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1 SCOPE


- 1.1 This method describes procedures for evaluating the flammability of dolls, plush toys and soft toys and is applicable to item 14 (dolls, plush and soft toys), subitems (d), (e) and (f) of Part II of Schedule I to the Hazardous Products Act (HPA).
- 1.2 This method is provided to facilitate laboratory procedures only. It is the trader's responsibility to ensure that the product is tested according to, and meets the requirements of, the HPA and the Regulations.

2 APPLICABLE DOCUMENTS

- 2.1 Hazardous Products (Toys) Regulations (relevant sections and schedules attached)
- 2.2 Product Safety Reference Manual: *Book 3 - Recreational and Children's Products* (relevant sections attached)
- 2.3 Method F-22 of this manual, "Test Method for the Detection of Flame Retardants in Textile Products or Fibres".

3 DEFINITIONS

- 3.1 *Base Burn (BB)*: Burning of base fibres severs stop-cord and a flame spread time is recorded.
- 3.2 *Flame spread time (FST)*: The time taken by the flame on the burning specimen to travel from the point of application of the ignition source to reach the stop-cord and sever it. This time is automatically registered on the flammability tester.
- 3.3 *Ignited But Extinguished (IBE)*: The flame extinguishes before reaching the stop-cord.
- 3.4 *Raised fibre surface*: A napped, pile, tufted, flocked or similar surface.
- 3.5 *Surface Burn (SB)*: Flaming spreads slower than surface flash (SF) on surface of raised fibres. Stop-cord is burned and a flame spread time is recorded.
- 3.6 *Surface Burn, Base Burn (SBBB)*: Surface fibres are burned and base fibres are burned. Stop-cord is severed and a flame spread time is recorded.
- 3.7 *Surface Flash (SF)*: Surface fibres are burned. Stop-cord is not burned and no burning, charring or fusion of the base fibres is observed.

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- 3.8 *Surface Flash, Base Burn (SFBB)*: Surface fibres are burned and base fibres are burned. A flame spread time is recorded.
- 3.9 *Textile fibre*: Any natural or manufactured matter that is capable of being made into a yarn or fabric, including human hair, kapok, feathers and down and animal hair from an animal skin.
- 3.10 *Timed Surface Flash (TSF)*: Surface fibres are burned. Stop-cord is burned but no burning, charring or fusion of the base fibres is observed.
- 3.11 *Timed Surface Flash, Base Burn (TSFBB)*: Surface fibres are burned and this severs the stop-cord and a flame spread time is recorded. The base fibres burn; however, the time taken for the base burning is not recorded since the stop-cord has already been severed by the Timed Surface Flash. On the other hand, the base fibres may ignite but extinguish without severing the stop-cord.
- 3.12 *Yarn*: Generic name for an assemblage of fibres that are laid or twisted together.
- 3.2.1 *Spun Yarn*: Evenly distributed, coherent arrangement of any type of fibres of varying or similar staple length.
- 3.2.2 *Filament Yarn*: Made from various continuous filaments.

4 APPARATUS

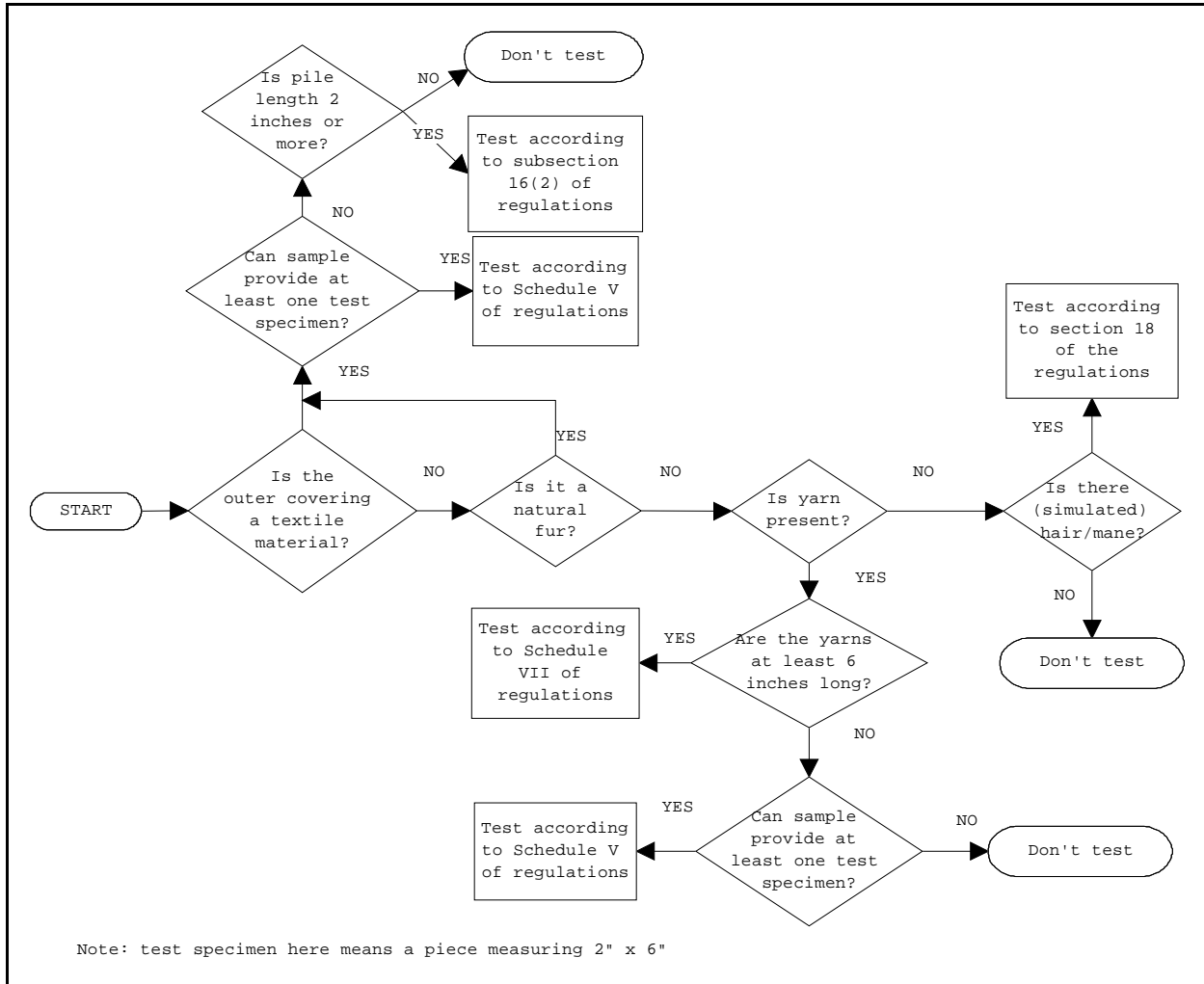
- 4.1 See Schedule VI of the Hazardous Products (Toys) Regulations.

