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## REDUCTION OF HAZARDOUS SUBSTANCES COMPLIANCE POLICY

**ORGANISATION:** FUTUREKIDS / SKILLSPRO GROUP

**SECTION** Policy

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## Reduction of Hazardous Substances (RoHS) Policy

**Document Reference:** 43LP2025

**Effective Date:** October 2025

**Applicability:** Futurekids MagBot Robotics Kit (All Modules & Component Components)

### 1. Purpose & Scope

This policy is designed to align with international environmental safety standards (like EU RoHS) and local South African safety expectations under the Consumer Protection Act and Occupational Health and Safety frameworks, ensuring the kit is 100% safe for classroom use by educators and learners alike.

This policy defines the environmental compliance standards for the procurement, manufacture, assembly, and distribution of the **Futurekids MagBot** educational robotics kits.

As an educational technology product deployed in primary and secondary schools, the MagBot must adhere to strict chemical safety parameters. The core objective is to eliminate or minimize dangerous chemical substances to safeguard the health of learners, educators, and the environment.

### 2. Restricted Substances & Maximum Thresholds

Futurekids enforces a strict restriction on specific hazardous materials within all electronic boards, structural components, fasteners, and accessories of the MagBot kit.

The concentration of the following substances must not exceed the specified percentage by weight in any homogenous material:

| Substance    | Maximum Allowable Limit | Impact / Focus Area in MagBot                              |
|--------------|-------------------------|------------------------------------------------------------|
| Lead (Pb)    | Less than 0.1%          | Main PCB soldering, battery terminals, brass components.   |
| Mercury (Hg) | Less than 0.1%          | Displays, internal switches, and sensor casings.           |
| Cadmium (Cd) | Less than 0.01%         | Plastic pigments, stabilizers, and certain semiconductors. |

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| Substance                             | Maximum Allowable Limit | Impact / Focus Area in MagBot                                      |
|---------------------------------------|-------------------------|--------------------------------------------------------------------|
| Hexavalent Chromium (Cr VI)           | Less than 0.1%          | Anti-corrosion coatings on metal chassis, screws, and brackets.    |
| Polybrominated Biphenyls (PBB)        | Less than 0.1%          | Flame retardants in plastic enclosures and injection-molded parts. |
| Polybrominated Diphenyl Ethers (PBDE) | Less than 0.1%          | Cable insulation and plastic chassis components.                   |
| Phthalates (DEHP, BBP, DBP, DIBP)     | Less than 0.1%          | Flexible PVC parts, wires, and rubberized tracks/wheels.           |

### 3. Core Directives for MagBot Development

- **Lead-Free Assembly (Solder Compliance)**
  - All Printed Circuit Board (PCB) assemblies for MagBot microcontrollers, sensors, and motor driver shields must utilize **100% lead-free solder alloys** (e.g., SAC305 or equivalent tin-silver-copper alternatives).
  - Wave and reflow soldering profiles must be monitored to ensure compliance without degrading component longevity.
- **Material Selection for Enclosures and Fasteners**
  - Magnetic coupling joints, chassis plastics, and structural pillars must be sourced using virgin or certified recycled polymers free from restricted brominated flame retardants (PBB/PBDE).
  - All metallic screws, magnetic inserts, and structural hardware must utilize trivalent chromium passivation or alternative zinc-plating methods instead of toxic hexavalent chromium coatings.
- **Battery Safety & Power Management**
  - Rechargeable power cells utilized by the MagBot must be completely free of Cadmium and Mercury.
  - All Lithium-based or NiMH power packs must carry certified manufacturer data sheets verifying compliance with national and international eco-toxicity standards.

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#### 4. Verification & Quality Assurance Protocols

- **Supplier Declaration:** Prerequisite.  
Every component vendor providing parts for the MagBot (PCBs, motors, magnets, plastics) must supply a formal **Declaration of Conformity (DoC)** certifying RoHS compliance.
- **Component Inbound Inspection:** Batch Testing.  
Quality control teams must verify incoming component batches against vendor declarations. Random testing via X-ray Fluorescence (XRF) screening is recommended for high-risk items like solder joints and plastic casings.
- **Documentation Retention:** Audit Trail.  
All compliance certificates, testing data reports, and material safety data sheets (MSDS) must be centrally archived and retained for a minimum of 5 years.
- **End-of-Life & E-Waste Management**  
Because the MagBot contains electronic elements (motors, controllers, wiring), Futurekids advocates for responsible product lifecycles.
  - MagBot kits retired from training centres or schools must not be disposed of in standard municipal waste.
  - Futurekids will provide clear guidance to schools on routing old electronic components to certified e-waste recycling facilities in accordance with local environmental regulations.

**Compliance Note:** Ensuring the MagBot is fully RoHS compliant not only meets strict safety benchmarks required by school governing bodies but also ensures total peace of mind during hands-on, interactive training sessions.

**Signed:** Futurekids Management Team

**Effective Date:** October 2025

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