



LEAD IN DECORATIVE AND INDUSTRIAL PAINTS SOLD IN THE PHILIPPINES

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NATIONAL REPORT

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Established in 1998, IPEN is currently comprised of over 600 Participating Organizations in over 125 countries, primarily developing and transition countries. IPEN brings together leading environmental and public health groups around the world to establish and implement safe chemicals policies and practices that protect human health and the environment. IPEN's mission is a toxics-free future for all.



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PREFACE

Lead paints continue to be widely produced, sold, and used in developing countries despite the fact that most highly industrial countries banned lead paints for decorative or household use more than 40 years ago. IPEN and Participating Organizations are part of the global movement to eliminate lead paint to protect children's health.

In 2007 and 2008, NGOs in the IPEN network collected and analyzed decorative (home use) paints on the market in 11 developing countries, and in countries with economies in transition. The results were startling. In every one of these countries, many of the paints contained exceedingly high lead levels. In response, IPEN launched its Global Lead Paint Elimination Campaign, which seeks to eliminate lead in paint and raise widespread awareness among business entrepreneurs and consumers about the adverse human health impacts of lead paint, particularly on the health of children. Since then, IPEN-affiliated NGOs and others have sampled and analyzed paints on the market in more than 50 low- and middle-income countries.

This report presents new data on the total lead content of paints for decorative and industrial uses available on the market in the Philippines. It also presents background information on why the use of lead paint is a source of serious concern, especially to children's health; a review of national policy and related regulations that are in place banning the manufacture, import, export, sale and use of lead paint, and provides a strong justification to strengthen compliance monitoring and enforcement of lead paint regulatory controls in the Philippines. Finally, it proposes action steps by different stakeholders to protect children and others from lead paint.

This study was conducted by the EcoWaste Coalition in partnership with IPEN.

IPEN is an international NGO network of health and environmental organizations from all regions of the world of which the EcoWaste Coalition is a member. IPEN is a leading global organization working to establish and implement safe chemicals policies and practices to protect human health and the environment. Its mission is a toxics-free future for all. IPEN helps build the capacity of its member organizations to implement on-the-ground activities, learn from each other's work, and work at the international level to set priorities and achieve new policies.

The EcoWaste Coalition is a non-profit network of over 100 public interest groups in the Philippines that have coalesced to advance "a zero waste and toxics-free society where communities enjoy a safe and healthy environment."



EXECUTIVE SUMMARY

Lead is a toxic metal that causes adverse effects on both human health and the environment. While lead exposure is also harmful to adults, lead exposure harms children at much lower levels, and the health effects are generally irreversible and can have a lifelong impact.

The younger the child, the more harmful lead can be, and children with nutritional deficiencies absorb ingested lead at an increased rate. The human fetus is the most vulnerable, and a pregnant woman can transfer lead that has accumulated in her body to her developing child. Lead is also transferred through breast milk when lead is present in a nursing mother.

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

Lead paint is a major source of childhood lead exposure. The term lead paint is used in this report to describe any paint to which one or more lead compounds have been added. The cut-off concentration for lead paint used in the report is 90 parts per million (ppm, dry weight of paint), the strictest legal limit enacted in the world today. All lead concentrations in the report are total lead levels, unless otherwise specified.

Most highly industrial countries adopted laws or regulations to control the lead content of decorative paints—the paints used on the interiors and exteriors of homes, schools, and other child-occupied facilities—beginning in the 1970s and 1980s. In the Philippines, a Chemical Control Order (CCO) was promulgated in 2013 following a successful multi-stakeholder collaboration, which among other provisions, banned lead in paint production. The said order prohibits lead above 90 ppm in the manufacture of all paints and provides for a three-year (2013–2016) and six-year (2013–2019) phase-out periods for lead-containing decorative and industrial paints, respectively.

From May to July 2023, the EcoWaste Coalition purchased a total of 46 cans of paints intended for decorative and industrial applications from stores in 10 cities and one municipality. The group also purchased some paints from online sellers. The paints represented 27 different brands produced by 22 manufacturers. All paints were analyzed by an accredited laboratory in the United States of America for their lead content, based on dry weight of the paint. The laboratory participates in the Environmental Lead Proficiency Analytical Testing (ELPAT) program operated by the American Industrial Hygiene Association (AIHA), assuring the reliability of the analytical results.

Results

Twenty out of 46 analyzed paints for decorative and industrial uses (43 percent of paints) were lead paints, i.e., they contained lead concentrations above 90 parts per million (ppm, dry weight of paint). This is also the regulatory limit for lead in decorative paint in e.g., Cameroon, Ethiopia, Kenya, Morocco, China, India, Nepal, Ukraine, Colombia, and the United States of America. Moreover, 14 paints (30 percent of paints) contained extremely high lead concentrations above 10,000 ppm. The highest lead concentration detected was 98,000 ppm in a yellow Gold Urethane Paint used in automotive applications.

On the other hand, 26 out of 46 analyzed paints (57 percent of paints) did not contain intentionally added lead,¹ suggesting that the technology to produce paint without lead ingredients exists in the Philippines.

Eight out of 27 analyzed brands (30 percent of paint brands) sold at least one lead paint, i.e., a paint with lead concentration above 90 ppm. Also, six out of these 27 analyzed brands (22 percent of paint brands) sold at least one lead paint with extremely high lead concentrations above 10,000 ppm.

This study shows that yellow paints most frequently contained extremely high lead concentrations above 10,000 ppm. Of 22 yellow paints, nine (41 percent of yellow paints) contained lead levels above 10,000 ppm; of nine green paints, four (44 percent of green paints) contained lead levels above 10,000 ppm; and of three orange paints, one (33 percent of orange paints) contained lead levels above 10,000 ppm.

In general, paint can labels did not carry meaningful information about lead content or the hazards of lead paint. Only 13 out of 46 paints (28 percent of paints) provided information about lead on their labels, i.e., “lead-free” claims and “no lead” pictograms. Among these, five lead-containing paints were misleadingly marked as “lead-free.” And one paint carried the Lead Safe Paint® logo, a registered trademark, without authorization from the certification body.

Most paints carried little information about any ingredients on can labels. Most paints were merely labeled as “solvents, pigments and resin,” with no further details on the type of solvents and pigments (organic or inorganic) provided on paint can labels. Warning symbols on most of the paint cans indicated the flammability of the paints, but no precautionary warnings on the effects of lead dust to children and pregnant women were provided.

Manufacturing dates were included on the labels of 20 out of 46 paints (43 percent of paints) included in this study. The batch numbers of 24 of the 46 paints (52 percent of paints) were provided on the labels.

Conclusions

This study demonstrates that paints for decorative and industrial uses with high concentrations of lead are still available in the Philippines despite the completion of the phase-out deadlines for such paints (i.e., December 31, 2016, for leaded decorative paints and December 31, 2019, for leaded industrial paints). However, the fact that 26 out of 46 paints (57 percent of paints) did not contain intentionally added lead indicates that the technology to produce paints without lead additives exists in the Philippines. The study results provide a strong justification to strengthen compliance monitoring and enforcement mechanisms to ensure adherence to the national ban on the manufacture, import, export, distribution, sale, and use of paints with total lead concentrations greater than 90 ppm.

¹ There were 26 paints with lead concentrations reported as “less than 200 ppm” and “less than 100 ppm”. In this report, we say that these 26 paints did not contain “intentionally added lead.” Intentionally adding lead compounds to paint either as pigment or drier will yield concentrations of lead that are higher than 200 ppm. According to Module A-3 (Paint Basics) of UNEP’s *Toolkit for Establishing Laws to Eliminate Lead Paint*, “Lead-based pigments may contribute around 1,500 ppm to over 100,000 ppm” concentrations of lead in paint, while “lead-based driers may contribute around 1,200 ppm to 6,000 ppm” concentrations of lead in paint. (<https://wedocs.unep.org/bitstream/handle/20.500.11822/37030/PAINT.pdf?sequence=3&isAllowed=y>, p.14-15)

Recommendations

In the interest of upholding the national ban on lead-containing paints, thereby protecting the health of children and other vulnerable populations, the EcoWaste Coalition and IPEN recommend the following action points:

