# LEAD IN PLAYGROUND EQUIPMENT IN INDONESIA

October 2019

NEXUS3 foundation

Sweden
Sverige

IPEN
for a toxics-free future

## ACKNOWLEDGMENTS

We take this opportunity to thank all those who were instrumental in compiling and shaping this study.

This report presents new data on the total lead content of painted playground equipment found in facilities managed and maintained by national or local government agencies and private sectors. The report also recommends action steps by different stakeholders to protect children from exposure to lead.

This report was undertaken as part of IPEN´s Global Lead Paint Elimination Campaign. It was conducted in Indonesia by Nexus3/BaliFokus Foundation in partnership with IPEN and funded by the Swedish Government. Responsibility for the content lies entirely with IPEN and Nexus3/BaliFokus Foundation, and the Swedish Government do not necessarily share the expressed views and interpretations.

IPEN
for a toxics-free future

Established in 1998, IPEN is an international NGO network of over 500 health and environmental organizations from 121 countries, mostly developing and transition countries of which Nexus3/BaliFokus Foundation participates 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. 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. Additional information materials about IPEN's Global Lead Paint Elimination Campaign can be accessed at **https://ipen.org/projects/eliminating-lead-paint**.

The Nexus for Environmental Health and Development or Nexus3 Foundation (formerly known as BaliFokus) works to safeguard the public, especially vulnerable populations, from the impacts of development to environment and health, towards a toxic-free, just, and sustainable future.

**Nexus3/BaliFokus Foundation**
Mandalawangi No. 5, Jalan Tukad Tegalwangi, Sesetan
Denpasar 80223 Bali – Indonesia
**www.nexus3foundation.org** | **www.balifokus.asia**

BALIFOKUS

NEXUS3
FOUNDATION

# CONTENTS

# 1. BACKGROUND

## 1.1 BRIEF OVERVIEW OF HEALTH AND ECONOMIC IMPACTS OF LEAD EXPOSURE

Children are exposed to lead from paint when surfaces painted with lead-containing paint begins to chip or deteriorate, since this causes lead to be released to dust and soil.[1] This is then ingested through normal hand-to-mouth behavior by children.[2] They might also pick up paint chips and put them directly into their mouths, which can be especially harmful since the lead content is typically much higher than what is found in dust and soils. When toys, play equipment, or other articles are painted with lead paint, children may directly ingest the lead-contaminated, dried paint when chewing on them.[3] Playground equipment can also be a direct source of exposure since children will get lead paint on their hands when playing.

Lead exposure is especially harmful to children, especially aged six and under. 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

**Fig. 1. A child-friendly public open space in Jakarta.** Photo: Nexus3 Foundation

skeleton.[4] Lead is also categorized as an endocrine-disrupting chemical (EDC).[5]

According to the World Health Organization (WHO): "There is no level of exposure to lead that is known to be without harmful effects."[6]

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.[7] 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 recent 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 dollars* per year.[8] 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.

## 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.[9-11]

Reports from around the world highlight lead paint as a hazard in places frequented by children such as public parks, recreational areas, and playground facilities, as well as in children's articles such as toys and play equipment. Scientific studies conducted in Australia, Brazil, Eng-

* An 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.

land, India, Israel, Japan and South Africa all detected high lead levels in playground equipment, and where analyzed, high levels of lead in the surrounding soil, dust and sand.[12-18] Equipment with high lead levels were commonly coated with yellow or red paint, indicating the use of lead pigments for both decorative and anti-corrosive purposes. Studies of dust collected from playground equipment in Australia, France and China attributed the lead content to lead paint on the structure.[12, 19-20] The geographical spread of these results suggests that use of lead paint on playground equipment is of global concern.

Last year, BaliFokus found in several kindergarten in Bali, high lead concentration in monkey bar, slides, swings, and other typical outdoor playthings to be coated with lead paint.*

Paints without added lead 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 such as in playground equipment which highly likely contributes 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 current limit for decorative paints in e.g., the U.S., the Philippines, and India 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 limit is also recommended for all paints, including paints for industrial applications, in the *Model Law and Guidance for Regulating Lead Paint*,[21] which was developed by the Global Alliance to Eliminate Lead Paint (GAELP) and published by the UN Environment Programme.

