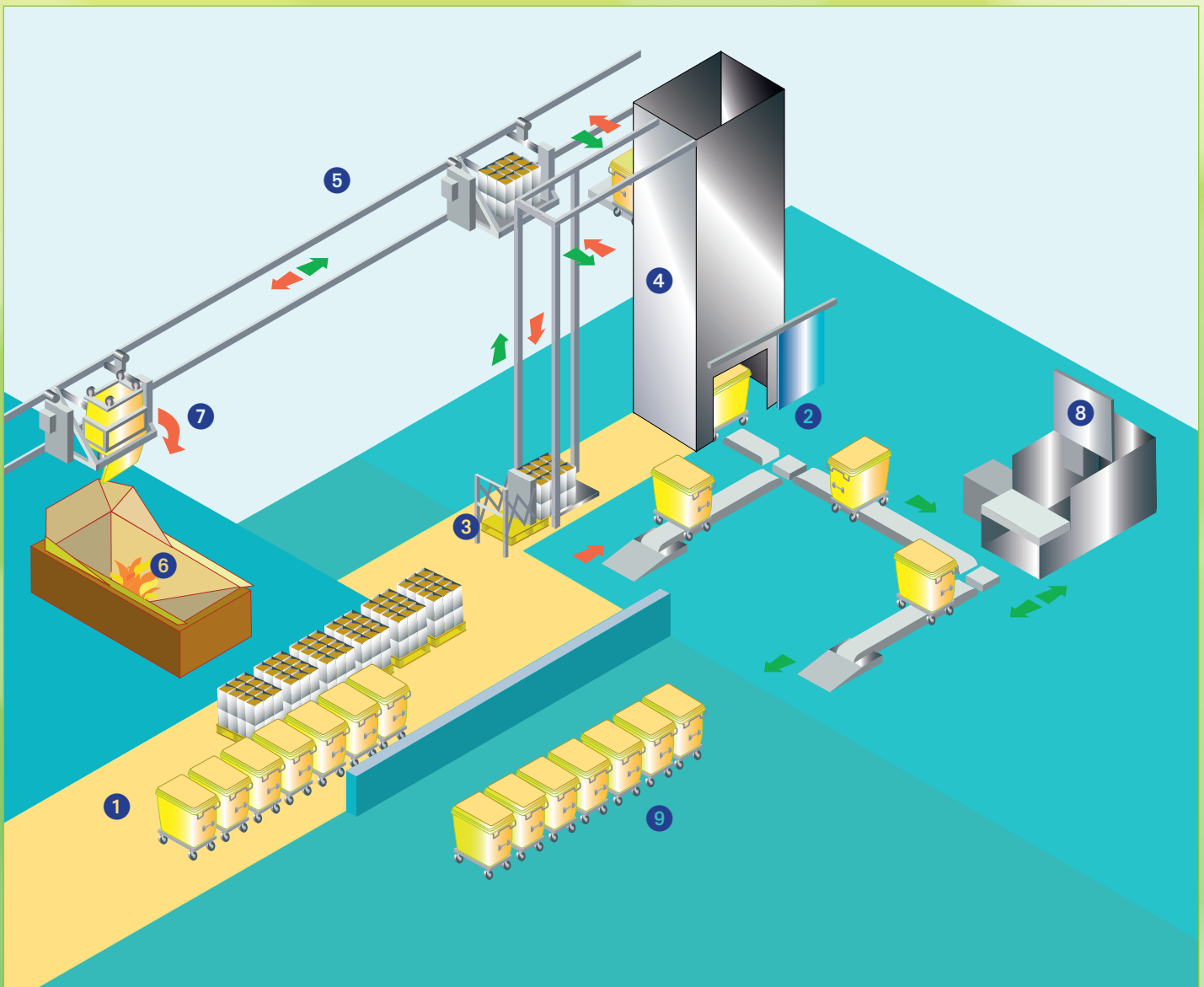


4 The rotating table then directs them to the washing station to proceed with cleaning and total disinfection (inner and outer).