I. **For National Government Agencies (NGAs) and Local Government Units (LGUs):**

- A. Department of Environment and Natural Resources (DENR):
 - Strengthen mechanisms to monitor compliance to the DENR-issued Chemical Control Order banning lead in the manufacture of paints.
 - Nominate lead chromates, the most common lead-based paint pigments, for listing under the Rotterdam Convention to control the entry of such raw materials and the finished paint products containing them.
 - Conduct ocular visits to micro-, small- and medium-sized paint factories that may still be using lead-based raw materials.
 - Develop guidelines that will prevent and reduce the creation of toxic lead dust and its dispersal to the environment when surfaces coated with lead paint are disturbed or demolished.
- B. Department of Trade and Industry (DTI) and/or Department of Health (DOH):
 - Order business establishments, including online shopping platforms, to discontinue selling lead-containing paints or face administrative and criminal sanctions.
 - Seize lead-containing paints from retailers, including online sellers, for environmentally sound disposal, and to penalize errant parties.
 - Issue notice of violation against manufacturers, importers, distributors, and retailers of leaded paint products falsely marked and advertised as “lead-free” in line with Republic Act 7394, or the Consumer Act of the Philippines.
 - Expand the ban on leaded paints in the manufacture, importation, distribution, and sale of paint brushes and other home improvement products.
- C. Department of Labor and Employment (DOLE):
 - Promote awareness and action among employers and workers that will minimize occupational exposures to lead dust, especially during painting, repair, or renovation activities
- D. Department of Education (DepEd) and the Commission on Higher Education (CHED):
 - Integrate lead toxicity awareness and poisoning prevention in the curriculum under Republic Act 9512, or the National Environmental Awareness and Education Act.
 - Ensure that Department Order 4, series of 2017 requiring the “mandatory use of lead-safe paints in schools” is fully enforced.
- E. Department of the Interior and Local Government (DILG):
 - Support local government units (LGUs) in promulgating lead-safe paint ordinances in line with DILG Memorandum Circular 2018-26 on “Mandatory Use of Lead-Safe Paints by LGUs” and its 2023 advisory reiterating the same, and for DILG to ensure LGU reporting of compliance to the said directive.
- F. Department of Social Welfare and Development (DSWD):
 - Ensure compliance to the department’s directive requiring the use of lead-safe paints in residential and non-residential facilities managed or operated by DSWD or its accredited agencies.
- G. Bureau of Customs (BOC):
 - Tighten customs checks for paint imports, especially for spray paints.
- H. Local Government Units (LGUs):
 - Enact ordinances that will institutionalize the mandatory procurement and use of lead-safe paints in pursuit of the DILG’s directive.
 - Collaborate with national government agencies and civil society organizations in promoting compliance to the country’s lead paint law to protect the people’s right to health.

II. **For Paint Manufacturers:**

- Obtain third-party Lead Safe Paint® Certification to assist consumers in making an informed choice when buying paints.
- Paint companies that still produce lead-containing paints must stop such illegal production, distribution, and sale of leaded paint products.
- Paint manufacturers, importers, and distributors should take back any remaining stocks of their old lead-containing paints from retail outlets to stop their sale and use.

III. For Paint Sellers:

- Stock on products bearing the Lead Safe Paint® logo and/or other verifiable proof of adherence to the regulation limiting lead in paint to not more than 90 ppm. Offer painting tools such as paint brushes that are not decorated with lead paint.
- Coordinate with concerned government regulators if there are questions about a product's compliance to the lead paint standard.

IV. For Paint Consumers:

- Insist on your legally protected rights to truthful product information and product safety, and to seek adequately labeled and lead-safe paint products.
- Check for the Lead Safe Paint® logo and/or other reliable proof of conformity with the country's lead paint standard when buying paint products.
- Refrain from using paint brushes for food preparations, and to only use hygienic food-grade basting mops, including those made from banana, lemongrass or pandan leaves.

V. For All Stakeholders:

- Stakeholders from the government, business and industry, health care sector, academia, and the civil society should actively support policies and programs that will contribute to the reduction of children's, women's, and workers' exposures to lead from lead-containing paint, as well as from lead-contaminated dust and soil towards a lead-safe future for all.

I. Background

1.1 Health and Economic Impacts of Lead Exposure

Lead Paint Terminology

As used in this booklet:

- **“Paint”** includes varnishes, lacquers, stains, enamels, glazes, primers, or coatings used for any purpose. Paint is typically a mixture of resins, pigments, fillers, solvents, and other additives.
- **“Lead paint”** is paint to which one or more lead compounds have been added.
- **“Lead pigments”** are lead compounds used to give a paint product its color.
- **“Lead anti-corrosive agents”** are lead compounds used to protect a metal surface from rusting or other forms of corrosion.
- **“Lead driers”** are lead compounds used to make paint dry more quickly and evenly.
- **“Decorative paint”** refers to paints or coating materials that are produced for use on inside or outside walls, and surfaces of homes, schools, commercial buildings, and similar structures. Decorative paints are frequently used on doors, gates, and windows, and to repaint household furniture such as cribs, playpens, tables, and chairs.
- **“Solvent-based, enamel decorative paint”** or “enamel decorative paint” refers to oil-based paints.
- **“ppm”** means parts per million total lead content by weight in a dried paint sample. All lead concentrations in the report are total lead levels, unless otherwise specified.



Children are exposed to lead from paint when lead-containing paint on walls, windows, doors or other painted surfaces begins to chip or deteriorate, since this causes lead to be released to dust and soil. When a surface previously painted with lead paint is sanded or scraped in preparation for repainting, very large amounts of lead-contaminated dust is produced, which, when spread, can constitute a severe health hazard.^[1]

Children playing indoors or outdoors get house dust or soil on their hands, and then ingest it through normal hand-to-mouth behavior. If the dust or the soil is contaminated with lead, the children will ingest lead. Hand-to-mouth behavior is especially prevalent in children aged six years and under, the age group most easily harmed by exposure to lead. A typical one- to six-year-old child ingests between 100 and 400 milligrams of house dust and soil each day.^[2]

In some cases, children pick up paint chips and put them directly into their mouths. This can be especially harmful because the lead content of paint chips is typically much higher than what is found in dust and soils. When toys, household furniture, or other articles are painted with lead paint, children may directly ingest the lead-contaminated, dried paint when chewing on them. Nonetheless, the most common way that children ingest lead is through lead-contaminated dust and soil that gets onto their hands.^[3]

While lead exposure is also harmful to adults, lead exposure harms children at much lower levels. In addition, children absorb up to five times as much of ingested lead than adults. Children with nutritional deficiencies absorb ingested lead at an even increased rates.^[2]

The younger the child, the more harmful lead can be, and the health effects are generally irreversible and can have a lifelong impact. The human fetus is the most vulnerable, and a pregnant woman can transfer lead that has accumulated in her body to her developing child.^[4] Lead is also transferred through breast milk when lead is present in a nursing mother.^[5]

Once lead enters a child's body through ingestion, inhalation, or across the placenta, it has the potential to damage several biological systems and pathways. The primary target is the central nervous system and the brain, but lead can also affect the blood system, the kidneys, and the skeleton.^[6] Lead is also categorized as an endocrine-disrupting chemical (EDC).^[7]

It is generally agreed that one key element in lead toxicity is its capacity to replace calcium in neurotransmitter systems, proteins, and bone structure, altering function and structure and thereby leading to severe health impacts. Lead is also known to affect and damage cell structure.^[8]

According to the World Health Organization (WHO): "Lead has no essential role in the human body, and lead poisoning accounts for about 0.6 percent of the global burden of disease."^[2] Evidence of reduced intelligence caused by childhood exposure to lead has led WHO to list "lead-caused mental retardation" as a recognized disease. WHO also lists it as one of the top ten diseases whose health burden among children is due to modifiable environmental factors.^[9]

In recent years, medical researchers have been documenting significant health impacts in children from lower and lower levels of lead exposure.^[2, 6] According to the factsheet on Lead Poisoning and Health from WHO: "There is no known level of lead exposure that is considered safe."^[10]

When a young child is exposed to lead, the harm to her or his nervous system makes it more likely that the child will have difficulties in school and engage in impulsive and violent behavior.^[11] Lead exposure in young children is also linked to increased rates of hyperactivity, inattentiveness, failure to graduate from high school, conduct disorder, juvenile delinquency, drug use, and incarceration.^[2] Lead exposure impacts on children continue throughout life and have a long-term impact on a child's work performance, and—on average—are related to decreased economic success.

A study investigating the economic impact of childhood lead exposure on national economies in all low- and middle-income countries estimated a total cumulative cost burden of \$977 billion international dollars² per year.^[12] The study considered the neurodevelopmental effects on lead-exposed children, as measured by reduced IQ points, and it correlated lead exposure-related reductions in children's IQ scores to reductions in lifetime economic productivity, as expressed in lifelong earning power. The study identified many different sources of lead exposure in children, with lead paint as one major source. Broken down by region, the economic burden of childhood lead exposure as estimated by this study was:

- Africa: \$134.7 billion of economic loss, or 4.03 percent of Gross Domestic Product (GDP);
- Latin America and the Caribbean: \$142.3 billion of economic loss, or 2.04 percent of GDP; and
- Asia: \$699.9 billion of economic loss, or 1.88 percent of GDP.

Country estimates used in this study can be accessed at a publicly available website, <http://www.med.nyu.edu/pediatrics/research/environmentalpediatrics/leadexposure>, and shows that economic loss in the Philippines is estimated at \$15 billion, or 3.8 percent of the country's Gross Domestic Product (GDP).