In the USA, outdoor playground products designed or intended primarily for use by children 12 years or under are required to comply with the total

* Luh De Suriyani. Masih Terdeteksi di Sarana Sekolah, Pemerintah Diminta Larang Produksi Cat Bertimbal. https://www.mongabay.co.id/2018/10/25/masih-terdeteksi-di-sarana-sekolah-pemerintah-diminta-larang-produksi-cat-bertimbal


**Fig. 2. Provincial government of DKI Jakarta built the public space for children through open bidding process supported by CSR Program.** Photo: Nexus3 Foundation

lead limit of 90 ppm for paint or any similar surface coatings as per the Consumer Product Safety Improvement Act.[22]

In the Philippines, a related memorandum circular on the scope of prohibition on the use of lead paint in toys and playground equipment was issued in 2016, setting the maximum limit on lead in paint at 90 ppm. "Children's products," according to the said circular, include, among other things, "indoor/outdoor playground equipment such as slides, swings, seesaws, play pens, and playhouses."[23]

## 1.3 REGULATORY FRAMEWORK IN INDONESIA

Several regulations in various sectors in Indonesia have addressed heavy metals concentration in paint as seen in Table 1. In the last couple of years, standards relevant to paint manufacturers have been issued and published as shown in Table 2.

In 2014, Badan Standarisasi Nasional (BSN) or the National Agency for Standards issued a voluntary Indonesian National Standard (Standar Nasional Indonesia or SNI), SNI 8011:2014, which sets a lead limit of 600 ppm (dry weight) for organic, solvent-based architectural decorative paints manufactured and sold in Indonesia.

The Children Toys Standard, SNI ISO 8124-1:2010, includes a provision which limits the use of lead above 90 ppm in paints applied on playground equipment such as swings, slides and similar activity toys in indoor and outdoor environments. This standard became mandatory in 2014.

**TABLE 1.** INDONESIAN REGULATIONS RELATED TO LEAD IN PAINT.

| Regulation | Rule |
|---|---|
| Ministry of Public Works Decree No. 441/KPTS/1998 regarding Technical Requirements for Buildings | Painting of wooden constructions must adhere to SNI 2407:2008 |
| Ministry of Health Decree No. 120/MENKES/SK/X/2004 regarding the Environmental Requirements for Hospitals | No use of paints containing heavy metals |
| Ministry of Industry Regulation No. 24/M-IND/PER/4/2013 regarding Mandatory Implementation of the Indonesian National Standard for Toys | Mandatory implementation of a set of standards for toys produced and sold in Indonesia. Specification for migration of certain elements (including lead). Two certification laboratories are appointed. |

**TABLE 2.** INDONESIAN STANDARDS RELATED TO THE MANUFACTURE OF PAINT.

| Standard | Compliance | Content |
|---|---|---|
| SNI 06-0347-1989 on Specification of putty for wood | Voluntary | Using lead white pigment. |
| SNI 06-1450-1989 on roofing tile paint | Voluntary | No specification on lead. |
| SNI 06-3685-1995 | Voluntary | Purity of $Pb_3O_4$ min. 97.0, levels of insoluble impurities in $HNO_3$ and $H_2O_2$ max. 1% passes a sieve 325 min 99.0 (% w/w). Test method in accordance with SNI 06-2157-1991. |
| SNI 06-4825-1998 on Specification of ready-mixed white and yellow traffic paints | Voluntary | Specifying titanium oxide pigment for white paint, lead chromate pigment on yellow paint. |

