

Foreword 前言

This European Standard (EN50088) replaces HD271 S1: 1982 and its amendments. However, if the products which have complied with HD271 S1: 1982 and

- AMD 1 : 1986
- AMD 2 : 1989
- AMD 3 : 1989
- AMD 4 : 1995

Before OCT 01, 1998, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until **OCT 01, 2001**.

EN50088 这一欧洲标准是用来替代欧洲协调标准—HD271 S1: 1982 及其修改件的。如果制造厂或测试认证机构有文件表明产品是在一九九八年十月一日前根据 HD271 S1 及

- 1986 年修改件 1
- 1989 年修改件 2
- 1989 年修改件 3
- 1995 年修改件 4

作测试认证的, 则该测试和认证有效期可持续至 **2001 年 10 月 1 日**。

EFFECTIVE DATE

实施时期

Latest date by which the EN had to implemented at national level by publication of an identical national standard or by endorsement : ***(dop)***
JUN 01, 1996

Latest date by which the national standard conflicting with the EN have to be withdrawn: ***(dow)*** ***OCT 01, 1998***

各国政府不得迟于一九九六年元月一日签署执行此标准或发布等同于此标准的国家标准, 与此标准有矛盾的各国家标准必须在一九九八年十月一日前取消。

Introduction 简介

- The aim of this standard is to reduce risks with toys, especially those risks which are **NOT EVIDENT** to users.

制定此标准的目的在于减低玩具的使用的危险，特别是那些不易被人察觉的潜在危险。

- In order to comply with this standard, electric toys also have to comply with EN71.

电动玩具除必须符合此标准外，还须符合 EN71。

- Bearing in mind that the normal behavior of children during abnormal or abuse test!

在非正常或滥用测试时，切记小孩的正常举止。

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1 Scope 适用范围

This standard deals with the safety of electric toys. It also applies to electric constructional sets and electric functional toys. Toys using electricity of functions other than the principal function are within the scope of this standard. 该标准涉及到电动玩具的安全，它适用于电动组装玩具和电动功能玩具。电作为非主要功能的玩具也在本标准的范围内。

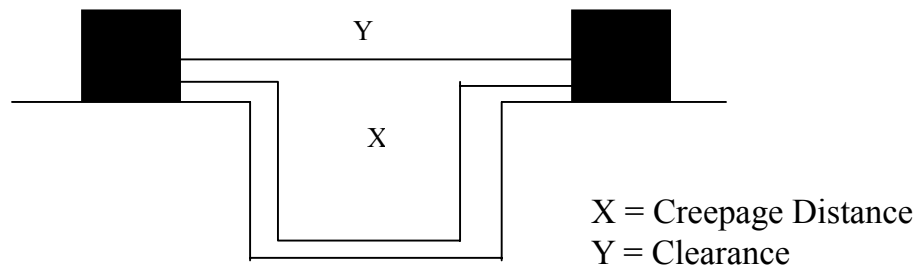
2 Normative References 引用标准(略)

3 Definition 定义

- Toy: Product designed or clearly intended for use in play by children under 14 years old.
玩具: 设计或明显地供 14 岁以下儿童玩耍的产品。
- Electric toy: Toy having at least one function dependent on electricity.
电动玩具: 玩具至少有一个功能须用电来完成。
- Detachable part: Part which can be removed or opened without the aid of a tool, a part which can be removed or opened by a tool supplied with the toy, or a part which can be removed or opened in accordance with the instruction for use even if a tool is needed for removal.
可拆卸部分: 不须借助工具就可打开或拆卸的部件。或者虽然要借助工具才能拆卸, 但此工具与玩具一起出售或根据使用说明书在使用时必须要用到的工具。
Note: Parts which are intended to be removed or opened by a tool supplied with the toy, the instructions of which warn against giving this tool to children are not detachable parts.
注: 部件虽借助与之一一起出售的工具可以拆卸, 但说明书上各告诫此工具不可以给小孩, 些部件应是不可拆卸部件。
- Creepage distance: Shortest path between two conductive parts or between a conductive part and the accessible surface of the toys, measured along the surface of the insulating material
电气爬距: 两导体之间或导体与玩具可触及表面间沿绝缘体表面所测的最短路径。

- **Clearance:** Shortest distance between two conductive parts or between a conductive part and the accessible surface of the toy, measure through air.

电气间隙: 两导体之间或导体与玩具可触及表面间最短的空间距离。



4 General Requirement 一般要求

Toys shall be constructed so that the risks to persons or surroundings when the toy is used are reduced as far as possible, especially those risks which are not evident to the user. This applies when the toy is used as intended or in a foreseeable way bearing in mind the normal behavior of children.

玩具的结构应使玩具在使用时尽可能减少对人或周围环境的危害，特别是那些对使用者是不易觉察的潜在危险，这些使用是指玩具在儿童的正常举止行为并按预期或明显可预见的方式下使用。

5 General Conditions for the tests 测试条件

- When testing battery toys, reverse polarity due to incorrect insertion of batteries or to inverted connection is taken into account by repeating the test with the polarity reversed if this is not prevented by the construction. 在作电池玩具测试时，如果其结构不能防止电池反装或连线接反，则须在电池装反或连线接反的情形下重复其测试。
- If a toy is intended to be assembled by a child, the requirements apply to each part available to the child and to the assembled toy. If a toy is intended to be assembled by an adult, the requirements apply to the assembled toy.
如果玩具是给儿童自己装配的，则玩具的每一部件都要按此标准测试。如果玩具是成人装配好后再给儿童的，则只须对装配好的玩具做测试。
- Before testing is started, the toy is preconditioned by submitting it to be the tests of the sub-clause of EN71

在作电气测试之前，玩具应根据 EN71 的有关条款作预置。

- E.g. Clause 4.3, drop strength tests –toys having a mass less than 5 kg including batteries.

例如：不超过 5 公斤的玩具（包括电池）应作摔落测试。

- Tests are carried out in most unfavorable and serious condition.
所有测试都在最不利和严酷的情形下进行。

6 Selection of tests 测试选择

- 1) Comply with the tests of clause 9 with the insulation between parts of different polarity short-circuited.

如果不同极性短路时，仍符合本标准条款 9 温升测试的要求

THEN, NOT required to comply with

则以下条款不须测试

- Clauses 8, 10, 11, 12, 14.4, 14.5, 14.10, 15 and 18
条款 8, 10, 11, 12, 14.4, 14.5, 14.10, 15 和 18
- Clauses 14.11 unless moving parts need protection.
条款 14.11 (如无需要保护的移动部件)

- 2) For battery toys

对电池驱动玩具

- The accessible different polarity cannot be bridged by a straight steel wire $\phi 0.05\text{mm}$ & min. 25mm.

如果其可触及的不同极性部份不能用一根直径为 0.5mm 长度不短于 25mm 的直钢针短路。

- AND, Battery voltage do not exceed 2.5 V measured 1s after 1 Ω resistor has been connected between supply terminal

而且当用一 1 Ω 的电阻连接电池的两极，1 秒钟后测试的电池电压如果不超过 2.5V。

THEN, ONLY required to comply with

则只须做标准的以下条款测试

- Clause 7, 9.3, 13, 14 & 20 条款 7, 9.3, 13, 14 & 20
- Components necessary for compliance clause 9 shall comply with clause 16.

