



# Mercury wastes management by Nomura Kohsan under the Basel Convention



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# Nomura Kohsan



# Overview of Nomura Kohsan's work

## Who we are

- The only mercury-recycling company in Japan
- Over 40 years of experience in treating Hg-containing/Hg-contaminated waste from all across Japan
- Two plants: Itomuka Plant(Hokkaido) and Kansai Factory(Osaka)
- ISO 14001 certified

## What we do

- Treatment of Hg waste
- Recycling mercury and other recyclable materials
- Contracted work from Zn and Cu refineries
- Importing waste from abroad for treatment
- Research on Hg stabilization



Birdseye view of Itomuka Plant



# HISTORY

- 1936 Itomuka mine was discovered
- Apr. 1939 Nomura Mining Co., Ltd. began operations
- Dec. 1973 Nomura Kohsan Co., Ltd. established
- Apr. 1974 Itomuka Mine was closed
- Jul. 1974 Nomura Kohsan took over all of Nomura Mining's plants and technology.  
Started management business of industrial wastes and municipal wastes
- Jul. 1985 Demonstration plant for recycling mercury containing wastes constructed  
(mainly used dry cell batteries)
- Aug. 1993 Waste fluorescent lamps recycling plant constructed
- Mar. 2004 Kansai Plant completed
- Feb. 2014 Nomura Kohsan joined two areas of UNEP GMP
- Apr. 2014 Nomura Kohsan signed a MoU with UNIDO



# Overview of Nomura Kohsan's work

## Treatment

- Wastes containing mercury
  - Fluorescent lamps
  - Batteries
  - Measuring devices
- Wastes contaminated with mercury/ mercury compounds
  - Mercury- containing sludge
  - Mercury- contaminated soil
  - Reagents
- Wastes consisting of mercury/mercury compounds
  - Metal mercury



... and more!



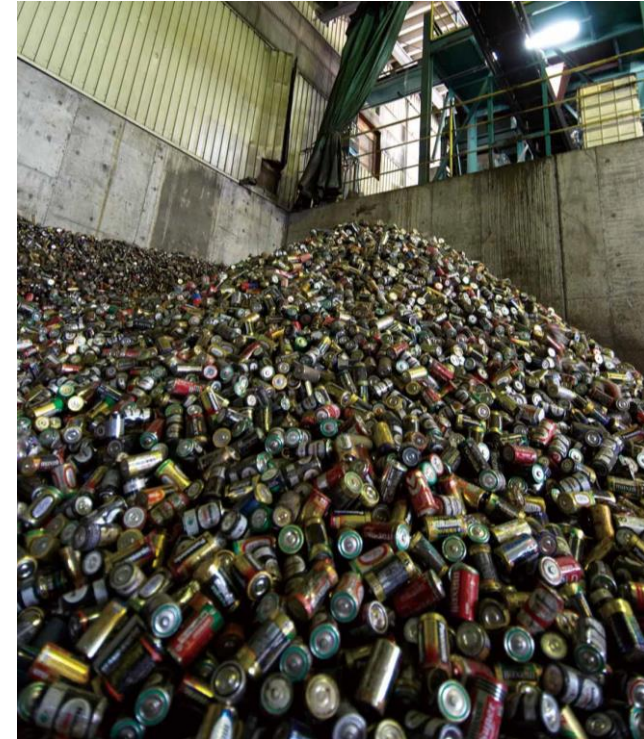
# Overview of Nomura Kohsan's work

- We treated a total of **26,200** tons of mercury waste in 2016

-**13,500** tons of dry-cell batteries

-**7,500** tons of fluorescent lamps

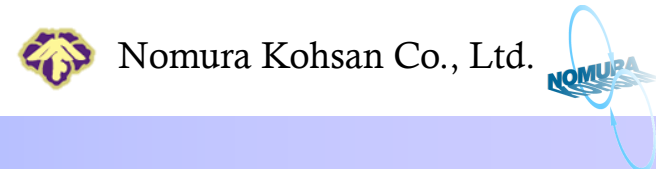
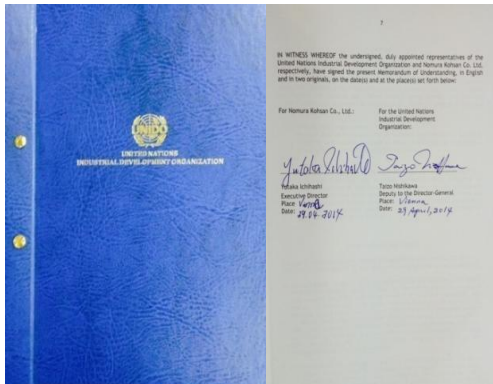
-**5,200** tons of other types of waste  
(i.e. measuring devices, etc.)





# Work with UNIDO

- Nomura Kohsan signed a memorandum of understanding with UNIDO in 2014
- Objective: to develop a project with a South East Asian country to organize collection center for used lamps
- We will disseminate some of our technologies and develop mercury storage solutions

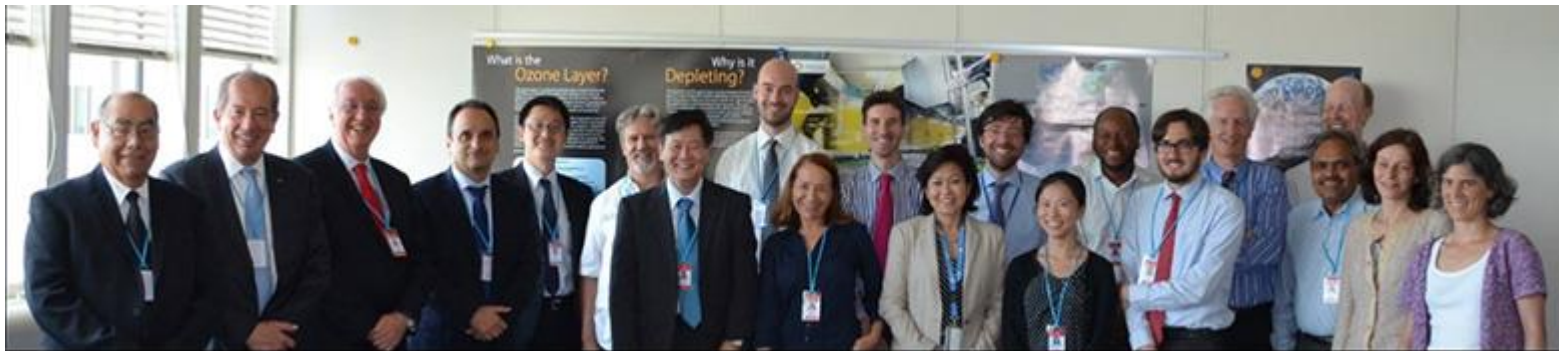


# Work with UNEP

- Nomura Kohsan joined two areas of the United Nations Environment Programme Global Mercury Partnership in 2014
  - 1) Waste Management Partnership
  - 2) Supply and Storage Partnership
- We have also been selected as a member of the Expert Group for a UNEP publication on mercury storage and disposal



