

CASE STUDY

REMONDIS POLAND
GLASS SORTING PLANT, 25 t/h
INCL. FINE PROCESSING PLANT



REDWAVE



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REMONDIS POLAND – GLASS SORTING PLANT AND FINE PROCESSING PLANT

REDWAVE®

CUSTOMER

REMONDIS SE & Co. KG is the largest German company for recycling, water management and municipal and industrial services, based in the Lippholthausen district of Lünen (North Rhine-Westphalia).

The company provides services to municipalities, industry, trade and commerce. Thirty million people are Remondis customers. The company collects/processes more than 20 million tonnes of material, taking the leading position in both German and international markets.

These days, the REMONDIS Group deals with more than 1.5 million tonnes per year of valuable and residual materials in Poland. At the same time, it works in partnership with more than 200 municipalities across the country. The company's recently expanded network and strong regional presence provide an excellent basis for REMONDIS' future successes in an expanding Polish recycling market.

REMONDIS®

IM AUFTRAG DER ZUKUNFT

TASK

In the glass sector, Remondis supplies glassworks with recycled raw material that is uniform in both colour and material purity to reach the high specifications required. The purity of the processed glass is crucial for recycling.

In order to ensure both high quality and sufficient volumes, the company decided to build another state-of-the-art modern automatic glass sorting plant at the Gleiwitz site in Poland.



SOLUTION

Following a meticulous planning phase, the company decided to choose REDWAVE, who carried out the entire design and build of the automatic sorting plant for extracting raw materials from waste glass.

In essence, this included:

Feed hoppers and all the material handling equipment, crushing equipment, drying system, drum dryer plant, suction and de-dusting facilities, complete screening facility, eddy current separation, sensor-based REDWAVE sorting machines, compressed air plant, staging and support structures, building steelwork and facade, chutes and the sample evaluation system.



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PLANT DESCRIPTION

The plant is loaded with a wheel loader that transfers the material to three feed hoppers. Discharge feeders positioned below the feed hoppers allow the material to pass into the actual processing hall or the pre-treatment section via a conveyor belt. Here the material is screened, with oversize particles transferred to a manual sorting stage. The oversize particles are cleared of large and cumbersome pieces and also of organic contaminants by manual sorting, and then crushed with a roll crusher to achieve a uniform size. Subsequently, the broken-up material meets with the undersize particles from the first bar screen and from there is brought to the pre-screening process for the drying plant. The material is screened into two fractions and the 0-25mm material fed to the drying plant. The drying plant consists of a rotating drum dryer with a dedusting filter. In the drying process, the glass stream is dried by injected, preheated air and the glass surfaces are cleaned for examples from labels. The friction created by the movement of the fragments in the drying drum causes any labels to be removed as well. The exhaust air from the dryer is then led over a cyclone separator and a filter system. The dried material is then combined with the undried material and then brought to the last pre-treatment step, where metallic impurities, both ferrous and non-ferrous, are separated out of the fragments by eddy current separators or magnets.



In the first step of the visual sorting line, the material is conveyed over a REDWAVE with near infra-red spectroscopy sensor technology to extract plastic impurities. Subsequently, the material is viewed by an XRF sorting machine with an X-ray fluorescence sensor in order to separate special glasses such as lead glass or heat-resistant glass. The second sorting stage consists of REDWAVE CFX sorting machines using camera technology, arranged in parallel. The negatively sorted material that passes through, together with the positively sorted white glass, are further sorted in the third sorting stage to remove the remaining impurities in order to produce the desired final products (white, brown and green glass). Before storage of the material flows in the finished goods boxes, the materials and their quality are independently checked by the automatic REDWAVE sampler and evaluator station and the results logged. A glass recovery stage sorts out any remaining glass, which is then returned to the main sorting line. In addition, depending on the stage, the sorting machines are equipped with suitable metal sensors to extract any possible metal contaminants. In the fine grinding plant, the screened fine material from the glass processing plant is finely ground by means of crushing and sieving, finally producing a glass powder with a particle size of 0-3 mm. In addition to the machinery, a dedusting plant with a filter is included in the scope of supply and services, as is a separate extraction system for organics.



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TECHNICAL SPECIFICATIONS

MACHINE TYPE	REDWAVE CXF / CX / XRF / NIR-G
FEED MATERIAL	Mixed waste glass, broken glass, collectible glass
THROUGHPUT	25 t/h
PARTICLE SIZE	0 – 45 mm

WORKING WIDTHS	1x 750 mm	1x 1,370 mm
	4x 1,000 mm	7x 1,500 mm 1x 1,600 mm



HIGHLIGHTS

- Automatic 3-colour sorting (flint, amber, green)
- Partial stream drying and label removal in one processing step
- Extraction of lead and glass ceramics in one sorting step (REDWAVE XRF)
- Extraction of plastic contaminants with one sorting step (REDWAVE NIR-G)
- Fine grinding plant
- Separation of light materials and machine dedusting
- Automatic sampling station



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