5 PROCEDURE

- 5.1 If the presence of a flame-retardant treatment in the sample is suspected (unexpected burning behaviour), use method F-22 to verify. If the presence of such a treatment is confirmed, wash and dry the sample following "Laundering Procedure" given in section 5, Schedule V of the Toys Regulations.
- 5.2 If the toy has an outer covering that consists, in whole or part, of a flat or raised fibre textile material or natural fur, test the covering in the following alternative procedures, depending on the size of the covering and pile (section 16 of the Toys Regulations):
- 5.2.1 If at least one test specimen can be obtained, remove the covering from the toy and test in accordance with the procedure given in Schedule V of the Toy Regulations;

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- 5.2.2 If sufficient material, including any seam, cannot be removed from the toy to provide at least one test specimen and the exposed pile is two inches or more, the product is subjected to the laundering procedure given in Schedule VII if the textile material is suspected to have a flame retardant treatment, dried, cooled and tested according to the procedures given in section 16(2) of the Toys Regulations; and
- 5.2.3 If due to the small size of the toy, sufficient material, including a seam, can not be removed from the toy to provide for at least one test specimen and the exposed pile length is less than two inches, the toy does not require to be tested.
- 5.3 If the toy has exposed surfaces that consist of strands of spun staple or continuous filament yarn (item 14(e)), the product is tested as follows, depending on the length of the strands of yarn:
- 5.3.1 If the strands of yarn are 6" or longer, test the product according to procedures given in Schedule VII of the Toys Regulations;
- 5.3.2 If the product does not have enough 6" or longer lengths of the yarn for Schedule VII, test the product in accordance with Schedule V; and
- 5.3.3 If the product has short length of yarn and is too small to provide for one test specimen, no tests are required.
- 5.3.4 If the toy has hair or mane or simulated hair or simulated mane, (item 14(f), Part II, Schedule I) it is tested in accordance with the procedures described in section 18 of the Toys Regulations.
- 5.4 Following flowchart has been found to be useful in determining which procedure to use for various components of a sample.



5.5 Cut three swatches (approximately 25 mm x 25 mm) from the sample and mark them with an arrow indicating the direction of test and submit them with the report for attachment to the original report and copies.

6 QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES


6.1 The timing device on the flammability tester and thermometer on the oven need to be calibrated at regular intervals.

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- 6.2 The desiccant used must be anhydrous. This can be ensured by using a desiccant with an indicator.
- 6.3 The flame size must be adjusted with the gauge provided prior to testing.
- 6.4 When laundering, the soap concentration and the temperature of the water must conform to the specifications.
- 6.5 The Quality Control section of the test method is under development and will be added in a revised issue when completed.

7 TEST REPORT

- 7.1 The test report shall contain the following information:
 - 7.1.1 Composition or fibre content (from the label, Sample Record Form sheet or from analysis) and construction of the fabric.
 - 7.1.2 The direction in which the fabric was tested.
 - 7.1.3 Whether the test results apply to the fabric as-received or after laundering.
 - 7.1.4 Flame spread time (FST) for each specimen tested.
 - 7.1.5 Average FST for the specimens that ignited.
 - 7.1.6 For raised fibre surfaced fabrics, whether the base fibres ignited, charred or underwent fusion.

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7.2 The report will be prepared in the format illustrated below:

Composition (from label): 100% Cotton
Construction: [knit, woven],[specify if raised fibre surface]

Direction of test: inner/outer surface, wales/courses or warp/weft

Specimen	FST (s)	Remarks
1	12.3	SBBB
2	13.5	SBBB
3	11.6	SBBB
4	10.8	SBBB
5	12.0	SBBB
Average Flame Spread Time: 12.0 s		

FST: Flame Spread Time; SBBB: Surface Burn, Base Burn

Note: The arrow on the attached sample swatch indicates the surface and direction of test.

7.3 Attach sample swatches to the report and copies of the report.

8 PRECISION AND BIAS

8.1 Precision: This section of the method is under development and will be added in a revised issue when completed.

8.2 Bias: No justifiable statement can be made on the bias of this method since there is no accepted referee test method for flammability.

9 SAMPLING

Generally, a sample is made up of 3 sample elements. Normally, each sample element should contain enough material to provide five test specimens in addition to what is required for preliminary tests. If it is not possible to get at least one test specimen from one sample element, the sample will not be tested (no assembling of pieces from more than one sample element is allowed to make a test specimen). Each test specimen has to be identified with the sample element number from which it was taken.