此外要求符合条款 9 的元件也要求符合条款 16。

7 Marking and instructions 标记及说明书

1) For all toys

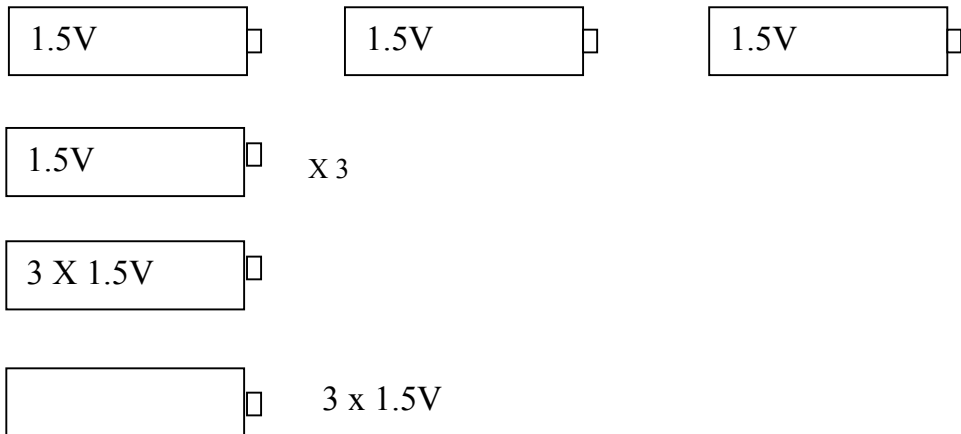
对所有的电动玩具应标有：

- Name, trade mark or manufacturer, his authorized representative or the importer
名称、商标/制造厂/授权代理机构/进口商
- Model or type reference
型号

2) For Battery toys

对电池驱动的玩具应标有

- Nominal battery voltage, in or on the battery compartment.
电池标称电压（标在电池盒内或电池盒上）
- Symbol for D.C. (for battery box only) if more than one battery is used, the polarity and battery shape should be indicated in following ways:
直流电符号（只适用于电池盒与分开的玩具）如果玩具使用多于一个电池，则其极性和形状应按如下方法标记。

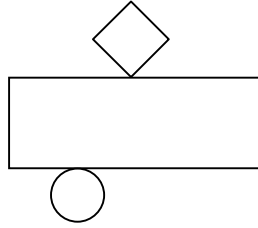


3) For transformer toys

由变压器供电的玩具应标有

- Rated voltage, in volts
额定电压（单位：伏特）
- Symbol for nature of supply
供电电源种类（直流或交流）的符号
- Rated input power (if >25W)
额定功率（如果大于 25W）
- Symbol for transformer toys. This symbol should ALSO be on the packaging

变压器供电玩具的符号，此符号同样也须印在包装上，即：



4) For Dual supply toys : Battery toys + transformer toys

对于既可由电池供电也可由变压器供电的玩具其标记应符合二者的要求的要求

5) Instructions shall be provided which give details concerning cleaning and maintenance when necessary for safe operation of the toy and other necessary information, e.g.

说明应详细提供玩具清洗和维护安全操作以及其它必要的资料，例如：

a) Assembly toys

对组合玩具

Whether intended to be assembled by a child or not

就说明是否打算由小孩来装配的

b) Toys with wire(s)

对于带有连线的玩具

State what the wires are not to be inserted into socket outlet

应说明此线不能插入电源插座或接口上

c) For battery toys

对电池驱动的玩具应说明

➤ How to remove and insert replaceable batteries

如何更换及取出电池

➤ Non-recharge batteries are not to be recharged

非充电电池不能充电

➤ Batteries are to be inserted with correct polarity

按正确的极性装电池

➤ Different types of batteries or new and used batteries are not to be mixed

不同型号及新旧电池不可混用

➤ Rechargeable batteries are to be removed form the toy before being charged (in removable)

充电电池在充电时必须取出（如果可以的话）

➤ Rechargeable batteries are only to be under adult supervision (if removable)

充电时必须有成年人监护下进行（如果充电电池可以取出的话）

- Exhausted batteries are to be removed from the toy
废旧电池必须从玩具中取走
- The supply terminals are not be short-circuited.
电池盒上的电极不可以短路。

d) For transformer toys

对变压器供电的玩具说明应包括

- Toys is not intended for children under 3 years old
此玩具不适合给 3 岁以下的儿童玩耍
- Toys must be used with the recommended transformer
玩具必须用指定的变压器
- Transformer is not a toy
变压器不是玩具
- Toys liable to be cleaned with liquid are to be disconnected from the transformer before cleaning.
在清洗玩具前必须将玩具与变压器断电。

6) When Marking or instructions are shown on the packaging, the packaging shall state that it has to be kept since it contains important information.

