

The Lippe Plant – A Site with a Concept



> Raw materials, products, energy

A presentation of the REMONDIS Lippe Plant, an industrial recycling centre

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Key Dates & Events

- 1938** The Lippe Plant is put into operation by Vereinigten Aluminium Werke (VAW)
- 1987** The aluminium oxide production activities at the Lippe Plant are closed down
- 1993** Takeover of the plant by REMONDIS; building up of new recycling activities in the areas of gypsum, chemicals, timber, plastics and fuels
- 1996** Commissioning of the composting plant
- 2003** Rendering plant is put into operation to process animal by-products enabling them to be used as an alternative source of energy
- 2005** Further new recycling facilities are put into operation to produce plastics and white minerals (casul[®])
- 2006** Europe's largest WEEE dismantling centre, the biomass-fired power plant and the biodiesel production plant all go into operation
- 2008** Construction of the new Umwelt Control Labor (UCL) building for analysing and assessing materials
- 2010 - 2013** Comprehensive measures are undertaken to reduce noise levels; construction of a new administration building next to the main head office building
- 2013 - 2014** Redevelopment of the landfill's plateau; construction of a new administration building

Facts & Figures

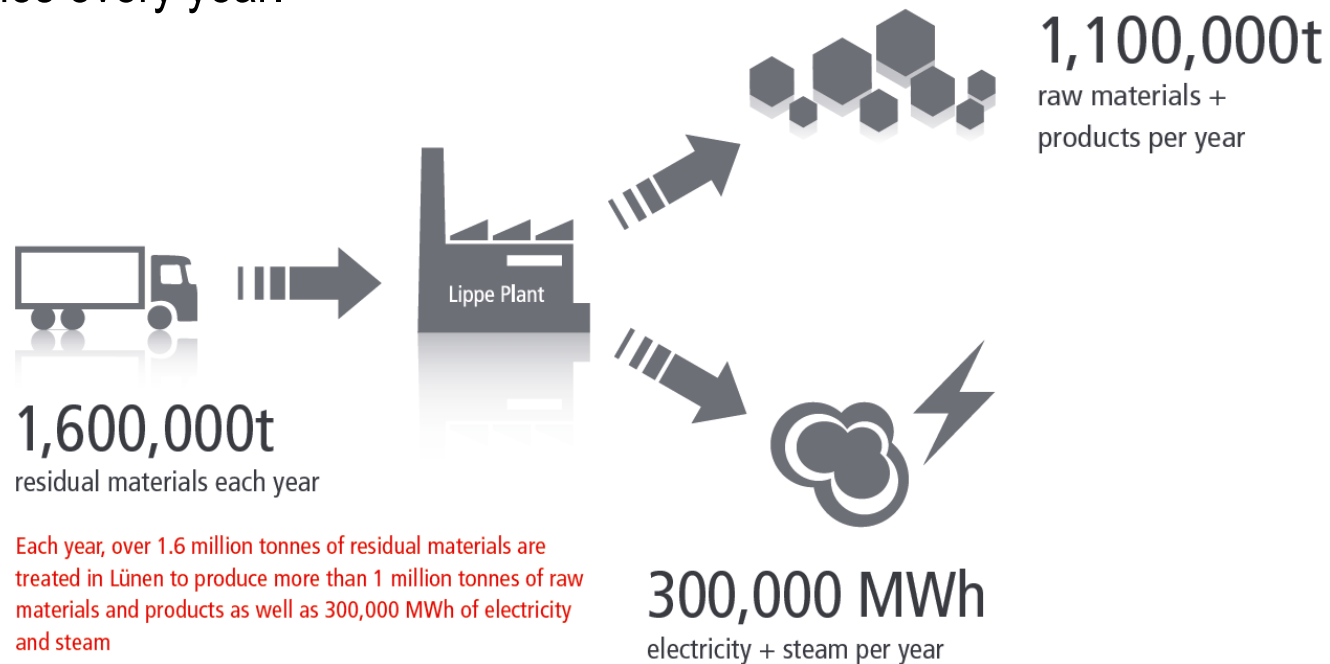
The REMONDIS Lippe Plant in Lünen is the largest industrial recycling centre in Europe. It is a production centre for high quality secondary raw materials, base materials, special products and industrial goods

- Total area: 230 ha
- Employees: >1,400
- Input amount: over 1,600,000 tonnes of residual materials each year
- Output amount: over 1,000,000 tonnes of high quality raw materials and products
- Output energy generation: 300,000 MWh/a (electricity and steam)
- Investments*: > 400 million EURO

