

A pregnant woman may accumulate and store lead in her bones, and release it during bone formation of the foetus. Lead can have serious consequences on developing foetus such as: miscarriage, reduced growth or still birth. It can also be circulated from the mother's blood stream through the placenta. Exposed lactating mother is capable of transferring lead to unborn baby through breast feeding. Exposure to lead early in life can alter the genetic composition of the child and lead to development of spectra of diseases later in adulthood. Globally, children's blood lead levels have declined substantially due to the elimination of leaded gasoline. Nevertheless, lead in paint is preventable and substitutes for lead paints are available.

### What are the alternatives to lead in paint?

Non-leaded pigments, driers, and anti-corrosive agents, technically superior quality are readily available. By avoiding the use of leaded compounds, paint manufacturer are able to produce lead safe paint with lead content below 90 ppm. Developed countries have controlled the lead content of all decorative paints as well as toys and other applications likely to contribute to childhood lead exposure.

### What about our the Kenyan situation

In Kenya, both lead compounds and unleaded alternatives for manufacture of paints are available. Availability, cost and lack of awareness are some of the reasons for selling or using leaded materials. Some companies are transitioning to "no added lead" but are experiencing technical challenges and lack of uniform standards.

### What next

There is no justification for paint manufacturers to intentionally add lead compounds to paint since it is possible to manufacture lead free paints without compromising on the quality of paint. We also acknowledge that some of the alternatives used in specialty applications may increase costs in some cases but paints without added lead for residential applications are sold at the same price as those with lead.. It is obvious that without regulations it is difficult for

potentially cost-effective shift to unleaded paint formulation processes whereas raw materials containing lead are readily available on our local market. Legislation is needed to restrict the use of lead in all paints but there is a need for **labeling and certification of paint containers to enable the consumers to purchase lead safe paints.**

### How do we minimize these exposures?

- Establishment of appropriate regulatory framework with mandatory limits of lead in paint.
- Enforcing legislation that govern industrial lead emissions in the environment.
- Optimizing nutritional intake by including suitable dietary components that reduce bio-accumulation of lead.
- Conducting frequent comprehensive studies and documentation of prevalence levels of lead in the environment
- Adopting use of lead free paint while taking necessary precaution on existing lead painted surfaces during repainting, demolitions or renovations
- Carrying out blood lead testing periodically for lead poisoning.
- Establishing initiatives to protect children from legacy lead paint
- Preventing future production, import, sale and use of lead paints
- Keeping homes clean and maintaining painted surfaces to prevent paint deterioration
- There is a need for the third party certification to enable the consumers to purchase safe lead paint.
- Creating awareness and increasing and diversifying the number of lead alliance partners.

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**KENYA INDUSTRIAL RESEARCH AND DEVELOPMENT INSTITUTE (KIRDI)**

NATIONAL LEAD POISONING PREVENTION WEEK OF ACTION 26<sup>TH</sup> TO 31<sup>ST</sup> OCTOBER 2015

**Demonstration of Professional Painting of Deteriorated Surfaces Previously Painted with Lead-based Paint to Minimize Child Exposure to Lead.**

**Our Lady of Mercy Primary School, Nairobi South on 27<sup>th</sup> October 2015.**



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Our Lady of Mercy Primary School Nairobi South



### Let us talk about dangers of lead in paint

Lead is widely used in the manufacturing processes in Kenya. It is however one of the elements that is commonly acknowledged as toxic at all concentrations with no known biological function. Much of the exposures to lead are as a result of human activities that involve use of leaded plumbing systems, lead acid batteries and lead paints, as well as burning of materials containing lead. This means that the processing, handling, use and disposal of lead containing materials can result in environmental lead contamination and human exposure.

### Are you aware that exposure to lead has resulted in?

- 0.6% of global burden diseases
- 143,000 deaths per annum.
- 8.977 million disability-adjusted life year (DALYs)
- 7.2 million-mild mental retardation cases
- 1.8 million-cardiovascular diseases
- Approximately 600,000 of new cases of children with intellectual disabilities per year
- 99% of affected children are in low and middle income countries

### Then what are we doing about it?

In 2009, International Conference on Chemical Management under the UN called for the elimination of all lead paint. The conference also launched the Global Alliance to Eliminate Lead Paint under the leadership of the World Health Organization (WHO) and UNEP. The alliance focuses and catalyzes the efforts of diverse stakeholders to achieve international goals to prevent children's exposure and minimize occupational exposure to lead in paint. The broad goal is to phase-out leaded paint and eventually eliminates the risks that such paints pose. This undertaking is comparable to previous concerted international efforts to encourage national regulatory actions to eliminate leaded gasoline.



Since 2013, Kenya Industrial Research and Development Institute (KIRDI) has been conducting extensive related research projects including holding national collaborative programs with several partners to observe and create awareness during the international lead poisoning prevention week of action. These events are held annually during the last week of October. Dr. Faridah Hussein Were who is a senior research scientist at the institute was nominated to the Advisory Group of Lead Paint Alliance to facilitate the overall co-ordination of international activities that are geared towards elimination of lead in paint a head of 2020. KIRDI is therefore spearheading the work of lead alliance by offering the necessary technical support and leadership in Kenya. The program is long-term and requires determined efforts and measurable levels of commitments of all stakeholders.

### What are some of the activities this year?

This year KIRDI has organized a series of events to mark the 3rd National lead poisoning prevention week of action to run from 26th to 31st October 2015 with involvement of collaborators and relevant stakeholders. Among these events, KIRDI is collaborating with Basco/Dura Coat Paint Products and UNEP to create



awareness on lead poisoning and demonstrating professional painting of deteriorated paint surfaces that was previously painted with lead-based paint to reduce child exposure to Lead at Our Lady of Mercy Primary School, Nairobi South B. Basco Products (K) Ltd will also donate Lead safe Paint to the School, This will be used to paint the school and minimize child exposure to Lead.



### Say more about lead in paint

“Lead paint” is paint to which one or more lead compounds have been added. Paint manufacturers, add lead compounds to paint to enhance color or as drying agents or to prevent corrosion. Paints without added lead generally have lead concentrations less than 90 parts per million (ppm) and often below 45 ppm. Freshly applied lead paints are not immediate source of exposure. Overtime, the painted surfaces wear off, deteriorate, and peel off, and become airborne. Airborne lead is highly persistent in the environment and settles down as dust. It is easily inhaled and contaminates the soil or water or get into human beings through food chain

Lead dust is also emitted in very large amounts when lead painted surfaces are disturbed or sanded during demolitions and renovations.

Painters may be exposed to large quantities of lead dust generated through



inhalation. Lead-based residential paints were restricted in the U.S. in 1970's. However, they are still struggling with historical/legacy lead paints. Previously leaded painted surfaces can remain a source of exposure to lead for many years even after termination of application of leaded paint.

### Who are affected by exposure to lead in paints?

The whole society is affected by lead exposure, although the most vulnerable groups are children, pregnant women and workers. Children are susceptible to the neurological effects of lead. It has been established that there are no safe levels of lead exposure, even very low levels of exposure result in permanent damage to the CNS that lead to behavioral and learning deficits. Children under 6 years of age absorb lead 5 times more than adults. This is due to increased hand to mouth activities, extended outdoor activities, not fully developed hygienic habits, active metabolism and not fully developed brain barrier and other systems and therefore lead exposure negatively affect the developmental process. Children who suffer from malnutrition, absorb lead at increased rate.