| Standard | Compliance | Content |
|---|---|---|
| SNI 06-4827-1998 on Specification of ready-mixed oil-based paint | Mandatory for buildings (SNI 2407:2008 based on State Min. of Public Works Decree no. 441/1998) | Maximum allowable total lead* content is 0.06% based on the total weight of the non-volatile portion of the paint. *Indonesian language says "timah" (tin) instead of "timah hitam" (lead), refers to AASHTO M. 70-90 standard. |
| SNI 06-6397-2000 on Specification for foliage green colour bridge paint | Voluntary | Specifying lead carbonate white pigment. |
| SNI 06-3685.1-2000 on Specification for red lead ready-mixed paint | Mandatory for buildings (SNI 2407:2008 based on State Min. of Public Works Decree no. 441/1998) | Prescribes the use of red lead ($Pb_3O_4$) primer for base coat, top coat, or maintenance coat on surface of bridges and other steel structures. Cautions not to use on surfaces of facilities accessible to children or other public places |
| SNI 2407:2008 on Code of conduct for wood painting for houses and buildings | Mandatory for buildings (State Minister of Public Works Decree no. 441/1998) | Wood primer refer to SNI 06-3685.1-2000 Wood paint refer to SNI 06-4827-1998 and not containing mercury and lead. |
| SNI 3564: 2009 on Emulsion wall paint | Voluntary | Voluntary Heavy metals (Pb, Cu, Hg, Cd, $Cr^{6+}$) undetected by ASTM D 5702 test. |
| SNI 7188.6: 2010 on Ecolabel Criteria: Part 6 - Wall paint product category | Voluntary | Allowable content: Pb < 90 mg/kg. Test method: ISO 3856-1 or ASTM D 3335 on red, blue, white, yellow and black paint as base for other colours. |
| SNI ISO 8124-1:2010, Children toys standard | Mandatory since December 2014 | Toy safety - Part 3: Migration of certain elements<br>Toy safety - Part 4: Swings, slides and similar activity toys for use inside and outside the living environment<br>Allowable content: Pb < 90 mg/kg |

**Fig. 3. (a) Yellow colour contained higher lead than other colour; (b) peeled off paint in accessible part of the play equipment is one of the source of lead exposures to children when they are playing.** Photo: Nexus3 Foundation

# 2. RESULTS

## 2.1. SAMPLING LOCATIONS

Between September and October 2019, the Nexus3 team visited 32 playgrounds in Jakarta, Indonesia. In each playground, painted play equipment (e.g., climbing bars and frames, posts, railings, ramps, rockers, seesaws, slides, swings, etc.) were examined and physical details, e.g., colour of painted surface, substrate type (metallic, wooden, plastic, fibreglass, etc.), including the condition of painted surface (new, old, visible chipping off or flaking) were documented.

The Nexus3 team visited 20 playgrounds categorised as child-friendly public open spaces,* built and managed by the local governments, and 12 playgrounds that were built and managed by private apartments or malls.

In situ lead content analysis was performed on painted surfaces using a portable ElvaX ProSpector Type 1 X-ray fluorescence (XRF) spectrom-

**Fig. 4. Provincial government of Jakarta built children playgrounds with the support from Corporations through their Social Responsibility program.** Photo: Nexus3 Foundation

* Ruang Publik Terpadu Ramah Anak (RPTRA) is a program developed by the Jakarta Provincial government. The development and management of the public facility are done with the support from the Corporate Social Responsibility Program. See https://id.m.wikipedia.org/wiki/Ruang_Publik_Terpadu_Ramah_Anak

eter. For a complete description of the materials and methods, please see Appendix A.

This study shows that:

- 82 out of 119 or 69% of analysed pieces of playground equipment contained total lead concentrations above 90 parts per million (dry weight);
- 81 out of 115 or 70% of bright-coloured painted surfaces contained lead concentrations above 90 parts per million (dry weight); and
- The highest lead concentration detected was 4,170 ppm in a yellow-coloured combined playground equipment—slide and swing—at a public playground in West Jakarta, Indonesia.


**Fig. 5. Sampling locations. Red dots represent playgrounds whose play equipment were found to contain lead levels greater than 90 ppm and green dots represent playgrounds whose play equipment were found to contain lead levels less than 90 ppm.**
Source: http://bit.ly/35LDIcq

## 2.2. RESULTS

Tables 3 and 4 show the distribution of lead concentration by colour and lead concentrations measured in playgrounds and kindergarten in Jakarta, Indonesia.

