



LEAD IN ENAMEL DECORATIVE PAINTS

NATIONAL PAINT TESTING RESULTS: A NINE COUNTRY STUDY

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This publication is a contribution to the Global Alliance to Eliminate Lead Paint.

Acknowledgment language from IPEN

IPEN and UNEP would like to acknowledge contributions from the following IPEN Participating Organizations that collected samples for lead paint analysis and submitted reports regarding the national paint markets. Specifically, we would like to recognize the following organizations:

- Association d'Education Environnementale pour la Future Génération (AEEFG) in Tunisia
- Ecological Restorations in Ghana
- Jeunes Volontaires pour l'Environnement (JVE) in Cote d'Ivoire:
- NGO Independent Ecological Expertise in Kyrgyzstan
- Observatorio Latinoamericano de Conflictos Ambientales (OLCA) in Chile
- Pesticide Action Network Uruguay (RAPAL Uruguay) in Uruguay
- Pesticide Action Nexus Association (PAN) in Ethiopia
- Ruzgar Ecological Society in Azerbaijan
- Taller Ecologista in Argentina

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Preface

Beginning in the 1970s and 1980s, most highly industrial countries adopted laws or regulations to control lead paints. Most banned the manufacture, sale, and use of lead decorative paints – the paints used on the interiors and exteriors of homes, schools, and commercial buildings. Most highly industrialized countries also imposed controls on other lead paints, especially paints and coatings used in applications most likely to contribute to lead exposure in children. These regulatory actions were taken based on scientific and medical findings that lead paint is a major source of lead exposure in children and that lead exposure in children causes serious harm, especially to children's developing brains and nervous systems.

In 1999 and 2003, academic researchers reported high levels of lead in major brands of decorative paints being sold on the market in India and some other countries in Asia. As recently as 2006, however, international experts on chemical safety were still not generally aware that lead decorative paints were still widely available for sale and use in the developing world. The issue of lead in paint, for example, is not mentioned in the *Global Plan of Action* or other documents on the *Strategic Approach to International Chemicals Management* (SAICM) that were adopted at the first meeting of the *International Conference on Chemicals Management* (ICCM1).

In 2007, however, reports appeared in the international news media of toys with lead paint coatings being exported from Asia to the United States, Europe and other highly industrial countries. In response, millions of toys were recalled and strict regulations controlling the lead content of imported toys were adopted by most highly industrialized countries. Little attention was given at the time to lead paints manufactured for domestic use in Asian and other developing countries.

In 2007, responding to news reports about toys coated with lead paint, the Indian Non Governmental Organization, Toxics Link, with support from the NGO Occupational Knowledge International tested paints on the Indian retail market for lead content and found that more than 80 per cent of the enamel (oil-based) decorative paints tested had

lead content greater than 1,000 parts per million lead; more than 60 per cent had lead content greater than 5,000 ppm lead.¹ Toxics Link shared these results with IPEN – a global network of organizations working to protect human health and the environment from harm caused by toxic chemical exposure – and several NGOs associated with IPEN began to purchase and test the lead content of paints for sale in their countries. In every country where testing was done and where no national law or regulation prohibited it, the majority of the enamel decorative paints for sale on the market contained levels above 90 and 600 ppm, and many were above 10,000 ppm. Many of these paints would not be permitted for sale or use in most highly industrialized countries. And in virtually all cases, the consumer had no way to tell which of the enamel decorative paints contained added lead and which did not.

As a result of these and other initiatives, a resolution was introduced and adopted at the 2009 second meeting of the International Conference on Chemicals Management (ICCM2) that identified lead in paint as an emerging policy issue and invited the United Nations Environment Programme (UNEP) and the World Health Organization (WHO) to establish a global partnership to promote phasing out the use of lead in paints and serve as its secretariat.² UNEP and WHO agreed and jointly initiated the *Global Alliance to Eliminate Lead Paint* (GAELP).³ GAELP's broad objective is to phase out the manufacture and sale of paints containing lead and eventually to eliminate the risks from such paint.⁴

WHO and the UNEP devote resources, staff time, and their organizational influence to GAELP and the achievement of its objectives. Several academics in the fields of medicine

Most banned the manufacture, sale, and use of lead decorative paints – the paints used on the interiors and exteriors of homes, schools, and commercial buildings. Most highly industrialized countries also imposed controls on other lead paints, especially paints and coatings used in applications most likely to contribute to lead exposure in children.

