

# Developing lead paint regulations: Case Study - Kenya



# Kenya at a glance

- Kenya is a developing country in Africa and a founding member of the [East African Community](#), with the largest economy by GDP in East and Central Africa. The capital city of Kenya is Nairobi
- It is bordered by [Tanzania](#) to the south, [Uganda](#) to the west, [South Sudan](#) to the north-west, [Ethiopia](#) to the north and [Somalia](#) to the north-east.
- Kenya's territory lies on the [equator](#) and extends to the [Indian Ocean](#) and has a warm and humid tropical climate.
- The climate is cooler in the [savannah](#) grasslands, Nairobi, and closer to [Mount Kenya](#),
- It is famous for diverse climate, wildlife reserves and national parks
- It covers an area of 581,309 km<sup>2</sup> and a home of about 45 million people (2014).



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# Current legal and policy framework on lead exposure

- Kenya has comprehensive national laws, policies and regulations on environment and occupational safety and health of the workers but do not directly address specific pollutants.
- The provisions made for the Occupational Safety and Health Act (OSHA, 2007) applies to safety and health of all workers and relevant to exposure to hazardous substances.
- The Environmental Management and Coordination Act (EMCA, 1999) is concerned with environmental emissions (air quality) and waste management regulation.
- The Kenya constitution (2010) has a section on environmental policy development. For instance, the entitlement to a clean and healthy environment in article 42, and the highest achievable standard of health (article 43), enshrined in the Bill of Rights.

There is however, inadequate human and environmental protection measures due to lack of enforcement of some of the legislations that are already in existence.



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# Institutions and their roles in chemicals management in Kenya

Some Institutions	Roles
Kenya Bureau of Standards	Under ministry of Industrialization and Enterprise Development is mandated to develop standards and dissemination of the standardization information with assistance of technical committee members
Customs and Exercise Department	Regulates international trade and collects tax revenue for the government.
Kenya Ports Authority	Manages all the ports of Kenya. It enforces and regulates uses of chemicals
Kenya Industrial Research and Development Institute	Under ministry of Industrialization and Enterprise Development undertakes research and development in all industrial and allied technologies disseminate research findings that have a positive impact to the national development
Ministry of Environment and Natural Resources	Develops national policy framework on environment
National Environment Management Authority	Principal institution that coordinates and supervises all environmental management issues including chemicals. They license projects involving chemicals, and transport and incineration of hazardous wastes.
Ministry of Health	Provides policy guidelines on human health in Kenya
Universities	Carry out research and training in related fields



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## Quantities of paint related chemical imported in Kenya (2008- 2013)

YEAR	2008	2009	2010	2011	2012	2013
Tonnage	7,728	10,301	10,416	10,937	13,107	15,434

This report is by the Kenya National Bureau of Statistics that summarizes Kenya's imports of pigments, paints and varnishes.

The synthetic chemicals for paint formulation are not manufactured in Kenya but imported



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# Status of lead exposure in Kenya

- Lead is widely used in the manufacturing processes in Kenya due to its useful properties.
- Much of exposures to lead are due to human activities such as: leaded plumbing systems, , lead paints, lead acid batteries recycling and manufacturing, and burning of materials containing lead. The processing, handling, use and disposal of lead containing materials can result in environmental lead contamination and human exposure.
- Studies have been conducted on lead exposure in industrial areas in Nairobi and there are reports on lead poisoning. However, in most cases the levels exceed the international allowable limits
- There has been reports on lead poisoning in Mombasa and Nakuru due to exposure from lead acid recycling plants that have since been closed



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# Recent studies on lead exposure to lead in paint

- Kenya industrial research and Development Institute (KIRDI) conducted a collaborative study (2010- 2012) on assessment of lead and blood pressure among workers in diverse industrial plants, including paint manufacturing company
- Lead levels exceeded the recommended international levels in both blood and air of the production paint manufacturers and was associated with high blood pressure. The technical reports of the findings were shared with the participating companies for improvements
- Reports (2013) on lead levels of the new decorative paints in 11 developing countries, including Kenya, which was conducted by a local NGO, Ilima supported by IPEN, found that several of the oil-based decorative paints on the local market had significant lead content.