TABLE 3. LEAD CONCENTRATIONS (IN PPM) MEASURED IN PLAYGROUND ENVIRONMENTS IN JAKARTA, INDONESIA.

| Sampling sites areas | No. of samples above 90 ppm | No. of samples above 10,000 ppm | Minimum Lead Content (ppm) | Maximum Lead Content (ppm) | Remarks |
|---|---|---|---|---|---|
| West Jakarta | 19 | 0 | 1 | 4,170 | Public playground |
| Central Jakarta | 19 | 0 | ND* | 4,090 | Playground at Apartment |
| East Jakarta | 20 | 0 | 12 | 4,100 | Kindergarten |
| North Jakarta | 8 | 0 | 2 | - | Public playground |
| | | 0 | - | 4,090 | Kindergarten |
| South Jakarta | 16 | 0 | ND* | - | Public playground |
| | | 0 | - | 4,070 | Kindergarten |

*ND = Not detected

TABLE 4. DISTRIBUTION OF LEAD CONCENTRATION BY COLOUR OF PAINTED SURFACES

| Colour | No. of painted surface sampled | No. of samples above 90 ppm | No. of samples above 10,000 ppm | Minimum Lead Content (ppm) | Maximum Lead Content (ppm) |
|---|---|---|---|---|---|
| Yellow | 52 | 42 | 0 | ND | 4,170 |
| Orange | 15 | 8 | 0 | ND | 4,100 |
| Red | 18 | 14 | 0 | ND | 4,090 |
| Green | 16 | 12 | 0 | ND | 4,050 |
| Blue | 14 | 5 | 0 | 1 | 4,020 |
| Black | 1 | 1 | 0 | 378 | 378 |
| Brown | 3 | 0 | 0 | < 1 | 1 |

*ND = Not detected

**Fig. 6. Sampling situations.** Photo: Nexus3 Foundation

# 3. CONCLUSIONS AND RECOMMENDATIONS

The high lead levels found in painted playground facilities constitute a risk of lead exposure for children who spend time playing in these environments. The study results highlight the importance of urgent actions to prohibit the production, sale and use of lead paint for all purposes.

To address the problem of lead in paint, the Nexus3/BaliFokus Foundation and IPEN propose the following recommendations:

***For the Ministry of Environment and Forestry and The Ministry of Industry*** to immediately draft a strict regulation that will ban the manufacture, import, export, distribution, sale and use of lead paints, i.e., paints that contain total lead concentrations exceeding 90 ppm, the limit recommended in the Model Law and Guidance for Regulating Lead Paint, developed by the Global Alliance to Eliminate Lead Paint (GAELP) and published by the UN Environment Programme (2017);

***For the Jakarta Provincial government and Environmental Agency in charge of managing playgrounds and childcare facilities (RPTRA) and kindergarten management*** to promote the procurement and use of lead-safe paints for painting and maintenance of playground equipment, facilities, structures, and toys offered to children. They must also ensure that proper lead-paint abatement procedures are observed when repainting lead painted playground equipment to avoid the dispersal of lead dust;

***For paint companies that still produce lead paints*** to expeditiously stop the use of leaded paint ingredients in paint formulations. Paint companies that have shifted to non-lead paint production should get their products certified through independent, third party verification procedures to increase the customer's ability to choose paints with no added lead;

***For parents and teachers*** to raise children and students' awareness on the dangers of children sucking on or biting painted surfaces and on the importance of hand washing after playing in parks and playground environments;

***For public health groups, consumer organisations and other concerned entities*** to support the elimination of lead paint, and conduct

activities to inform the public and protect children from lead exposure through lead paint, lead in dust and soil, and other sources of lead; and

***For all stakeholders*** to come together and unite in promoting a strong policy that will eliminate lead paint in Indonesia.

