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# Electrically propelled road vehicles — Test specification for lithium-ion traction battery packs and systems —

## Part 4: Performance testing

*Véhicules routiers à propulsion électrique — Spécifications d'essai  
pour packs et systèmes de batterie de traction aux ions lithium —*

*Partie 4: Essais de performance*



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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2. [www.iso.org/directives](http://www.iso.org/directives)

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 37, *Electrically propelled vehicles*.

This document cancels and replaces ISO 12405-1:2011 and ISO 12405-2:2012 by summarizing the test specifications.

## Introduction

Lithium-ion-based battery systems are an efficient alternative energy storage system for electrically propelled vehicles. The requirements for lithium-ion based battery systems for use as a power source for the propulsion of electric road vehicles are significantly different from those batteries used for consumer electronics or stationary usage.

This document provides specific test procedures for lithium-ion battery packs and systems specially developed for propulsion of road vehicles. This document specifies such tests and related requirements to ensure that a battery pack or system is able to meet the specific needs of the automobile industry. It enables vehicle manufactures to choose test procedures to evaluate the characteristics of a battery pack or system for their specific requirements.

ISO 12405 specifies test procedures for lithium-ion battery packs and systems which are connected to the electric propulsion system of electrically propelled vehicles.

The objective of ISO 12405 is to specify standard test procedures for the basic characteristics of performance, reliability and electrical functionality of lithium-ion battery packs and systems and to assist the user in comparing the test results achieved for different battery packs or systems.

NOTE 1 The general safety relevant tests and requirements are given in ISO 6469-1<sup>1)</sup>.

NOTE 2 Environmental conditions and testing will be given in the future ISO 19453-6<sup>2)</sup>.

For specifications for battery cells, see IEC 62660-1 to 3.

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1) Under preparation. Stage at the time of publication: ISO/DIS 6469-1.

2) Under preparation. Stage at the time of publication: ISO/CD 19453-6.