²An International dollar is a currency unit used by economists and international organizations to compare the values of different currencies. It adjusts the value of the U.S. dollar to reflect currency exchange rates, purchasing power parity (PPP), and average commodity prices within each country. According to the World Bank, "An international dollar has the same purchasing power over GDP as the U.S. dollar has in the United States." The international dollar values in this report were calculated from a World Bank table that lists GDP per capita by country based on purchasing power parity and expressed in international dollars.

1.2 The Use of Lead in Paint

Paints contain high levels of lead when the paint manufacturer intentionally adds one or more leaded compounds to the paint for some purpose. A paint product may also contain some amount of lead when paint ingredients contaminated with lead are used, or when there is cross-contamination from other product lines in the same factory. Leaded paint ingredients are most commonly intentionally used in solvent-based paint due to their chemical properties, and solvent-based paints have been found to have high lead content in many countries. [13–15]

The leaded compounds most commonly added to paints are pigments. Pigments are used to give the paint its color, make the paint opaque (so it covers well), and protect the paint and the underlying surface from degradation caused by exposure to sunlight. Lead-based pigments are sometimes used alone, and sometimes used in combination with other pigments.

Leaded compounds may also be added to enamel paints for use as driers (sometimes called drying agents or drying catalysts). Leaded compounds are also sometimes added to paints used on metal surfaces to inhibit rust or corrosion. The most common of these is lead tetroxide, sometimes called red lead or minium.

Non-leaded pigments, driers, and anti-corrosive agents have been widely available for decades and are used by manufacturers producing the highest quality paints. When a paint manufacturer does not intentionally add lead compounds in the formulation of its paints and takes care to avoid the use of paint ingredients that are contaminated with lead, the lead content of the paint will be very low—less than 90 parts per million (ppm) lead by dry weight, and frequently down to 10 ppm or less.

Most highly industrial countries adopted laws or regulations to control the lead content of decorative paints beginning in the 1970s and 1980s. Many also imposed controls on the lead content of paints used on toys and for other applications 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 aged six years and under.

The use of lead in production of decorative paint is prohibited in the European Union through regulations related to safety of consumer products and specific prohibitions for most leaded raw materials. In the U.S., Canada, Australia and other countries with regulations restricting the use of leaded ingredients in decorative paint, standards specifying a maximum lead limit are in place. The current standard for decorative household paints in e.g., the U.S., China, India, Bangladesh, South Korea, and Kenya is a total maximum lead content of 90 ppm, and adherence to this ensures that a manufacturer can sell its paint anywhere in the world. This standard is also recommended in the Model Law and Guidance for Regulating Lead Paint, which was developed by the Global Alliance to Eliminate Lead Paint (GAELP) and published by the UN Environment Programme. Some other countries such as Brazil, Sri Lanka, and Vietnam have established standards of 600 ppm total lead.

1.3 Paint Market and Regulatory Framework in the Philippines

Paint Market in the Philippines

The paint and coating industry of the Philippines, a lower middle-income country based on World Bank's latest classification, continues to register a steady growth despite the negative impacts of inflation in 2022 on the construction, home renovation, and decoration activities. Inflation soared from 8.1 percent in December 2022 to 8.7 percent in January 2023, the highest inflation rate since 2008.³ Government data in 2022⁴ showed paints had the second fastest annual inflation rate of 12 percent, next to galvanized iron sheets at 17.1 percent.

With the revival of the manufacturing and supply chain operations and the eventual lifting of the COVID-19 public health emergency⁵ in July 2023, the national economy is anticipated to grow further as one of the fastest emerging markets⁶ in Southeast Asia and across the globe.

As cited in the June 2023 issue of the Polymers Paint Colour Journal (PPCJ)⁷, home paint retail sales in 2021 rose to PHP15.4 billion with increased demand attributed to the easing of the COVID-19 restrictions. This figure is higher than the reported PHP14 billion sales in 2020, but still lower than the PHP18 billion sales in 2019 before the onslaught of the pandemic.

Of the close to 50 micro-, small-, medium-, and big-sized paint manufacturers in the country, 25 are affiliated with the Philippine Paint and Coatings Association or PPCA (formerly known as the Philippine Association of Paint Manufacturers or PAPM), an active member of the Chemical Industries Association of the Philippines (SPIK) and the Asian Paint Industry Council (APIC). About 95 percent of the 305 million liters of paints manufactured in 2019 were from PPCA-associated companies. Of the paints produced in 2019, 70 percent were decorative or architectural formulations and 30 percent were industrial formulations. There is a growing trend to produce lead-free, eco-friendly, and odor-free water-based paint systems.

Pacific Paint (Boysen) Philippines, Inc. is the country's "number one paint" maker with estimated total revenue of US\$340 million, ranking 17th among the top 30 paint manufacturers⁸ with headquarters in Asia-Pacific in 2023 (up from 23rd in 2022).

Other major paint and coating manufacturers in the country include Davies Paints Philippines, Inc. ("the number one paint exporter and manufacturer"); Asian Coatings Philippines, Inc. (flagship brand: Rain or Shine Elastomeric Paint); Globesco Inc. (maker of Sphero, "good paint made even better"); Sycwin Coating & Wires, Inc. (maker of Guilder, "the trusted automotive paint"); Roosevelt Chemical, Inc. ("the right choice in paints" and maker of Triton); and Nippon Paint (Coatings) Philippines, Inc. ("the coatings expert").

Among the companies mentioned above, three have successfully obtained Lead Safe Paint® Certification,⁹ an independent, third-party certification program that verifies paints containing less than 90 parts per million (ppm) or 0.009 percent total lead (dry weight). These are Pacific Paint (Boysen) Philippines, Inc.; Davies Paints

³ https://rssoncr.psa.gov.ph/sites/default/files/SPECIAL%20RELEASECPI%20Inflation%20January_2023.pdf

⁴ <https://psa.gov.ph/content/construction-materials-retail-price-index-national-capital-region-2012100-february-2023>

⁵ <https://pia.gov.ph/news/2023/07/22/pbbm-lifts-state-of-public-health-emergency-throughout-ph-due-to-covid-19>

⁶ <https://www.spglobal.com/marketintelligence/en/mi/research-analysis/philippines-amongst-worlds-fastest-growing-emerging-markets-mar23.html>

⁷ <https://www.polymerspaintcolourjournal.com/market-report-the-philippines-set-to-make-a-strong-comeback/>

⁸ <https://www.polymerspaintcolourjournal.com/ppcjs-annual-round-up-of-the-top-30-asia-pacific-coatings-companies/>

⁹ Lead Safe Paint® Certification Official Website: [https://www.lead safepaint.org](https://www.lead safepaint.org;);

SCS Certification Body Website: <https://www.scsglobalservices.com/services/lead-safe-paint>

Philippines, Inc.; and Sycwin Coating & Wires, Inc. In June 2023, two other companies—Asian Coatings Philippines, Inc. and Roosevelt Chemical, Inc.—started undergoing lead-safe paint certification process.

Other PPCA-affiliated paint and coating makers and their leading brands are Amstar Process Technology, Inc. (Sunburst); Cambridge Paints, Inc. (Cambridge); Cebu 7H Technochem Industries, Inc.; Century Chemical Corp. (Anzahl, Hudson, Olympic); FH Colors and Coatings Corp. (A-Plus, Glazer, Hanscoat, Sea Master); Grand Aces Ventures Inc. (Grandkote, Pintakote); Jotun Philippines, Inc. (Jotun); Magna Prime Chemical Technologies, Inc. (Sinclair); March Resources Manufacturing Corp. (Dura, Weber); Mayon Industrial Corp. (Challenger, Macnell); Mega Paint Corp.; PermaColour, Inc. (PermaColour); Pioneer Adhesive, Inc. (Pioneer); Sealbond Chemical Industries, Inc. (Sealbond); Times Paint Corp. (Master, Tufon, Weiser); Treasure Island Industrial Corp. (Island); Twin Aces Industries, Inc. (Princeton); and Universal Paint and Coatings (Philippines), Inc. (Aqua Guard, Popular, Universal).

Other local paint industry players not affiliated with the PPCA are A-Jaycee Chemicals Trading Corp.; Andalucia Manufacturing Corp.; Breb Color Paint Station; CORD Chemicals, Inc.; Euro-Chem Manufacturing Corp.; Filipinas Paints and Chemicals Manufacturing, Inc.; Globe International Distributor Center Inc.; Hazz Paint and Coating Solutions, Inc.; Luffax Enterprises; Maincoat Inc.; Paradise Chemical Corp.; PPLM Industrial Corp.; Prime Coating and Chemical, Inc.; Sherwinbenz Hardware Trading; Sucat Commercial; Super Globe Inc.; Total Paint Experts-Products; Ultracote Paints and Coatings Corp.; Unifour Construction Supplies Trading; United Paints Inc.; and Vichem Coatings and Chemicals, Inc.