THE INSTALLATIONS

Operational capacity	<ul style="list-style-type: none"> • +/- 6 000 t/year • Operation time of the chain (operation 5 x 24h, 5 days/7)
Treatment of the containers	<ul style="list-style-type: none"> • 14 containers per hour • Containers of 1 100 L, 900 L and 770 L
Treatment of the pallets	<ul style="list-style-type: none"> • 8 pallets per hour
Washing of the containers	<ul style="list-style-type: none"> • Cleaning with biocide • Rinsing of the containers
Storage	<ul style="list-style-type: none"> • Storage time under 24 hours



1 Zone "full containers"

2 Rotating table

3 Zone "pallets"

4 Lift

5 Translational tunnel

6 Furnace hopper

7 Tilting

8 Washing station

9 Zone "disinfected containers"

Co-incinerating sludge



IPALLE also is a network of purification centres in Wallonie picarde. These purification centres produce sludge originated by waste water treatment. If it meets strict environmental standards, the sludge can be re-used in agriculture. Otherwise they must be incinerated. That is why the SPGE, in agreement with IPALLE, has invested in a co-incineration unit (joint incineration with waste).



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- 1 The co-incineration unit, implemented in 2004, has a capacity of approximately 18 000 ton per year.
- 2 The sludge is first unloaded in a hermetically closed silo.
- 3 The whole room where the sludge is received is placed lower to avoid the emission of odours, the extracted air is then used in the furnace as combustion air
- 4 The sludge is transported in the furnaces in pipes activated by concrete pumps. It is evenly spread on the combustion grid where it is incinerated.



3



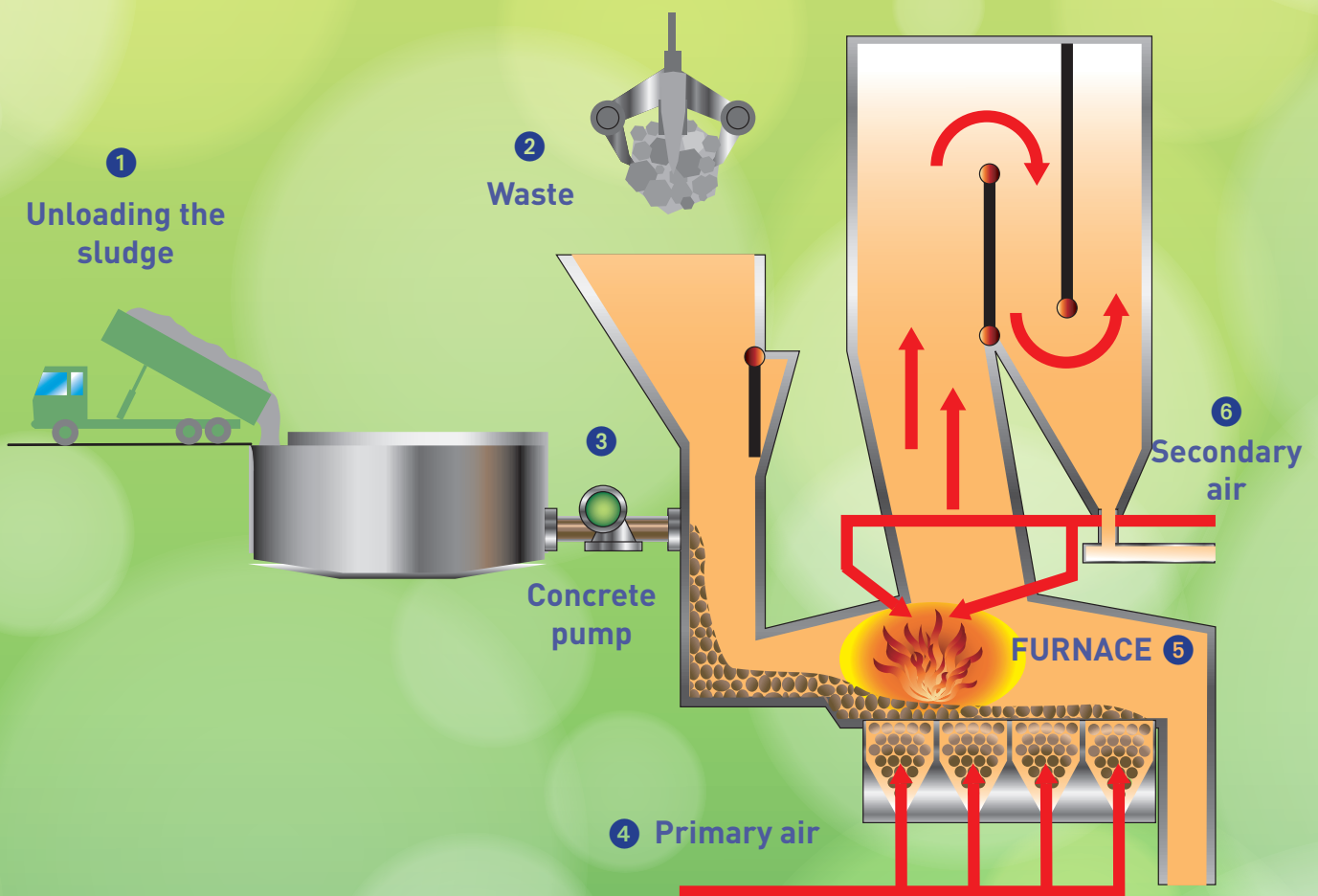
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THE INSTALLATIONS

Silo volume	<ul style="list-style-type: none"> • 108 m³
Conveyors	<ul style="list-style-type: none"> • 2 screw conveyors with a capacity of 6 m³/h
Capacity of the pumps	<ul style="list-style-type: none"> • 2 x 1,6 t/h maximum • 2 pumps for thick substances of 60 bars maximum to counteract the loss of load of the substances in the pipes of 1 bar per running metre
Maximum flow to the furnaces	<ul style="list-style-type: none"> • 3,2 t/h
Co-incineration	<ul style="list-style-type: none"> • 18 000 t/year of co-incinerated sludge



Smoke purification

In 1996, in order to meet the strict impositions of the European directive on the incineration of waste, the Centre of Thumaide is fitted with state-of-the-art equipment for the treatment of smoke.

The process consists of a succession of semi-humid and humid stages that guarantee stricter rejection values than the legal provisions. The smoke purification system was complemented in 1998 with treatment of dioxins and furans with active carbon, thus anticipating the standards imposed by the Walloon region. The emissions of those specific pollutants are constantly checked since 1 January 2001, when the 0.1 ng/Nm₃ of smoke became effective. The results of the measures are available in real time on the IPALLE website www.ipalle.be (waste/treatment tools/smoke purification/atmospheric emissions online).



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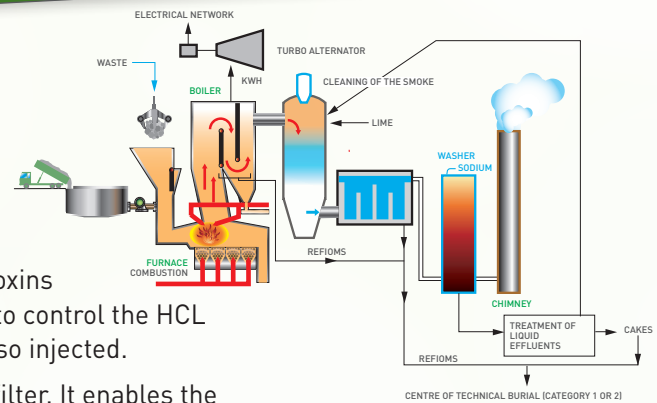
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- 1 Nitrogen oxides are removed by injecting ammonia water.
- 2 Lime traps sulphur and chlorine that are collected as salt inside the tower and the bag filters. Active carbon is also injected to trap the heavy metals (mercury), dioxins and furans. Furthermore, in order to control the HCL and SO₂ emissions, active lime is also injected.
- 3 The smoke is then filtered in a bag filter. It enables the separation of the salts and the residues of smoke.
- 4 The smoke finally goes through two stages of cleaning. The acid stage completes the purification of the chlorine and the removal of the heavy metals that would have escaped the active carbon. The smoke is then cleaned with alkaline with the purpose of trapping the last sulphur particles.
- 5 The purified gases are then directed to the chimney through an extractor fan. The passage of smoke through a noise damper provides considerable noise reduction. The washer purges are evaporated in the atomisation tower. No liquid effluent is thus rejected from that installation.
- 6 Analysers continuously check the combustion parameters and atmospherical discharge, i.e. dust, chlorhydric acid (HCl), sulphur dioxide (SO₂) and carbon monoxide (CO), the total organic carbon (COT) and nitrogen oxides (NO_x).