当标记和说明印于玩具包装盒上时，应标明“此盒印有重要资料请保存。”

Marking shall be legible and durable

玩具上的标记应清晰持久

RUBBING TEST

其持久性可通过擦洗测试来判断，方法如下

- Rub with water for 15s
用清水擦 15 秒
- Rub with petroleum spirit for other 15s
之后再用石油醚擦 15 秒
- Check whether
检查标志是否
- Easily to remove or
脱落 或
- Show curling
卷起

8 Power input 输入功率

The power input of transformer toys at rated voltage and at normal operating temperature shall not exceed the rated power by more than **20%**

If the rated power input >25W or 25VA

用变压器供电的玩具在其额定电压和正常工作温度下，其输入功率不应大于额定功率的 20%（仅适用于额定输入功率大于 25 瓦或 25 伏安）

9 Heating and abnormal operation 温升和非正常工作测试

1) Toys shall not attain excessive temperatures in use.

玩具在使用时温升不应过高。

compliance is checked under the specified conditions

温升测试是利用热偶线按下列条件下进行

➤ Hand – held toys are freely suspended.

手持式玩具测试时自由地悬挂着。

➤ Other toys placed on the floor of the test corner in as unfavorable way (e.g. near the wall).

其它类型玩具则置于测试角中其最不利的在一面（比如靠近角壁）

➤ Toys < dimension 500mm, then covered by 4 layers of cotton gauze completely.

玩具之外型尺寸小于 500mm 时，应用 4 层棉纱完全盖住。

➤ Toys > dimension 500mm, then covered by 4 layers of cotton gauze (500mm x 500mm) on surface with highest temperature.

玩具之外型尺寸大于 500mm 时，4 层棉纱应盖在温升最高的位置。

2) Temperature rises are determined by means of thermocouple.

温升是由热电偶测试定的。

test include

测试包括

a) Normal operation

正常运作

b) Different polarity which is accessible after removing or open detachable parts being short-circuited by a straight steel pin 0.5mm and min 25mm long.

可触及的不同极性间短路测试(短路用一根直径为 0.5 mm 不短于 25mm 的钢针并且将可拆部件打开或取走)。

c) Short-circuited of any control limits the temperature during the test 1, 2

上述 1 和 2 测试时控制温升的温控元件短路。

- parts of glass or porcelain 30K
玻璃或陶瓷部件
- parts of plastics or wood 35K
塑胶及木制部件
- Other accessible parts
其它可触及的部件
 - parts of metal 45K
金属部件
 - parts of other material 55K
其它材料
- No sealing compound flow out 无密封胶流出
- No flames or molten metal 无着火或金属熔化
- No poisonous gas or substance 无有毒物质或气体
- No vapor accumulation 无蒸汽积聚
- No significant deformation of enclosure 外壳无严重形变
- No leakage of electrolyte 无电池电解液的泄漏。
- No char of material found (include the cotton gauze)
无烧焦物（包括覆盖的棉纱）

10 Electric strength at operating temperature 工作温度下的电气绝缘强度

The electrical insulation of the toy at operating temperature shall be adequate
在工作温度下应有足够的电气绝缘

- A 50Hz a.c. voltage of 250V was applied between parts of different polarity for 1 min.
在不同极性间加 50Hz, 250 伏的电压, 持续 1 分钟
- One terminal of all components connected across the supply is disconnected
测试前应将跨接电源元件的其中一脚断开。
- during and after the test, **NO** breakdown shall occur.
其间**不应**有击穿出现

