

# USED LEAD-ACID BATTERIES (ULABs)

## OVERVIEW

One of the most common sources of lead exposure in low-and-middle-income countries (LMICs) is from used lead-acid battery (ULAB) recycling. Lead's value as an important commodity makes the recovery of car batteries a viable and profitable business. However, in many of these countries, ULAB recycling and smelting operations are conducted in the open air, in densely populated urban areas, and often with few (if any) pollution controls, even in the formal sector. This practice can contaminate a whole neighborhood with lead dust.

The various stages where contamination can occur are: Collection, Transportation, Storage, and Recycling.

## WHAT TO LOOK FOR

### Collection and storage:

- Piles of exposed batteries without proper protection from wind and rain and without proper security to prevent public tampering
- Augmentation to the batteries such as cracked casings, evidence of acid leakage
- Dark grey/black soil around the pile that is noticeably different from uncontaminated dirt
- Stored on an unlined surface (dirt or soil)

### Recycling:

- Stored on an unlined surface (dirt or soil)
- No acid treatment capacity onsite
- Batteries broken open by hand implemented tools
- Unlined work areas (dirt or soil)
- Lack of appropriate air filtration coming off the furnace (see Basel Technical Manual for images)
- Piles of dark grey/black slag anywhere on premises

## COMMUNITY EVALUATION

Health Risk: Young children under the age of six are especially vulnerable to lead poisoning, as even low levels of exposure can lead to retardation, impaired physical growth, kidney damage and even death. The primary pathway of exposure is dust, as children play outside and are not prone to hand-washing before meals. Also, employees of the facility risk contaminating their own homes without proper industrial hygiene (ie, changing clothes).

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Blood testing: The US Centers for Disease Control and Prevention (CDC) is 5 µg/dl in children's blood. Over this limit indicates an exposure pathway above background levels.

Soil sampling:

The following areas are to be sampled when appropriate:

- Outside perimeter of the facility or site
- Backyards of nearby residences <1K from facility/site
- Dust-wipe samples inside peoples homes adjacent to the site
- If sample data in residential areas is greater that 400 ppm in soil, exposure pathway can be confirmed

Basel Convention Training Manual: National Management Plans for Used Lead Acid Batteries:  
[http://www.basel.int/Portals/4/Basel%20Convention/docs/meetings/sbc/workdoc/tm-ulab/tm\\_ulab.pdf](http://www.basel.int/Portals/4/Basel%20Convention/docs/meetings/sbc/workdoc/tm-ulab/tm_ulab.pdf)