



# BATREC

Swiss quality recycling solutions

## Stabilisation of Mercury

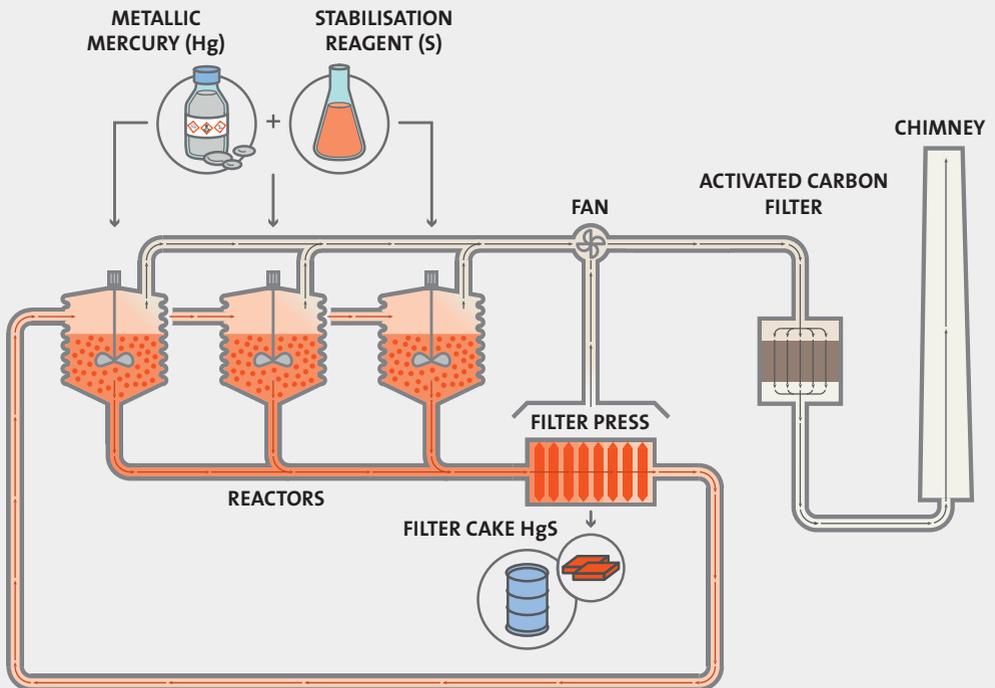
Mastering a Global Challenge

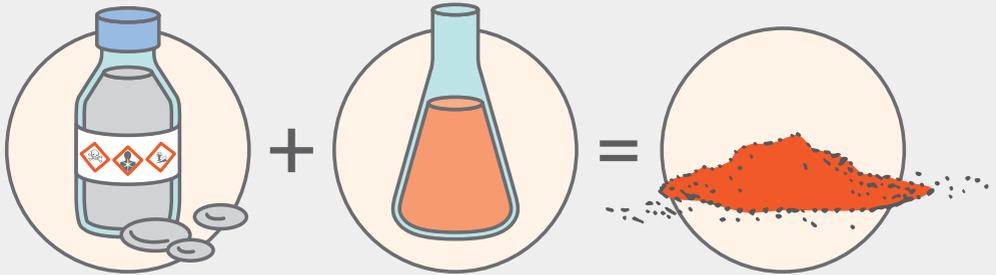


# A Complete Solution for a Toxic Problem

In the era of clean technology and corporate responsibility, mercury presents a huge challenge to industries worldwide. Batrec has developed a solution to stabilise metallic mercury for safe and sustainable disposal. The Batrec solution provides a complete service for mercury disposal including treatment, transport, container handling, transfrontier shipment formalities as well as reporting.

## The Batrec Process





metallic mercury (Hg)

stabilisation reagent

final product (HgS)

The patented Batrec process for mercury stabilisation is unique, setting new milestones in terms of safety, conversion rate and process efficiency. It employs a stabilisation reagent which is mixed with pure liquid mercury. Active sulphur within the stabilisation mixture reacts with the metallic mercury to HgS (cinnabar). HgS is the only non-toxic mercury compound. It is also the most stable and the most insoluble. In addition, the Batrec process is a wet process and thus not prone to gaseous mercury emissions, improving operational safety.

