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**AUTOMOBILE INDUSTRY STANDARD
OF THE PEOPLE'S REPUBLIC OF CHINA**

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**Technical specifications for green-design product assessment
- Automobile**

绿色设计产品评价技术规范 汽车

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Attachment:**45 automotive industry standard numbers, standard names and implementation dates**

No.	Standard No.	Standard name	Standard No. substituted	Implementation date
177	QC/T 1157-2022	Method of calculating comprehensive energy consumption for unit output of automobile products		2022-10-01
178	QC/T 1158-2022	Method of calculating comprehensive water consumption for unit output of automobile products		2022-10-01
179	QC/T 1159-2022	Guidelines on assessment of automobile industry green supply chain management		2022-10-01
180	QC/T 1160-2022	Guidelines on assessment of whole vehicle manufacturing green factory in automobile industry		2022-10-01
181	QC/T 1161-2022	Technical specifications for green-design product assessment - Automobile		2022-10-01
182	QC/T 1162-2022	Honeycomb sandwich structure product for automobile exterior decoration parts		2022-10-01
183	QC/T 1163-2022	Automotive diesel engines - Reduction agent filter for selective catalytic reduction (SCR) system		2022-10-01
184	QC/T 1164-2022	Natural gas filter for road vehicle		2022-10-01
185	QC/T 1165-2022	Carbon canister air filter for gasoline passenger car		2022-10-01
186	QC/T 1166-2022	Streaming Media Rearview Mirror for Cars		2022-10-01
187	QC/T 1167-2022	Service brake dynamometer squeal noise test methods for passenger cars		2022-10-01
188	QC/T 1168-2022	Performance requirements and bench test methods for vehicle electric air compressor		2022-10-01
189	QC/T 463-2022	Technical requirements and bench test methods for automotive hydrodynamic torque converter assembly	QC/T 29033-1991 QC/T 557-1999 QC/T 463-1999	2022-10-01
190	QC/T 792-2022	Motors and controllers for electric motorcycles and electric mopeds	QC/T 792-2007	2022-10-01
191	QC/T 1169-2022	Liquid crystal instrument for automobile		2022-10-01

No.	Standard No.	Standard name	Standard No. substituted	Implementation date
192	QC/T 1170-2022	Performance film for automotive glass		2022-10-01
193	QC/T 1171-2022	Automotive paint protection film		2022-10-01
194	QC/T 804-2022	Instrument panel assembly and console assembly for passenger cars	QC/T 804-2014	2022-10-01
195	QC/T 1016-2022	Door trim panel assembly for passenger cars	QC/T 1016-2015	2022-10-01
196	QC/T 768-2022	Coach toilet	QC/T 768-2006	2022-10-01
197	QC/T 580-2022	Mounting dimensions of automobile transmission assembly	QC/T 580-1999	2022-10-01
198	QC/T 1172-2022	Performance requirements and test methods for vehicle air brake unit exhaust muffler		2022-10-01
199	QC/T 237-2022	Bench test methods for the performance of automobile parking brake	QC/T 237-1997	2022-10-01
200	QC/T 1173-2022	Road vehicles - Spark-plugs application test methods		2022-10-01
201	QC/T 1174-2022	High voltage fuse for electric vehicles		2022-10-01
202	QC/T 1175-2022	High voltage contactor for electric vehicles		2022-10-01
203	QC/T 1176-2022	Evaporator for automotive air conditioning		2022-10-01
204	QC/T 1177-2022	Condenser for automotive air conditioning		2022-10-01
205	QC/T 633-2022	The seats of passenger vehicles	QC/T 633-2009	2022-10-01
206	QC/T 80-2022	Road vehicles - Polyamide (PA) tubing for air braking systems	QC/T 80-2011	2022-10-01
207	QC/T 1178-2022	Motor vehicle and towed vehicle - Pneumatic braking system - Tapped and male fitting		2022-10-01
208	QC/T 1179-2022	Specifications for automobile wheel bolts		2022-10-01
209	QC/T 869-2022	Short-cycle drawn arc welding stud	QC/T 869-2011	2022-10-01
210	QC/T 870-2022	Double end studs $b_m=1.25d$	QC/T 870-2011	2022-10-01
211	QC/T 871-2022	Double end studs $b_m=2d$	QC/T 871-2011	2022-10-01