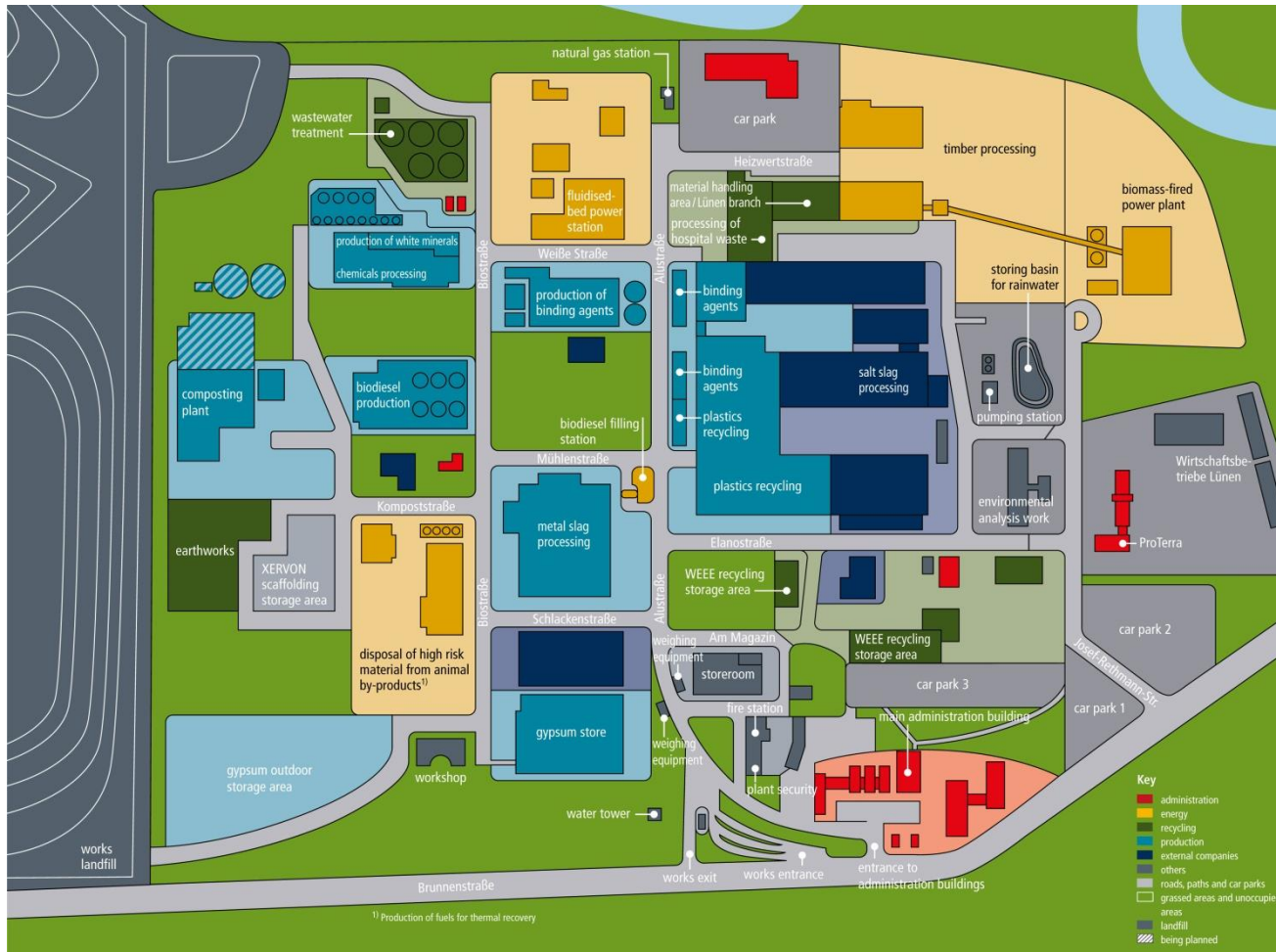
* since 1993

Saving Energy & Raw Materials at the Lippe Plant

- The two power plants at the site are fired using secondary fuels and timber. As a result, the demand for primary energy sources is reduced by 130,000 tonnes each year.
- In addition, the low-energy methods used to recover raw materials and the eco-friendly fuels used in the power plants mean that emissions of CO₂/CO₂ equivalents are cut by 260,000 tonnes every year.



