



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/Z 18029.16-2021

**Wheelchairs - Part 16: Resistance to ignition of postural
support devices
(English Translation)**

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1: Structure and Drafting Rules of Standardization Documents" drafted:

This document is part 16 of GB/T 18029 "Wheelchair Vehicles": GB/T 18029 has released the following parts:

- Part 1: Determination of static stability;
- Part 2: Determination of dynamic stability of electric wheelchairs;
- Part 3: Determination of braking performance;
- Part 4: Determination of theoretical energy consumption of electric wheelchairs and electric scooters;
- Part 5: Determination of dimensions, mass and operating space;
- Part 6: Determination of the maximum speed, acceleration and deceleration of electric wheelchairs;
- Part 7: Measurement of seat and wheel dimensions;
- Part 8: Requirements and test methods for static strength, impact strength and fatigue strength;
- Part 9: Electric wheelchair climatic test method;
- Part 10: Determination of the obstacle-surmounting ability of electric wheelchairs;
- Part 11: Test dummies;
- Part 13: Determination of the coefficient of friction of the test surface;
- Part 14: Requirements and test methods for power and control systems for electric wheelchairs and electric scooters;

- Part 15: Requirements for information release, document issuance and identification;
- Part 16: Flame retardancy of postural fixation devices;
- Part 19: Wheeled mobile devices that can be used as motor vehicle seats;
- Part 21: Electromagnetic compatibility requirements and test methods for electric wheelchairs, electric scooters and battery chargers;
- Part 22: Adjustment procedures;
- Part 26: Terminology;
- Part 28: Requirements and test methods for stair climbing appliances;

This document replaces GB/T 18029-2000 "Requirements and test methods for the flame retardancy of wheelchair seat (cushion) cushions", and GB/T 18029-Compared with:2000, except for structural adjustment and editorial changes, the main technical changes are as follows:

- Delete the combustion test of cigarette ignition source in the test procedure (see 10.2:1 of the:2000 edition);
- Modified the gas flame combustion test method, and changed to carry out both horizontal and vertical combustion tests (see 7.2, 7:3);
- Increased the quantitative calculation method of burning damage area (see 7.2);
- Modified and refined the flame retardant requirements of the wheelchair body position fixation device (see Chapter 8):

This document is equivalent to ISO 7176-16:2012 "Wheelchairs - Part 16: Flame retardancy of postural fixation devices", the document type is the ISO standard is adjusted as my country's guiding technical document:

Please note that some content of this document may be patented: The issuing agency of this document assumes no responsibility for identifying patents:

Introduction

According to the document user principle, GB/T 18029 "Wheelchair Vehicles" stipulates that wheelchair users, manufacturers, testing institutions and other relevant parties should pay attention requirements for the design, performance, testing, infrastructure, and information release of wheelchair vehicles: GB/T 18029 is intended to consist of 22 parts:

- Part 1: Determination of static stability;
- Part 2: Determination of dynamic stability of electric wheelchairs;
- Part 3: Determination of braking performance;

- Part 4: Determination of theoretical energy consumption of electric wheelchairs and electric scooters;
- Part 5: Determination of dimensions, mass and operating space;
- Part 6: Determination of the maximum speed, acceleration and deceleration of electric wheelchairs;
- Part 7: Measurement of seat and wheel dimensions;
- Part 8: Requirements and test methods for static strength, impact strength and fatigue strength;
- Part 9: Electric wheelchair climatic test method;
- Part 10: Determination of the obstacle-surmounting ability of electric wheelchairs;
- Part 11: Test dummies;
- Part 13: Determination of the coefficient of friction of the test surface;
- Part 14: Requirements and test methods for power and control systems for electric wheelchairs and electric scooters;
- Part 15: Requirements for information release, document issuance and identification;
- Part 16: Flame retardancy of postural fixation devices;
- Part 19: Wheeled mobile devices that can be used as motor vehicle seats;
- Part 21: Electromagnetic compatibility requirements and test methods for electric wheelchairs, electric scooters and battery chargers;
- Part 22: Adjustment procedures;
- Part 25: Batteries and chargers for electric wheelchairs;
- Part 26: Terminology;
- Part 28: Requirements and test methods for stair climbing appliances;
- Part 30: Wheelchair test methods and requirements for changing the occupant's posture:

Among them, Part 26 is the term; Part 11, Part 13 stipulates the infrastructure requirements for wheelchair testing; Part 22 stipulates Sets test preparation requirements; Part 15 sets out information release requirements; Parts 1, 3, 5, 7, 8 Part, Part 10, Part 16 specifies the general requirements and test methods for all wheelchairs (including manual and electric); Part 2, Part 4, Part 6, Part 9, Part 14, Part 21, Part 25 set out the requirements and Test methods; Parts 19, 28, and 30 specify requirements for special functional wheelchairs:

Fires in wheelchairs are rare, but can be caused by:

- the wheelchair is near a burning object such as a fire;

---Some electrical components on the wheelchair have overheated;

--- Fire sources (such as cigarettes or matches) fall on the wheelchair:

In the event of such a fire, the occupants face a special risk of injury or even death because the occupants may not be able to get out of the wheelchair:

Wheelchairs generally consist of the following components:

- a) structural components (eg wheelchair frame, wheels, etc:) that are essential to a complete wheelchair;
- b) postural fixation devices (such as soft seats, soft backrests, armrests, footrests, etc:), which are fixed to the wheelchair or its seating system, it mainly plays the role of fixing the position of the wheelchair passenger;
- c) components that maintain tissue integrity (such as seat or back cushions) whose primary clinical purpose is to reduce the risk of skin damage it also has the function of controlling sitting posture;
- d) Electrical components (such as motors, power supplies, controllers, etc:), which are essential for electric wheelchairs:

Each of the above components has a different burn hazard and can cause injury to the wheelchair occupant: To help wheelchairs Vehicle manufacturers design and produce wheelchairs and their components that meet the requirements of occupant flame resistance, national standards or international standards that have been published or are being drafted the standard specifies the requirements and test methods for the above-mentioned types of components: The purpose of these standards is to establish standards based on furniture flame retardancy standards:

Appropriate selections are provided in the guidelines, thus reflecting the use and purpose of the wheelchair and its accessories:

National standards for the flame retardancy of structural components [a]) have not yet been formulated: The cause of the burning is most likely to be close to things such as electric heaters, indoor stoves, Situations where a lighted match or cigarette is dropped on a wheelchair part, etc:, causing a high temperature:

The flame retardancy requirements of components [c]) that maintain tissue integrity are the subject of ISO 16840-10: Due to the clinical function of these components Requirements take precedence over flame retardancy requirements, so lower flame retardancy is permitted:

The flame retardancy requirements of electrical components [d]) are the research subject of GB/T 18029.14, which specifies the prevention of electrical components from overheating: requirements that may cause fire: