

研究課題名 = Study on Long-term Storage and Safe Management of Mercury Recovered in Japan

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要旨 =

Some international programmes are going to control the emission of mercury and manage mercury products and wastes globally. In Japan the annual demand of mercury is around 10-20 tons/year and recovered mercury reaches 80 tons/year. If the recovered mercury is not used or exported, it is regarded as “hazardous wastes”. In this study, we investigated some measures for long-term storage and management of mercury. From the viewpoint of thermodynamics, possible chemical forms suitable for long term storage were investigated. Elemental mercury and sulfur were mixed using planetary ball milling with various experimental conditions. As a result, the synthesized mercury sulfide was so stable that this method was environmentally-sound for long term safe management of mercury. The leaching behaviors of mercury from waste or some chemical reagent of mercury were checked to evaluate water environment pollution in an accident. In environmental risk evaluation for a leak accident in stabilization facility, the risk for workers inside of facility was not calculated to be negligible. As for a vessel for storage, the required level was cleared. In the estimation of recovered mercury, the flow of collection and recovery of mercury-containing waste from home and the mercury amount in ferrous/non-ferrous metal industries were investigated.

キーワード = Mercury, Recovery, Storage, Mercury Sulfide, Environmental risk