



## ***The method for testing sharp point***

### 1. Purpose:

Determine there are any dangerous sharp points of toys result in potential sting or hurt.

### 2. Range:

- 2.1. This test applies to toys and items for children under the age of 8 used in the normal use and both before and after abuse test (excluding the bite test) result in contact part - ASTM / CPSC
- 2.2. This test applies to toys and items for children under the age of 14 used in the normal use and both before and after abuse test (excluding the bite test) result in contact part - EN71

### 3. The scope of the exemptions:

- 3.1. Bicycle (16CFR 1508).
- 3.2. No size tag crib and with size tag crib (16 CFR 1509,1512).
- 3.3. Due to the function and purpose reasons, toys must have a metal shape point or glass point, but without non-functional point, and there must be a visible label when sell such toys and products.
- 3.4. In addition to toys, other children's products must have metal sharp point because of function and usage reasons.
- 3.5. The injection of soft polymer (such as polyolefin)is not considered as burr. (EN71 Part 1 4.7C)
- 3.6. When there are requirements for the function of toys (such as the coverslip of microscope), the acute point can be used in the toys for children over 36 months, but it is necessary to remind the users of taking care of the potential dangers result from sharp point. (EN71 Part 1 4.7d ).
- 3.7. If the main parts of toys for children between 48 months and 96 months contain the potential dangerous sharp point, the warning label is required. The toy for children under 48 months can't contain the function needed accessible dangerous sharp point (ASTM).

### 4. Definition:

- 4.1. Accessible point – use the point tester described in 16 CFR 1500.49 or EN71 18.10 to test any gap on toys
- 4.2. Toys -- It is means any kind of toy games or other toys for children which is identified by any design, label advertising or other items.

- 4.3. Sharp point -- There are metal or glass sharp point in toys which must be tested by point tester. If the indicator lamp lights up, then the sharp is identified as sharp point.
- 4.4. Inaccessible point – If the gap between metal or glass sharp point and other neighboring surface is less than 0.02 inch after both before and after abuse test (excluding the bite test), then such sharp point is inaccessible point.
- 4.5. Glass – It is a no crystallization of hard-brittle material that made from silica and silicate which contains soda and lime ingredients under the result of melting.

5. Used equipment:

- 5.1. Touch probe A
- 5.2. Touch probe B.
- 5.3. Can be measured 0.02 inches of foot space.
- 5.4. Point tester (U. S. Testion, C0, manufacturing).

The working principle of point tester (shown in Figure 1) as follows:

A rectangular opening measuring 0.045 inch by 0.04 inch in the end of the slotted cap establishes two reference dimensions. The sensing head is recessed 0.015 inch below the end cap. There is a distance of 0.005 inch between it and a return spring having a force of 0.5 lb, then it is considered as sharp point.

6. Test Method:

- 6.1. Prepare model: Put each sample under the environment that temperature is 20-25°C and relative humidity is 20-70% at least 4 hours before the test.
- 6.2. Procedure:
  - 6.2.1. Fix the tested sample in such a manner that the accessible point to be tested does not move during the test..
  - 6.2.2. If part of the toy has to be removed or disassembled in order to test a particular point, and as a result, the rigidity of the point being tested is affected, fix the point so that its fitness approximate to the point fitness in the assembled toy.
  - 6.2.3. Sharp point tester's calibration and operating method as follows:
    - Adjust the point tester by loosening the locking ring and rotating it so that it moves a distance toward the indicator lamp assembly to expose the calibration reference mark on the barrel.
    - Rotate the gauging cap clockwise until the indicator lamp lights. Rotate the cap counter-clockwise until the sensing head moves a distance of  $(0.12 \pm 0.02\text{mm})$  from making contact with the dry cell.
  - 6.2.4. Insert the point into the cap slot in the direction which confers the greatest rigidity on the point, and apply a force of 4.5N to depress the spring as far as possible without shaving the point on the edges of the slot or extruding the point through the slot, it is sharp point if the lamp lights up.

7. The test results: If the test part with sharp point, it is disqualification.

8. Report: the test point and its location in the sample show it qualification or disqualification.

9. References:

9.1.USA 16 CFR 1500.48.

9.2.ASTM F963-96a part 4.8

9.3.EN71: Part 1 1998 of part 4.8,8.12.

10. Instructions:

Judge a sample whether with sharp point or not should complies with standards: 16 CFR 1500.48 ASTM F 963 4.8 EN-71 1998 8.12

Operating principle: a rectangular opening measuring 0.045 inch by 0.04 inch in the end of the slotted cap establishes two reference dimensions. The sensing head is recessed 0.015 inch below the end cap. There is a distance of 0.005 inch between it and a return spring having a force of 0.5 lb, then it is considered as sharp point.

Requirement: Slot open-aperture less than 0.040 X 0.045inch, accessible depth more than 0.015inch, acting force not over 1 lb.

Test method:

1. calibration procedure

a. clockwise turn/loosen/locking the ring.

b. clockwise turning end cap until the lamp lights up.

c. counter-clockwise turning end cap until the lamp off exactly .

d. turn the end cap forward/backward, fix the position that the lamp lights up exactly.

e. refer to the micron scale mark calibration position on the end cap

f. counter-clockwise turn the end cap 5 grid scale mark(distance between two short lines is one grid on the cap)

g. tighten the locking ring until it prop up end cap

2. Sharp point test procedure

a. The sample must be put under such environment for 4 hours before test: The indoor temperature should be kept at  $23\pm 2$  centigrade and the relative humidity is 20-70%.

b. Insert the point into the cap slot in the direction which confers the greatest rigidity on the point, and apply a force of 4.5N to depress the spring as far as possible without shaving the point on the edges of the slot or extruding the point through the slot. Judgement:

Disqualification if the lamp lights up(test part with sharp point) (ASTM standard, EN standard)

10. Figure: TONY sharp point Tester



**Tony international (HK) Co, LTD**