*Photo credits: Dadan Wardhana Hasanuddin*



*Photo credits: UNIDO website*





# Treatment Process

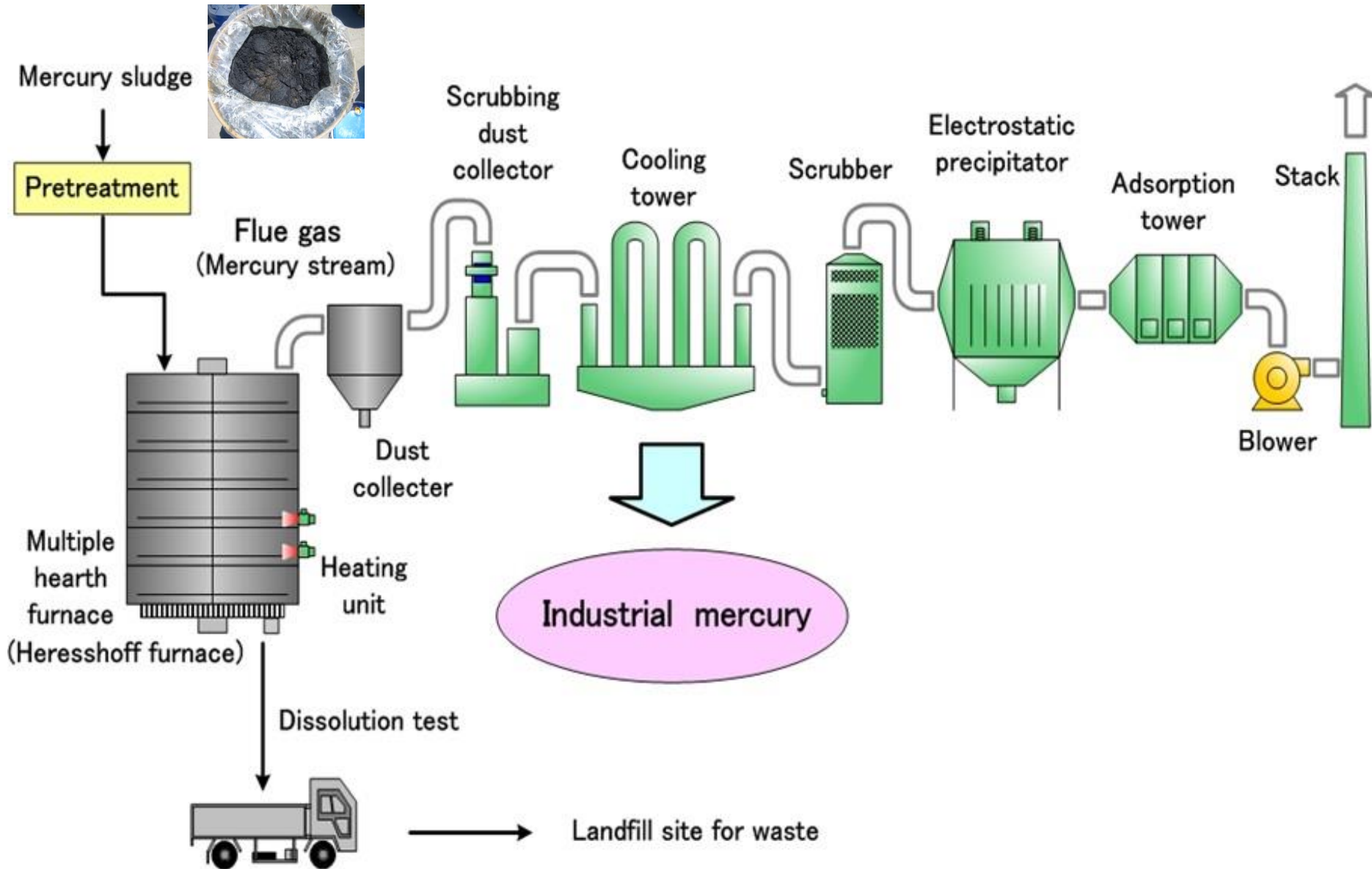


# Roasting process

- Waste is heated at a temperature between 600°C to 800°C
- The mercury evaporates, which is then collected through a cooling process.