Aside from Jotun Philippines, Inc. and Nippon Paint (Coatings) Philippines, Inc., other foreign-headquartered paint companies operating in the country include Kansai Paint Philippines, Inc. and PPG Coatings Philippines, Inc.

Some Philippine-based companies have also secured licensing agreements from foreign paint and coating manufacturers to produce or distribute decorative, heavy duty, industrial, and marine coatings such as 3Trees (3 Tress Paint Philippines, Inc.); Chugoku (Davies Paints Philippines, Inc.); DecoMas (DecoMas Philippines); International Paint (Mega Paint Corp.); and Transocean (Treasure Island Industrial Corp).

Most of the country's paint factories are located in and around highly urbanized areas where most construction and industrial activities are taking place, including Muntinlupa, Parañaque, Pasig, Quezon, and Valenzuela Cities in Metro Manila; municipality of Silang, and Dasmariñas and Trece Martires Cities in Cavite Province; Calamba City, Laguna Province; municipalities of Marilao and Santa Maria in Bulacan Province; municipality of Binangonan, Rizal Province; Santo Tomas City, Batangas Province; and in Cebu and Mandaue Cities in Cebu Province.

Also, numerous imported spray paints for consumer use are sold in general merchandise, hardware, home improvement, bicycle and motorcycle parts, and school supplies stores, as well as in online shopping platforms. Based on the studies conducted by the EcoWaste Coalition, many spray paints (also called aerosol paints) bear no manufacturers' markings and contain high lead content.

Regulatory Framework in the Philippines

The Philippines through the Department of Environment and Natural Resources (DENR) Administrative Order 2013-24, also known as the Chemical Control Order for Lead and Lead Compounds (or the CCO), established a total lead content limit of 90 parts per million (ppm) for lead used as pigment, drying agent, or for some other intentional purposes in paint formulations. The CCO provided a phase-out period of three years (2013-2016) for lead-containing paints used for architectural, decorative, and household applications, and six years (2013-2019) for lead-containing paints used for industrial applications. By 2020, the Philippines completed the phase-out of lead in all paint categories. In 2015 and 2016, the EMB issued two Memorandum Circulars (MCs) clarifying certain prohibited uses of lead and lead compounds as listed in the CCO.

Following the adoption of the CCO, the Bureau of Philippine Standards (BPS) of the Department of Trade and Industry (DTI), with active participation of the members of the BPS Technical Committee on Paints, harmonized the outdated limit on lead in paint from 1,000 ppm to 90 ppm in accordance with the CCO. The Department of Education (DepEd), the Department of Interior and Local Government (DILG), and the Department of Social Work and Development (DSWD) also took important steps to reinforce the ban on lead in paints in line with DENR A.O. 2013-24.

DepEd Order 4, Series of 2017 on the “Mandatory Use of Lead-Safe Paints in Schools” requires the use of independently certified lead-safe paints or coatings in the painting and repainting, among other things, of school facilities and amenities such as playground, covered court, and the like.

DILG Memorandum Circular 2018-26 on the “Mandatory Use of Lead Safe Paints by Local Government Units (LGUs)” enjoins provincial governors, city mayors, municipal mayors and barangay chairpersons to adopt a “Lead-Safe Paint Procurement Policy” for painting jobs paid out of public funds. This circular further instructs local officials to ensure prohibited uses of lead, including their use in indoor and outdoor playground equipment, are duly observed.

Also, the DSWD memorandum issued in 2017 requires the use of lead safe paints as a mandatory requirement in facilities catering to disadvantaged and vulnerable sectors. According to the memorandum, “the Standards Bureau/Unit shall ensure compliance by all social welfare and development agencies that their residential and non-residential facilities, including furniture, fixture and equipment, are using lead safe paints or coatings prior to licensing or re-accreditation.”

Among local governments, the Quezon City Government and the Davao City Government enacted ordinances in 2018 requiring the mandatory procurement and use of certified lead-safe paints, including enamels, glazes, lacquers, primers, stains, varnishes and other surface coatings, in government-funded construction, maintenance and renovation projects.

As a result of the EcoWaste Coalition-IPEN joint study on lead concentrations in spray paints sold locally, the Food and Drug Administration (FDA) through Advisory No. 2020-1585 issued a public health warning against the purchase and use of 37 spray paints containing significant levels of lead in excess of the 90 ppm maximum limit.



While third-party certification is not integrated into the CCO, the promulgation of the policy led to the birth of a voluntary Lead Safe Paint® Certification program initiated by the International Pollutants Elimination Network (IPEN) and the EcoWaste Coalition with support from the Philippine Association of Paint Manufacturers (PAPM). This third-party certification program verifies and certifies that a paint brand has less than 90 ppm lead allowing it to use the Lead Safe Paint® logo, a visual tool that can assist consumers in making an informed choice when purchasing paints.

Figure 1. Lead Safe Paint® Certification logo.

The CCO bagged the prestigious 2021 Future Policy Award (special category on lead in paint) from the World Future Council for successfully implementing the phase-out out of lead in all paints.

The DILG released an advisory in April 2023 reiterating the compulsory use of lead safe paints by LGUs and enjoining local government officials to:

1. *Adopt best practices and design and implement a “Lead-Safe Paint Procurement Policy” to ensure that LGUs adopt green procurement policies and incorporate environmental considerations into their procurement processes;*
2. *Ensure compliance with Department of Education (DepEd) Order No. 4, s.2017, on the mandatory use of lead-safe paints in all schools and the observance of proper lead paint abatement and removal to avoid the generation and dispersion of lead-containing dust;*
3. *In accordance with the previous items, consider utilizing locally-produced paint products that meet the government’s regulatory standards, as well as the standards under the Lead Safe Paint® Certification Program of IPEN;*
4. *Promote compliance with other prohibited uses of lead as specified under DENR AO No. 2013-24, such as the prohibition on the use of lead in the manufacturing and distribution process of food and beverage packaging, cosmetics, learning materials, school supplies, toys, and other children’s products, including indoor and outdoor play equipment;*
5. *Promote industrial compliance with chemical control policies and lead-free production practices, as well as public awareness on the debilitating impacts of lead and lead compounds on human health and the environment through information, education, and communication (IEC) initiatives;*
6. *Cooperate with concerned national government agencies regarding compliance with and implementation of established product recall mechanisms and protocols; and*
7. *Participate in the annual celebration of International Lead Poisoning Prevention Week, an initiative of the Global Alliance to Eliminate Lead Paint (Lead Paint Alliance) jointly led by the United Nations Environment Programme (UNEP) and the World Health Organization (WHO), every last week of October of each year.”*

The DILG also issued another Advisory in October 2023 encouraging LGUs to organize activities in support of the International Lead Poisoning Prevention Week.

2. MATERIALS AND METHODS

From May to July 2023, 46 cans of paints intended for decorative and industrial applications were purchased by the EcoWaste Coalition from various stores in Metro Manila (Cities of Caloocan, Makati, Malabon, Muntinlupa, Navotas, Parañaque, Pasig, Quezon, and Valenzuela); in San Pedro City, Laguna Province; and in the municipality of Santa Maria, Bulacan Province. The paints represented 27 different brands produced by 22 manufacturers.

For this study, paints that have not been tested yet by the EcoWaste Coalition and IPEN, as well as paints that failed in previous studies—particularly those conducted in 2017 for decorative paints and in 2021 for industrial paints—whenever available, were included. In most cases, bright-colored paints such as yellow, orange, green, or red were selected. Additionally, six anticorrosive paints and 14 spray paints for consumer use were also included in this study.

During the paint sample preparation, information such as color, brand, manufacturer, country where manufactured, product codes, production dates, and other details as provided on the label of the paint can were recorded. Generic paint colors were recorded, e.g., “yellow” instead of “sunflower.” For all colored paints, the protocol called for obtaining “bright” or “strong” red and yellow paints when available.

Paint sampling preparation kits containing individually numbered, untreated wood pieces, single-use paintbrushes and stirring utensils made from untreated wood sticks were sourced locally and assembled by the EcoWaste Coalition.

Each can of paint was thoroughly stirred and was subsequently applied onto individually numbered duplicates of untreated, labeled wood pieces using different unused, single-use paintbrushes by a researcher of the EcoWaste Coalition as shown in Figure 2.



Figure 2. Sample preparation conducted by staff of EcoWaste Coalition.

Each stirring utensil and paintbrush were used only for the same paint, and extra caution was taken to avoid cross contamination. All samples were then allowed to dry at room temperature for five to six days. After drying, the painted wood pieces were placed in individually labeled, resealable plastic bags and shipped for analysis of lead content to SGS Forensic Laboratories in the United States of America. The laboratory participates in the Environmental Lead Proficiency Analytical Testing (ELPAT) Program operated by the American Industrial Hygiene Association. In the laboratory selection process, IPEN further assessed the reliability of the laboratory results by conducting an independent quality assurance testing. This was made by sending paint samples with a known lead content to the laboratory, and evaluating the results received.

