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1 SCOPE

- 1.1 This method describes procedures for performing the Reasonable Foreseeable Use tests on toys described in item 13 of Part II of Schedule I to the Hazardous Products Act (HPA) to determine if they meet the applicable requirements set out in the Hazardous Products (Toys) Regulations and if the product will withstand the everyday use and abuse that a child will submit it to during daily play. Since the numerical values of performance measures are based upon regulatory requirements, the tolerances for these values have been chosen such that no test parameter is applied to the product that results in a more severe condition than that specified in the regulation.

2 APPLICABLE DOCUMENTS


- 2.1 The Hazardous Products Act (HPA).
- 2.2 HPA, Hazardous Products (Toys) Regulations (C.931) hereinafter referred to as the Regulations.
- 2.3 Test Method M00.1 Test Procedures to Determine Mechanical Hazards -Small Components-.
- 2.4 Test Method M00.2 Test Procedures to Determine Mechanical Hazards -Sharp Edges-.
- 2.5 Test Method M00.3 Test Procedures to Determine Mechanical Hazards -Sharp Points-.
- 2.6 PSL Project Report 2001: 0624 New Method: TEST PROCEDURES TO DETERMINE THE MECHANICAL HAZARDS OF TOYS - REASONABLE FORESEEABLE USE.
- 2.7 Toy Classification Guidelines prepared by the Consumer Product Safety Bureau.

3 SAMPLING

- 3.1 The following test procedure should be conducted on the number of specimens provided or received.

4 APPARATUS

- 4.1 Drop Tester with adjustable heights (see **Figure 1**).
- 4.2 Tape Measure with a precision of 1 mm.
- 4.3 Concrete slab with the upper surface covered with a 3 mm (1/8 inch) nominal thickness vinyl composition, asbestos-free floor tile meeting US Federal Standard SS-T-312B or ASTM F1066-95A. The minimum dimension of the concrete slab is 600 mm X 600 mm X 60 mm.

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- 4.4 Clamps suitable for grasping components of the toys.
- 4.5 Force gauge with a precision of at least 0.1 N.
- 4.6 A stopwatch with a precision of 0.1 sec.

5 TESTING PROCEDURE

5.1 Determine the age for which the toy is intended. (Check the Sample Record Sheet, noting if the inspector has requested the toy be tested for over or under 3 years of age or whether an age classification has been conducted by the Consumer Product Safety Bureau).

5.2 Drop Test:

5.2.1 Adjust the height of the drop platform:

If the toy is for use by children under 3 years of age, adjust the height of the drop platform to 1.372 m (1.367 ± 0.005 m) above the impact surface.


If the toy is for use by children 3 years of age or over, adjust the height of the drop platform to 0.914 m (0.909 ± 0.005 m) above the impact surface.

5.2.2 Place the toy on the drop platform in an orientation most likely to cause damage and drop the toy onto the tile-covered concrete slab.

Note: For battery-operated toys, the recommended batteries shall be in place during the drop test. If no specific type of battery is recommended, the heaviest battery that is generally available shall be used.

5.2.3 Inspect the toy for any damage that occurred as a result of the drop. If damaged, perform tests M00.1, M00.2 and M00.3 (tests for Small Components, Sharp Edges and Sharp Points respectively) on any detached part or component, or on any edge or point that has become exposed as a result of the drop. Discontinue drop testing on the damaged sample element if a non-compliance is observed. Place it aside for push/pull testing and proceed with drop testing the remaining sample elements.

5.2.4 If undamaged or if no non-compliance is observed, repeat steps 5.2.2 and 5.2.3 until a total of four (4) drops have been performed. If parts or components separate or detach before the last drop and no non-compliance is observed, place all pieces of the damaged toy back on the drop platform. Ensure to place the toy on the drop platform in a different orientation prior to each drop and ensure also that the sequence of drop orientation be varied for subsequent sample elements (i.e., if a drop in a particular orientation of a previous sample element caused a non-compliance, drop test the subsequent sample element using one of the remaining different drop orientations first to see if the toy could be damaged and expose a hazard upon impacting in a different orientation).

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5.3 Results

5.3.1 Record the details of any damage to each sample element.

5.4 Push/Pull Test:

5.4.1 Apply a push or pull force of up to but not exceeding 44.5 N within 5 seconds and maintain the force for 10 seconds on a part or component of the toy, using a clamp suitable for grasping or by applying the force directly with the force gauge.

Note: Use a pull force of 44.5 N (42.5 N ± 2 N) when testing the security of the protective tip on projectiles. If unable to apply a pull force, or the tip is able to withstand the required pull force, attempt to push the tip off with the same force and record the results in the Supplementary Information section of the report.

5.4.2 Observe if the part or component broke or detached and the force required to cause the damage.

5.4.3 Repeat steps 5.4.1 and 5.4.2 for the remaining parts or components of the toy that are suspected of being separable, or sharp if damaged. Do not test parts or components that are not amenable to further disassembly and for which an adjacent area on that same part or component has already been pushed/pulled.

5.5 Results

5.5.1 Record the details of any damage to each sample element.

5.6 Small Components, Sharp Points, Sharp Edges:


5.6.1 Determine if the toy or any of the parts or components that detached can be completely enclosed in the Small Parts Cylinder or if they have any sharp edges or sharp points. Refer to Test Methods M00.1, M00.2 and M00.3 respectively.

6 QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES

6.1 Ensure that all measuring instruments are functional and are calibrated with traceability to national or international standards.

6.2 Testing and the results obtained according to this method include uncertainty associated with the:

(i) uncertainty of any or all calibrations by an accredited calibration laboratory of the apparatus stated and used in this method,

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(ii) standard uncertainty or standard deviation of a series of repeated measurements with the force gauge (documented in the Equipment Record binder),

(iii) a coverage factor ($k = 2$) to express an expanded uncertainty ($U = k u_c$, where u_c is the combined standard uncertainty) for a level of confidence of approximately 95%, assuming normal distribution (Reference: General Guidelines for Evaluating and Expressing the Uncertainty of Accredited Laboratories' Measurement Results, CLAS Reference Document 5, May 1999).

7 TEST REPORT

7.1 The test report should contain the following information:

- 7.1.1 A description of the product to include, brand, style, country of origin, photo and UPC.
- 7.1.2 The number of sample elements tested.
- 7.1.3 The age range for which the toy has been classified.
- 7.1.4 The height of the drop platform and the orientation of the toy on it prior to each drop.
- 7.1.5 The results of the tests (conducted in the sequence presented in section 5 of this test method) with specific details for any non-compliances or potential problems observed.
- 7.1.6 The analyst's name and signature, as well as the name(s) and signature(s) of the reviewer(s).


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Figure 1: Typical Drop Test device.

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