



Flat Panel Display Recovery

**Lucy Cooper
Technical Specialist
WRAP**

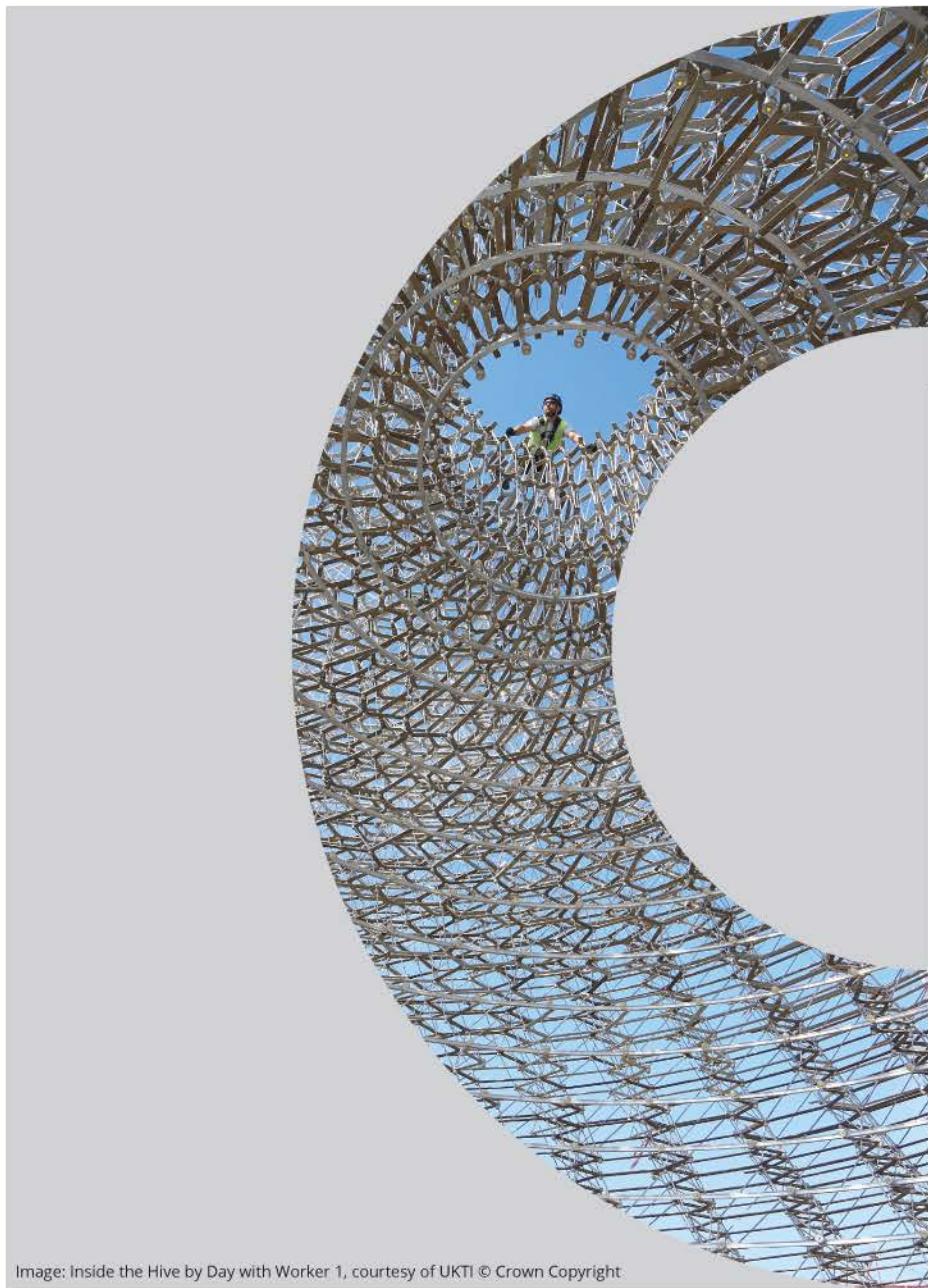
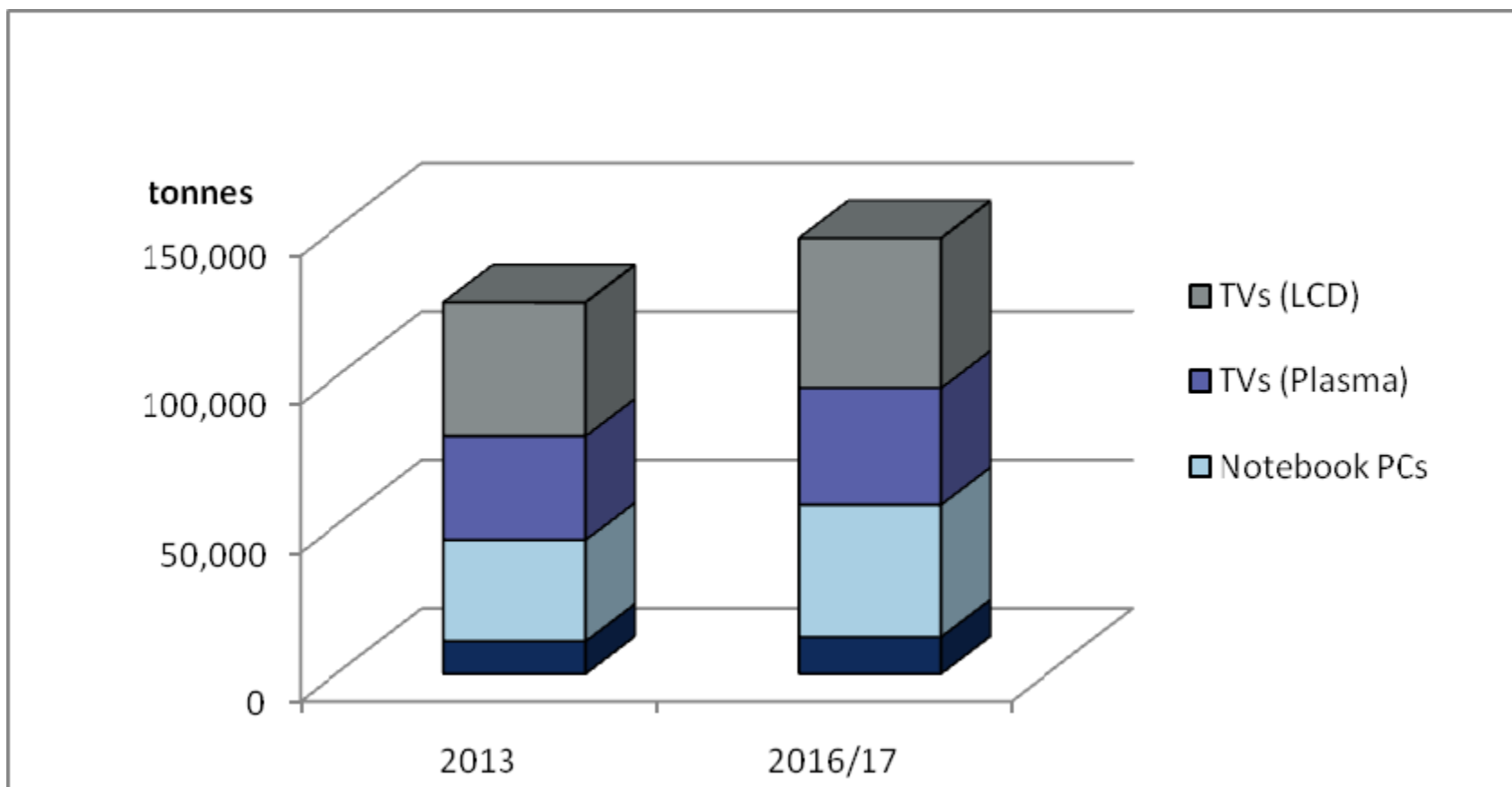