- 1 A Brush with Toxics: An Investigation on Lead in Household Paints in India, by Dr. Abhay Kuhmar, Toxics Link, 2007, http://toxicslink.org/docs/lead_in_paints/Lead_in_Paints_Brush_with_toxics.pdf
- 2 ICCM2 omnibus resolution II/4 on emerging policy issues, http://www.saicm.org/documents/iccm/ICCM2/emerging%20issues/ICCM2%20Outcomes/Emerging%20issues/Omnibus%20resolution%20II_4.doc
- 3 GAELP Homepage, <http://www.unep.org/hazardoussubstances/LeadCadmium/PrioritiesforAction/GAELP/tabid/6176/Default.aspx>
- 4 See GAELP Objectives, <http://www.unep.org/hazardoussubstances/LeadCadmium/PrioritiesforAction/GAELP/GAELPObjectives/tabid/6331/Default.aspx>

In 2007, however, reports appeared in the international news media of toys with lead paint coatings being exported from Asia to the United States, Europe and other highly industrial countries. In response, millions of toys were recalled and strict regulations controlling the lead content of imported toys were adopted by most highly industrial countries.

and public health, and NGO representatives associated with IPEN, Occupational Knowledge International, and others are active GAELP participants and contributors. The leading paint industry international trade association, International Paint and Printing Ink Council (IPPIC), is also a contributor and has been an active participant in GAELP meetings.

Following the ICCM2 decision, resolutions in support of GAELP's lead paint elimination objectives were adopted at the *Fourth African regional meeting on SAICM* in Nairobi in April 2011 and at the *Third Latin American and Caribbean regional meeting on SAICM* in Panama City in June 2011.⁵ The SAICM regional Group of Asian and Pacific countries announced at a global SAICM meeting in Belgrade, in November 2011, that it also "accorded high priority to work on lead in paint, urging the world community to phase out the use of lead forthwith."⁶ And at the ICCM3 meeting in Nairobi in September, 2012, delegates passed a resolution calling on governments and stakeholders to provide technical and financial assistance to efforts leading to lead paint elimination in all countries including to fill information gaps on the presence or absence of lead paint on the consumer market of those countries where little or no data are now available.⁷

As part of its ongoing support for GAELP, UNEP provided funding in 2012 to the global NGO network, IPEN, to sample and test the lead content of decorative paints on the market in nine regionally and linguistically diverse developing countries and countries with economies in transition where no current data on lead in paint appeared to be available.

⁵ http://www.saicm.org/images/saicm_documents/OEWG/Meeting%20documents/OEWG%201%20INF%2011%20Compilation%20of%20reg%20mtgs.pdf

⁶ Report of the work of the Open-ended Working Group of the International Conference on Chemicals Management, http://www.saicm.org/images/saicm_documents/OEWG/Meeting%20documents/OEWG1%2019_OEWG1%20Report%20E.pdf

⁷ Report of the International Conference on Chemicals Management on the work of its third session, http://www.saicm.org/images/saicm_documents/iccm/ICCM3/Meeting%20documents/iccm3%2024/K1283429e.pdf

To carry this out, IPEN formed partnerships with NGOs in Argentina, Azerbaijan, Chile, Cote d'Ivoire, Ethiopia, Ghana, Kyrgyzstan, Tunisia, and Uruguay. Samples of paints available for sale on the market in each of these countries were purchased and tested for their total lead content. These paints available for sale are referred to throughout the reports as "new paints". With the exception of ten samples from Cote d'Ivoire, all of the paints purchased and tested were enamel decorative paints. 10 samples purchased in Cote d'Ivoire were anti-corrosive paints sold in retail establishments for home use.

The term "*decorative paint*" as used in this study refers to paints that are produced for use on inside or outside walls and surfaces of homes, schools, commercial buildings and similar structures. The term "*enamel*" as used in this study refers to oil-based paints. The term "*anti-corrosive*" as used in this study refers to enamel (oil-based) paints that contain anti-corrosive additives, that are produced for use on metal surfaces (like window sashes and frames) and metal articles (like bicycles), and that are sold in retail establishments for home use.

