



People need raw materials to work with,  
and a healthy environment to live in.



**DELA GmbH**

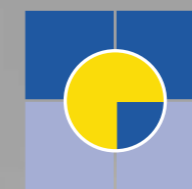
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**DELA**  
Recycling - Solutions

## Portrait

We are a waste management and recycling company as well as a supplier of high-quality raw materials.

Founded in 1989, we specialise in economic and environmentally friendly recycling solutions for our national and international customers in the fields of petro chemistry, gas exploration, chlorine production and lamp recycling. Our services include the efficient treatment and recovery of NE- and Fe-metals, mercury, black mass from battery recycling, lamp recycling and plastic sorting. The various technologies in use can be adapted to the customer's needs as required.

Our sites are certified according to national and international standards:

- Regulation on waste management companies (EfbV)
- DIN ISO 9001
- DIN ISO 14001
- A comprehensive security management system assures site integrity
- Regulation on packaging (VerpackV)

Our recycling sites are approved according to the German Federal Immission Control Law (BImSchG) and are regularly monitored by the respective authorities.

## Our range of services

- Recycling of filter materials such as catalysts, activated carbons and ion exchanger resins
- Treatment of waste containing NE-metals with pollutants
- Sorting of battery compounds and recycling of portable batteries
- Stabilisation of metallic mercury by formation of mercury sulphide
- Production of high-purity mercury
- Recycling of lamps of all shapes and sizes
- Sorting of plastics according to types and colours
- Preparation / de-mercurisation of luminescent powder

## Innovative plant technology

The DELA GmbH is operating leading technologies and innovative plants for the recovery of secondary raw materials at 4 sites in Germany.

### Dorsten

Rotary kiln distillation - Treatment of NE-waste and waste containing mercury

Vacuum-Dry-Mixer - Treatment of industrial sludge

Vacuum-Dry-Mixer - Stabilisation of metallic mercury by formation of mercury sulphide

High-purity distillation - Purifying mercury

### Bad Oeynhausen

Sorting of mixed dry cell batteries and recycling of dry batteries, lamp recycling

### Essen

Crush-Wash-Sieve-System – lamp recycling, Vacuum-Dry-Mixer and rotary kiln distillation

### Beckum

Sorting of plastics



## Technologies

### Rotary kiln distillation

Continuous, directly heated distillation process for the thermal treatment of waste especially of bulk goods. A process with ideal heat transmission, treatment temperatures of up to 1.100°C and a throughput of approx. 4 tons/hour. Annual capacity 35.000 tons.

### Vacuum-Dry-Mixer for the treatment of sludge containing mercury

For the drying and distillation of sludge containing mercury, e.g. with high organic and hydrocarbon content. Permanent mixing enables an optimum use of energy and enhances water evaporation. The annual capacity for sludge treatment is around 8.500 tons.

### High-purity distillation

For the production of secondary mercury in defined technical purities. Depending on the intended use (physical, chemical, medical applications) the high-grade mercury is produced in purities of 4N (99.99%) to 8N (99.999999%) quality. High-purity mercury is supplied to our customers in UN approved and certified containers and vessels.

### Battery recycling plant

Battery mixtures are fed into a sorting unit 5.000 tons/year in order to separate primary and secondary batteries. Primary batteries such as zinc-carbon and alkali-manganese batteries are opened mechanically. The battery powder, the so-called „black mass“, is won as a fine fraction. To recover various NE- and Fe-metals a further processing of the „black mass“ is carried out in the rotary kiln distillation. The total annual capacity of the battery reprocessing unit is 9.000 tons.

### Vacuum-Dry-Mixer for the production of mercury sulphide

Stabilisation process for disposal of metallic mercury in a way, that is safe for human health and the environment. The aim of the process is the conversion of toxic mercury to a substance that is nonhazardous to the environment by the chemical transformation from mercury to mercury sulphide (HgS). The principle is the reaction of mercury and sulphur in a closed, temperature-controlled vacuum mixer. The annual capacity is approx. 2.000 tons.

### Crush-Wash-Sieve-System

Fluorescent lamps and broken lamps are crushed without sorting, washed and the raw materials separated. Recovered recyclable materials such as glass, metal, luminescent powder and small quantities of mercury are recycled. The unit has a capacity of 2 tons per hour, which corresponds to an annual capacity of approx. 18.000 tons.

### Plastics sorting plant

Mono-material plastic fractions are extracted from mixed plastic waste in the sorting plant. The use of high-performance optical identification systems in addition to the standard spectroscopy in near-infrared-range (NIR) enables the reliable separation of materials according to plastic types and colours. This fully automatic identification and sorting is the heart of the sorting process and delivers high quality plastics for recycling applications. The sorting capacity is 50.000 tons per year.