Quarterly measuring campaigns are also scheduled on each furnace in order to analyse the other gases. Cartridges permanently analyse the dioxin emissions in the chimney.



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THE INSTALLATIONS

Exit of the furnaces	<ul style="list-style-type: none"> Nominal flow furnace exit: <ul style="list-style-type: none"> - F4 : 70 000 Nm³/h sec (Line 4) - F5 : 70 000 Nm³/h sec (Line 5) - F6 and F7 : 2 x 80 000 Nm³/h sec (Lines 1, 2 and 3) Entry temperature smoke treatment: - TF1, TF2, TF3, TF4 and TF5: from 200 to 280° 																							
Smoke treatment	<ul style="list-style-type: none"> Number of lines: 5 Maximum dimension flow of the lines: : <ul style="list-style-type: none"> - TF1 and TF2 : 60 000 Nm³/h sec - TF3 : 45 000 Nm³/h sec - TF4 and TF5 : 94 600 Nm³/h sec 																							
Atomisation tower	<ul style="list-style-type: none"> Neutralisation agent: lime <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 25%;">Furnace</th> <th style="width: 25%;">Treatment unit</th> <th style="width: 25%;">Reactor volume</th> <th style="width: 25%;">Turbine speed</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Furnace 6 and Furnace 7</td> <td>TF1</td> <td>450 m³</td> <td>10 800 t/min</td> </tr> <tr> <td>TF2</td> <td>450 m³</td> <td>10 800 t/min</td> </tr> <tr> <td>Furnace 7</td> <td>TF3</td> <td>400 m³</td> <td>10 800 t/min</td> </tr> <tr> <td>Furnace 4</td> <td>TF4</td> <td>750 m³</td> <td>13 500 t/min</td> </tr> <tr> <td>Furnace 5</td> <td>TF5</td> <td>790 m³</td> <td>5 000 t/min</td> </tr> </tbody> </table> <p>Before entry in the bag filter: injection of active carbon for the trapping of dioxins</p>	Furnace	Treatment unit	Reactor volume	Turbine speed	Furnace 6 and Furnace 7	TF1	450 m ³	10 800 t/min	TF2	450 m ³	10 800 t/min	Furnace 7	TF3	400 m ³	10 800 t/min	Furnace 4	TF4	750 m ³	13 500 t/min	Furnace 5	TF5	790 m ³	5 000 t/min
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Chimney	<ul style="list-style-type: none"> Chimney 1 = TF1, TF2, TF3 Chimney 2 = TF4 ,TF5 Height: 60 m / Exit temperature: between 60 and 70 °C 																							

REJECTION NORMS

Parameters (mg/Nm ³ dry at 11 % of O ²)	Aver. Norms over 7 days relating to the permit for exploitation	Aver. Daily norms relating to the European Directive	Parameters (mg/Nm ³ dry)	Norms
Dust	5	10	Cd+Tl	0,05
HCl	5	10	Sb+As+Pb+Cr+Co +Cu+Mn+Ni+V+Sn	0,5
SO ₂	25	50	Hg	0,05
CO	50	50	HF	1
C.O.T.	10	10	Dioxins	0,1 x 10 ⁻⁶
NO _x	180 F4 and F5 140 F6 and F7	180 F4 and F5 140 F6 and F7		