# Mercury recovery system





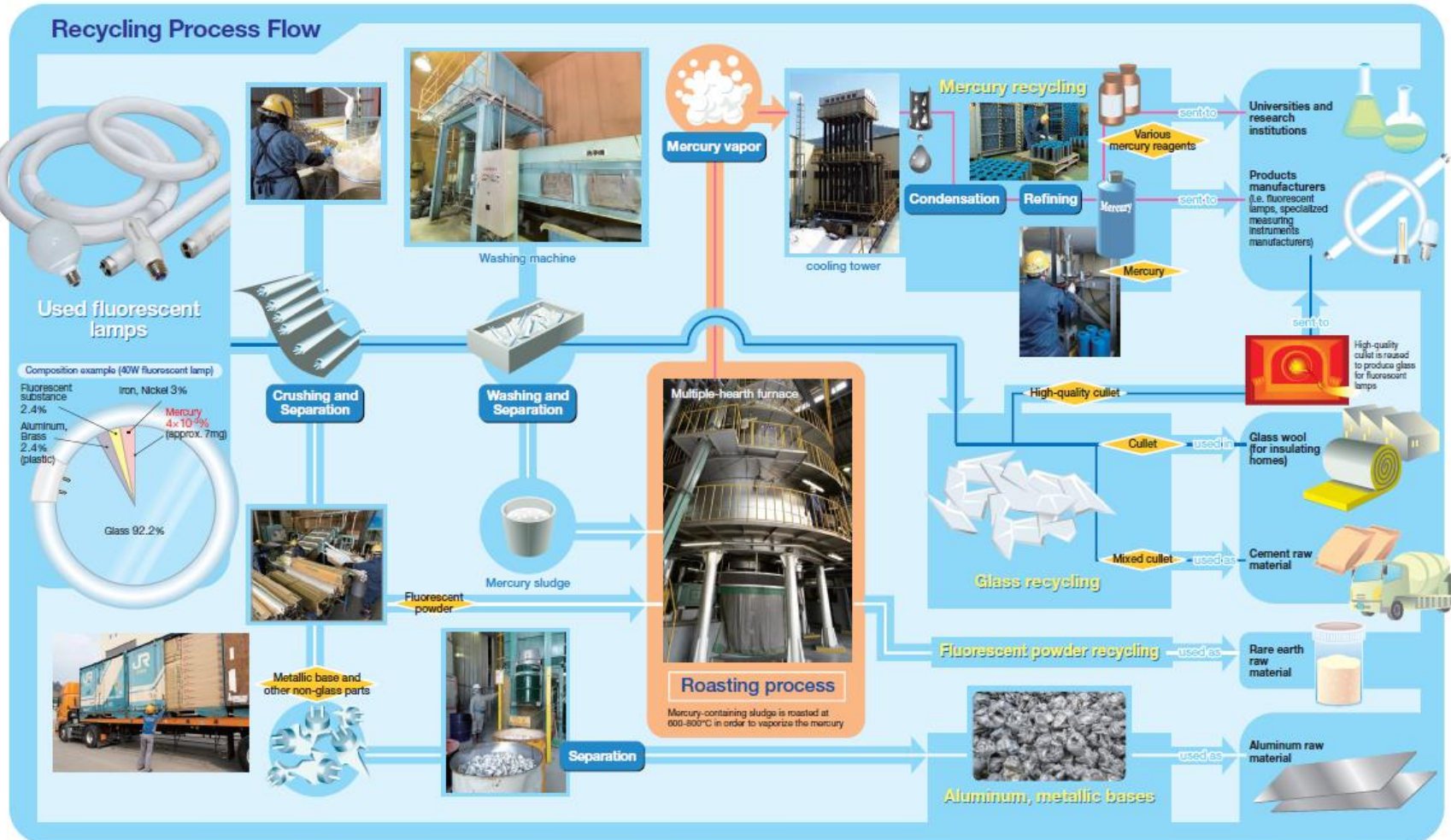
# Used Fluorescent Lamp Recycling System



## Used Fluorescent Lamp Recycling System



At Nomura Kohsan, used fluorescent lamp parts are crushed, separated, washed and made ready for distribution. Recycled glass can be transformed into glass wool insulation for homes and raw glass materials for fluorescent lamps. Recovered aluminum and metallic bases are converted into aluminum raw material. Mercury is recovered from wastewater and can be reused in new fluorescent lamps.



\*For more information regarding plant visitations and where we deliver our recycled products, please contact our sales representative at [Info@nkl.jp](mailto:Info@nkl.jp)

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# Used Dry-cell Battery Recycling System

