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General Technical Specification for Mobile Laboratory of Sample Collection and Treatment

样品采集与处理移动实验室

通用技术规范

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General Technical Specification for Mobile Laboratory of Sample Collection and Treatment

1 Scope

This Standard specifies the related terms and definitions, classification, technical requirements, test methods, inspection rules, marking, packaging, transportation and storage of mobile laboratory of sample collection and treatment.

This Standard is applicable to land-use mobile laboratories that handle sample collection and treatment of primary agricultural products, processed food, water quality, medicines, pesticides, feedstuffs and chemical products, etc.

2 Normative References

The following documents are indispensable to the application of this document. In terms of references with a specified date, only versions with a specified date are applicable to this document. In terms of references without a specified date, the latest version (including all the modifications) is applicable to this document.

GB/T 1495-2002 Limits and Measurement Methods for Noise Emitted by Accelerating Motor Vehicles

GB 1589 Limits of Dimensions, Axle Load and Masses for Motor Vehicles, Trailers and Combination Vehicles

GB/T 2819 General Specification for Mobile Electric Power Plant

GB 7258 Technical Specifications for Safety of Power-driven Vehicles Operating on Roads

GB 8978-1996 Integrated Wastewater Discharge Standard

GB/T 12673 Motor Vehicle Main Dimensions Measurement Method

GB/T 12674 Motor Vehicles - Weight Parameter - Measuring Method

GB/T 14172 Static Roll Stability Test Method for Motor Vehicles

GB/T 17275 Technical Requirements for Freight Draw-bar Trailers

GB/T 18655 Vehicles, Boats and Internal Combustion Engines - Radio Disturbance Characteristics - Limits and Methods of Measurement for the Protection of On-board Receivers

[GB/T 29479-2012, Definition 3.1]

3.4 Mobile Laboratory Shelter

Mobile laboratory shelter refers to a shelter used to undertake experiment personnel, testing equipment, calibration equipment and related professional facilities of mobile laboratories, and can provide a suitable working environment to normally carry out testing, calibration or scientific experiments.

[GB/T 29479-2012, Definition 3.3]

3.5 Carrier

Carrier refers to a tool used to carry and / or transport mobile laboratory shelter and related devices.

[GB/T 29479-2012, Definition 3.4]

3.6 Self-propelled

Self-propelled refers to the mode that has its own power and relies on its own motion mechanism to move along track or trackless channels.

[GB/T 29473-2020, Definition 3.1]

3.7 Trailer

Trailer refers to the mode that has no power system, but a walking mechanism, and relies on other power tractions to move.

[GB/T 29473-2020, Definition 3.2]

4 Classification

In accordance with the stipulations of 5.1.4 in GB/T 29473-2020, the mobile laboratories of sample collection and treatment may be divided into self-propelled and trailer.

5 Technical Requirements

5.1 Basic Requirements

5.1.1 When the mobile laboratory of sample collection and treatment is under the following external environmental conditions, it shall be able to normally work:

---Ambient temperature: -40 °C ~ 45 °C;

5.2.2.2 There shall be sufficient power; the specific power shall be greater than or equal to 5.0 kW/t.

5.2.2.3 The noise outside the accelerating motor vehicles shall comply with the second stage of requirements in GB 1495-2002.

5.2.2.4 The radio disturbance characteristics of the components and parts shall comply with the stipulations of GB/T 18655.

5.2.3 Trailer carrier

5.2.3.1 The safety performance of the trailer carrier shall comply with the stipulations of GB 7258; the semi-trailer shall also comply with the stipulations of GB/T 23336; the full-trailer shall also comply with the stipulations of GB/T 17275.

5.2.3.2 The wheel track of the trailer carrier shall not exceed the wheel track of the tractor.

5.3 Requirements for Mobile Laboratory Shelter

5.3.1 The structure, reliability, maintainability, heat preservation and air-tightness of the mobile laboratory shelter (hereinafter referred to as "laboratory shelter") shall comply with the stipulations of Chapter 5 in GB/T 29477-2012 and 7.2.3 in GB/T 29479-2012 and be reasonably arranged.

5.3.2 The paint coating of the laboratory shelter shall be evenly sprayed; defects like cracks, peeling, delamination, bubbles, flow marks and accumulations are not allowed. It shall also comply with the requirements of QC/T 484.

5.3.3 In the laboratory shelter, there shall be no sharp protrusions that can cause injuries to human beings; the interior decoration shall comply with the stipulations of 5.3.1.6 in GB/T 29471-2020; the interior decoration materials shall comply with the stipulations of Chapter 5 in GB/T 29474-2012.

5.3.4 The load-bearing capacity of the laboratory shelter shall comply with the stipulations of 5.7.5, 5.7.6 and 5.7.7 in GB/T 29477-2012.

5.3.5 The laboratory shelter should be divided into working area and auxiliary working area. The working area shall have access control, and the space of the working area shall be able to satisfy the requirements for operation.

5.3.6 In the laboratory shelter, there shall be signs for escape.

5.3.7 The electromagnetic shielding performance of the laboratory shelter shall comply with the stipulations of 5.5.4 in GB/T 29477-2012.

5.3.8 The laboratory shelter shall be equipped with a satellite positioning system and a driving record system, which are able to perform satellite positioning.