Treating slag for recycling



Slag is the main solid residue generated by the combustion of waste. Collected at the furnace base, it represents 25% of the weight of incinerated waste and only 10% of their volume. Since 1996 the Centre of Thumaide is equipped with a ferrous sorting maturation unit of incineration slag that enables their re-use as sub-foundation material for road works. * This unit was completed in 2002 with a recovery system of non-ferrous metals. On the one hand, it allows sending a maximum of materials to the recycling centres and, on the other hand, to increase the quality of recyclable slag. In order to ensure the traceability of this operation each batch of slag is registered. Each batch produced this way (maximum 5000 ton) undergoes chemical analyses in authorised control laboratories of the Centre de Recherches Routieres. IPALLE has received the CE2* certification for the quality of its slag, that meet the environmental and mechanical criteria of the "Qualiroute" of the Walloon region. The CE2+ certifies the good follow-up of this product used as sub-foundation of roads.



1

1 The slag is collected and poured on a transporter belt. Slag greater than 100 mm is removed from the circuit and treated separately (crushed and returned in the circuit). 80% of the scrapped metal is directly collected by an overband at the source of the furnaces.



2

2 The fraction below 100 mm is then sieved at 20 mm. The fraction exceeding 100 mm goes to Recyhoc where it is crushed, and then returns to Thumaide where it is returned to the initial circuit.



3

3 The ferrous metals are then removed from the slag with electro-magnets and returned to the sieve. Non-ferrous metals such as copper, brass and aluminium are in turn removed with a Foucault current.



3

4 The slag that was treated this way is stored for at least 18 weeks in the maturation hall to reach optimal conditions to be recycled in sub-foundation for roads.



4

5 Before being sent to sub-foundation, the material goes through a Foucault current to remove the non-ferrous.

IPALLE has obtained the CE2+ certification for the quality of its slag, that meets the environmental and mechanical criteria set out in the "Qualiroute" of the Walloon region. The CE2+ certifies the good follow-up of this product used for the sub-foundation in roadworks.

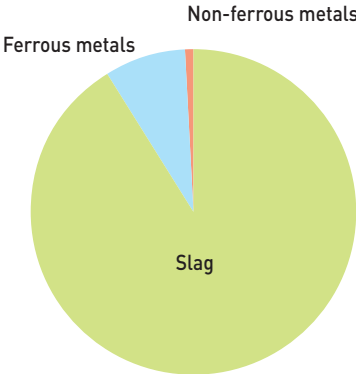
* Slag, if it meets the environmental norms is an authorised material in public work by the specifications RW99 of the Walloon region.