Image: Inside the Hive by Day with Worker 1, courtesy of UKTI © Crown Copyright

WRAP's **vision** is a world in which resources are used sustainably

WRAP's **mission** is to accelerate the move to a sustainable, resource-efficient economy through:

- re-inventing** how we design, produce and sell products.
- re-thinking** how we use and consume products.
- re-defining** what is possible through re-use and recycling.

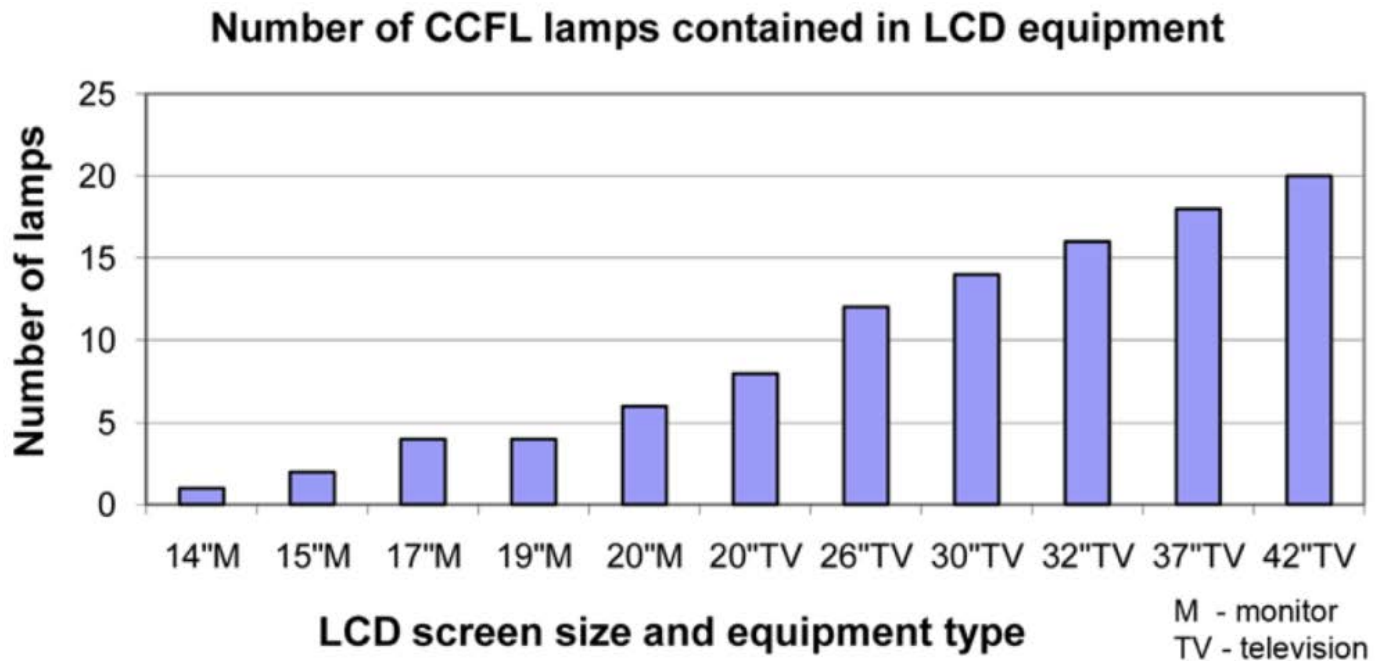


How many flat panel displays?

- WRAP estimate that the total waste arising of LCD display containing fluorescent backlight will be:

Year	2013	2014	2015	2016	2017
Tonnes	70,000	100,000	115,000	120,000	115,000

How many flat panel displays are there?

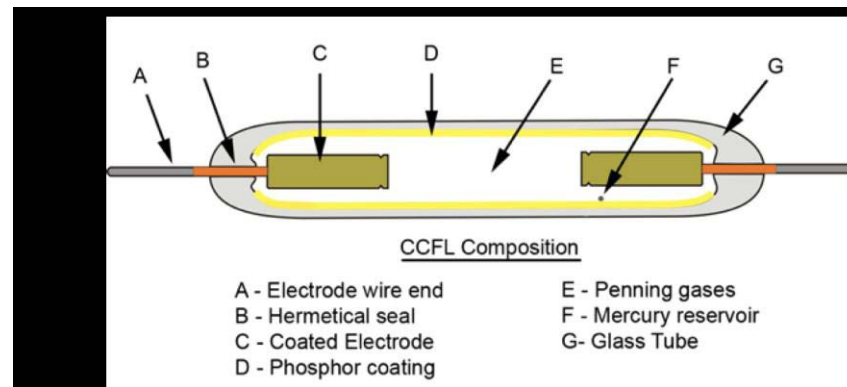


How many lamps in a flat panel display?

