The Need for Regulating Lead Paint

Toolkit for establishing laws to eliminate lead paint

Second Edition

World Health Organization

Global Alliance to Eliminate Lead Paint

Outline

- Background
- What is paint?
- Why lead paint is a problem?
- Justification for setting a 90 ppm limit
- Summary
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Background

- Lead is a **versatile** and **widely used toxic substance**.
- Compounds of lead are **added to paint to obtain specific characteristics**, e.g. colour, rapid drying, corrosion resistance.
- Paint with lead is **used for decoration of interior and exterior surfaces** in homes and public buildings, on roads and bridges, and also on toys, furniture and playground equipment.
- This presentation will explain why lead paint **is of concern**, and why it **needs to be regulated**.

What is paint and how can be described?

- By its solvent base:
  - **water**-based paint - commonly called latex or acrylic paint
  - **organic** solvent-based paint - commonly called alkyd paint

- By its intended use, e.g.:
  - **decorative paint** - commonly used for aesthetic or architectural purposes
  - **industrial paint** - commonly used for corrosion protection or for reflecting road safety marks and traffic signages, etc.

- By its final appearance, e.g.:
  - **enamel paint** - hard, glossy and opaque finish

Lead Compounds Have a Range of Functions in Paint

Lead can be added to paint in the form of **pigments**, **driers** and **anti-corrosive agents**, resulting in extremely high lead content.

Pigments - The most commonly used lead pigments are lead chromates and lead molybdates which are bright yellow, orange or red in colour.

- Lead carbonates and lead sulfates can be used as white pigments, but are rarely used since lead-free alternatives perform better.
- These pigments can also be used in a mixture with other pigments to produce bright colours such as green and purple.

Alternative, non-lead compounds exist for all the functions of lead in paint and result in paint of equivalent quality.

See Module E for more information on alternatives to lead in paint

Contribution of Components to the Lead Content of Paint

- **Concentration** is expressed in terms of the proportion of lead to the weight of the total non-volatile part of the product, or of the weight of the dried paint film.
- A **range of units** may be used e.g. ppm, %, µg/g, mg/kg
  - 10 ppm = 0.001% = 10 µg/g = 10 mg/kg
- **Lead-based pigments may contribute around 1500 to >100 000 ppm**, depending on whether they are mixed with other pigments or used alone.
  - Red and yellow paints may have particularly high lead content.
- **Lead-based driers may contribute around 1200 to 6000 ppm or more**, depending on whether they are mixed with other driers.
- Where there is **unintended contamination**, this typically contributes **≤90 ppm**.

Why is Lead Paint a Problem?

Persistence in the environment

- **Lead paint is a source of lead exposure** during its manufacture, application and removal.
- **Lead paint breaks down over time**, fragmenting into flakes and dust that can contaminate the domestic environment.
- **Lead is persistent in the environment**, and when released can remain there indefinitely.
- **Lead paint can leave a legacy of potential human exposure** for many years into the future – children are particularly vulnerable.

Why is Lead Paint a Problem? *(continued)*

Types of exposure

- **Lead paint** that is peeling, chipping, chalking or cracked is a health hazard, however, intact lead paint in good condition is usually not a hazard.
- **Lead dust** is created when lead paint is scraped, dry sanded, heated or burned, or when painted surfaces rub together. Lead chips and dust can settle on surfaces and objects that people touch. Settled lead dust can re-enter the air when people vacuum, sweep, or walk through it. Dust from lead paint can contaminate soil.