



**ISO 16840-6**

**Wheelchair seating —  
Part 6:  
Determination of changes in  
properties of seat cushions  
following simulated use**

*Sièges de fauteuils roulants —*

*Partie 6: Détermination des changements de propriétés des  
coussins de sièges après simulation d'utilisation*

**Second edition  
2026-01**

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This document was prepared by Technical Committee ISO/TC 173, *Assistive products*, Subcommittee SC 1, *Wheelchairs*.

This second edition cancels and replaces the first edition (ISO 16840-6:2015), which has been technically revised.

The main changes are as follows:

- testing has been made less onerous and therefore more practicable; this involves the selection of tests being made by the manufacturer so as to be relevant to the construction of the cushion and its intended use.

A list of all parts in the ISO 16840 series can be found on the ISO website.

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Wheelchair seat cushions provide improved support and injury prevention for the user. They are used by those with a variety of needs and by those with varying degrees of disability. Wheelchair seat cushions are prescribed based on the cushions' ability to perform under a range of circumstances, from intermittent use to robust sports use, or use by those with regular incontinence. Each application presents different conditions that can change the performance of the cushion and can expose the user to hidden risks. Standards for the evaluation of wheelchair cushions under a wide range of conditions are paramount.

This document describes test methods that characterize the changes in physical and mechanical properties of seat cushions based on their use and age. This document offers a suite of test methods, not all of which will be appropriate for all cushions. Therefore, the manufacturer is guided to determine which are appropriate for their cushion construction and use. It is designed to provide a close approximation of the changes that have been observed to occur over time. The protocol consists of performing tests to characterize the properties of a new cushion, subjecting the cushion to multiple simulated ageing processes, then re-testing the cushion properties. Changes that occur are reported.

Prior to following the protocol, the manufacturer is guided to recommend the environment of use of the cushion, the anticipated failure modes of the cushion, and the cushion characterization tests appropriate for their product. Just as not all tests are appropriate for all cushions, the exposures within the tests might not be appropriate for all cushions. Tests can be modified or eliminated based on suitability for materials, architecture, or use conditions, e.g. a rotational component could be added to the cyclic loading test, generating additional wear. For some materials, 70 °C can change the failure mode from typical to temperature-based, depending on the material properties of this cushion. In such a case, 50 °C can be selected to accelerate the ageing of the cushion over a longer period of time to simulate a failure more typical of ageing.

These tests are not appropriate for ranking or scoring cushions or for matching these characteristics directly with the requirements of individual users. While the results of these tests can aid the clinician in providing care to the patient through selection of support surface characteristics that will, in their professional judgment, aid the care, treatment, or recovery of the patient, these tests are not there to be interpreted as prescriptive in and of themselves. The link to clinical efficacy, although implied, has not been validated. It is intended that this document will evolve when clinical relevance is confirmed. Other parts of the ISO 16840 series describe test methods for characterizing other support surface characteristics that can aid the clinician further in the care and treatment of patients.