The Grounds



Group Companies Located at the Site

- ecoMotion® – production of biodiesel
- REMONDIS Aqua – supplying drinking water / treating wastewater
- REMONDIS Electrorecycling – recycling of waste electrical & electronic equipment
- REMONDIS Industrie Service – a full range of services covering hazardous waste
- REMONDIS Medison – recycling of photographic chemicals and hospital waste
- RE PLANO – plastics recycling / marketing
- REMONDIS Production – production of high quality raw materials, base materials and products
- REMEX ProTerra – remediation services
- RETERRA® – compost production / marketing
- SecAnim – recycling of animal products and residual materials
- UCL – environmental laboratories
- XERVON – technical services for the process industry
- Wirtschaftsbetriebe Lünen (WBL)

An Overview of the Activities

- Dismantling of waste electrical & electronic equipment
- Plastics processing – production of plastic granulates and ground materials
- Chemicals division – production of sodium aluminate and white pigment
- Gypsum division – production of binding agents
- Composting plant – production of compost
- Earthworks – production of earth substrates
- Metal slag processing division – recovering precious metals and non-ferrous metals
- Timber recycling
- Biomass-fired power plant (BMK)
- Site landfill
- Fluidised-bed power plant
- Rendering plant
- Biodiesel plant – production of biodiesel
- Biodiesel filling station
- Umwelt Control Labor (UCL) – analysis and assessment of materials
- ProTerra – remediation work / management of contaminated mineral waste
- XERVON – maintenance services
- Wirtschaftsbetriebe Lünen (WBL)

Dismantling Centre for Waste Electrical & Electronic Equipment

At its dismantling centre in Lünen, REMONDIS Electrorecycling operates

- a recycling facility for cooling appliances
- a recycling facility for small electronic appliances and consumer electronics as well as
- a dismantling line for visual display units
- Capacity: 100,000 tonnes p.a.
- Output: 100 recyclable and special materials, e.g. plastics, metals, glass
- Jobs: 110



Plastics Processing – Production of Plastic Granulates & Compounds

- RE PLANO produces and sells different quality plastic granulates and compounds under its PLANOLEN® and PLANOMID® brand names
- Used as a raw material to produce, among other things, components for fans, switch boxes, ventilation systems, vehicle parts, Rawlplugs and casing for electrical appliances
- Capacity: 27,000 tonnes p.a.
- Jobs: 36



Chemicals Division – Production of Sodium Aluminate

- Solutions and sludge containing aluminium (from treating the surfaces of aluminium parts and producing catalytic converters) are cleaned, concentrated and filtered using a series of processes
- Sold under the alumin® brand name, the product is used as a high-purity special chemical in sewage treatment plants, the chemicals industry as well as in construction chemicals
- Capacity: 100,000 tonnes p.a.
- Jobs: 12



Chemicals Division – Production of White Minerals

- A patented, multi-stage process to produce a synthetic white mineral
- The most important raw material needed to produce casul® is the sodium aluminate – alumin®
- A raw material for the paper and paint industries as well as for construction chemicals (dispersion wall paints, eco-friendly paints, liquid plaster, speciality high quality paper)
- Output: 15,000 tonnes p.a.
- Jobs: 3



Gypsum Division – Production of Binding Agents and Additives

- Processing of gypsum generated from the desulphurisation of flue gases at power plants (FGD gypsum) and gypsum from the chemicals industry into high quality building materials
- Sold under the CASEA brand name, the gypsum-based products are processed into liquid screed and porous concrete, fertilisers and cement as well as into products for use in dentistry
- Capacity: 350,000 tonnes p.a.
- Jobs: 40



Composting Plant – Production of Compost

- Processing of organic waste – such as plant & tree cuttings from gardens/parks and the contents of biowaste bins – into high quality composts
- Produced using the patented BRIKOLLARE process which was developed by REMONDIS
- The various soil improvers are sold under the HUMERRA[®] brand name, such as mulch, active compost, fine compost
- Input: 58,000 tonnes p.a.
- Jobs: 12



Earthworks – Production of Arable Soils

- The earthworks produces special types of earth and soils for landscaping and redevelopment work such as planting greenery on the surfaces of decommissioned landfills and slag heaps
- Production of plant substrates for horticultural and landscaping businesses
- Capacity: 100,000 tonnes p.a.
- Jobs: 2



Metal Slag Division – Recovery of Precious Metals

- Recovery of high quality nickel and copper alloys from the slag and waste generated by furnaces at precious metal and non-ferrous metal processing facilities
- Returning the slag-free metal fractions to production cycles
- Recycling of the metal-free ground slag as a building material for constructing landfills and noise protection barriers
- Capacity: 250,000 tonnes p.a.
- Jobs: 15



Timber Recycling

- The waste wood is sorted, cut up, screened and separated
- Used as a carbon-neutral fuel in biomass-fired power plants and as a raw material to produce chipboard
- Capacity: ca. 430,000 tonnes p.a.
- Jobs: 14



Biomass-Fired Power Plant (BMK)

- The plant generates energy from waste timber and other types of biomass such as screen overflow
- Each year, the BMK produces approx. 150m kilowatt hours of electricity, which covers the requirements of around 39,000 detached homes
- Input: 150,000 tonnes p.a.
- Output: 155,000 MWh p.a.
- Jobs: 15



SecAnim's Rendering Plant

- A plant to sterilise and thermally treat animal by-products, such as waste from abattoirs, slaughter businesses and agricultural businesses
- Once the fat has been removed, the sterilised meat paste, together with animal meal from other plants, is completely incinerated at the site's own power plant.
- Investment sum: 18 million EURO
- Capacity: 80,000 t/a
- Jobs: 51



Biodiesel Plant

- Multi-feedstock facilities belonging to SARIA Bio-Industries to produce biodiesel
- The biodiesel is produced from animal fats and vegetable oils and is sold under the ecoMotion brand name
- Investment sum: 20 million EURO
- Input: 100,000 tonnes p.a.
- Output: 100,000 tonnes p.a.
- Jobs: 20



Fluidised-Bed Power Plant

- Supplying the various production facilities at the Lippe Plant with energy such as electricity, process steam and compressed air
- Use of primary fuels such as low-grade coal as well as secondary and substitute fuels* e.g. sterilised meat past, animal meal, waste from the chemicals and pharmaceutical industry, sewage sludge etc.
- Input: ca. 200,000 tonnes p.a.
- Output: 50,000 MWh electricity
135,000t process steam
55,000,000m³ compressed air
- Jobs: 42



* It is not possible for the power plant to be fired completely (i.e. 100%) with secondary and substitute fuels due to the conditions set down in its permit.

Site Landfill

- The landfill was originally owned and used by VAW Aluminiumwerke to deposit residue from its aluminium production processes
- The new landfill area, built in 1983, can still hold approx. 2m cubic metres of waste; it only accepts waste produced at the Lippe Plant
- Surface area: old landfill section: 25ha
 new landfill section: 20ha
- Input: 120,000 tonnes p.a.
- To run until: ca. 2025
- Jobs: 5



Umwelt Control Labor (UCL) – Analysing & Assessing Materials

- A specialist for environmental analysis work, monitoring production processes and quality control work
- Analysing water, soil/earth and air in accordance with legal requirements
- Services for engineering firms and authorities as well as for the chemicals industry, the construction sector and the waste management industry
- National activities with a central laboratory in Lünen
- Jobs: 185
- Analytical methods: ca. 1,000,000 p.a.



REMEX ProTerra – Remediation Work / Managing Contaminated Mineral Waste

- REMEX ProTerra specialises in recycling / disposing of solid waste from abandoned industrial sites, old landfills and conventional construction sites as well as from accidents involving materials hazardous to water
- Handling contaminated waste such as polluted soils, sludge, construction waste, industrial waste, road construction waste containing tar, other kinds of building materials (timber and waste from construction sites)
- Total amount: 700,000 - 800,000 tonnes p.a.
- Jobs: 21



XERVON – Maintenance Services Maintaining Production Facilities & Infrastructures at the Lippe Plant

- Electrical Engineering Services
 - servicing, inspecting, maintaining, installing and optimising E&I devices and equipment
 - periodic tests in acc. with legal regulations (BetrSichVer, BGV A3, BGI 710, BGR 232)
 - servicing electrical switchgear
 - installing new appliances, motor technology
- Mechanical Services
 - servicing, inspecting, maintaining, installing and optimising e.g. safety fittings/valves and heavy-duty machinery and drive technology
- Special Services & Qualifications
 - testing/maintaining e.g. filtration systems
- Jobs: 40



Wirtschaftsbetriebe Lünen GmbH (WBL)

- WBL is a public private partnership (PPP) between the City of Lünen and REMONDIS
- Range of services:
 - waste management
 - city maintenance
 - park maintenance / funerals
 - services, property management
 - workshop for vehicles & equipment
 - sewer network services
 - road maintenance
- Jobs: 186



A Look Ahead – Future Development of the Site

- Extension of the metal slag processing plant
- Extension of the rendering plant by building a biogas plant
- Further modernisation of the site (renovation of old buildings, finding new uses for vacant halls)
- Settlement of medium-sized production businesses (upstream / downstream)

Thank you for your attention