5



THE INSTALLATIONS

Characteristics	<ul style="list-style-type: none"> Hall 1 : - indoors and closed <ul style="list-style-type: none"> - 4 cells separated by concrete veils (height: 6.5 m) - rolling bridge equipped with a spreading shuttle for the automatic piling of slag (height: 6 m) (Implemented in 1995) Hall 2 : - covered concrete tile <ul style="list-style-type: none"> - 10 cells separated by concrete veils (height: 6.5 m) - rolling bridge equipped with a spreading shuttle for the automatic piling of slag (height: 6 m) (Implemented in June 2006) 												
Capacity	<ul style="list-style-type: none"> Hall 1 : - 2 cells of 2 000 m³ <ul style="list-style-type: none"> - 2 cells of 1 200 m³ - total storage capacity: 8 000 t Hall 2 : - 10 cells of 3 000 m³ <ul style="list-style-type: none"> - total storage capacity: 45 000 t 												
Treatment	<ul style="list-style-type: none"> Sieving installation: hourly capacity 25 t/h <p>Slag 0/20 mm :</p> <ul style="list-style-type: none"> Collection Magnetic separation for the extraction of ferrous metals Separation by Foucault current for the extraction of non-ferrous metals (aluminium, copper, brass, etc.) <p>Slag > 20 mm :</p> <ul style="list-style-type: none"> Rejected at sieving Magnetic separation Crushing*: - fine slag 0/6 mm removed from the process and recycled with cement producers <ul style="list-style-type: none"> - slag 6/20 mm re-inserted in the flow of untreated slag <p><i>This operation is done by the centre of the S.A. RECYHOC</i></p>												
Balance of the treatment	<table border="1" style="margin-bottom: 10px;"> <thead> <tr> <th>FLOW</th> <th>Kg/t OM</th> <th>t/year</th> </tr> </thead> <tbody> <tr> <td>Slag</td> <td>0,196</td> <td>84 020</td> </tr> <tr> <td>Ferrous metals</td> <td>0,018</td> <td>7 862</td> </tr> <tr> <td>Non-ferrous metals</td> <td>0,001</td> <td>633</td> </tr> </tbody> </table> <div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p>% Slag : 90,8 %</p> <p>% Ferrous metals : 8,5 %</p> <p>% Non-ferrous metals : 0,7 %</p> </div> </div> <p style="text-align: right;"><i>Data 2013</i></p>	FLOW	Kg/t OM	t/year	Slag	0,196	84 020	Ferrous metals	0,018	7 862	Non-ferrous metals	0,001	633
FLOW	Kg/t OM	t/year											
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Non-ferrous metals	0,001	633											
Ongoing process during the maturation of slag	<ol style="list-style-type: none"> Oxidation of the non-incinerated Carbonation of the lime Decrease in availability of the metals (Hydro)oxidation of aluminium and iron 												

Production of high quality compost from vegetal waste



Every year more than 30 000 ton of green waste (grass mowing, leaves, branches) are collected in the network of container parks exploited by IPALLE. Part of these plants are transported to the Composting centre of Thumaide (maximum annual capacity: 12 000 ton) to be transformed into quality amendment marketed under the name Composal^(*).

(* Certificate Ministry of Agriculture 96/ME/36V)



1

1 The citizens of Wallonie picarde and Sud-Hainaut can bring their vegetal waste to one of the container parks of the IPALLE network.

2 Part of these plants is transported to Thumaide where they are de-metallised and then crushed.

3 They are subsequently divided in windrows in a composting hall.

4 The thus formed windrows are watered and turned periodically. The temperature exceeds 60°C, which enables the elimination of the pathogenic germs. With a forced air aspiration system, the composting process is accelerated and now only takes 4 to 8 weeks.

5 After that period the product is transported to the drying hall where it will continue to mature. It will then be sieved and packaged for sale. A sheltered workshop handles the bagging of the Composal.

6 The finished product, Composal, is sold in 25 kg bags or 50 litres in the container parks of the IPALLE network. It is also available in bulk directly from the Thumaide site.



2



3



4



5



6



THE INSTALLATIONS

Capacity	<ul style="list-style-type: none"> • 12 000 t/year of green waste for composting
Crushing	<ul style="list-style-type: none"> • Average capacity: 25 t/h (35 t/h of green waste and 15 t/h of branches) • Type : 1 quick crusher: - primary - granulometry: 0 to 400 mm - secondary: granulometry: 0 to 200 mm - max. diameter: 50 mm • Séparation des métaux
Composting	<ul style="list-style-type: none"> • Volume : 8 windrows of 200 t (300 m³ each) • Aspiration : depending on the temperature of the windrows • Frequency of turning: from 1 (agricultural-type windrows) To 2 (horticultural-type windrows) weeks • Maximum temperature of the windrows: lower than 70 degrees
Sieving	<ul style="list-style-type: none"> • 12 t/h • Square mesh 15 mm in bags for gardening application, square mesh 25 mm for agricultural application • Production of straw mulch with 15/25 granulometry used as decorative soil cover, preventing weeds from growing and preserving the humidity of the soil, which is useful in great heat.
Storage	<ul style="list-style-type: none"> • Storage volume: 4 000 m³ and maximum storage 2 000 t
Bio filter volume	<ul style="list-style-type: none"> • 600 m³ consisting of tree bark of different species