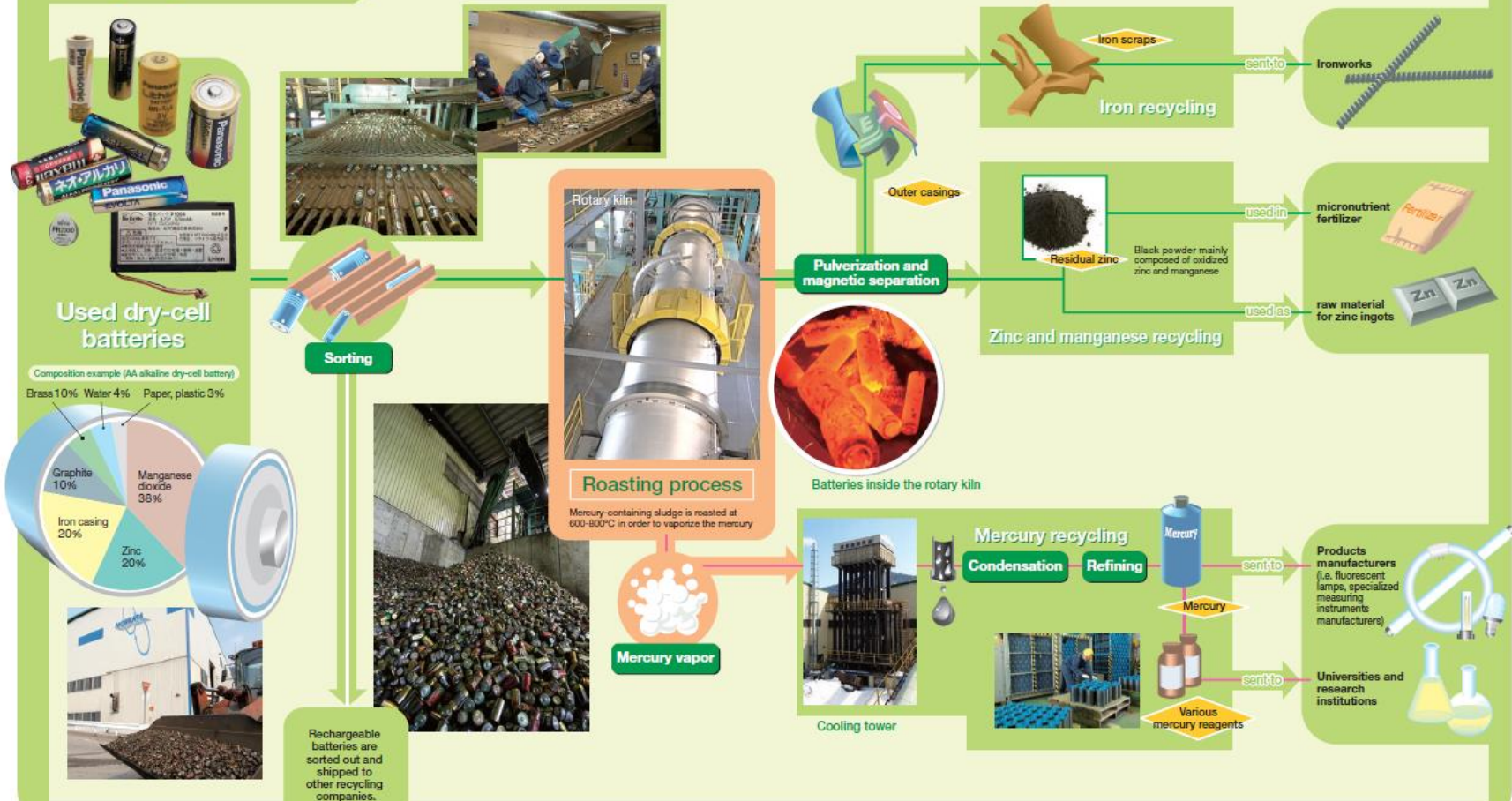


## Used Dry-cell Battery Recycling System



Mercury from used dry-cell batteries is recovered during the roasting process. The outer iron casings and residual zinc are collected separately. Outer casings can be recycled into iron products and zinc residue turns into raw material for zinc ingots and micronutrient fertilizer.

### Recycling Process Flow



\*For more information regarding plant visitations and where we deliver our recycled products, please contact our sales representative at info@nkcl.jp