The laboratory's lower limit of detection for the lead concentration in the paint samples is dependent on the amount of paint in the samples. Generally, the lowest detection limit for the method used is 60 ppm, but if only a small amount of paint is available, the detection limit increases. Therefore, the detection limit was higher (up to 200 ppm) for some of the samples.

The paint samples were analyzed using method EPA3050B/7000B, i.e., through acid digestion of the samples, followed by Flame Atomic Absorption Spectrometry, as recognized by the WHO as appropriate for the purpose.^[16]

3. RESULTS

3.1 Summary of Results

This study shows that:

- 20 out of 46 analyzed solvent-based paints for decorative and industrial uses (43 percent of paints) were lead paints, i.e., they contained lead concentrations above 90 parts per million (ppm), dry weight. In addition, 14 paints (30 percent of paints) contained extremely high lead concentrations above 10,000 ppm.
- Eight out of 27 analyzed brands (30 percent of paint brands) sold at least one lead paint, i.e., a paint with lead concentration above 90 ppm. Also, six out of 27 analyzed brands (22 percent of paint brands) sold at least one lead paint with extremely high lead concentrations above 10,000 ppm.
- 19 out of 42 bright-colored paints (45 percent of bright-colored paints) were lead paints, i.e., they contained lead concentrations above 90 parts per million (ppm), dry weight. Yellow paints were the most hazardous with nine out of 22 paints (41 percent of yellow paints) containing lead concentrations greater than 10,000 ppm. Four out of nine green paints (44 percent of green paints) and one out of three orange paints (33 percent of orange paints) also contained extremely high lead concentrations above 10,000 ppm.
- The highest lead concentration detected was 98,000 ppm in a yellow Gold Urethane Paint sold for automotive use.
- Only 13 out of 46 paints (28 percent of paints) provided information about lead on their labels and most paints carried little information about ingredients. Most paints were merely labeled as “solvents, pigments and resin,” with no further details on the type of solvents and pigments (organic or inorganic) provided. Most warning symbols on the paint cans indicated the flammability of the paints, but no precautionary warnings on the effects of lead dust to children and pregnant women were provided.
- Five lead-containing paints were falsely marked as “lead-free” or “no lead” despite containing lead levels ranging from 200 ppm to as high as 78,000 ppm.
- One paint carried the Lead Safe Paint® logo, a registered trademark, without authorization from the certification body.















3.2 Lead Content Analysis

Twenty out of 46 analyzed solvent-based paints (43 percent of paints) were lead paints, i.e., contained a lead concentration above 90 ppm —14 of these contained extremely high lead concentrations above 10,000 ppm (30 percent of paints).

A yellow Gold Urethane Paint used for automotive purposes contained the highest concentration of lead at 98,000 ppm, while the lowest concentration of lead less than 100 ppm was detected in three paints from the following brands: Alpha Chroma Chlorinated Rubber-Based Floor Coating (green); Megashield Epoxy Finish Marine (yellow); and R-M Epoxy Primer (red).

The 12 solvent-based paints with the highest amounts of lead are summarized in Table 1.

| Rank | | Sample No. | Brand | Manufacturer | Color | Lead Content (ppm) |
|------|---|------------|--|---|--------|--------------------|
| 1 |  | PH-28 | Gold Urethane Paint (Automotive) | Ajaycee Chemicals Trading Corp. | Yellow | 98,000 |
| 2 |  | PH-36 | Sinag Paint (Aerosol) | Not indicated (China) | Yellow | 78,000 |
| 3 |  | PH-23 | Gold Primera (Automotive Acrylic) | Ajaycee Chemicals Trading Corp. | Yellow | 76,000 |
| 4 |  | PH-46 | One Take Whale Fall (Aerosol) | Unioue (Lufeng) Tech. Co., Ltd. (China) | Green | 52,000 |
| 5 |  | PH-45 | One Take Whale Fall (Aerosol) | Unioue (Lufeng) Tech. Co., Ltd. (China) | Green | 48,000 |
| 6 |  | PH-15 | Rigid ReflectORIZED Traffic Paint (Industrial) | Prime Coating & Chemical Inc. | Yellow | 41,000 |
| 7 |  | PH-25 | Gold Ultima Epoxy Enamel (Industrial) | Ajaycee Chemicals Trading Corp. | Orange | 34,000 |
| 8 |  | PH-24 | Gold Ultima (Automotive Enamel) | Ajaycee Chemicals Trading Corp. | Yellow | 27,000 |
| 9 |  | PH-17 | Rigid Epoxy Primer Zinc Chromate (Anticorrosive) | Prime Coating & Chemical Inc. | Yellow | 25,000 |
| 10 |  | PH-44 | Getsun Spray Paint Aerosol Lacquer | Helioson Car Care Co., Ltd. (China) | Yellow | 18,000 |
| 11 |  | PH-16 | Rigid Glossy Quick Dry Enamel (Decorative) | Prime Coating & Chemical Inc. | Yellow | 17,000 |
| 12 |  | PH-29 | Unitek Quick Dry Enamel (Decorative) | Unifour Construction Supplies Trading | Yellow | 15,000 |

On the other hand, 26 out of 46 analyzed paints (57 percent of paints) had lead concentrations reported as “less than 200 ppm” and “less than 100 ppm”. In this report, we say that these 26 paints did not contain “intentionally added lead.”

Intentionally adding lead compounds to paint either as pigment or drier will yield concentrations of lead that are higher than 200 ppm. According to Module A-3 (Paint Basics) of UNEP’s *Toolkit for Establishing Laws to Eliminate*

Lead Paint, “Lead-based pigments may contribute around 1,500 ppm to over 100,000 ppm” concentrations of lead in paint, while “lead-based driers may contribute around 1,200 ppm to 6,000 ppm” concentrations of lead in paint.¹⁰

3.3 Paint Brand Analysis

Six out of 27 analyzed brands (22 percent of paint brands) sold at least one paint with extremely high lead concentration above 10,000 ppm.

Among nine decorative paints, a yellow Rigid Glossy Quick Dry Enamel (17,000 ppm) and a yellow Unitek Paint Quick Dry Enamel (15,000 ppm) contained the highest lead concentrations. On the other hand, at least one paint from each of the following brands did not contain intentionally added lead, including Alpha Chroma (yellow); Challenger (yellow); Coat Saver Solo (green); Techno (yellow); Tri-Safe (yellow); and Welcoat (orange and yellow). This indicates that the technology to produce paints without added lead exists in the Philippines.

Among six anticorrosive paints, a yellow Rigid Epoxy Primer Zinc Chromate (25,000 ppm) contained the highest lead concentration. On the other hand, at least one paint from each of the following brands did not contain intentionally added lead, including Island Paints (red); Nova Bull (red); R-M (red); Tufflon (red); and Unitek Paint (gray).

Among 14 Chinese-imported spray paints, a yellow Sinag Aerosol Paint (78,000 ppm), and two green One Take Whale Fall Aerosol Paints (52,000 ppm and 48,000 ppm) contained the highest lead concentrations. On the other hand, two Sinag Spray Paints (brown and red) did not contain intentionally added lead.

Among 17 industrial paints, a yellow Gold Urethane Paint (98,000 ppm), a yellow Gold Primera Automotive Acrylic Paint (76,000 ppm), and a yellow Rigid Reflectorized Traffic Paint (41,000 ppm) contained the highest lead concentrations. On the other hand, at least one paint from each of the following brands did not contain intentionally added lead, including Alpha Chroma (green); Bronco (yellow); Dallas (yellow); Destiny (green); Megashield (yellow); Paintrite (yellow); Pioneer (yellow); Rhinecote (yellow); R-M (yellow); Shell Flintkote (black); and Sphero (orange).

3.4 Paint Color Analysis

Nineteen out of 42 bright-colored paints (45 percent of bright-colored paints) such as yellow, green, red, and orange contained lead concentrations above 90 ppm, 14 paints of which contained extremely high lead concentrations above 10,000 ppm (33 percent of bright-colored paints).

This study included 22 yellow paints, nine green paints, eight red paints, three orange paints, two black paints, one brown paint, and one gray paint. Yellow, green, and orange paints contained the highest lead concentrations.

Among bright-colored paints, nine out of 22 yellow paints (41 percent of yellow paints); four out of nine green paints (44 percent of green paints); and one out of three orange paints (33 percent of orange paints) contained lead concentrations above 10,000 ppm.

¹⁰ <https://wedocs.unep.org/bitstream/handle/20.500.11822/37030/PAINT.pdf?sequence=3&isAllowed=y>, p.14-15

3.5 Labeling

In general, most paint can labels did not carry meaningful information about lead content or the hazards of lead paint.

Only 13 out of 46 paints (28 percent of paints) provided information about lead on their labels such as “lead-free” claims and “no lead” pictograms. Among these, five lead-containing paints were falsely marked as “lead-free” or “no lead” despite containing lead levels ranging from 200 ppm to as high as 78,000 ppm. In addition, one paint carried the Lead Safe Paint® logo, a registered trademark, without authorization from the certification body.