The paint samples were tested in an analytical laboratory for their total lead content and the results are presented in this report. To our knowledge, this is the first time that data on the lead content of enamel decorative paints for sale in these countries have been collected and released to the public.

The nine national NGOs participating in this project are all participants in the IPEN network. They are:

- **Argentina:** Taller Ecologista
- **Azerbaijan:** Ruzgar Ecological Society
- **Chile:** Observatorio Latinoamericano de Conflictos Ambientales (OLCA)
- **Cote d'Ivoire:** Jeunes Volontaires pour l'Environnement (JVE)

Toxics Link, with support from the NGO Occupational Knowledge International tested paints on the Indian retail market for lead content and found that more than 80 per cent of the enamel (oil-based) decorative paints tested had lead content greater than 1,000 parts per million lead; more than 60% had lead content greater than 5,000 ppm lead.

- **Ethiopia:** Pesticide Action Nexus Association (PAN)
- **Ghana:** Ecological Restorations
- **Kyrgyzstan:** NGO Independent Ecological Expertise
- **Tunisia:** Association d'Education Environnementale pour la Future Génération (AEEFG)
- **Uruguay:** Pesticide Action Network Uruguay (RAPAL Uruguay)

This report adds to growing knowledge of the extent of the problem of lead in paint in the developing world. Data have now been collected from more than 35 countries. A summary review of this data is presented below in Section 8 of this report.

The study and report were overseen and prepared by Dr. Scott Clark and Jack Weinberg. Dr. Clark is Professor Emeritus, Environmental Health, University of Cincinnati, United States. He is IPEN's Public Health Advisor for Lead. Jack Weinberg is IPEN's Senior Policy Advisor and overall coordinator of IPEN's global lead paint elimination campaign.



Executive Summary

Background

Exposure to lead is much more harmful to children than adults, and the health effects are generally irreversible and can have a lifelong impact.⁸ The younger the child, the more harmful lead can be. The human fetus is the most vulnerable and a pregnant woman can transfer lead that has accumulated in her body to that of her developing child.

Evidence of reduced intelligence caused by childhood exposure to lead has led the World Health Organization to list “lead caused mental retardation” as a recognized disease. WHO also lists it as one of the top 10 diseases whose health burden among children is due to modifiable environmental factors.⁹

Lead from paint is recognized as one of the major sources of childhood lead exposure.¹⁰

Paints contain lead when the paint manufacturer intentionally adds one or more lead compounds to the paint for some purpose. The lead compounds most commonly added to paint are lead pigments that give the paint its color. Lead compounds may also be added to paint to serve as drying agents and catalysts in oil-based paints.

Many highly industrialized countries have enacted laws, regulations or mandatory standards that prohibit the manufacture, import, sale or use of lead paint for interiors or exteriors of homes, schools and commercial buildings. In recent years, these regulations have become increasingly stringent. The standard adopted by the United States imposes an upper limit of 90 parts per million (ppm) on total lead (dry weight) for house paints and many other paint categories. Many other countries have adopted mandatory limits in the range of 90 to 600 ppm total lead (dry weight).

Good quality, cost-effective alternatives for all the lead compounds that are added to paint are widely available and have been in widespread use for decades. Any paint manufacturer that currently produces decorative paints that use added lead compounds can easily reformulate its paints using these substitutes with very little if any impact on the characteristics of the paints they produce or on their price.

Nevertheless, decorative paints containing lead are still widely sold and used in many developing countries and countries with economies in transition.

As a part of its support for The Global Alliance to Eliminate Lead Paint (GAELP), the United Nations Environment Programme (UNEP) provided funds to the global NGO network, IPEN, to sample and test the lead content of enamel decorative paints on the market in nine regionally and linguistically diverse developing countries and countries with economies in transition where no current data on lead in paint appeared to be available. To carry this out, IPEN formed partnerships with NGOs in Argentina, Azerbaijan, Chile, Cote d'Ivoire, Ethiopia, Ghana, Kyrgyzstan, Tunisia, and

Uruguay. Samples of enamel decorative paints available for sale on the market in each of these countries were purchased and tested for their total lead content and the results are presented in this report.