# REFERENCES


[1] Clark, S., et al. (2004). Occurrence and determinants of increases in blood lead levels in children shortly after lead hazard control activities. Environmental Research, 96(2), 196-205.
[2] World Health Organization (2010). Childhood lead poisoning. Available from: https://www.who.int/ceh/publications/childhoodpoisoning/en/.
[3] Lanphear, B.P., et al. (1998). The contribution of lead-contaminated house dust and residential soil to children's blood lead levels. Environmental Research, 79(1), 51-68.
[4] Needleman, H. (2004). Lead Poisoning. Annual Review of Medicine. 55(1), 209-222.
[5] Iavicoli, I., et al. (2009). The effects of metals as endocrine disruptors. Journal of Toxicology and Environmental Health-Part B-Critical Reviews, 12(3), 206-223.
[6] World Health Organization (2015). Lead poisoning and health. Available from: https://www.who.int/en/news-room/fact-sheets/detail/lead-poisoning-and-health.
[7] Mielke, H.W., et al. (2012). The urban rise and fall of air lead (Pb) and the latent surge and retreat of societal violence. Environment International, 43, 48-55.
[8] Attina, T.M. et al. (2013). Economic Costs of Childhood Lead Exposure in Low- and Middle-Income Countries. Environmental Health Perspectives, 121(9), 1097-1102.
[9] Brosché, S., et al. (2014). Asia Regional Paint Report. Available from: https://ipen.org/documents/asia-regional-paint-report.
[10] Clark, C.S., et al. (2006). The lead content of currently available new residential paint in several Asian countries. Environmental Research, 102(1), 9-12.
[11] Clark, C.S., et al. (2009). Lead levels in new enamel household paints from Asia, Africa and South America. Environmental Research, 109(7), 930-936.
[12] Mostert, M. M. R., et al. (2012). Multi-criteria ranking and source identification of metals in public playgrounds in Queensland, Australia. Geoderma, 173, 173–183.
[13] Da Rocha Silva, J. P., et al. (2018). High blood lead levels are associated with lead concentrations in households and day care centers attended by Brazilian preschool children. Environmental Pollution, 239, 681–688.
[14] Turner, A., Kearl, et al. (2016). Lead and other toxic metals in playground paints from South West England. Science of the Total Environment, 544, 460–466.
[15] Clark, C. S., et al. (2005). Lead in paint and soil in Karnataka and Gujarat, India. Journal of Occupational and Environmental Hygiene, 2(1), 38–44.
[16] Berman, T., et al. (2018). Lead in spray paint and painted surfaces in playgrounds and public areas in Israel: Results of a pilot study. Science of the Total Environment, 637, 455–459.
[17] Takaoka, M., et al. (2006). Influence of paint chips on lead concentration in the soil of public playgrounds in Tokyo. Journal of Environmental Monitoring, 8(3), 393–398.
[18] Mathee, A., et al. (2009). Lead-based paint on playground equipment in public children's parks in Johannesburg, Tshwane and Ekurhuleni. South African Medical Journal, 99(11), 819–821.
[19] Glorennec, P., et al. (2012). French children's exposure to metals via ingestion of indoor dust, outdoor playground dust and soil: Contamination data. Environment International, 45, 129–134.
[20] Peng, T., et al. (2019). Spatial distribution of lead contamination in soil and equipment dust at children's playgrounds in Beijing, China. Environmental Pollution, 245, 363–370.
[21] UNEP, Model Law and Guidance for Regulating Lead in Paint. 2017, UNEP: Geneva.
[22] Law, U.P., Consumer Product Safety Improvement Act of 2008. Public Law 110–314—Aug. 14, 2008. 2008.
[23] DENR-EMB, Clarification on the Prohibition of Paints with Lead and Lead Compounds Used for Children's Toys and Related Products in the Philippines. 2016: Department of Environment and Natural Resources.

# APPENDIX A

## MATERIALS AND METHODS

Thirty-two playgrounds in West, East, South, North, and Central Jakarta were visited between September and October 2019. In each playground, painted play equipment (e.g., climbing bars and frames, posts, railings, ramps, rockers, see-saws, slides, swings, etc.) were examined and physical details, e.g., colour of painted surface, substrate type (metallic, wooden, plastic, fibreglass, etc.), including the condition of painted surface (new, old, visible chipping off or flaking) were documented.

In situ lead content analysis was performed on painted surfaces using a portable ElvaX ProSpector Type 1 X-ray fluorescence (XRF) spectrometer.

A smooth area of a painted surface at a height accessible to children was selected. The XRF nose was firmly positioned against the surface for a period of 30 seconds by pressing the trigger mechanism. For each playground facility, XRF screening was conducted in three different parts taking into account the difference in colours and substrate materials. The measurements were recorded, and the screening process was photo-documented as shown in Figure 7.

The limit of detection for lead using this method is 1 ppm. To ensure accurate analyses, calibrations were performed when the XRF analyser is started or restarted and is repeated when the instrument has been used

**Figure 7. Staff of Nexus3 Foundation measuring lead content in playground facilities using portable XRF analyser.** Photo: Nexus3 Foundation

more than four hours without interruption as indicated in the operating manual.