5.5.2 Requirements for noise

After the system works normally, the noise in the working area shall not be greater than 68 dB. The noise in the special laboratory area shall satisfy the requirements of the test work.

5.5.3 Requirements for air pressure

The air pressure in the laboratory shelter shall not affect the normal work of personnel and machines; it should be controlled within the range of 86 kPa ~ 106 kPa. If the collected samples have special requirements for air pressure, corresponding air pressure control equipment shall be equipped.

5.5.4 Requirements for light avoidance

In accordance with the characteristics and requirements of the collected samples, the laboratory shelter shall be equipped with corresponding light-proof areas or facilities.

5.6 Requirements for Facilities

5.6.1 Requirements for doors and windows

The door of the working area of the laboratory shelter shall be equipped with a visible and lockable window. The opening direction of the door lock and the door shall not hinder the escape of indoor personnel.

5.6.2 Requirements for clothes storage device

Clothes storage or hanging devices shall be set up at the entrance of the working area of the laboratory shelter. Personal clothes and normal work clothes shall be separately placed; sterile work clothes shall be separately placed.

5.6.3 Requirements for benches and seats

The working area of the laboratory shelter shall have sufficient space, storage racks and benches to place equipment and articles. The benches and seats shall be stable. The foldable seats used by the occupants shall be sturdy and durable, and with safety belts and rounded corners. The placement of the equipment and articles shall make it convenient for cleaning. The benches shall be waterproof, corrosion-resistant, heat-resistant and sturdy. The arrangement of the storage racks shall prevent cross-contamination.

5.6.4 Requirements for emergency equipment

The working area of the laboratory shelter shall be equipped with emergency equipment, such as: fire extinguishers and sprinklers, etc.

5.6.5 Requirements for lighting

6.1.6 Unfold the steps into the working state; at the midpoint of the outer side of any step, vertically downward apply a force of 1.8 kN, maintain for 30 min, then, unload it. Inspect whether the steps are deformed or damaged.

6.1.7 Before the experiment, conduct visual inspection on whether the mobile laboratory is in a mobile state.

6.1.8 Conduct visual inspection on the accompanying documents of the mobile laboratory.

6.2 Carrier

6.2.1 General requirements

In accordance with the requirements of 5.2.1, conduct visual inspection on the carrier.

6.2.2 Self-propelled carrier

6.2.2.1 In accordance with the test methods specified in GB 7258, inspect the safety performance, external lighting and signaling devices, and braking distance of the self-propelled carrier.

6.2.2.2 In accordance with the calculation method specified in GB 7258, calculate the specific power.

6.2.2.3 In accordance with the test method specified in GB 1495-2002, inspect the noise outside the accelerating motor vehicles.

6.2.2.4 In accordance with the test method specified in GB/T 18655, inspect the radio disturbance characteristics.

6.2.3 Trailer carrier

6.2.3.1 In accordance with the test methods specified in GB 7258, inspect the safety performance of the trailer carrier. In addition, in accordance with the test methods specified in GB/T 23336 and GB/T 17275, respectively inspect the performance of the semi-trailer carrier and full-trailer carrier.

6.2.3.2 Use a tape to measure the wheel track of the trailer carrier.

6.3 Laboratory Shelter

6.3.1 In accordance with the instruction manual and configuration requirements, inspect the layout of the laboratory shelter.

6.3.2 In accordance with the test methods specified in QC/T 484, inspect the paint coating of the laboratory shelter.

6.3.3 In accordance with the test methods specified in GB/T 29474-2012, inspect the

laboratory shelter.

6.5.2 Use a sound level meter to measure the noise in the space of personnel operation.

6.5.3 Use a barometer to inspect the air pressure in the laboratory shelter.

6.5.4 Conduct visual inspection on the light-proof areas or facilities in the laboratory shelter.

6.6 Facilities

6.6.1 Conduct visual inspection on the settings of doors and windows in the working area.

6.6.2 Conduct visual inspection on the clothes storage device in the working area.

6.6.3 Conduct visual inspection on the storage racks, benches and seats in the working area.

6.6.4 Conduct visual inspection on the emergency equipment in the working area.

6.6.5 Use an illuminance meter to measure the illuminance of the working area.

6.6.6 Conduct visual inspection on the configuration of the computer system and communication equipment of the mobile laboratory of sample collection and treatment, and practically run the operation test.

6.6.7 Turn on the temperature and humidity control system of the mobile laboratory of sample collection and treatment. In accordance with the test requirements in GB/T 29600, conduct the inspection.

6.6.8 Conduct visual inspection on the air supply and exhaust system of the laboratory shelter.

6.6.9 Conduct visual inspection on the upper and lower water pipeline system and the air supply system of the laboratory shelter. Use foam to check the pipeline for leakage. In accordance with the methods specified in GB 8978-1996, inspect the quality of the drained water.

6.6.10 Conduct visual inspection on the layout and usage of sockets of the mobile laboratory of sample collection and treatment. Use a multimeter to check the voltage and frequency.

6.6.11 Conduct visual inspection on whether the laboratory shelter has a grounding lightning protection device. Use a grounding resistance tester to test the grounding resistance, which shall be not greater than 10 Ω . Conduct visual inspection on the leakage protection devices or the monitoring and alarming devices.

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