No.	Standard No.	Standard name	Standard No. substituted	Implementation date
212	QC/T 598-2022	Bearing face projection weld bolts	QC/T 598-1999	2022-10-01
213	QC/T 599-2022	Overhead projection weld bolts	QC/T 599-2013	2022-10-01
214	QC/T 624-2022	Rubber plugs	QC/T 624-2013	2022-10-01
215	QC/T 603-2022	A-type clips	QC/T 603-1999	2022-10-01
216	QC/T 604-2022	B-type clips	QC/T 604-1999	2022-10-01
217	QC/T 605-2022	C-type clips	QC/T 605-1999	2022-10-01
218	QC/T 606-2022	H-type clips	QC/T 606-1999	2022-10-01
219	QC/T 618-2022	Specifications for plastic expansion nut	QC/T 618-2013	2022-10-01
220	QC/T 928-2022	Plastic cable and tubing clips with interfig hole	QC/T 928-2013	2022-10-01
221	QC/T 929-2022	Plastic cable and tubing clips with side-fix hole	QC/T 929-2013	2022-10-01

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Technical specifications for green-design product assessment

- Automobile

1 Scope

This document specifies the assessment methods and assessment requirements for the assessment of automotive green-design products.

This document is applicable to M1 gasoline/diesel vehicles and M1 pure electric vehicles sold in China.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB 1495, *Limits and measurement methods for noise emitted by accelerating motor vehicles*

GB 8702-2014, *Regulations for electromagnetic radiation protection*

GB 17167, *General principle for equipping and managing of the measuring instrument of energy in organization of energy using*

GB 18352.6-2016, *Limits and measurement methods for emissions from light-duty vehicles (CHINA 6)*

GB/T 18386.1-2021, *Test methods for energy consumption and range of electric vehicles - Part 1: Light-duty vehicles*

GB/T 18697, *Acoustics - Measurement of noise inside motor vehicles*

GB/T 19001, *Quality management systems - Requirements*

GB/T 19233, *Measurement methods of fuel consumption for light-duty vehicles*

GB/T 19515, *Road vehicles - Recyclability and recoverability - Calculation method*

GB 19578, *Fuel consumption limits for passenger cars*

GB/T 23331, *Energy management system requirements and guidelines*

GB/T 24001, *Environmental management systems - Requirements with guidance for use*

GB/T 24044-2008, *Environmental management - Life cycle assessment - Requirements and guidelines*

GB/T 26988, *Marks for recoverability of automobile parts*

GB/T 27630, *Guideline for air quality assessment of passenger car*

GB/T 45001, *Occupational health and safety management systems - Requirements with guidance for use*

GB/T 30512, *Requirements for prohibited substances on automobiles*

GB/T 32161-2015, *General principles for eco-design product assessment*

GB/T 32162, *Labeling for eco-design product*

GB/T 37130-2018, *Measurement methods for electromagnetic fields of vehicle with regard to human exposure*

QC/T 1157-2022, *Method of calculating comprehensive energy consumption for unit output of automobile products*

QC/T 1158-2022, *Method of calculating comprehensive water consumption for unit output of automobile products*

HJ/T 400, *Determination of volatile organic compounds and carbonyl compounds in cabin vehicles*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 green-design

the activity that, in accordance with the concept of the full life cycle, in the product design and development stage, systematically considers the impact of raw material selection, production, sales, use, recycling, disposal and other links on the resource environment, and strives to minimize resource consumption, uses as little or no raw materials containing toxic and harmful substances as possible to reduce the generation and discharge of pollutants, so as to achieve environmental protection

3.2 green-design product

products that meet the green-design concept and assessment requirements

3.3 life cycle

successive stages in a product system from the acquisition of raw materials from nature or from natural resources to final disposal

[Source: GB/T 24044-2008, 3.1]

3.4 life cycle assessment

the compilation and assessment of the inputs, outputs and their potential environmental impacts during the life cycle of a product system

[Source: GB/T 24044-2008, 3.2]

3.5 automobile life cycle assessment model

a mathematical model for life cycle assessment of automotive products developed based on life cycle assessment methods

3.6 field data

product life cycle activity data obtained by means of direct quantitative measurement

[Source: GB/T 24044-2008, 3.5]

3.7 background data

product lifecycle data obtained from sources other than direct measurement

[Source: GB/T 24044-2008, 3.6]

4 Assessment methods and process

4.1 Assessment methods

Green-design products shall be assessed by a combination of indicator assessment and life cycle assessment. Green-design products shall meet the following three requirements at the same time:

- Manufacturers of green-design products shall meet the basic requirements in 5.1.
- Green-design products shall meet the assessment indicator requirements in 5.2.
- Carry out life cycle assessment of automotive products according to the method in Annex A. Write and provide product life cycle assessment report. The report shall meet the requirements of Chapter 6 of GB/T 32161-2018. See Annex B for an example of an automotive product lifecycle report.

