

Developing an Industry-Specific Regulatory Framework To Protect Public Health and The Environment

OCCUPATIONAL KNOWLEDGE
INTERNATIONAL

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GROWING BATTERY INDUSTRY

- Africa lead acid battery market is expected to have a valuation of more than US\$1 billion by 2021.
- The African market is projected to grow by 5.3% CAGR from 2015 to 2021.
- China experienced an 18% growth rate over last decade!



UN ENVIRONMENT ASSEMBLY RESOLUTION 2016

- Recognition of “the lack of adequate infrastructure needed to recycle the rapidly growing number of waste lead-acid batteries”
- Call for “the need to further reduce releases, emissions and exposures.”



Preferred Purchasing Programs

- Develop and support minimum performance standards for manufacturing and recycling lead batteries.
- Government purchasing/ recycling (e.g. military, telecommunications, transportation agencies);
- Engage with corporate partners to work with manufacturers and recyclers to seek improvements through:
 - minimum performance standards for emissions and occupational exposures;
 - minimum pollution control technology; and
 - third party facility audits.



Regulations For Existing Manufacturing And Recycling Plants

1. Take Back Programs for Used Lead Batteries
2. Limits for stack emissions
3. Ambient air standards and regular testing at the property fence line
4. Occupational standards for workers in these plants
5. Waste water emissions limits
6. Toxic Release Inventory



Mandatory Take Back Programs For Used Lead Batteries

- Key is to set a minimum purchase buy-back price or deposit premium to ensure lead batteries are returned to formal sector collectors;
- Price for used battery to be set at or near value of lead price to discourage informal recycling.
- Include consumers and bulk purchasers (telecommunications, military, and industrial users) and consumers;



TAKE BACK PROGRAMS (CONTINUED)

- Provide higher take back price for rural areas than urban centers to provide adequate incentive to cover transportation;
- Establish system for approved collectors (e.g. authorized retailers and/or collection centers);
- Require that batteries collected by approved collectors go back to manufacturers or to licensed recycling facility;
- Funds to publicize and promote the collection process and use of formal collection centers.



LIMITS ON STACK EMISSIONS

- Specific emissions limits for lead and arsenic released from the stack for each process and/or from the total facility;
- Specified Testing frequency;
- Reports to be made available on government web site;
- Range from 0.005 to 0.6 kg/hour (based on stack height) in China to 0.001 kg/hour in Los Angeles.



AMBIENT AIR STANDARDS

- Testing frequency must be specified;
- Generally maximum reading and monthly average maximum specified;
- Reports to be posted on government website;
- Levels range from 1.5 $\mu\text{g}/\text{m}^3$ in China to 0.15 $\mu\text{g}/\text{m}^3$ in the U.S. (and 0.1 in Los Angeles);



OCCUPATIONAL STANDARDS

- Air standard;
- Air sampling requirements;
- Blood lead testing requirements;
- Medical removal protection to remove over-exposed workers from the job until blood lead level is reduced to specified level;
- Work practices requirements (e.g. separate work clothing, hand washing, showering).



WASTE WATER STANDARDS

- Limits for lead and acid discharge to water body and to sewage treatment plant;
- Testing procedures and frequency;
- Specify treatment technology.

Toxic Release Inventory Model Regulation

- Threshold for reporting lead or lead compounds emissions set at 45 kg/year;
- Annual report of the quantity released to air, land, and water or transferred offsite (e.g. waste disposal);
- Each site must provide a report (not a company) certified by a responsible official signing that the report is complete and accurate;
- Reports are posted on a web site accessible to the public with address information and/or mapping capability;



Regulations For New Recycling Plants

- Siting criteria to ensure that these are located far from residential areas and away from agriculture, food processing industries, and other sensitive uses (schools, hospitals);
- Minimum plant capacity;
- Require best available technology with reference to other standards;



Chinese Regulatory Example

- Existing recycling facilities must have a capacity of at least 10,000 tons per year to be allowed to continue to operate;
- New factories must have capacities of at least 50,000 tons per year; and
- Battery manufacturers and recyclers must pass a series of three environmental inspections.
- Resulted in hundreds of plant closures!

(HJ 519-2009) Effective March 1, 2010



DEVELOP LEAD POISONING PREVENTION PROGRAMS

- Assign responsibility to health ministry and/or environmental ministry;
- Develop capacity to conduct blood lead testing;
- Conduct blood lead level surveillance (population based or collection of data from testing laboratories).
- Outreach and education!





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