CHARACTERISTICS OF THE FINISHED PRODUCT

Properties of the Composal	<ul style="list-style-type: none"> • 100% vegetable • Presence of nutritive elements (nitrogen, phosphor, potassium and trace elements) • Absence of impurities (glass, plastic, metal, etc.)
Effects on the substrate	<ul style="list-style-type: none"> • Biological reactivation of the soil by considerable microbiological input of fauna and flora. • Improvement of the soil structure and air circulation in the soil. • Prevention of soil erosion • Renewal of the humus in the soil • Increased water retention capacity of the soils (The compost can retain up to its own volume in water) • Increase of the retention capacity of the nutritive elements in the soil • Contribution to the mineral feed of the plants • Accelerated warming up of the soil in spring • Improved root growth • Correction of the acidity level in the soil • Decreased loss of fertiliser through rinsing



Communication



The Waste recycling centre of Thumaide was already the object of many publications (brochures, technical sheets, leaflets, comics, environmental statements etc.)

All these documents are available on simple request and can be downloaded from the website www.ipalle.be. They are also distributed during guided tours (school groups, associations, etc.)

IPALLE has again co-operated with Jamy Gourmaud of the programme «C'est pas Sorcier» to produce a 3D animated film about the waste process and energy recycling. The film will be shown before each visit to the Waste recycling centre of Thumaide.

The modelling of the factory and the various 3D elements allow to follow the process from the inside with synthesised images.

Open door days are organised on site from time to time. These events are an ideal opportunity to discover the factory from the inside and remind the population of good practice for the environment in terms of sorting but also waste prevention.



Jamy filming again at the IPALLE site.





In the margin of the open days, the site of Thumaide is often visited throughout the year. More specific information is also created, targeted to the local inhabitants around the factory. They receive the newspaper “Voisinages” that above all aims to be a concrete tool for information and transparency. All the topics relating to the exploitation of the Thumaide site are addressed: expansion work, operation of the factory, environmental performance, news topics, local residents committee, etc.

For more information on the Thumaide site and the other activities of IPALLE, you can also consult our website: www.ipalle.be

EMAS registration and ISO 14 001 certification

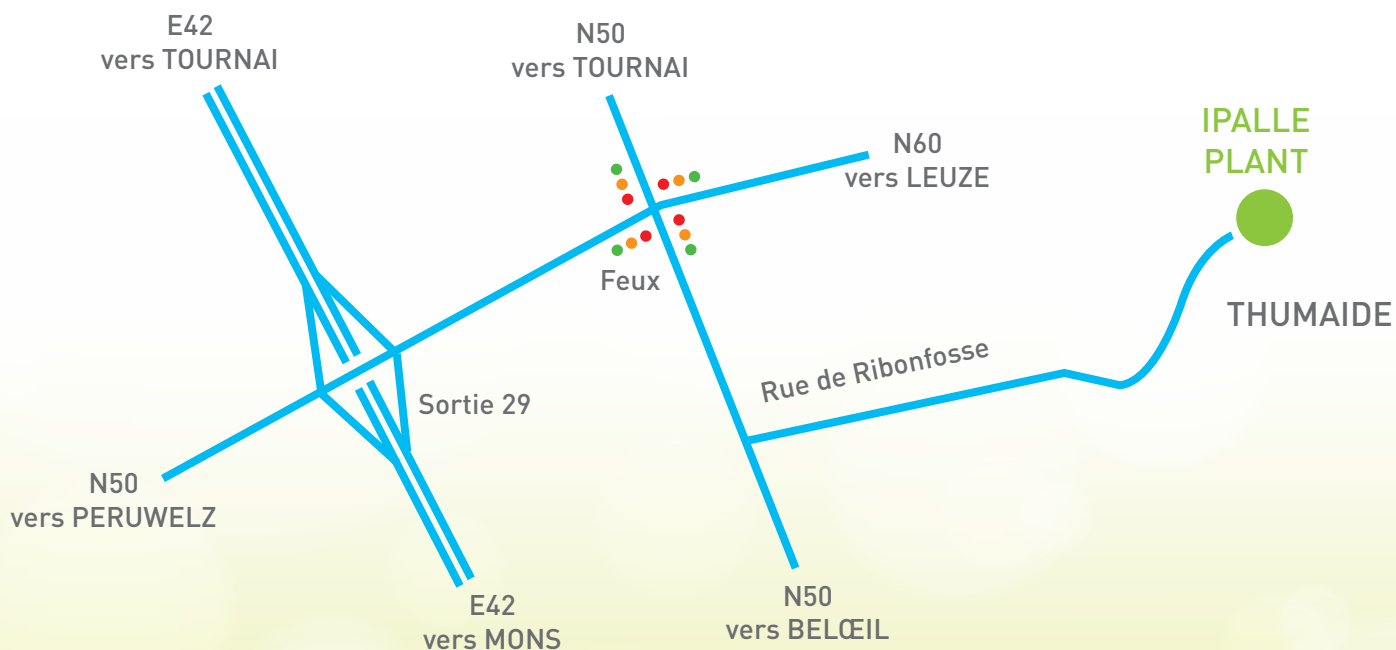
The respect of the environment as a contemporary expression of public responsibility has been one of the founding values of IPALLE since its creation. The concern for improvement has always driven your Inter-municipalities for public cleanliness to find the best adapted solutions, both at economical and environmental level. It finds its natural extension in the implementation of a recognised environmental management system, since 2003, officially conform with the international standard ISO 14 001 and the European regulation EMAS (community system for environmental management and audit).