The playground area was secured throughout the XRF screening process to ensure that no children were present as the XRF analyser emits harmful radiations especially if pointed towards a body part or person.

# APPENDIX B

## SAMPLING RESULTS

**TABLE 1.** LEAD CONCENTRATIONS (PPM) MEASURED IN PLAYGROUND ENVIRONMENTS IN INDONESIA.

| Playground Location and Site Code | Playground Facilities | Part (includes type of material) | Color | Lead Content (ppm) | Other Remarks |
|---|---|---|---|---|---|
| South Jakarta IDN-PG-01 | Swing | Metal | Green | Not Detected | Paint brand: Unknown |
| | | Metal | Yellow | Not Detected | |
| | | Metal | Red | Not Detected | |
| South Jakarta IDN-PG-02 | Slide | Plastic Fibreglass | Red | 186 | Paint brand: Unknown, built through bidding process |
| | | Plastic Fibreglass | Orange | 84 | |
| | Rocking Animal | Fibreglass | Blue | 63 | |
| | | Fibreglass | Green | 61 | |
| | | Metal | Yellow | 82 | |
| | See saw | Plastic Fibreglass | Brown | <1 | |
| | Swing | Metal | Yellow | 2,320 | |
| South Jakarta IDN-PG-03 | Slide | Plastic Fibreglass | Red | 216 | Paint brand: Unknown, built through bidding process |

| Playground Location and Site Code | Playground Facilities | Part (includes type of material) | Color | Lead Content (ppm) | Other Remarks |
|---|---|---|---|---|---|
| South Jakarta IDN-PG-04 | See saw | Plastic Fibreglass | Brown | 1 | Paint brand: Unknown, built through bidding process |
| | Rocking Animal | Metal | Yellow | 15 | |
| | | Plastic Fibreglass | Brown | 1 | |
| | | Plastic Fibreglass | Blue | 49 | |
| | Slide | Plastic Fibreglass | Red | 133 | |
| | | Plastic Fibreglass | Orange | <9 | |
| South Jakarta IDN-PG-05 | Climber | Metal | Orange | Not Detected | Paint brand: Unknown |
| South Jakarta IDN-PG-06 | Climber | Metal | Orange | Not Detected | Paint brand: Unknown |
| South Jakarta IDN-PG-07 | Climber | Tire | Red | 4 | Paint brand: Unknown, built through bidding process |
| | | Tire | Yellow | 25 | |
| | | Tire | Green | 23 | |
| South Jakarta IDN-PG-08 | Slide | Plastic Fibreglass | Orange | 158 | Paint brand: Unknown |
| | Round about | Metal | Yellow | 4,060 | |
| South Jakarta IDN-PG-09 | Swing | Metal | Yellow | 98 | Paint brand: Propan |
| | Climber 1 | Metal | Orange | 59 | |
| | | Metal | Green | 13 | |
| | | Metal | Blue | 455 | |
| | Bridge | Metal | Blue | 331 | |
| | | Metal | Orange | 3,850 | |
| | | Metal | Yellow | 400 | |
| | Climber 2 | Metal | Yellow | 2,290 | |
| Central Jakarta IDN-PG-10 | Outdoor gym equipment | Metal | Orange | 3,820 | Paint brand: Unknown, built through bidding process |
| | | Metal | Green | 3,200 | |
| | Climber 1 | Metal | Yellow | 4,000 | |
| | | Metal | Blue | 3,490 | |
| | | Metal | Orange | 2,980 | |
| | Climber 2 | Metal | Green | 4,000 | |
| | | Metal | Blue | 4,020 | |
| | | Metal | Orange | 4,040 | |