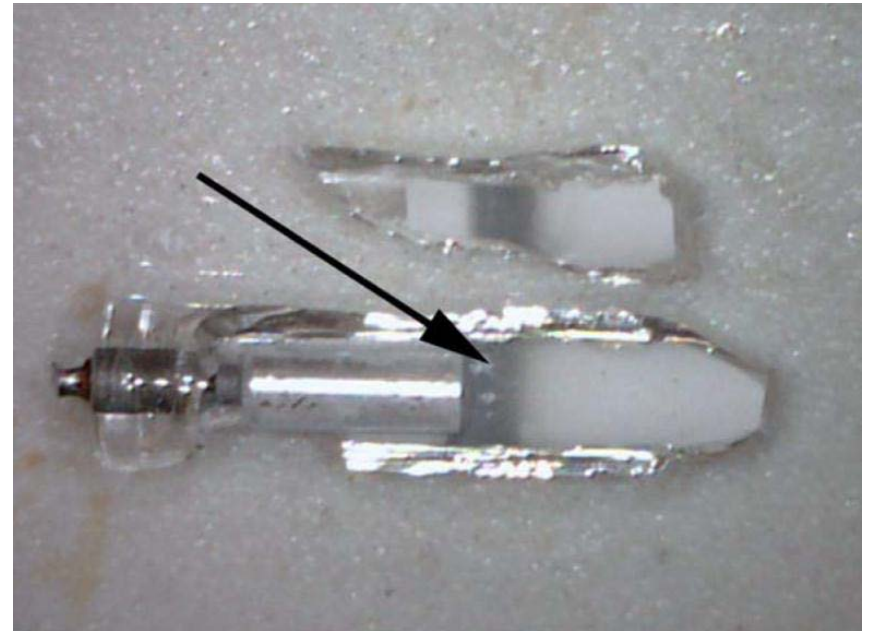
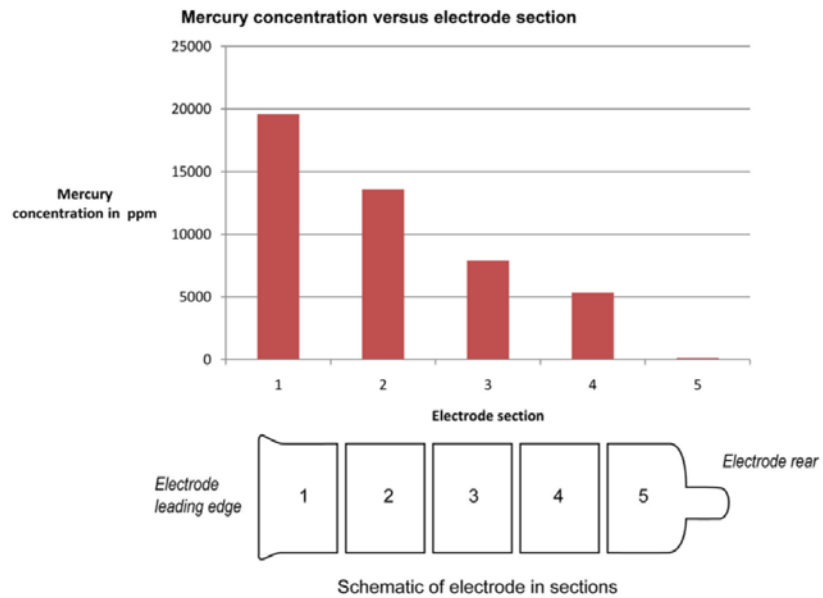
- Trial to develop an automated process to recover materials from flat panel displays:
 - Manual separation
 - Shred materials
 - Combine materials including backlights and treat through a lamp recovery process
- Unable to recover all the mercury

Can you automate the recycling process?