The latter aims to promote permanent improvement of the environmental results, as well as information to the public and the interested parties. The EMAS approach has already experienced many concrete achievements. Encouraged by those initial achievements, IPALLE continues its policy of permanent improvement.



Glossary

- **Window:** (Here) alignment of green.
- **Sludge:** solid residue from water purification at a plant.
- **Boiler:** equipment for the thermal exchange between the smoke and the water to produce steam.
- **Composting:** preparation of the compost (fermented mix of the organic and mineral residues used for the amendment of agricultural land) consisting of leaving agricultural or urban waste to ferment (household waste) before being incorporated in the soil. At Thumaide the compost is only produced from plant waste.
- **Waste from hospital activity and health care (B2):** infected waste that, due to the risk of contamination for the community, must be handled in isolation; laboratory waste with microbial contamination; blood and blood derivatives that can still present microbial contamination; blunt object ; cytostatics; pathological waste; laboratory animal waste, their litter and excrements.
- **Ordinary Industrial Waste:** commercial, industrial and administrations waste. Similar waste to household waste.
- **Emission:** presence of pollutants in the chimney.
- **Bulky:** household waste that does not fit in a refuse sack of 60 litres.
- **Incineration:** controlled combustion of waste with energy recycling.
- **Inter municipalities:** association of municipalities with the mission of managing a specific object of municipal interest in the form of a limited company, a co-operative or an association without lucrative purpose.
- **Slag:** solid residue of waste combustion.
- **PMC:** bottles and jars in Plastic, Metallic packaging and Drink cartons.
- **Environmental policy:** definition of the overall goals and action principles of an organisation regarding the environment, including the compliance with all the Relative to the environment and, also the commitment to a constant improvement on the obtained environmental results; the environmental policy provides the framework in which the general and specific environmental objectives are set and re-assessed.
- **Environmental programme:** description of the measures (regarding responsibilities and measures) taken or considered to achieve general or specific environmental objectives, as well as the deadlines set for their implementation.
- **Processing:** process consisting of finding a new usefulness for all or part of the material contained in the waste, either by re-use, recovery, recycling, or by processes that enable the generation of materials or energy.
- **Energy recycling:** recycling method for the recovery of the energy potential of waste both as substitution fuel to produce electric or thermal energy in industrial installations.
- **Recyhoc:** building waste recycling and re-use centre located in Vaulx (Tournai).



Thumaide

Waste processing centre

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