#### Capacity:

- 3 reactors
- 1.200 t of mercury per year

#### Process performance:

- conversion rate of over 99.999%

#### HgS quality:

- $<10 \mu\text{g}/\text{Nm}^3$  mercury vapour pressure
- leachate EN 12457-2:  $<2 \text{ mg}/\text{kg Hg}$

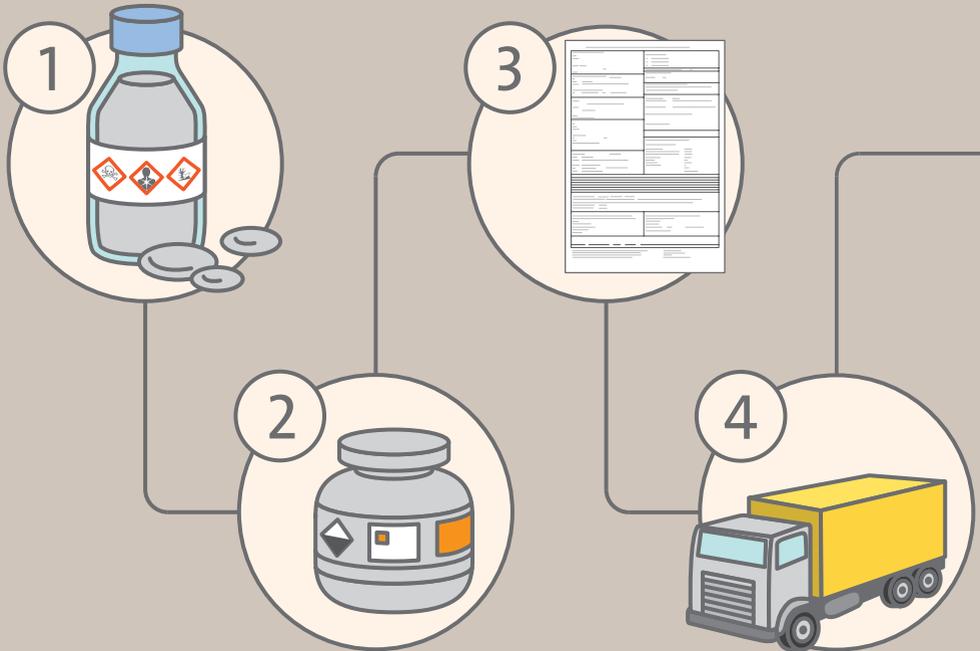
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## 1. Mercury

Mercury from chlor-alkali industry, natural gas extraction, nonferrous mining and smelting as well as from other sources, which is considered waste.

## 3. Notifications

All notifications and approvals are arranged in compliance with international regulations for hazardous waste shipment. Batrec places a high emphasis on traceability which is guaranteed throughout the whole process.



## 2. Safe Packaging

The mercury is packaged in pressurised containers with a capacity of 1000 to 2000 kg each. They can be purchased or rented from Batrec.

## 4. Transport

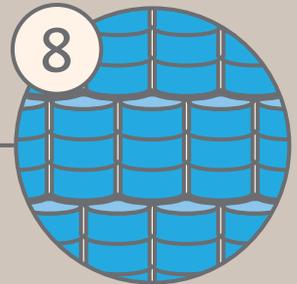
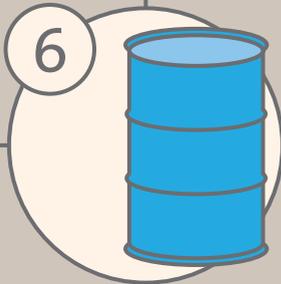
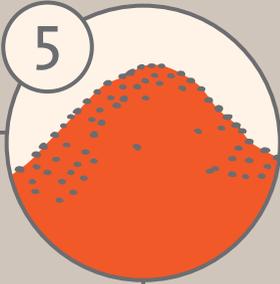
The metallic mercury is transported to Batrec in accordance with international regulations for dangerous goods (ADR / IMDG).

## 5. Stabilisation

The mercury is stabilised through the unique Batrec process (see prior page) to HgS. The HgS meets the criteria for permanent disposal in salt mines.

## 7. Transport

The HgS is transferred to K+S Switzerland and is analysed. It is then transferred to its final destination at K+S Herfa Neurode in accordance with international regulations for hazardous waste shipment and transport of dangerous goods.