Most paints were merely labeled as “solvents, pigments and resin,” with no further details on the type of solvents and pigments (organic or inorganic) provided on paint can labels. Manufacturing dates were included on the labels of 20 out of 46 paints (43 percent of paints), while the batch numbers were indicated on 24 paints (52 percent of the paints) included in this study. Warning symbols on most of the paint cans indicated the flammability of the paints, but no precautionary warnings on the effects of lead dust to children and pregnant women were provided.

3.6 Compliance of Paints with Legal Limits and Comparison with Results from Earlier Studies

The present study includes 17 industrial paints, 14 spray paints, nine decorative paints, and six anticorrosive paints. Of the 17 industrial paints, five paints failed the 90 ppm legal limit (29 percent of industrial paints), all of which surpassed 10,000 ppm. These five non-compliant paints were produced by two Philippine manufacturers.

Of the 14 spray paints, 12 paints failed the 90 ppm legal limit (86 percent of spray paints), six paints of which exceeded 10,000 ppm (43 percent of spray paints). All 14 spray paints were imported from China, but only five spray paints indicated the manufacturer’s name.

Of the nine decorative paints, two paints failed the 90 ppm legal limit (22 percent of decorative paints), all of which surpassed 10,000 ppm. Both non-compliant paints were produced by two Philippine manufacturers.

Of the six anticorrosive paints, one paint failed the 90 ppm legal limit (17 percent of anticorrosive paints), which also surpassed 10,000 ppm. This non-compliant paint was produced by a Philippine manufacturer.

For the present study, none of the analyzed paints with lead content was manufactured by companies affiliated with the Philippine Paint and Coatings Association (PPCA).

The results of the three studies conducted by the EcoWaste Coalition and IPEN in 2013, 2015, and 2017 indicated an increase in the percentage of compliant solvent-based decorative paints with lead concentrations below 90 ppm. The percentage of similar paints exceeding 90 ppm and 10,000 ppm, on the other hand, had considerably decreased. For example, the study conducted in 2013 prior to the issuance of the lead paint regulation showed 61 percent of 122 analyzed paints had lead content above 90 ppm. In contrast, only 23 percent of 104 analyzed paints in 2017 exceeded the 90 ppm limit after the phase-out deadline for lead-added decorative paints took effect in December 2016. The percentage of paints with lead levels above 10,000 ppm also decreased: from 39 percent of 122 paints in 2013 to 12 percent of 104 paints in 2017. As for solvent-based industrial paints, the groups released the first-ever publicly available data on the lead content of such paints in 2021, or after the phase-out deadline for lead-added industrial paints took effect in December 2019. Results of the 2021 study showed that 31 percent of 68 paints contained lead above 90 ppm, while 19 percent had lead concentrations above 10,000 ppm, of which nine had lead levels at or above 100,000 ppm.

Seven industrial paints analyzed for lead content in 2021 and four decorative paints analyzed in 2017 were also analyzed in this study. Among these, only two industrial paints (a yellow Gold Primera Automotive Acrylic Paint and a yellow Gold Ultima Automotive Enamel Paint) and one decorative paint (a yellow Rigid Glossy Quick Dry Enamel Paint) remained non-compliant with the legal limit and still contains intentionally added lead. On the other hand, five industrial paints and three decorative paints were now compliant with the 90 ppm legal limit.

Table 2. Comparison of Lead Concentrations in Some Solvent-Based Paints.

| Sample No. | Brand Name | Type of Paint | Color | 2023 Lead Content (ppm) | 2021/2017 Lead Content (ppm) | Remarks |
|------------|-----------------------------------|---------------|--------|-------------------------|------------------------------|--|
| PH-02 | Bronco (Rubberized Floor Coating) | Industrial | yellow | < 200 | 52,000 | Contains no "intentionally added lead" compared to 2021 |
| PH-03 | Megashield (Epoxy Finish Marine) | Industrial | yellow | < 100 | 29,000 | Contains no "intentionally added lead" compared to 2021 |
| PH-06 | Challenger (Quick Dry Enamel) | Decorative | yellow | < 200 | 88,000 | Contains no "intentionally added lead" compared to 2017 |
| PH-13 | Dallas (Automotive Lacquer) | Industrial | yellow | < 200 | 140,000 | Contains no "intentionally added lead" compared to 2021 |
| PH-14 | Tri-Safe (Quick Dry Enamel) | Decorative | yellow | < 200 | 100,000 | Contains no "intentionally added lead" compared to 2017 |
| PH-20 | Welcoat (Quick Dry Enamel) | Decorative | yellow | < 200 | 18,000 | Contains no "intentionally added lead" compared to 2017 |
| PH-27 | Rhinecote (Traffic Paint) | Industrial | yellow | < 200 | 150,000 | Contains no "intentionally added lead" compared to 2021 |
| PH-32 | Sphero (Epoxy Enamel) | Industrial | orange | < 200 | 1,700 | Contains no "intentionally added lead" compared to 2021 |
| PH-16 | Rigid (Glossy Quick Dry Enamel) | Decorative | yellow | 17,000 | 42,000 | Still contains "intentionally added lead" (most likely pigment) compared to 2017 |
| PH-23 | Gold Primera (Automotive Acrylic) | Industrial | yellow | 76,000 | 140,000 | Still contains "intentionally added lead" (most likely pigment) compared to 2021 |
| PH-06 | Gold Ultima (Automotive Enamel) | Industrial | yellow | 27,000 | 16,000 | Still contains "intentionally added lead" (most likely pigment) compared to 2021 |

4. Conclusions and Recommendations

This study demonstrates that paints for decorative and industrial uses with high concentrations of lead are still available in the Philippines despite the completion of the transition period to lead-safe paint manufacturing. Among these non-compliant paints are 12 spray paints imported from China. However, the fact that 26 out of 46

paints (57 percent of paints) contained no intentionally added lead indicates that the technology to produce paints without lead additives exists in the Philippines. The study results provide a strong justification to strengthen mechanisms for compliance monitoring and enforcement to ensure that the lead paint ban is fully observed and upheld.

In the interest of upholding the national ban on lead-containing paints, thereby protecting the health of children and other vulnerable populations, the EcoWaste Coalition and IPEN recommend the following action points:

I. For National Government Agencies (NGAs) and Local Government Units (LGUs):

A. Department of Environment and Natural Resources (DENR):

- Strengthen mechanisms to monitor compliance to the DENR-issued Chemical Control Order banning lead in the manufacture of paints.
- Nominate lead chromates, the most common lead-based paint pigments, for listing under the Rotterdam Convention to control the entry of such raw materials and the finished paint products containing them.
- Conduct ocular visits to micro-, small- and medium-sized paint factories that may still be using lead-based raw materials.
- Develop guidelines that will prevent and reduce the creation of toxic lead dust and its dispersal to the environment when surfaces coated with lead paint are disturbed or demolished.

B. Department of Trade and Industry (DTI) and/or Department of Health (DOH):

- Order business establishments, including online shopping platforms, to discontinue selling lead-containing paints or face administrative and criminal sanctions.
- Seize lead-containing paints from retailers, including online sellers, for environmentally sound disposal, and to penalize errant parties.
- Issue notice of violation against manufacturers, importers, distributors, and retailers of leaded paint products falsely marked and advertised as “lead-free” in line with Republic Act 7394, or the Consumer Act of the Philippines.
- Expand the ban on leaded paints in the manufacture, importation, distribution, and sale of paint brushes and other home improvement products.

C. Department of Labor and Employment (DOLE):

- Promote awareness and action among employers and workers that will minimize occupational exposures to lead dust, especially during painting, repair, or renovation activities.

D. Department of Education (DepEd) and the Commission on Higher Education (CHED):

- Integrate lead toxicity awareness and poisoning prevention in the curriculum under Republic Act 9512, or the National Environmental Awareness and Education Act.
- Ensure that Department Order 4, series of 2017 requiring the “mandatory use of lead-safe paints in schools” is fully enforced.

E. Department of the Interior and Local Government (DILG):

- Support local government units (LGUs) in promulgating lead-safe paint ordinances in line with DILG Memorandum Circular 2018-26 on “Mandatory Use of Lead-Safe Paints by LGUs” and its 2023 advisory reiterating the same, and for DILG to ensure LGU reporting of compliance to the said directive.

F. Department of Social Welfare and Development (DSWD):

- Ensure compliance to the department’s directive requiring the use of lead-safe paints in residential and non-residential facilities managed or operated by DSWD or its accredited agencies.

G. Bureau of Customs (BOC):

- Tighten customs checks for paint imports, especially for spray paints.

H. Local Government Units (LGUs):

- Enact ordinances that will institutionalize the mandatory procurement and use of lead-safe paints in pursuit of the DILG's directive.
- Collaborate with national government agencies and civil society organizations in promoting compliance to the country's lead paint law to protect the people's right to health.