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# New decorative paint testing results

- Out of 232 samples that analyzed in 2008 in 11 diverse developing countries, including Kenya had 65% of lead levels that exceeded 600 ppm
- The average lead level was 23,707 ppm and the highest lead level was 500,000 ppm.
- As a reference point, allowable level in the US and Canada is 90 ppm.
- It was conclusive that lead-based enamel decorative paints were widely available for sale on the market in almost all countries that do not have effective enforceable national law that prohibits the manufacture, import, sale and use of lead-based paints



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# Global Alliance to eliminate lead paint

- KIRDI found an opportunity to disseminate the findings on lead exposure by registering the activity on the WHO website during the 1<sup>st</sup> International Lead Poisoning Prevention Week of Action from 20<sup>th</sup> to 26<sup>th</sup> October 2013.
- KIRDI then organized joint forum of awareness creation on lead poisoning that culminated in a one day workshop on the 23<sup>rd</sup> of October 2013, which was sponsored by Basco Paint Products Ltd. The workshop addressed the lack of awareness about lead exposure and the regulatory policy frameworks in place
- It was clear that most key stakeholders assumed that lead--based paint was phased out the same period as leaded petrol.
- Lastly, the participating companies pledged to voluntarily stop adding lead compounds when manufacturing paints although they reported that they were facing some technical challenges.



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# Baseline study on lead in paints

- During the 2<sup>nd</sup> international lead poisoning prevention week October 2014, KIRDI conducted a survey mainly involving paint manufacturers, suppliers and media. The following was observed:
  1. Kenya was registering increased sales of paints not just within the nation but regionally in order to satisfy the high demand
  2. There were more than 30 paint manufacturing companies actively operating in Kenya and out of the 30 companies 15 participated in the survey
  3. 4 of 15 the companies were still using lead driers
  4. Leaded and unleaded compounds were still on the local market.
  5. Most companies were having technical challenges in substituting lead chromates, yellow, for both decorative and industrial paint.
  6. 2 companies had already transitioned to “no added lead” paints but were experiencing technical challenges and lack of uniform standards.
  7. The informal sector had serious technical challenges of adopting to new ways of formulating paints most of them were still using the lead driers.



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## **Lead poisoning outcry from a lead acid battery recycling in Mombasa**

- **Most recently Kenya faced serious lead poisoning occurrences in the nearby communities surrounding a poorly-controlled lead acid battery recycling plant in Mombasa.**
- **Several related deaths have been reported by the media**
- **The contaminated area requires a lot of resources for massive clean-up, as well as related medical treatment, including long-term legal and socio-economic tussles.**
- **Despite the long closure of the company the community has continued to be poisoned from the contaminated site.**



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## Opportunities for establishing legal limits for lead in paint in EAC

- Kenya is an open market economy and imports goods and services from both developed and developing countries.
- The expanding regionalization demands integration of economic blocks such as COMESA (Common Markets for East and Southern Africa) and EAC (East African community). This has led to increased imports and exports of goods and services in Kenya, including paint related chemicals.
- EAC member countries are: Kenya, Uganda, Tanzania, Burundi and Rwanda. The countries are trading block and develop standards for specific products and services that are used to facilitate trade.



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## Some standards under development by EAC

- The standard Bureau in 5 partners' states are responsible for development of EAC standards that are governed by principals and procedures of development of EAC Standards.
- The Standards under development are paints and related products handled by the technical committee EASC/TC/070 Paints, Varnishes and allied products.
- The technical committees' members are usually nominated from industry, academia, researchers, regulators and suppliers among others to ensure appropriate representation and expertise in the development of the standards.



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# Lead paint standards under harmonization

- In 2014 and 2015, KEBS and EAC secretariat, due to the prevailing lead exposure, technical committee meetings was organized with the aim of developing and harmonizing paints and allied products standards.
- Among the Issues of interest were developing the lead standard with the maximum permissible level of lead in paints of 100 ppm. This was based on the report that if leaded compounds are not added during manufacturing processes then lead content can not exceed 100 ppm
- The Final Draft East African Standard (FDEAS) 852: 2015 included:
  1. Air-dried roofing paint – Specification, shall not be detected when tested using ISO 3856-1.
  2. Paints and varnishes – Determination of “soluble “metal content and lead content



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- **Several Standards for decorative paints are being developed where maximum permissible lead content is 100ppm.**
- **The following are some of the FDEAS of paint at advanced stage of harmonization by EAC:**
  1. **FDEAS 848: 2015 Water-thinned priming paints for wood –Specification**
  2. **FDEAS 849: 2015 Silk (sheen) emulsion paint for interior use – Specification**
  3. **FDEAS 850: 2015 Matt solvent-borne paint for interior and exterior use – Specification**
  4. **FDEAS 851: 2015 Matt emulsion paint for interior and exterior use – Specification**



# Conclusion

- We 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.
- Legislation is therefore needed to restrict the use of lead in all paints but it necessary for labeling and certification of paint containers to enable the consumers to purchase lead safe paints
- At the same time, the industry including the informal sector requires technical support to enable them be compliant



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# References

- The listed Kenya Final Draft East Africa Standard (FDEAS)
- Were, F.H., Moturi, M.C. Gottefeld, P. Wafula, A.G. Kamau, G.N. and Shiundu, P.M. (2014). Lead exposure and blood pressure among workers in diverse industrial plants in plants in Kenya. *Journal of Occupational and Environmental Hygiene*, 11: 706 -715

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