BATREC’s Mercury Waste Management
Safe, traceable & cost effective by central treatment

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BATREC and VEOLIA – A powerful network

Veolia Field Services (VFS)

a sister company of Batrec - has global expertise in hazardous wastes management and is able to provide the following tailor made services:

- Packaging
- Conditioning
- Transport
- Regulatory administration

Activated carbon reactivation
Treatment of mercury materials
Recycling of mercury adsorbers
Stabilisation of liquid mercury
Battery recycling

171'495 Nb of Employees
50 Countries
25'911 Million € revenue
46 Million tons of waste treated

2018 Turnover
17.80 Mio. CHF = 15.87 Mio €

25'911 Million € revenue
46 Million tons of waste treated
Mercury Management at BATRECF

Be able to treat any type of wastes containing Mercury in our installation in Switzerland

Distil Hg-containing waste ➔ Stabilise Hg into HgS ➔ Transform highly toxic Hg into a non-toxic HgS
Mercury Management at BATREC

- Wastes accompanied by movement form for hazardous wastes
- Registered in our ERP
- Material flows
  - Info IT
  - Info and audit

Thermal treatment leads to Hg / sludge distillation process.

Purification results in Hg > 99.9999%.

Registered in our ERP (kg, analysis, batch no.)

Stabilization leads to HgS final disposal.

Delivery to end-user with audit end-user + export permit.

- Audited clients
- Restricted users
  - Dental amalgam
  - R&D and analytics
- Export permit for Hg in compliance with Article 3 of the Minamata Convention

Monthly reporting to FOGEN and local authority.
Treatment of Mercury Wastes
Hg Distillation: Process Flow Diagram
Mercury Waste Recycling Plant: Process Flow Diagram

1. THERMAL TREATMENT
   - Desorption of the pollutants at 750 – 850°C
   - Destruction of the organic pollutants in the post-combustion chamber

2. WASTE GAS WET CLEANING
   - Condensation of Mercury
   - Removal of Sulfur

3. WASTE GAS DRY CLEANING
   - Removal of trace level Mercury
   - Removal of other pollutants and fine dust removal HEPA Filter

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WASTE WATER TREATMENT
Mercury Stabilisation
Mercury Stabilisation

**Process characteristics**

- **batch** process
- **wet** process at low temperatures in a closed circuit limits the risk of Hg emissions
- **no gaseous Hg** in the process
- **stabilisation solution is regenerated** → **zero effluents produced**
- **simple** reactants

**Capacity:**
- 625 kg mercury / batch
- 3 reactors
- 1,200 t mercury / year

**Diagram:**
- Metallic mercury (Hg) + Stabilisation reagent (S)
- Three reactors
- Fan
- Activated carbon filter
- Chimney
- Filter press
- Filter cake HgS

**Capacity:**
- 625 kg mercury / batch
- 3 reactors
- 1,200 t mercury / year
A clear value proposition

Offer complete safe management of the Mercury

Full traceability

- Full transparency to Customers Authorities
- External sampling, mass balancing & reporting
- Full service from customer to final disposal [notification, transport,…]
- Supply of approved transportation containers for Hg
- No investment costs for the client

Traceability chain for the stabilisation of Mercury

1. Transport of Mercury from customer site to Batrec under a notification using a "movement document for transboundary shipments of waste"
2. Transformation of Mercury into Mercury Sulphide (HgS) = Dg disposal operation
3. Sampling and inspection of Mercury Sulphide by an external laboratory
4. Transport of Mercury Sulphide from Batrec to the K+S salt mine of Herfa-Neurode (Germany) under a notification using a "movement document for transboundary shipments of waste"
5. Final disposal of Mercury Sulphide in the K+S salt mine of Herfa-Neurode (Germany) = D12 disposal operation
Safe, traceable and cost effective approach by central treatment

- Minimizing the risks
  - Local Transport Support in packaging
  - International shipment ADR / IMDG rules
  - Trained/Monitored staff

- Controlling the budget
  - Focus on your core business
  - Cost Effective due to centralized treatment of all type of Hg-Waste
  - Recycling/Disposal capacity in Europe for Byproducts

- Mastering the fate of the recovered mercury
  - Full traceability from cradle to grave
  - Local legislation strickly in line with Minamata
  - Stabilisation of recovered mercury

BASEL CONVENTION

CLOSE/STRICT MONITORING BY AUTHORITIES
Thank you for your attention