11 Moisture resistance 耐湿性

- 1) Toys shall be resistant to humidity
玩具应有耐湿性
 - Place the toys into the humidity cabinet with $93\pm 2\%$ R.H. and $20-30^{\circ}\text{C}$ for 48 hours
将玩具置于温湿箱内，温度 $20-30^{\circ}\text{C}$ ，湿度 $93\pm 2\%$ ，48 小时。
 - Then subjected to the test of electric strength test
之后再作电气绝缘强度测试

- 2) Toys intended to be used in water and transformer toys likely to be cleaned with liquid
对于在水里玩的玩具或可能用液体清洁的变压器驱动的玩具
 - Conduct the immersion test
进行浸渍测试
 - Then subjected to the test of electric strength test
然后再测其电气绝缘强度

12 Electric strength at room temperature 室温下的电气强度

The electric insulation of the toy at room temperature shall be adequate.
室温下玩具应有足够的电气绝缘。

- A 50Hz a.c. voltage of 250V was applied between parts of different polarity for 1 min.
在不同极性间加 50Hz，250 伏的电压，持续 1 分钟
 - One terminal of all components connected across the supply is disconnected
测试前应将跨接电源元件的其中一脚断开。
 - During and after the test, **NO** breakdown shall occur.
其间不应有击穿出现

13 Mechanical strength (机械强度)

- 1) Enclosure shall have adequate mechanical strength
玩具之外壳应有足够的机械强度
 - The toy is rigidly supported and six blows are applied to every point of the enclosure that is likely to be weak with an impact energy of 0.7J ,
e.g.: enclosure covering moving part which may present a hazard
将玩具置于坚硬的台面上，冲击试验仪的能量调至 0.7J，在玩具可

能脆弱的外壳处（比如在包有移动部件，呈现危险的外壳处）冲击六处。

2) After the test

The toy shall show NO damage which could impair compliance with the meaning of this standard

冲击实验后，根据此标准要求不应有损坏。

14 Construction 结构

The toy shall be with a safety construction, e.g.

玩具应有安全的结构，例如

- The working voltage between any two parts of the toy shall not exceed **24V** when the toy is supplied at rated voltage
在额定电压情形下，玩具的任意两部分间的工作电压不应超过 **24V**。
- Toys intended for children under 3 years old shall not be transformer toys
供3岁以下儿童玩的玩具不能是变压器驱动的玩具
- Toys supplied by batteries connected in parallel are not allowed, except the protection was provided (e.g. **Physical or electrical**)
玩具供电电源电池的连接不可以并联，除非有保护装置提供（**物理的或电学的**）
- Batteries of toys intended for children under 3 years old shall not be accessible without the aid of tools.
供三岁以下儿童玩的玩具，不借助工具情形下，电池应不能触及
- Unless, the cover of their compartment can only be opened after at least **Two** independent movements have been simultaneously applied
除非电池盖须有两个相互独立的动作同时作用才能开启
- **AND** battery compartment does not open when the toy is submitted to the tests of the sub-clauses of EN71-1
而且根据 EN71-1 相应条款一如：
 - 4.3 – drop test 跌落测试
 - 4.13 – seam test 缝线测试
 - 4.14 – impact test 冲击测试
- Button cells and type R1 batteries shall not be accessible without the aid of a tool, unless the cover of their compartment can only be opened after at least **TWO** independent movements have been simultaneously applied
不借助工具情形下，R1型的钮扣电池应不能触及除非须有两个独立

动作同时作用才能开启电池盖。

- Wires without connection means are not allowed for the toy intended for children under 3 years old.
无固定接头的连线不允许用于供三岁以下儿童玩的玩具上。

15 Protection of cords and wires 电源线及内部布线的保护

- 1) Wire-ways shall be smooth and free from sharp edges

走线应平滑没有锐边

- Do not come into contact with burrs, cooling fins or similar edges
布线不得接触毛刺，散热片及相似的锐边接触
- Do not come into contact with moving parts
布线不得接触移动部件

- 2) Bare wiring and heating elements shall be rigid and fixed during play. So that creepage distances and clearances will not be reduced below the specific values.