| Playground Location and Site Code | Playground Facilities | Part (includes type of material) | Color | Lead Content (ppm) | Other Remarks |
|---|---|---|---|---|---|
| Central Jakarta IDN-PG-11 | Climber | Metal | Yellow | 4,000 | Paint brand: Unknown |
| | | Metal | Blue | 51 | |
| | See saw | Metal | Yellow | 4,100 | |
| | Slide | Plastic Fibreglass | Blue | 2 | |
| | | Metal | Yellow | 4,080 | |
| East Jakarta IDN-PG-12 | Climber | Metal | Yellow | 4,070 | Paint Brand: Avian |
| | Bridge | Metal | Yellow | 4,090 | |
| | Slide 1 | Plastic Fibreglass | Yellow | 1,110 | |
| | | Metal | Green | 4,000 | |
| | | Metal | Yellow | 4,080 | |
| | See saw | Metal | Yellow | 4,080 | |
| | Crawl Tunnel | Metal | Yellow | 4,050 | |
| | | | Red | 4,080 | |
| | Slide 2 | Plastic Fibreglass | Blue | 12 | |
| | | Metal | Yellow | 4,100 | |
| | | Plastic Fibreglass | Yellow | 686 | |
| | Swing | Metal | Yellow | 3,690 | |
| | Slide 3 | Plastic Fibreglass | Red | 323 | |
| | | Plastic Fibreglass | Yellow | 1,050 | |
| | | Plastic Fibreglass | Green | 275 | |
| | Slide 4 | Plastic Fibreglass | Orange | 1,250 | |
| | | | Green | 454 | |
| East Jakarta IDN-PG-13 | Swing | Metal | Yellow | 2,250 | Paint brand: Unknown |
| | | Metal | Green | 454 | |
| East Jakarta IDN-PG-14 | Carousel 1 | Metal | Yellow | 4,050 | Paint brand: Unknown |
| | Carousel 2 | Plastic Fibreglass | Yellow | 578 | |
| North Jakarta IDN-PG-15 | Slide | Plastic Fibreglass | Yellow | 539 | Paint brand: Unknown, built through bidding process |
| | Swing | Metal | Yellow | 4,080 | |
| North Jakarta IDN-PG-16 | Slide | Plastic Fibreglass | Yellow | <13 | Paint brand: Unknown |

| Playground Location and Site Code | Playground Facilities | Part (includes type of material) | Color | Lead Content (ppm) | Other Remarks |
|---|---|---|---|---|---|
| North Jakarta IDN-PG-17 | Swing | Metal | Red | 4,090 | Paint brand: Unknown |
| | Climber | Metal | Yellow | 4,080 | |
| South Jakarta IDN-PG-18 | Climber | Metal | Yellow | 414 | Paint brand: Unknown |
| | Slide | Metal | Green | 172 | |
| | Footbridge | Metal | Yellow | 4,070 | |
| | | Metal | Red | 4,020 | |
| Central Jakarta IDN-PG-19 | Climber | Metal | Yellow | 4,000 | Paint brand: Unknown, built through bidding process |
| | | Metal | Red | 4,060 | |
| | Swing | Metal | Red | 84 | |
| Central Jakarta IDN-PG-20 | Climber | Metal | Yellow | Not Detected | Paint brand: Unknown, paint peeled off |
| Central Jakarta IDN-PG-21 | Slide | Metal | Orange | 22 | Paint brand: Unknown, built through bidding process |
| | See saw | Metal | Orange | 32 | |
| Central Jakarta IDN-PG-22 | Slide 1 | Plastic Fibreglass | Yellow | 2,340 | Paint brand: Unknown |
| | Slide 2 | Plastic Fibreglass | Red | 373 | |
| | Swing pole | Metal | Yellow | 4,070 | |
| Central Jakarta IDN-PG-23 | Combined playground equipment: Slide, climber board, swing | Metal | Black | 378 | Paint brand: Unknown, built through bidding process |
| | | Metal | Yellow | 2,100 | |
| | | Plastic Fibreglass | Yellow | 855 | |
| West Jakarta IDN-PG-24 | Rocking Animal | Plastic Fibreglass | Yellow | 22 | Paint brand: Unknown, built through bidding process |
| | See saw | Metal | Blue | 3 | |
| | Slide | Plastic Fibreglass | Red | 149 | |

