

The inert slag can be used for
road construction and
for ground cover in gardens.

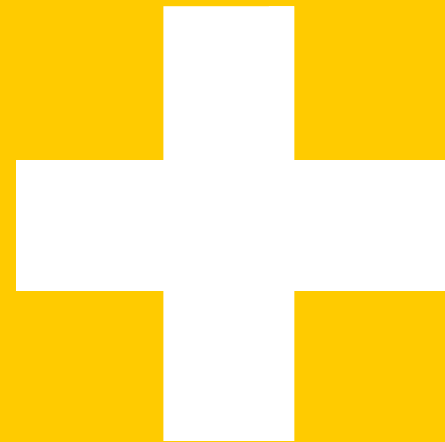
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Recycling of batteries
and
materials which contain
metals

From waste to raw material

batrec.ch

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Are you interested?
Visit us!

BATREC



Safe and innovative

Our services

- Recycling of used batteries
- Recycling of toxic waste and waste containing heavy metals
- Recycling hazardous waste containing mercury
- Working out waste-disposal schemes
- Process and recycling engineering

We process

- Dry batteries
- Activated carbon containing mercury
- Waste-water containing mercury/sludges
- Dental waste and amalgams
- Ion-exchanger resins
- Broken thermometers and mercury waste
- Sports field surfaces

- 1 Company building
- 2 Control position with process-control system
- 3 View of the plant



BATRECO



Heavy metals and toxic materials are our business

With us your hazardous waste is in professional hands. The core business of our company, with its headquarters in Wimmis in Switzerland, is the recycling of used batteries and materials which contain heavy metals. Using a high-tech battery recycling plant (Sumitomo process), we recover valuable raw materials from hazardous waste, which are fed into the material cycle. Since the plant was built, the first of its kind in the world, we have developed the process further – with the aim of recycling batteries and waste contaminated with mercury economically and in an environmentally-friendly way. In addition, we have developed distillation plants for waste containing mercury, and a process for recycling lithium batteries.

Comprehensive know-how and long experience

In the years since our company was formed in 1989, we have gathered a great deal of knowledge and experience. We put our comprehensive know-how in dealing with toxic substances and in the disposal of heavy metals and waste containing mercury to use to your advantage – and to the advantage of the environment. We give you competent advice in relation to all concerns connected with the recycling of batteries and materials containing metals – ask for a quotation!



We comply with the
ISO 9001 and ISO 14001 quality
and environmental standards.

From waste to raw material



- 1 Battery sales-point, with the familiar collecting box
- 2 Batrec goods reception
- 3 Sorting and visual inspection
- 4 Activated carbon contaminated with mercury from exhaust-gas purification process
- 5 Mercury-vapour lamps (road and sports field illumination)
- 6 Thermometers
- 7 Used batteries, large and small
- 8 Our products: mercury, ferro-manganese and zinc

BATREC

What is produced from 1000 kg of used batteries?

Organic materials (plastics, paper, wax)	50–100 kg
Carbon	50–100 kg
Use of energy in pyrolysis	
Water	50–100 kg
Salts	50–100 kg
Passing on to water-purification plant	
Ferro-manganese (Iron, manganese)	230 kg
Zinc (purity 98.5%)	230 kg
Mercury (purity 99.995%)	0,9 kg
Use in industry	
Slag	80 kg
Use in road construction	

Infrastructure and know-how
Thanks to our infrastructure and the know-how of our specialists, we can recycle all batteries and process them into valuable secondary raw materials.

Whether dry batteries used in the home, small (but highly poisonous) round cell batteries, lithium batteries or rechargeable batteries, every battery contains harmful substances which must not be fed into the natural material cycle in this form. We ensure that problematic materials are handled expertly and also recycled. In this way, waste is turned into valuable raw materials.