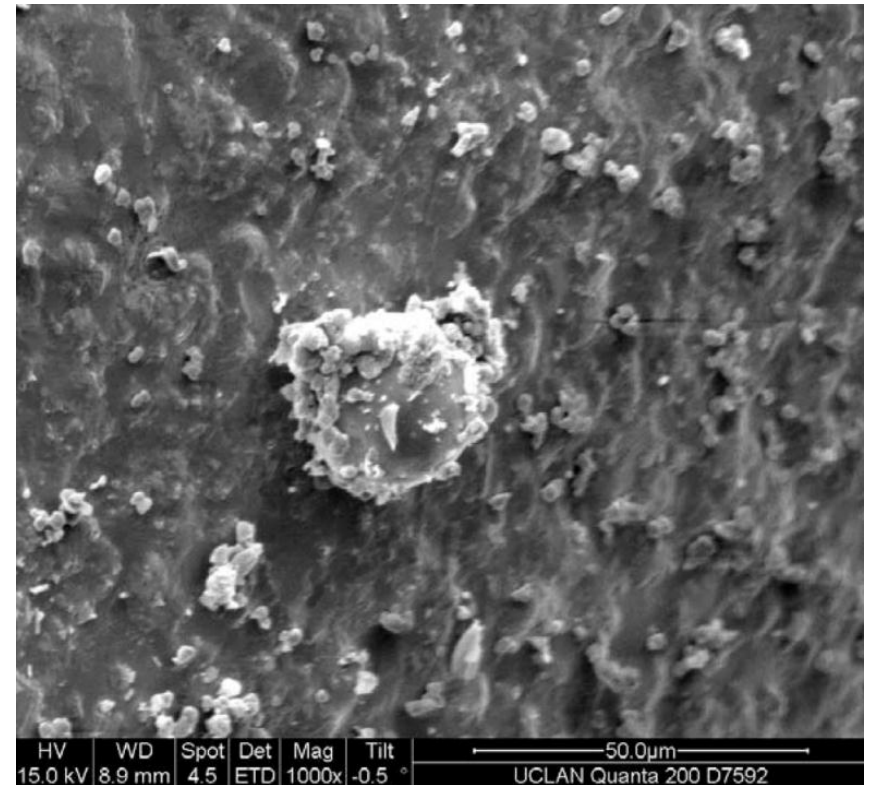
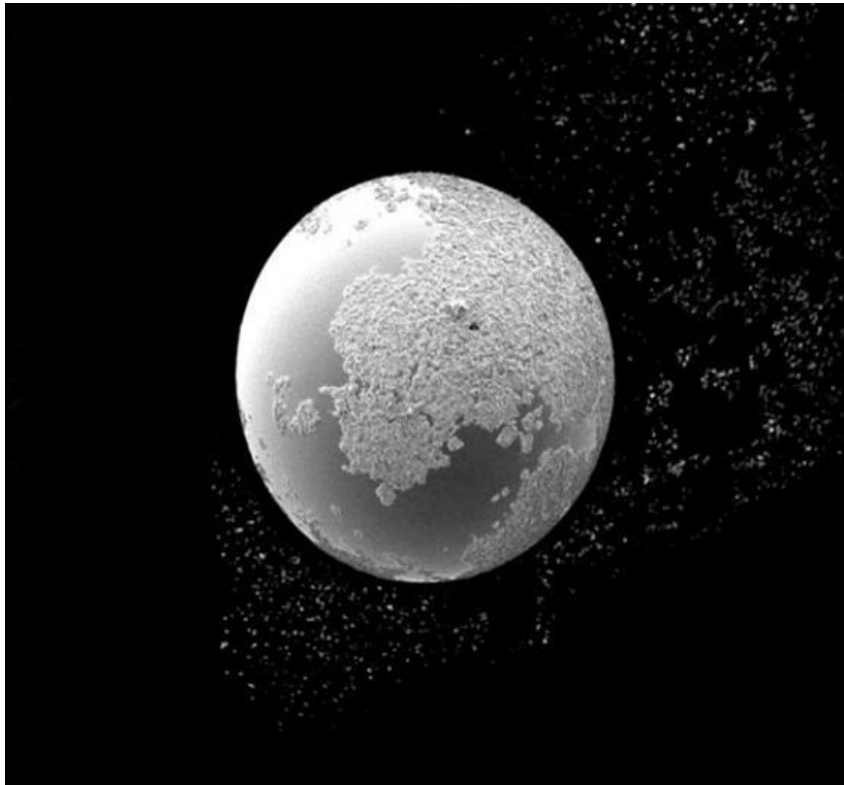
- Research to identify what is happening to the mercury in the lamp during its lifetime
- The aim to understand what was happening so that appropriate handling and treatment can be planned.