Findings

A total of 234 cans of enamel decorative paints were purchased in retail establishments in the following nine countries: Argentina, Azerbaijan, Chile, Cote d'Ivoire, Ethiopia, Ghana, Kyrgyzstan, Tunisia, and Uruguay. An additional 10 cans of anti-corrosive enamel paints were purchased in Côte d'Ivoire. All the paints – the 234 samples of decorative paints and the 10 samples of anti-corrosive paints – were tested for their total lead content, and dry weight.

Countries selected for testing are regionally and linguistically diverse, do not appear to have publically available data on the lead content of decorative paints for sale on their national market, and had a capable IPEN partner NGO with both the interest and the ability to carry out this project.

Evidence of reduced intelligence caused by childhood exposure to lead has led the World Health Organization to list “lead caused mental retardation” as a recognized disease.

⁸ Childhood Lead Poisoning, World Health Organization, 2010; p. iii, <http://www.who.int/ceh/publications/leadguidance.pdf>

⁹ http://www.who.int/quantifying_ehimpacts/publications/preventingdisease.pdf

¹⁰ Childhood Lead Poisoning, World Health Organization, 2010, Page 12, list of major sources of children's exposure to lead; <http://www.who.int/ceh/publications/leadguidance.pdf>

Lead Levels in Paints

Most of the paints tested in the countries would not meet regulatory standards established in most highly industrialized countries

In five of the nine project countries, 67 per cent or more of the paint samples tested had lead content greater than 90 ppm lead – the regulatory limit in the United States. These countries are: Azerbaijan, Cote d'Ivoire, Ethiopia, Kyrgyzstan and Tunisia.

In the same five countries, 57 per cent or more of the paint samples tested had lead content greater than 600 ppm lead, the regulatory standard in Argentina, Chile and Uruguay.

Paints with extremely high levels of lead are still available in most countries.

In seven of the nine countries, some paint

more of the paints tested had lead levels of 99,000 ppm lead or greater; they were all nearly 10 per cent or more lead by weight.

In most countries with lead paint, equivalent paint with no added lead is available.

In six of the seven countries with lead paint – Argentina, Azerbaijan, Cote d'Ivoire, Ghana, Kyrgyzstan and Tunisia, paint with very low lead contents coexists in the market with lead paint.

Lead Concentrations in Paints by Color

White Paints had the lowest lead content

The white decorative paints tested had, on average, the lowest lead content, and many contained no lead at the level of detection or only trace quantities of lead.

countries, one or more of the yellow decorative paints tested had lead content greater than 10,000 ppm. In three of the nine countries, at least one of these had lead content greater than 100,000 ppm lead.

Many red paints had high lead content

A total of 69 samples of red decorative paints were tested. In six of the nine countries, one or more of the red decorative paints had lead content greater than 10,000 ppm. None had lead content greater than 100,000 ppm lead but one sample of red decorative contained 99,000 ppm lead.

Green paints also had high lead content

A total of 30 decorative paints in colors other than white, red and yellow were tested.

Eight of these were green. Half of the green decorative paints tested contained more than 10,000 ppm lead; one contained more than 100,000 ppm lead.

Lead Concentrations in Paints by Country

Few countries have established regulatory frameworks, but those that have generally have lower lead paint levels.

In two of the nine countries, Chile and Uruguay, all the enamel decorative paints tested had low total lead concentrations.

Both Chile and Uruguay have recently enacted national executive decrees that prohibit the production, import, distribution, sale and use of decorative paints with a lead concentration above 600 ppm.

In each of the other seven countries, two or more of the samples of enamel decorative paints tested had lead content greater than 10,000 ppm. In four of these countries, at least one of the decorative paints tested had a lead concentration at or above 99,000 ppm lead. In five of the nine countries, more than half of the decorative paint samples tested had lead content greater than 600 ppm lead, the regulatory limit in many other countries (See Table A below for a summary of total data for new decorative enamel paint in the nine countries of the present study)

In five of the nine project countries, 67 percent or more of the paint samples tested had lead content greater than 90 ppm lead – the regulatory limit in the United States.

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