Battery recycling in Switzerland

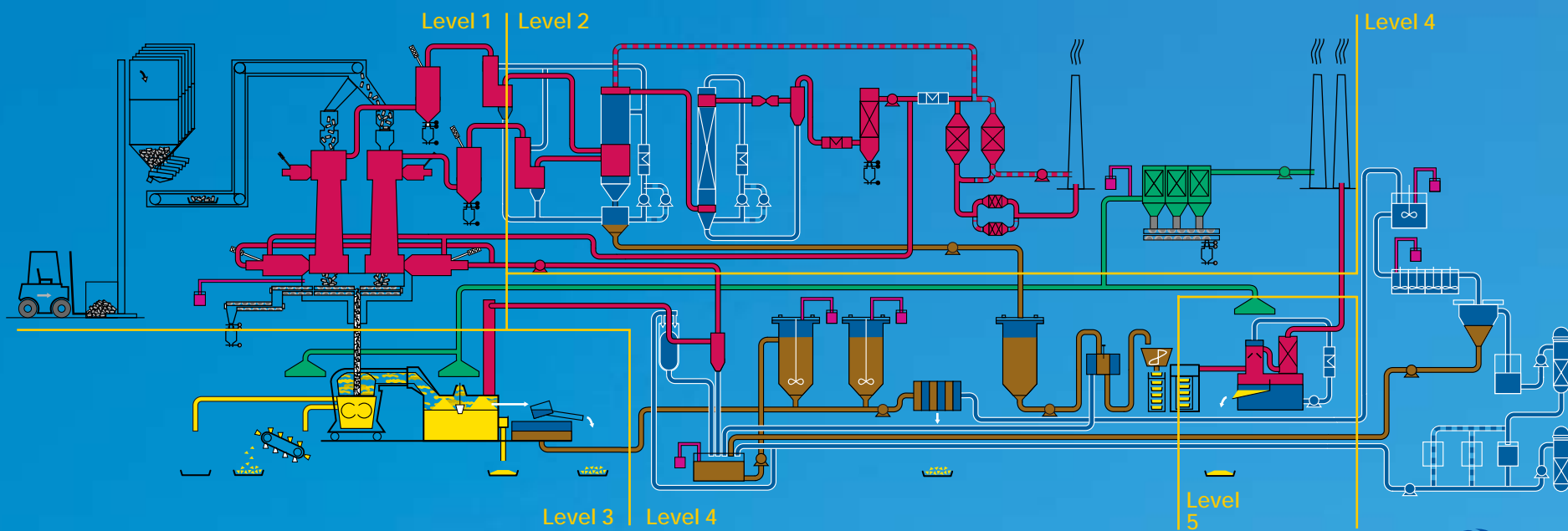
The retail price of every battery and every rechargeable battery contains a disposal tax levied in advance. This serves to finance the collection, transport and recycling of used batteries, co-ordinated by Inobat, the interest group for battery-disposal matters. All battery sales-points are obliged to take back used batteries and accumulators free of charge.



Recycling, using the most high-tech technology



- 1 View of the plant during the tapping of ferro-manganese and slag
- 2 Checking the plant in accordance with a precisely prescribed safety profile
- 3 Casting the zinc ingots
- 4 Filling the recovered mercury into approved transport containers
- 5 Waste-water quality control



- | | | |
|----------------|--|---|
| Stage 1 | Pyrolysis. The batteries are pyrolysed at temperatures of up to 700° Celsius. In the process water and mercury are vaporised, and pass together with the carbonised organic components (paper, plastic, cardboard etc.) into | the after-burner, where the gases burn at over 1000° Celsius, so that dioxins and furanes are destroyed. The exhaust gases are then led into the exhaust-gas purification plant. |
| Stage 2 | Exhaust-gas purification. In the exhaust-gas purification plant, the exhaust gases are washed with circulating water as a wet-chemical process, and cooled to 4° Celsius. | The solid materials are washed out, and the mercury condensed out as a metal. The sludge which arises is further processed in the mercury-distillation plant |
| Stage 3 | Metal recovery. The metallic components are reduced and smelted in the induction furnace at a temperature of 1500° Celsius. Iron and manganese remain in the | melt and form the ferro-manganese. Zinc vaporises and is recovered in the zinc condenser. Ferro-manganese and slag are taped out every four hours. |
| Stage 4 | Waste-water purification. The waste water which arises in the course of exhaust-gas purification is filtered and cleansed of cyanide, fluoride and heavy metals. | The solid materials are returned to the pyrolysis process and the purified waste water led into the sewage system. |
| Stage 5 | Mercury distillation. By heating to over 360° Celsius, the mercury contained in the waste vaporises, and condenses again as pure mercury in a condensation column. The condensation unit is followed by an activated carbon filter, which | removes the remaining traces of mercury from the exhaust-gas stream. Distillation is conducted as a batch process, and guarantees low-emission operation – for the safety of the employees and the environment. |



An idea
becomes accepted!