

# SPANISH TECHNOLOGICAL DEVELOPMENTS ON Hg STABILIZATION AND Hg CONTAINING WASTES

**WORKSHOP ON MERCURY MANAGEMENT AND DECONTAMINATION  
IN THE FRAMEWORK OF THE MEDITERRANEAN REGIONAL PLAN ON  
MERCURY.**

**Almadén, Spain, 12<sup>th</sup> / 13<sup>th</sup> December 2012**



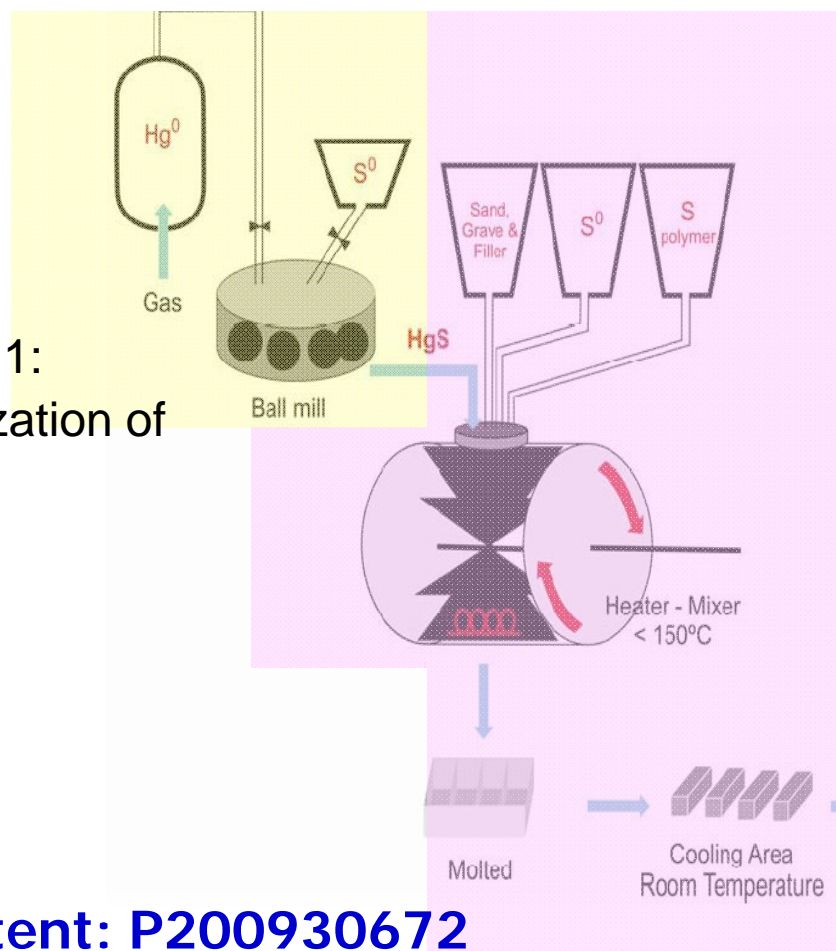
## MERSADE Project main tasks (2006-2010):

### 1. Container for the safe temporary storage of metallic mercury



### 2. Stabilization / Microencapsulation technique.

Phase 1:  
Stabilization of  
HgS



## Obtaining mercury sulphide:



**Metallic Hg + Elemental sulfur particles (< 60  $\mu\text{m}$ ) react in a ball mill to obtain HgS (Cinnabar)**

## Microencapsulation in a sulphur matrix:



HgS



S



S polymer

HEATER-MIXER ( $<140^{\circ}\text{C}$ )



**POLIMERIC CEMENT OF SULPHUR (Artificial rock)**



## **ADVANTAGES AND GUARANTEES :**

- Inert solid, more resistant than concrete, with low porosity and impermeable.
- The MICROENCAPSULATION provides a second and additional barrier for avoiding mercury releases to the environment.
- Safer product and easier to be managed: physically and chemically much more stable and environmentally safer.
- During the process, 100% of Hg is transformed.
- Low energy consumption.
- No water consumption, and neither effluents nor wastes are generated.
- Ordinary, abundant and affordable reagents.

- The estimated cost of the stabilization process is around 2,000 €/t of metallic mercury
- The CTNDM has experts to carry out a safe and environmentally sound comprehensive management of mercury (including collection, transport, temporary storage and disposal).
- Facilities for the environmentally sound permanent storage with absolute environmental guarantees already exist in Almadén.
- ..... ,



¿ what 's next step ?

[https://www.yunbaogao.cn/report/index/report?reportId=5\\_14391](https://www.yunbaogao.cn/report/index/report?reportId=5_14391)

预览已结束，完整报告链接和二维码如下：



Center

## RESEARCH WORKS DONE

### HAVE DEMONSTRATED THAT:

.OGY is fully effective to stabilize and microencapsulate metallic **hichever degree of purity, no needing previous distillation.**

.OGY is **directly applicable** to a wide range of mercury containing /erse industrial processes, **without previous treatment.**