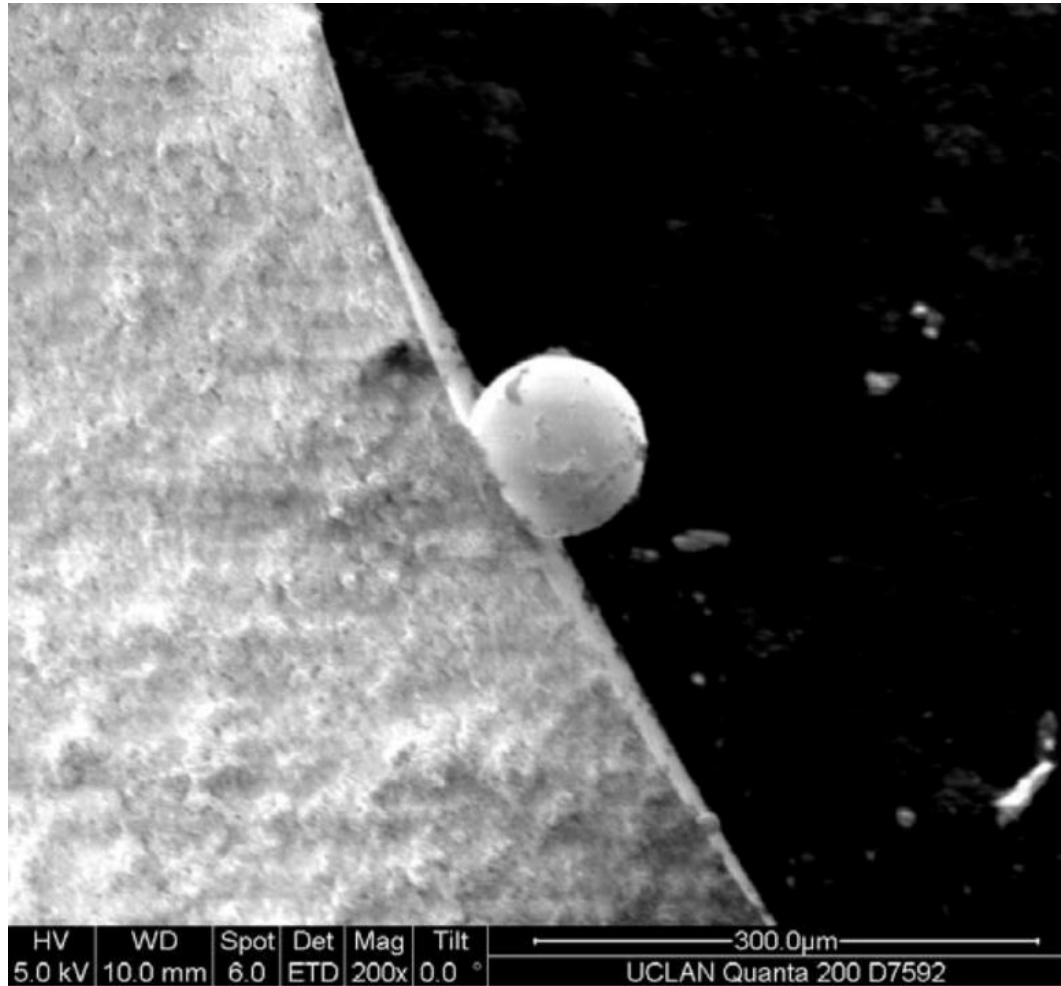
What happens to the mercury?



Finding the mercury



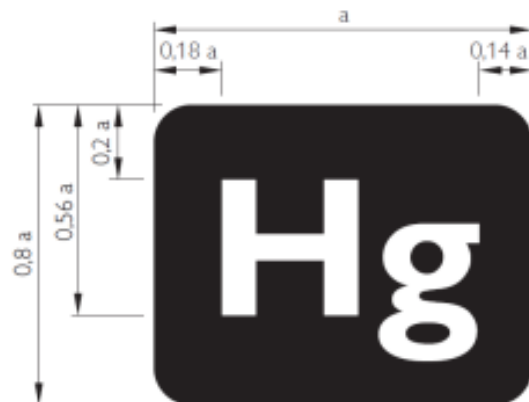
Finding the mercury



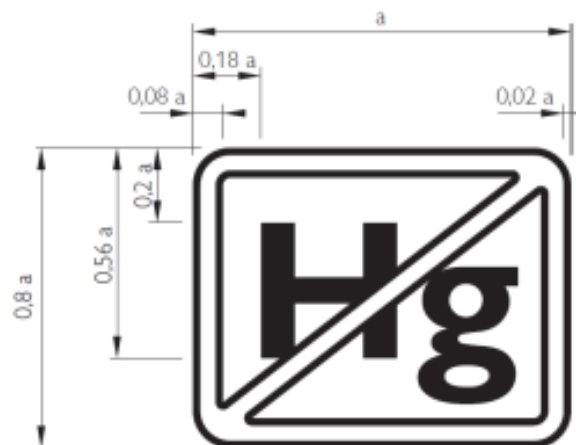
Finding the mercury

- In the UK the preferred treatment is manual recovery where the lamps are removed whole and separated out for recycling
- Activity happens in specially set up rooms with extraction fans
- Staff tested for level of mercury in their system regularly
- There are a number of people considering options for recovery

Mercury inside



Mercury free



Thank you
Lucy Cooper
Lucy.Cooper@wrap.org.uk