裸线及发热元件在使用时应固定且不易弯曲以避免其爬电距离和电气间隙少于标准要求值。

16 Components 元件

Components shall comply with relevant safety requirements, e.g.

元件应符合相应的要求，例如

- Switches and automatic controls (Annex C of EN50088 or) EN61058~1 or EN60742
开关以及自动控制开关应符合 EN50088 附录 C 或 EN61058~1 或 EN60742
- Transformers for toys – EN61158
变压器应符合 EN61158。

17 Screws and connection 螺钉与接线

Fixings, the failure of which may impair compliance with this standard and electrical connection shall withstand the mechanical stress occurring during play. 损坏会影响其符合本标准的接头及连线应经得起使用中产生的机械应力。

- Not be of soft metal
螺钉不得应用软金属制造
- Not be of insulating material with less than Ø3mm
用绝缘材料制作的螺钉至少应有 3mm 的标称直径

- Transmit electrical contact pressure shall screw into metal
传递电气接触压力的螺钉应旋入金属中
- For use screw, shall comply with the torque test
由使用者拧紧的螺钉通过如下的扭力试验确定：
 - 10 times for insulating material engagement
与绝缘材料螺纹啮合的螺钉 10 次
 - 5 times for nuts and other screws.
螺母与其它螺钉 5 次
- The screw(s) shall be tightened and loosened completely
螺钉每次都应完全的拧出和拧入且按如下表所示施加扭力矩。

Table of torque values for testing screw and nuts
螺钉螺丝的测试扭矩

Nominal diameter of screw (outer thread diameter) 螺钉的标称直径 mm	Torque(扭矩) Nm	
	I	II
≤ 2.8	0.2	0.4
>2.8 and ≤3.0	0.25	0.5
>3.0 and ≤3.2	0.3	0.6
>3.2 and ≤3.6	0.4	0.8
>3.6 and ≤4.1	0.7	1.2
>4.1 and ≤4.7	0.8	1.8
>4.7 and ≤5.3	0.8	2.0
>5.3	-	2.5

Note (注) :

- 1) Column I is applicable for metal screws without heads if the screw does not protrude from the hole when tightened
对于拧紧时螺钉不从孔中突出的无头金属螺钉，对应表中 I 栏。
- 2) column II is applicable for other metals screws and for nuts and screws of insulating material
对于其它金属螺钉、螺母和绝缘材料制成的螺钉，则对应表 II 栏。

18 Creepage distances and clearances 爬电距离和电气间隙

Creepage distances and clearances between parts of different polarity shall not be less than the specific values in mm.

不同极性间的爬电距离及电气间隙应不少于如下值（单位：毫米）

	<u>Cr</u>	<u>Cl</u>
➤ Protected against of dirt 防尘	1.0	1.0
➤ Not protected against of dirt 不防尘	2.0	2.0
➤ Enameled winding 漆包绝缘线圈（绕阻）	1.0	1.0

Cr : Creepage distances 爬电距离

Cl: Clearance 电气间隙

19 Resistance to heat and fire 耐热与防火

In toy, external parts of nonmetallic material enclosing electric parts and parts of insulating material supporting electric parts shall be sufficiently resistant to heat. May need to conduct

玩具中内含有电气部件的非金属外壳以及支撑电气部件的绝缘材料，须有足够的耐热性，不同情形下须作以下测试

- Ball pressure test 球压试验
- Glow wire test 灼热丝试验
- Needle flame test 针焰试验
- Burning test 燃烧试验

Please refer to Annex D.

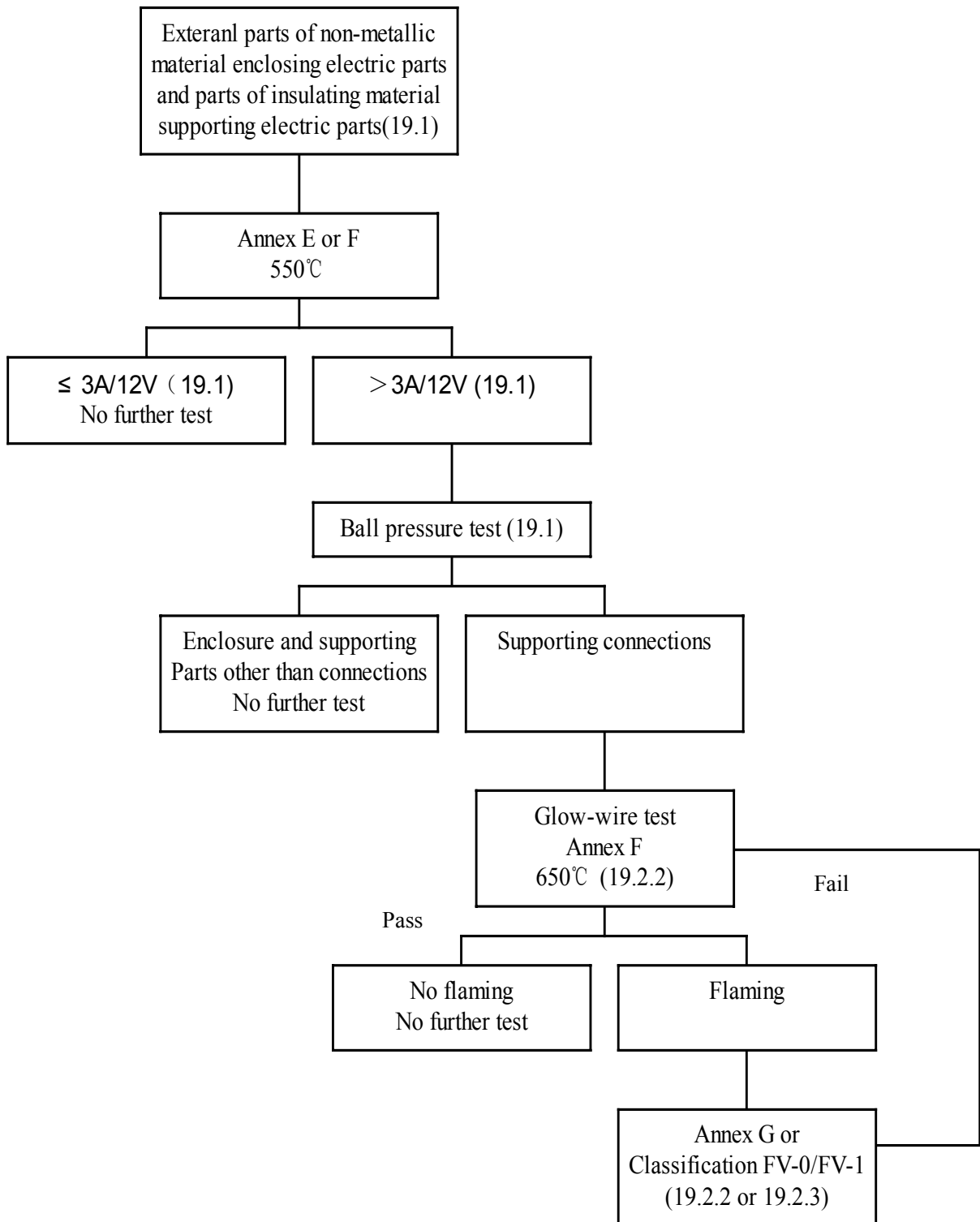
请参考附件 D。

20 Toxicity and similar hazards 毒性及其它相类似的危害

Toys should not present a toxic or similar hazard. Compliance is checked by applying EN71-3.

玩具不应存在毒性和类似危害。按 EN71 第三部份测试。

Annex D: Selection and sequence of the test of Clause 19
- Resistance to heat and fire



附录 D：第 19 条款的测试选择顺序

– 耐热和耐燃