II. For Paint Manufacturers:

- Obtain third-party Lead Safe Paint® Certification to assist consumers in making an informed choice when buying paints.
- Paint companies that still produce lead-containing paints must stop such illegal production, distribution, and sale of leaded paint products.
- Paint manufacturers, importers, and distributors should take back any remaining stocks of their old lead-containing paints from retail outlets to stop their sale and use.

III. For Paint Sellers:

- Stock on products bearing the Lead Safe Paint® logo and/or other verifiable proof of adherence to the regulation limiting lead in paint to not more than 90 ppm. Offer painting tools such as paint brushes that are not decorated with lead paint.
- Coordinate with concerned government regulators if there are questions about a product's compliance to the lead paint standard.

IV. For Paint Consumers:

- Insist on your legally protected rights to truthful product information and product safety, and to seek adequately labeled and lead-safe paint products.
- Check for the Lead Safe Paint® logo and/or other reliable proof of conformity with the country's lead paint standard when buying paint products.
- Refrain from using paint brushes for food preparations, and to only use hygienic food-grade basting mops, including those made from banana, lemongrass or pandan leaves.

V. For All Stakeholders:

- Stakeholders from the government, business and industry, health care sector, academia, and the civil society should actively support policies and programs that will contribute to the reduction of children's, women's, and workers' exposures to lead from lead-containing paint, as well as from lead-contaminated dust and soil towards a lead-safe future for all.

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Annex

Table 3. Solvent-Based Paints for Home Use Included in the Study

| Sample No. | Brand | Color | Volume (L) | Price (Currency) | Date of Manufacture (y/m/d) | Batch No. | Date of Purchase (y/m/d) | Is there website on label? |
|------------|---|--------|------------|------------------|-----------------------------|-----------|--------------------------|----------------------------|
| PH-01 | Pioneer (Marine Quick Dry Enamel) | Yellow | 1 | 180 | NA | 25031894 | 2023/06/09 | Yes |
| PH-02 | Bronco (Floor Coating) | Yellow | 1 | 800 | NA | 05252235 | 2023/06/10 | No |
| PH-03 | Megashield (Epoxy Finish) | Yellow | 3.2 | 2,280 | NA | YH3542PH | 2023/06/10 | Yes |
| PH-04 | R-M (Epoxy Primer) | Red | 0.75 | 279.50 | NA | 2208442 | 2023/06/10 | No |
| PH-05 | Coat Saver Solo (Fast Dry Enamel) | Green | 1 | 200 | NA | NA | 2023/06 | No |
| PH-06 | Challenger (Quick Dry Enamel) | Yellow | 0.80 | 130 | NA | NA | 2023/06/10 | No |
| PH-07 | Unitek (Epoxy Primer) | Gray | 1 | 281.60 | NA | NA | 2023/06/10 | No |
| PH-08 | Alpha Chroma (Quick Dry Enamel) | Yellow | 4 | 830 | 2023/04/10 | 1000423 | 2023/06/10 | Yes |
| PH-09 | Alpha Chroma (Floor Coating) | Green | 1 | 406 | 2023/04/12 | 1030423 | 2023/06/10 | Yes |
| PH-10 | Alpha Chroma (Epoxy Metal Topcoat Enamel) | Green | 1 | 342 | 2023/03/07 | 1000323 | 2023/06/10 | Yes |
| PH-11 | Tuflon (Enamel Primer) | Red | 0.25 | 70 | NA | 20210562 | 2023/06 | Np |
| PH-12 | Nova Bull (Metal Primer) | Red | 1 | 128 | NA | 02088122 | 2023/06 | No |
| PH-13 | Dallas (Automotive Lacquer) | Yellow | 4 | 840 | NA | NA | 2023/06/15 | No |
| PH-14 | Tri-Safe (Quick Dry Enamel) | Yellow | 4 | 750 | NA | 22020297 | 2023/06/16 | No |

| | | | | | | | | |
|-------|---|--------|------|-------|------------|-----------|------------|-----|
| PH-15 | Rigid (Traffic Paint) | Yellow | 4 | 850 | NA | NA | 2023/06/16 | No |
| PH-16 | Rigid (Quick Dry Enamel) | Yellow | 4 | 550 | NA | NA | 2023/06/16 | No |
| PH-17 | Rigid (Epoxy Primer) | Yellow | 4 | 785 | NA | NA | 2023/06/16 | No |
| PH-18 | Techno | Yellow | 4 | 780 | NA | NA | 2023/06/17 | No |
| PH-19 | Welcoat (Quick Dry Enamel) | Orange | 1 | 270 | 2022/12/14 | 212122 | 2023/06/17 | No |
| PH-20 | Welcoat (Quick Dry Enamel) | Yellow | 1 | 240 | 2023/05/09 | 765052023 | 2023/06/17 | No |
| PH-21 | Destiny Triple-X (Floor Coating) | Green | 4 | 1,385 | NA | 02106/23 | 2023/06/18 | Yes |
| PH-22 | R-M (Epoxy Enamel) | Yellow | 3 | 1,250 | NA | 2205125 | 2023/06/18 | No |
| PH-23 | Gold Primera (Automotive Acrylic) | Yellow | 4 | 1,200 | NA | 23010082 | 2023/06/20 | Yes |
| PH-24 | Gold Ultima (Automotive Enamel) | Yellow | 4 | 820 | NA | 20116054 | 2023/06/20 | No |
| PH-25 | Gold Ultima (Epoxy Enamel) | Orange | 4 | 1,240 | NA | 20014546 | 2023/06/20 | No |
| PH-26 | Shell Flintkote PF-4 (Bitumen Paint) | Black | 3.5 | 1,180 | 2022/04/30 | 72204031 | 2023/06/19 | No |
| PH-27 | Rhinecote (Traffic Paint) | Yellow | 4 | 3,505 | 2023/06/21 | NA | 2023/06/21 | Yes |
| PH-28 | Gold (Urethane Paint) | Yellow | 4 | 2,800 | NA | 23010024 | 2023/06/23 | Yes |
| PH-29 | Unitek (Quick Dry Enamel) | Yellow | 4 | 880 | NA | R2205611 | 2023/06/24 | No |
| PH-30 | Paintrite (Traffic Paint) | Yellow | 4 | 1,140 | 2023/06/23 | NA | 2023/06/24 | No |
| PH-31 | Island Paints (Red Lead Primer) | Red | 0.25 | 115 | NA | 22053104 | 2023/06/24 | No |

| | | | | | | | | |
|-------|---|--------|------|-------|------------|----------|------------|-----|
| PH-32 | Sphero (Epoxy Enamel) | Orange | 4 | 1,338 | NA | 32303169 | 2023/06/26 | Yes |
| PH-33 | Boston Spray Paint | Red | 0.40 | | 2022/10/21 | NA | 2023 | No |
| PH-34 | King Sfon Aerosol Spray | Yellow | 0.40 | 99 | 2020/05/25 | NA | 2023 | No |
| PH-35 | Sinag Paint Aerosol | Green | 0.25 | 68 | 2021/09/07 | NA | 2023 | No |
| PH-36 | Sinag Paint Aerosol | Yellow | 0.25 | 68 | 2022/05/07 | NA | 2023 | No |
| PH-37 | Sinag Spray Paint | Green | 0.40 | | 2020/07/23 | NA | 2023 | No |
| PH-38 | Sinag Spray Paint | Red | 0.40 | 95 | 2021/10/15 | NA | 2023 | No |
| PH-39 | Sinag Spray Paint | Red | 0.40 | | 2021/10/15 | NA | 2023 | No |
| PH-40 | Sinag Spray Paint | Brown | 0.40 | | 2020/07/23 | NA | 2023 | No |
| PH-41 | Sinag Spray Paint | Black | 0.40 | | 2020/07/23 | NA | 2023 | No |
| PH-42 | Getsun Spray Paint Aerosol Lacquer | Green | 0.40 | | 2022/04/15 | NA | 2023/05/24 | No |
| PH-43 | Getsun Spray PaintAeroso Lacquer | Red | 0.40 | | 2020/12/19 | NA | 2023/05/24 | No |
| PH-44 | Getsun Spray Paint Aerosol Lacquer | Yellow | 0.40 | | 2021/04/27 | NA | 2023/05/24 | No |
| PH-45 | One Take Whale Fall (Aerosol) | Green | 0.60 | | NA | 23819 | 2023/06/03 | Yes |
| PH-46 | One Take Whale Fall (Aerosol) | Green | 0.60 | | NA | 25320 | 2023/05/25 | Yes |

Table 4. Results of Laboratory Analysis of Solvent-Based Paints for Home Use.