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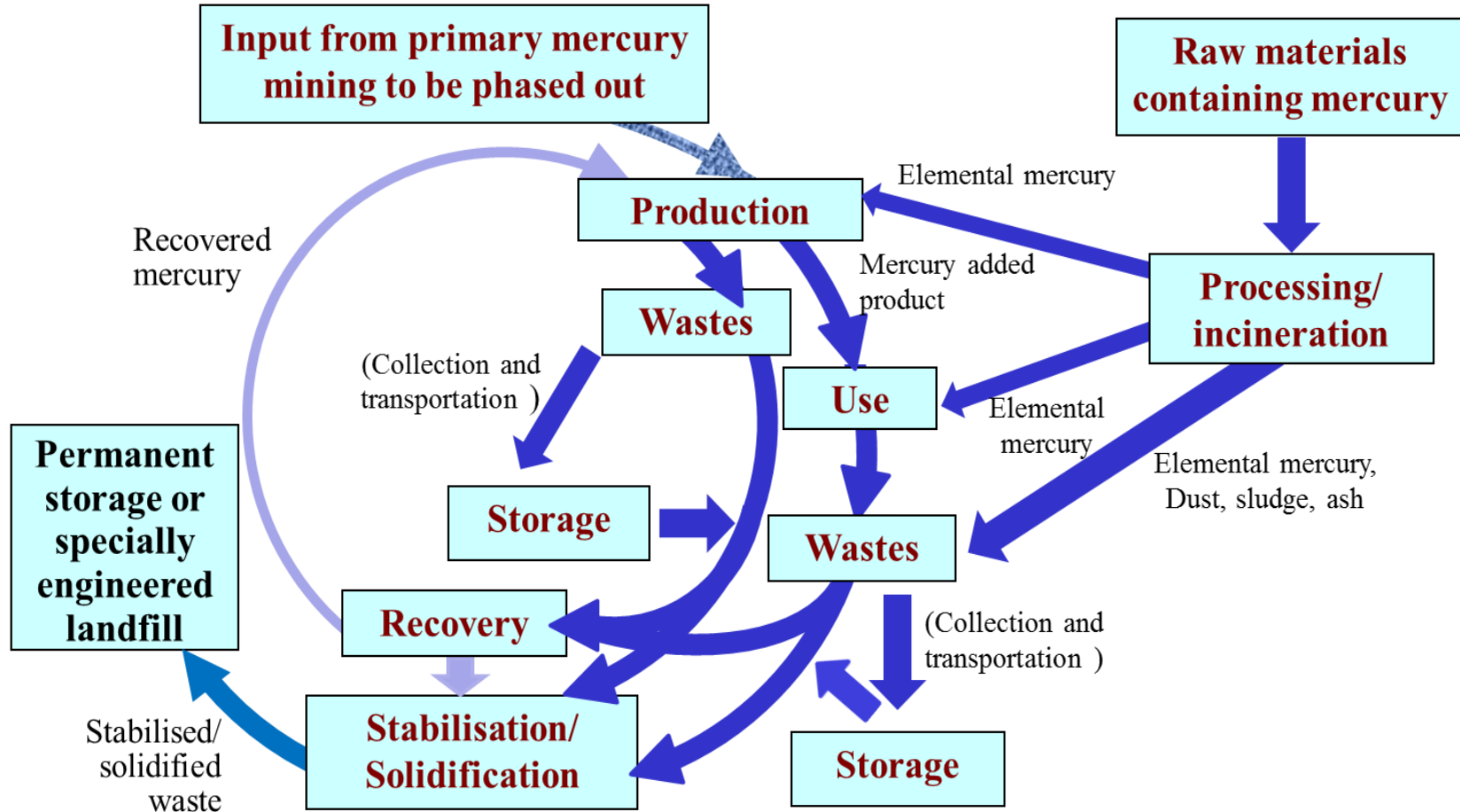


# Stabilization and Solidification



# Basic concept of mercury management

“Prevent and minimize mercury release to the environment at each stage”



