

ISO 19453-6:2020 (E)

Road vehicles — Environmental conditions and testing for electrical and electronic equipment for drive system of electric propulsion vehicles — Part 6: Traction battery packs and systems

Contents

	Foreword
	Introduction
1	Scope
2	Normative references
3	Terms and definitions
4	Symbols and abbreviated terms
4.1	Symbols
4.2	Abbreviated terms
5	Operating modes
5.1	General
5.2	Operating mode 5
5.3	Operating mode 6
5.4	Operating mode 7
6	Functional status classification
7	Functional status checks
7.1	Electrical requirements check
7.1.1	General
7.1.2	Equipotential bonding
7.1.3	Insulation resistance
7.1.4	Withstand voltage test
7.2	Mechanical requirements check
7.2.1	Technical tightness check of battery pack or system enclosure
7.2.2	Leak tightness check of internal temperature control system
8	Tests and requirements
8.1	Mechanical categories of battery packs or systems
8.1.1	Category 1
8.1.2	Category 2
8.1.3	Category 3
8.2	Pre-conditioning
8.2.1	General
8.2.2	Thermo-mechanical pre-conditioning
8.2.2.1	Thermal pre-conditioning
8.2.2.2	Electrical pre-conditioning
8.3	Thermal cycling tests
8.3.1	General
8.3.2	Thermal cycling for DUT without internal temperature control system
8.3.2.1	Purpose
8.3.2.2	Test
8.3.2.3	Requirements
8.3.3	Thermal cycling for DUT with internal temperature control system
8.3.3.1	Purpose
8.3.3.2	Test
8.3.3.3	Requirements

- 8.3.4 Thermal cycling with electric operation
 - 8.3.4.1 Purpose
 - 8.3.4.2 Test
 - 8.3.4.3 Requirements
- 8.4 Structural durability and strength tests
 - 8.4.1 General
 - 8.4.2 Fixture
 - 8.4.3 Pre-conditioning for mechanical tests
 - 8.4.4 Durability test
 - 8.4.4.1 Purpose
 - 8.4.4.2 General
 - 8.4.4.3 Mechanical load
 - 8.4.4.3.1 Vibrational load profile for category 1
 - 8.4.4.3.2 Vibrational load profile for category 2
 - 8.4.4.3.3 Vibrational load profile for category 3
 - 8.4.4.4 Thermal cycling
 - 8.4.4.4.1 Strategy for DUTs with internal temperature control systems
 - 8.4.4.5 Electrical operation
 - 8.4.4.6 Requirements
 - 8.4.5 Mechanical shock
 - 8.4.5.1 Purpose
 - 8.4.5.2 General
 - 8.4.5.3 Test
 - 8.4.5.4 Requirements
 - 8.4.6 Requirements
- 8.5 Water protection
 - 8.5.1 Test
 - 8.5.2 Requirements
- 8.6 Dust protection
 - 8.6.1 Test
 - 8.6.2 Requirements
- 8.7 Humid heat condensation test
 - 8.7.1 Purpose
 - 8.7.2 Test
 - 8.7.3 Requirements
- 8.8 Damp heat, steady state test
 - 8.8.1 Purpose
 - 8.8.2 Test
 - 8.8.3 Requirement
- 8.9 Corrosion
 - 8.9.1 General
 - 8.9.2 Mixed gas corrosion
 - 8.9.2.1 Purpose
 - 8.9.2.2 Test
 - 8.9.2.3 Requirements
 - 8.9.3 Salt-spray test for external mounting location
 - 8.9.3.1 General
 - 8.9.3.2 Test
 - 8.9.3.3 Requirements
 - 8.9.4 Salt corrosion test for internal mounting location
 - 8.9.4.1 General
 - 8.9.4.2 Test
 - 8.9.4.2.1 Severity 1 — Interior protected mounting location
 - 8.9.4.2.2 Severity 2 — Interior unprotected mounting location
 - 8.9.4.3 Requirements
- 8.10 Chemical resistance

Annex A (informative) Example of leak tightness check

- A.1 Example 1
- A.2 Example 2

Annex B (informative) Test concept for additional mechanical loads on a battery pack or system

- B.1 General
- B.2 Description of the different test cases

B.3 Description of the additional mechanical loads on batteries

B.4 Description of the additional mechanical tests

Annex C (informative) Example of electrical and thermal profile for the mechanical durability test

Annex D (informative) Example of electrical profile for heat dissipation

Annex E (informative) Example of acceptance criterion for corrosion infiltration

Page count: 44