| Sample No. | Brand | Color | Lead Content, Dry Weight (ppm)) | Country of Brand Headquarters | Country of Manufacture | Is there information on can about lead content of paint? |
|------------|---|--------|---------------------------------|-------------------------------|------------------------|--|
| PH-01 | Pioneer (Marine Quick Dry Enamel) | Yellow | <200 | Philippines | Philippines | "Lead Free" |
| PH-02 | Bronco (Rubberized Floor Coating) | Yellow | <200 | Philippines | Philippines | No |
| PH-03 | Megashield (Epoxy Finish Marine) | Yellow | <100 | Philippines | Philippines | No |
| PH-04 | R-M (Epoxy Primer Red Iron Oxide) | Red | <100 | USA | Philippines | No |
| PH-05 | Coat Saver Solo (Fast Dry Enamel) | Green | <200 | Philippines | Philippines | No |
| PH-06 | Challenger (Quick Dry Enamel) | Yellow | <200 | Philippines | Philippines | No |
| PH-07 | Unitek Paint (Epoxy Primer) | Gray | <200 | Philippines | Philippines | No |
| PH-08 | Alpha Chroma (Quick Dry Enamel) | Yellow | <200 | Philippines | Philippines | "Lead Free" |
| PH-09 | Alpha Chroma (Chlorinated Rubber-Based Floor Coating) | Green | <100 | Philippines | Philippines | "Lead Free" |
| PH-10 | Alpha Chroma | Green | <200 | Philippines | Philippines | "Lead Free" |

| | | | | | | |
|-------|--|--------|--------|-------------|-------------|-------------|
| | (Epoxy Metal Topcoat Enamel) | | | | | |
| PH-11 | Tuflon (Enamel Primer Surfacer Red Oxide) | Red | <200 | Philippines | Philippines | No |
| PH-12 | Nova Bull (Metal Primer Red Oxide) | Red | <200 | Philippines | Philippines | No |
| PH-13 | Dallas (Automotive Lacquer) | Yellow | <200 | Philippines | Philippines | "Lead Free" |
| PH-14 | Tri-Safe (Quick Dry Enamel) | Yellow | <200 | Philippines | Philippines | No |
| PH-15 | Rigid (Reflectorized Traffic Paint) | Yellow | 41,000 | Philippines | Philippines | No |
| PH-16 | Rigid (Quick Dry Enamel) | Yellow | 17,000 | Philippines | Philippines | No |
| PH-17 | Rigid (Epoxy Primer Zinc Chromate) | Yellow | 25,000 | Philippines | Philippines | No |
| PH-18 | Techno | Yellow | <200 | Philippines | Philippines | No |
| PH-19 | Welcoat (Quick Dry Enamel) | Orange | <200 | Philippines | Philippines | No |
| PH-20 | Welcoat (Quick Dry Enamel) | Yellow | <200 | Philippines | Philippines | No |
| PH-21 | Destiny Triple-X (Floor Coating Chlorinated Rubber Base) | Green | <200 | Philippines | Philippines | No |
| PH-22 | R-M (Epoxy Enamel) | Yellow | <200 | USA | Philippines | No |

| | | | | | | |
|-------|--|--------|--------|-------------|-------------|------------------------------------|
| PH-23 | Gold Primera (Automotive Acrylic) | Yellow | 76,000 | Philippines | Philippines | No |
| PH-24 | Gold Ultima (Automotive Enamel) | Yellow | 27,000 | Philippines | Philippines | No |
| PH-25 | Gold Ultima (Epoxy Enamel) | Orange | 34,000 | Philippines | Philippines | No |
| PH-26 | Shell Flintkote PF-4 (Bitumen Paint) | Black | <200 | Thailand | Thailand | No |
| PH-27 | Rhinecote (Traffic Paint) | Yellow | <200 | Philippines | Philippines | No |
| PH-28 | Gold (Urethane Paint) | Yellow | 98,000 | Philippines | Philippines | No |
| PH-29 | Unitek Paint (Quick Dry Enamel) | Yellow | 15,000 | Philippines | Philippines | No |
| PH-30 | Paintrite (Traffic Paint) | Yellow | <200 | Philippines | Philippines | “Lead Safe Paint®” (unlicensed) |
| PH-31 | Island Paints (Red Lead Primer) | Red | <200 | Philippines | Philippines | No |
| PH-32 | Sphero (Epoxy Enamel) | Orange | <200 | Philippines | Philippines | No |
| PH-33 | Boston Spray Paint | Red | 4,000 | China | China | No |
| PH-34 | King Sfon Aerosol Spray | Yellow | 9,600 | China | China | No |
| PH-35 | Sinag Paint Aerosol | Green | 13,000 | China | China | “Lead Free” |
| PH-36 | Sinag Paint Aerosol | Yellow | 78,000 | China | China | “Lead Free” |

| | | | | | | |
|-------|------------------------------------|--------|--------|-------|-------|---------|
| PH-37 | Sinag Spray Paint | Green | 9,900 | China | China | "No Pb" |
| PH-38 | Sinag Spray Paint | Red | <200 | China | China | "No Pb" |
| PH-39 | Sinag Spray Paint | Red | 200 | China | China | "No Pb" |
| PH-40 | Sinag Spray Paint | Brown | <200 | China | China | "No Pb" |
| PH-41 | Sinag Spray Paint | Black | 1,200 | China | China | "No Pb" |
| PH-42 | Getsun Spray Paint Aerosol Lacquer | Green | 12,000 | China | China | No |
| PH-43 | Getsun Spray Paint Aerosol Lacquer | Red | 900 | China | China | No |
| PH-44 | Getsun Spray Paint Aerosol Lacquer | Yellow | 18,000 | China | China | No |
| PH-45 | One Take Whale Fall (Aerosol) | Green | 48,000 | China | China | No |
| PH-46 | One Take Whale Fall (Aerosol) | Green | 52,000 | China | China | No |

Table 5. Distribution of Lead Concentration by Brand.

| Brand | No. of Samples | No. of Samples Above 90 ppm | No. of Samples Above 10,000 ppm | Minimum Lead Content (ppm) | Maximum Lead Content (ppm) |
|-----------------|----------------|-----------------------------|---------------------------------|----------------------------|----------------------------|
| Alpha Chroma | 3 | 0 | 0 | <100 | <200 |
| Boston | 1 | 1 | 0 | 4,000 | 4,000 |
| Bronco | 1 | 0 | 0 | <200 | <200 |
| Challenger | 1 | 0 | 0 | <200 | <200 |
| Coat Saver Solo | 1 | 0 | 0 | <200 | <200 |
| Dallas | 1 | 0 | 0 | <200 | <200 |

| | | | | | |
|---------------------|---|---|---|--------|--------|
| Destiny | 1 | 0 | 0 | <200 | <200 |
| Getsun | 3 | 3 | 2 | 900 | 18,000 |
| Gold | 4 | 4 | 4 | 27,000 | 98,000 |
| Island Paints | 1 | 0 | 0 | <200 | <200 |
| King Sfon | 1 | 1 | 0 | 9,600 | 9,600 |
| Megashield | 1 | 0 | 0 | <100 | <100 |
| Nova Bull | 1 | 0 | 0 | <200 | <200 |
| One Take Whale Fall | 2 | 2 | 2 | 48,000 | 52,000 |
| Paintrite | 1 | 0 | 0 | <200 | <200 |
| Pioneer | 1 | 0 | 0 | <200 | <200 |
| R-M | 2 | 0 | 0 | <100 | <200 |
| Rhinecote | 1 | 0 | 0 | <200 | <200 |
| Rigid | 3 | 3 | 3 | 17,000 | 41,000 |
| Shell Flintkote | 1 | 0 | 0 | <200 | <200 |
| Sinag | 7 | 5 | 2 | <200 | 78,000 |
| Sphero | 1 | 0 | 0 | <200 | <200 |
| Techno | 1 | 0 | 0 | <200 | <200 |
| Tri-Safe | 1 | 0 | 0 | <200 | <200 |
| Tuflon | 1 | 0 | 0 | <200 | <200 |
| Unitek | 2 | 1 | 1 | <200 | 15,000 |
| Welcoat | 2 | 0 | 0 | <200 | <200 |

Table 6. Distribution of Lead Concentration by Color.

| Color | No. of Samples | No. of Samples Above 90 ppm | No. of Samples Above 10,000 ppm | Minimum Lead Content (ppm) | Maximum Lead Content (ppm) |
|--------|----------------|-----------------------------|---------------------------------|----------------------------|----------------------------|
| Yellow | 22 | 10 | 9 | <100 | 98,000 |
| Green | 9 | 5 | 4 | <100 | 52,000 |

| | | | | | |
|--------|---|---|---|------|--------|
| Red | 8 | 3 | 0 | <100 | 4,000 |
| Orange | 3 | 1 | 1 | <200 | 34,000 |
| Black | 2 | 1 | 0 | <200 | 1,200 |
| Brown | 1 | 0 | 0 | <200 | <200 |
| Gray | 1 | 0 | 0 | <200 | <200 |