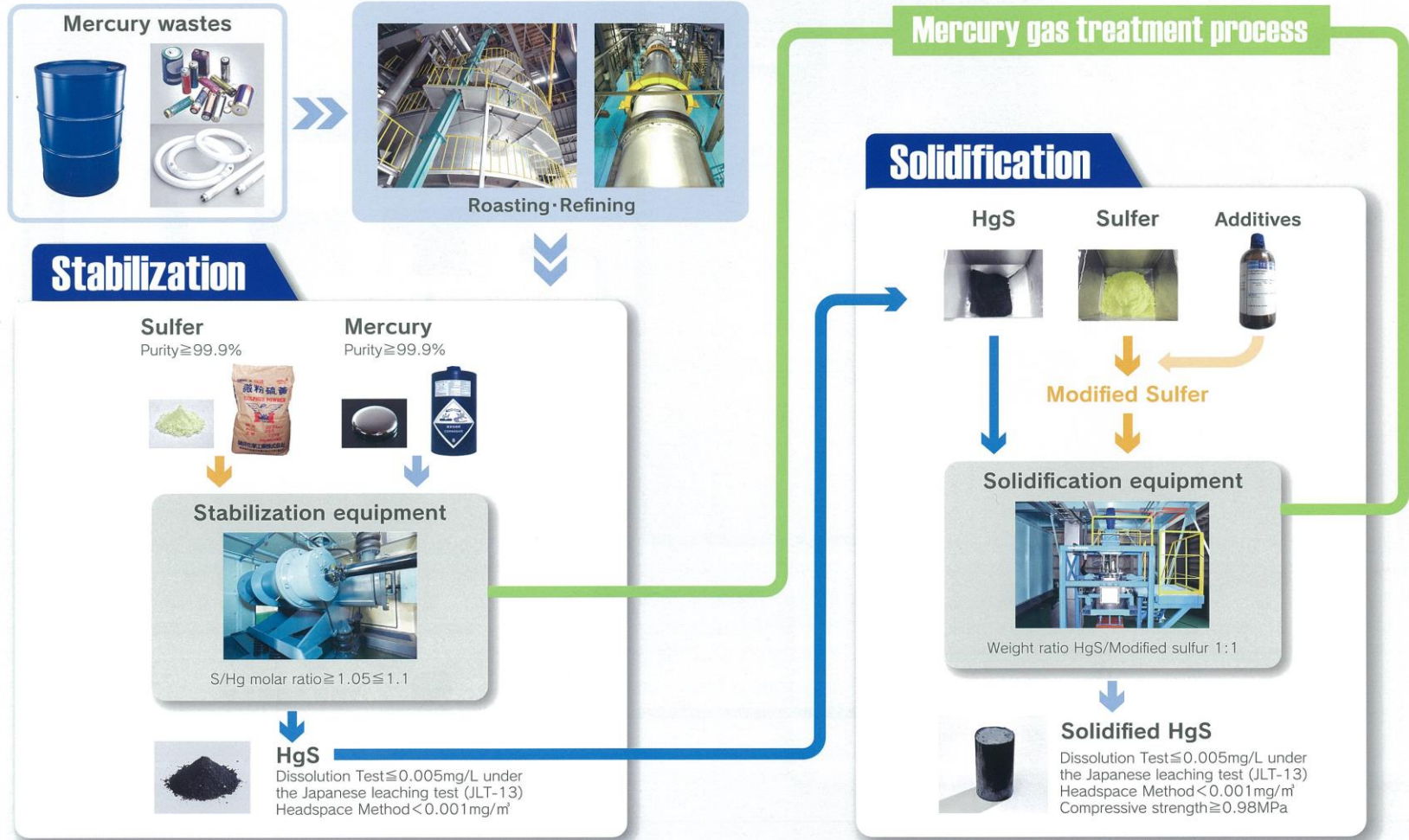
Source: Draft updated technical guidelines for the environmentally sound management of wastes consisting of, containing, or contaminated with mercury or mercury compounds (Draft of 20 November 2014 - Rev.5)

# Stabilization Solidification

## Stabilization and Solidification processes of mercury



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# Import of mercury waste and challenges under the Basel Convention



# Import records of mercury wastes



## Taiwan

- We have treated over 3,200 tons of mercury-containing waste which is dry-cell batteries, button cell batteries and HID lamps

## Philippines

- We have treated over 75 tons of fluorescent lamps

## Indonesia

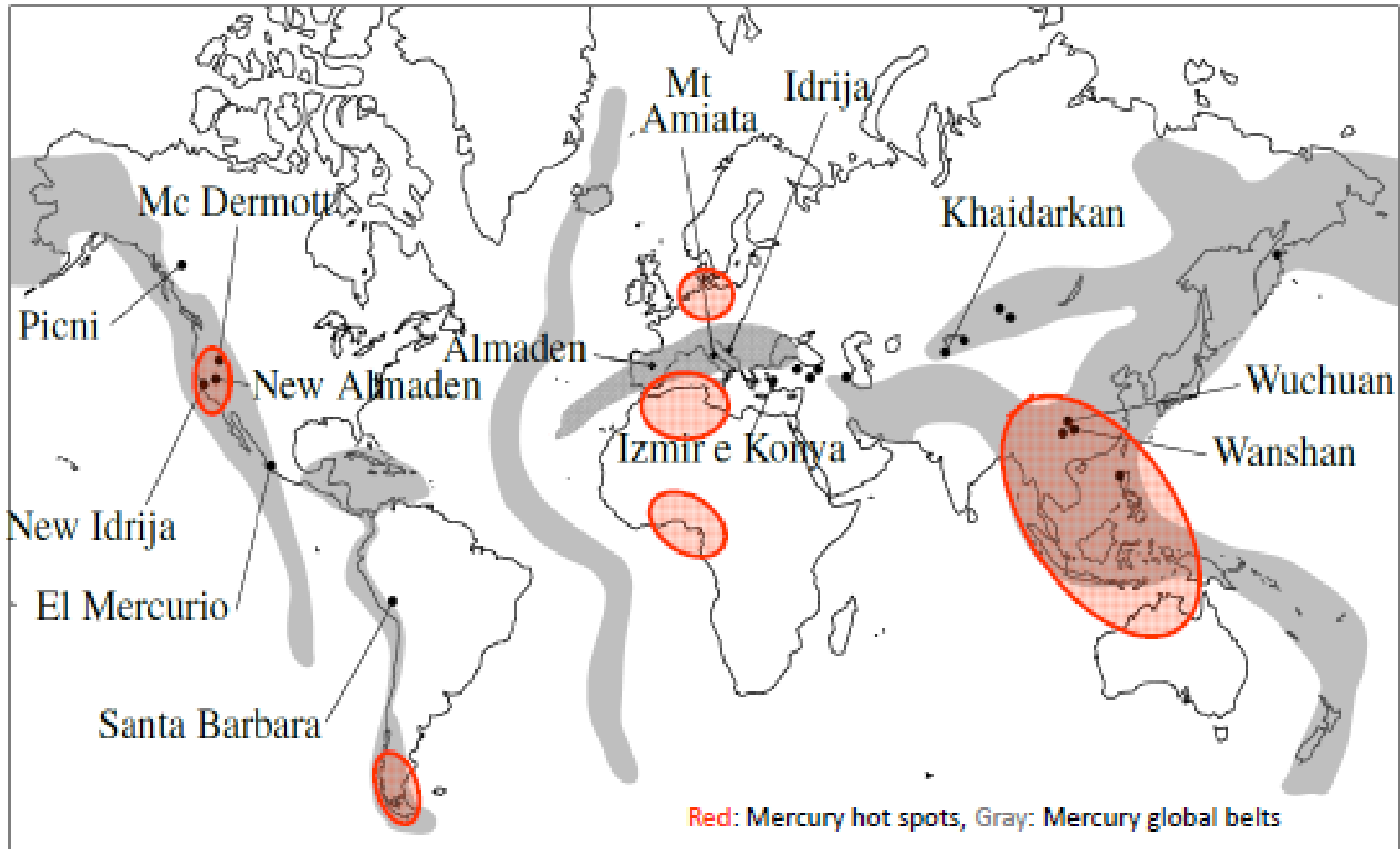
- We have imported and treated over 300 tons of mercury waste from oil gas companies





# Target waste (1)

- Mercury waste from Oil-Gas companies



出典: Giulia Pattelli et al., Effects of the November 2012 Flood Event on the Mobilization of Hg from the Mount Amiata Mining District to the Sediments of the Paglia River Basin, Minerals 2014, 4, 241 - 256 Partial modification by JOE

# Target waste (1)



Oil Sludge



Filters



Catalysts



Metal Mercury

# Target waste (2)

- Others

- 1) Fluorescent lamps and HID lamps
- 2) Batteries
- 3) Sphygmomanometers and Thermometers
- 4) Metal mercury
- 5) Dental amalgam
- 6) Decommission wastes

and more...



# Challenges to export/import/transit procedure under the Basel Convention

- It take at least 6 month to get permit/consent for export, import and transit.

## Challenges

### 1) Transit consent

#### a) No answer

- Loss of Notification documents
- Neglect due to poor English skill
- Misaddressing

#### b) Transit of Taiwan

### 2) Difference of opinion

#### a) Permit/Consent terms of export, import and transit

#### b) HS code

### 3) Difference of required documents by a person in charge







Thank you!

For more information,  
please contact: [info@nkcl.jp](mailto:info@nkcl.jp)  
Or visit our website at: [www.nkcl.jp](http://www.nkcl.jp)



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