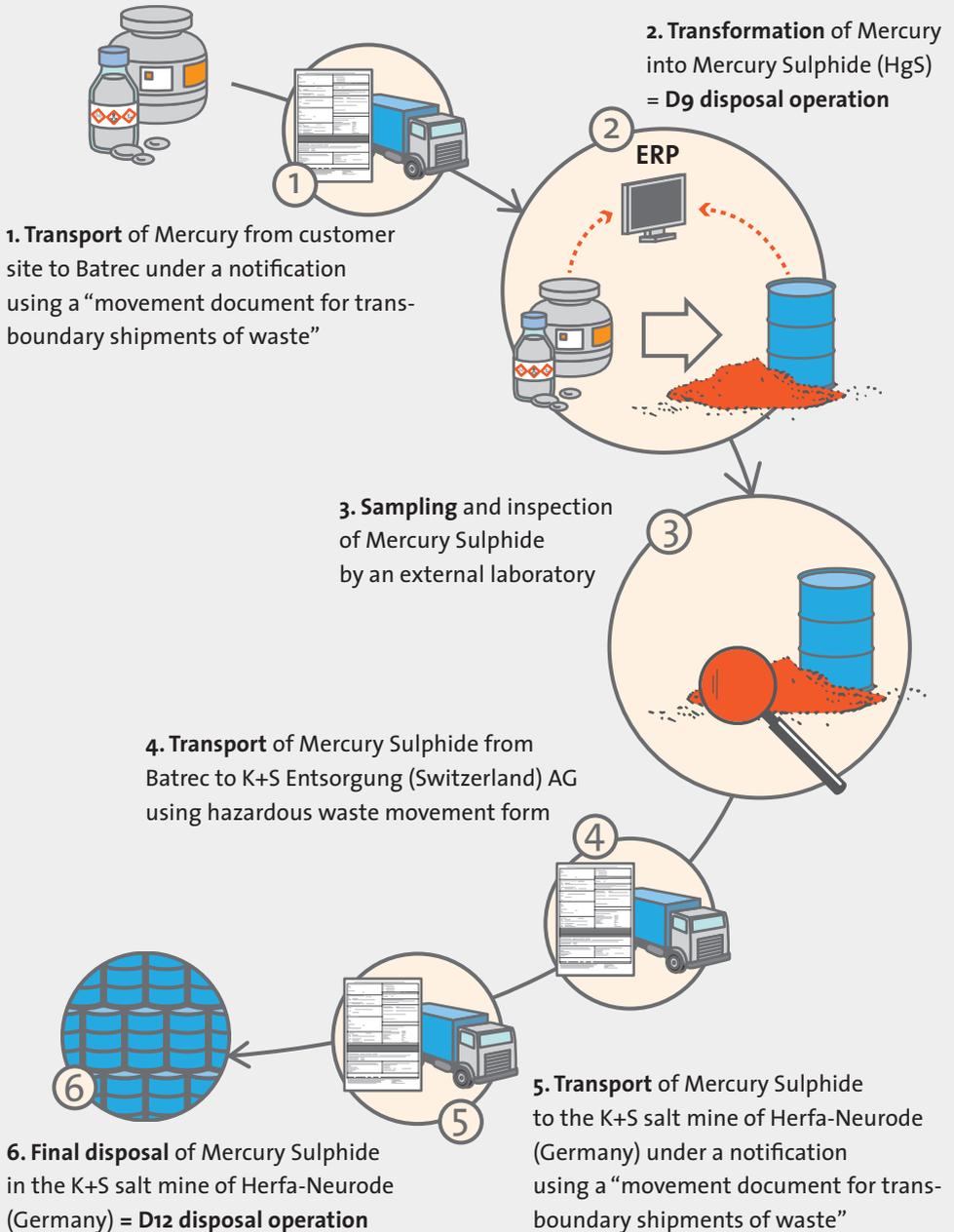
## 6. Safe Packaging

The HgS is packed into steel drums for safe transport and permanent disposal in the salt mine.

## 8. Disposal

The HgS is permanently stored in the salt mine (D12 disposal operation) at K+S in Herfa Neurode. The K+S salt mines meet the highest standards of traceability and long term stability.

# Traceability chain for the stabilisation of Mercury



# Combined Experience in Hazardous Waste Management

## Batrec Industrie AG

Batrec is a company based in Wimmis / Switzerland that is specialised in complex recycling services. Services offered by Batrec include the recycling of batteries, recycling of hazardous wastes that contain mercury, the reactivation of activated carbon and the decontamination of mercury guards for customers all over the world. Batrec turns waste into a resource and so ensures a closed materials cycle. As a Swiss company Batrec applies the highest environmental and safety standards. Batrec has worked in the field of hazardous waste processing since 1992 and is a part of the Veolia Group.



The premises of Batrec are located in a secured site for chemical industry in Wimmis/Switzerland.

## K+S Entsorgung GmbH

Our partner for the disposal of stabilised mercury (HgS) is K+S. The K+S group is the leading operator in the underground disposal sector and operates two facilities in Germany, one of which is the mine in Herfa-Neurode. Modern technology, excellent infrastructure and geological expertise merged with over 100 years of experience in mining guarantee a safe, traceable and permanent disposal of the produced HgS.



Underground caverns generated by raw salt mining of the K+S Group offer ideal conditions for the permanent disposal of mercury sulfide.



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