| Playground Location and Site Code | Playground Facilities | Part (includes type of material) | Color | Lead Content (ppm) | Other Remarks |
|---|---|---|---|---|---|
| West Jakarta IDN-PG-25 | Slide | Cement | Yellow | 63 | Paint brand: Unknown, built through bidding process |
| | | Cement | Green | 157 | |
| | Combined playground Equipment: Slide & swing | Plastic Fibreglass | Yellow | 970 | |
| | | Metal | Yellow | 4,170 | |
| | See saw | Metal | Red | 348 | |
| West Jakarta IDN-PG-26 | Footbridge | Metal | Yellow | 2,890 | Paint brand: Unknown |
| | Slide | Plastic Fibreglass | Yellow | 443 | |
| | | Metal | Yellow | 1,500 | |
| West Jakarta IDN-PG-27 | Slide | Metal | Red | 126 | Paint brand: Unknown, Built through bidding process |
| | Rocking Animal | Plastic Fibreglass | Yellow | 11 | |
| West Jakarta IDN-PG-28 | See saw | Metal | Yellow | 99 | Paint brand: Unknown, built through bidding process |
| | Swing | Metal | Yellow | 99 | |
| | | Metal | Green | 4,050 | |
| | Climber | Metal | Yellow | 4,050 | |
| West Jakarta IDN-PG-29 | Slide | Metal | Orange | 120 | Paint brand: Unknown, built through bidding process |
| West Jakarta IDN-PG-30 | Slide | Metal | Red | 123 | Paint brand: Unknown, built through bidding process |
| | | Plastic Fibreglass | Blue | 38 | |
| | Outdoor gym equipment | Metal | Green | 3,990 | |
| | | Metal | Red | 17 | |
| West Jakarta IDN-PG-32 | See saw | Metal | Green | 2,640 | Paint brand: Unknown, built through bidding process |
| | | Metal | Orange | 4,100 | |
| | Slide | Plastic Fibreglass | Blue | 1 | |
| | | Wood | Green | 1,020 | |
| | | Wood | Yellow | 41 | |

| Playground Location and Site Code | Playground Facilities | Part (includes type of material) | Color | Lead Content (ppm) | Other Remarks |
|---|---|---|---|---|---|
| North Jakarta IDN-PG-31 | Slide | Plastic Fibreglass | Blue | 2 | Paint brand: Unknown, built through bidding process |
| | | Metal | Yellow | 99 | |
| | Swing 1 | Metal | Red | 3,990 | |
| | | Metal | Blue | 3,560 | |
| | Swing 2 | Metal | Yellow | 2,640 | |
| | | | **Average** | **1,698** | |
| | | | **Min** | **1** | |
| | | | **Max** | **4,170** | |

**South Jakarta IDN-PG-01**

**South Jakarta IDN-PG-02**

**South Jakarta IDN-PG-03**

**South Jakarta IDN-PG-04**


**South Jakarta IDN-PG-05**

**South Jakarta IDN-PG-06**

**South Jakarta IDN-PG-07**

**South Jakarta IDN-PG-08**

**South Jakarta IDN-PG-09**

**Central Jakarta IDN-PG-10**

**Central Jakarta IDN-PG-11**

**East Jakarta IDN-PG-12**








**East Jakarta IDN-PG-13**

**East Jakarta IDN-PG-14**

**North Jakarta IDN-PG-15**

**North Jakarta IDN-PG-16**

**North Jakarta IDN-PG-17**

**South Jakarta IDN-PG-18**

**Central Jakarta IDN-PG-19**


**Central Jakarta IDN-PG-20**

**Central Jakarta IDN-PG-21**


**Central Jakarta IDN-PG-23**

**Central Jakarta IDN-PG-22**



**West Jakarta IDN-PG-24**



**West Jakarta IDN-PG-25**

**West Jakarta IDN-PG-26**

**West Jakarta IDN-PG-27**

**West Jakarta IDN-PG-28**

**West Jakarta IDN-PG-29**

**West Jakarta IDN-PG-30**

**West Jakarta IDN-PG-32**

**North Jakarta IDN-PG-31**

*Prepared by:*
*Nexus3 Team*

*Yuyun Ismawati*
*Panca Dewi Astuti*
*Anantika Annisa*
*Sonia Buftheim*
*Yune Eribowo*
*Krishna Zaki*

*Reviewed by IPEN:*
*Jeiel Guarino*
*Sara Brosche*

*For more details contact:*
*balifokus@balifokus.asia*
*ipen@ipen.org*


**www.ipen.org**

**ipen@ipen.org**

**@ToxicsFree**