Annex A

(normative)

Automobile life cycle assessment method

A.1 Overview

Conduct vehicle life cycle assessment based on vehicle life cycle assessment standards, methods or models. The process of life cycle assessment shall include determination of purpose and scope, list analysis, impact assessment. The vehicle life cycle assessment model can be used for assessment.

A.2 Purpose and scope determination

A.2.1 Purpose

By assessing the environmental impact of the life cycle, it provides support for the improvement of automobile ecology and the improvement of the eco-friendliness of automobiles.

A.2.2 Functional unit

Transportation service provided by driving 1 km during the lifetime of a vehicle. Life cycle mileage is calculated as $1.5 \text{ km} \times 10^5 \text{ km}$.

A.2.3 System boundaries

This document includes the acquisition of raw materials, vehicle production, and use of automobiles into the scope of accounting. It does not include carbon emissions from infrastructure such as roads and workshops, equipment in various processes, personnel in the factory area, and living facilities.

A.2.3.1 Raw material acquisition stage boundary

In the raw material acquisition stage, that is, the acquisition of resources and the production stage of materials, the system boundary includes processes such as resource extraction, processing and purification, and manufacturing. The following 22 material categories for parts listed in Table A.1 of this document: steel, cast iron, aluminum alloy, magnesium alloy, copper and copper alloy, PP, PA, PE, PVC, PU, glass, rubber, carbon black, refrigerant, lead, sulfuric acid, ternary material, lithium iron phosphate, lithium manganate, lithium cobaltate, graphite and lithium hexafluorophosphate. Other homogeneous materials whose mass ratio is higher than 50% of the parts and which do not belong to the above 22 materials shall also be included in the calculation scope. The system boundaries of material production and manufacturing are resource mining, processing and purification, and manufacturing processes, excluding the links of use

A.3 List analysis

A.3.1 Overview

A list of all material/energy inputs and emissions within the system boundary shall be compiled as a basis for vehicle life cycle assessment.

A.3.2 Data collection

A.3.2.1 Overview

Data from the following stages shall be included in the data list:

- a) The raw material acquisition stage, including the acquisition of resources and the production of materials.
- b) The production phase, including the production of complete vehicles.
- c) The use stage, including fuel production, fuel use, and tire replacement, lead-acid battery replacement, and refrigerant escape and replacement.

A.3.2.2 Field data collection

The data that shall be obtained directly from the enterprise are field data.

Field data sources include:

- a) Consumables list and list/stock changes.
- b) Purchasing and sales department.
- c) Product BOM.

A.3.2.3 Background data collection

Background data are not directly measured or calculated data. Background data may be industry average data. The source of the data used shall be clearly documented and included in the product life cycle assessment report.

A.3.2.4 Data allocation

A.3.2.4.1 There is a unit process in the production process of automobile products that produces two or more products at the same time. But the input raw materials and energy are not separated (for example, to increase the utilization rate of materials, the stamping process adopts the method of one die and multiple parts to produce products such as fenders, roof beams and door reinforcement plates at the same time). There will also be situations where there are multiple input channels and only one output (for example, there are various sources of wastewater in wastewater treatment workshops). In these cases, the data required for list calculations are not directly available. The data for these

processes must be allocated according to certain relationships.

A.3.2.4.2 The list is based on a material balance of inputs and outputs. The allocation relationship needs to reflect the basic relationship and characteristics of this input and output. The main principles of allocation are as follows:

- a) Processes common to other product systems shall be identified. Handled according to the allocation procedure.
- b) The sum of inputs and outputs in a unit process must be equal before and after allocation.
- c) If several allocation procedures are available, the allocation method used and the reasons for its selection shall be described.
- d) Multiple output: Allocation is based on changes in resource consumption and pollutant emissions following changes in the products, functions, or economic relevance of the system under study (such as change to quantity allocation for some major parts or change to surface area allocation for some parts).
- e) Multiple inputs: Allocation is based on actual relationships. For example, emissions from production processes are affected by changes in incoming waste streams.

A.3.2.4.3 Processing data allocation is generally carried out according to the following procedures:

- a) Avoid or minimize occurrences of allocations as much as possible. For example:
 - ① Further decompose the unit process that was originally divided when collecting data, so as to exclude those units that are not related to system functions.
 - ② Expand the product system boundary to include some units that were originally excluded from the system.
- b) Allocate them in a way that reflects their physical relationship, for example, the proportional relationship of product quality, quantity, volume, area and calorific value.
- c) When the physical relationship cannot be determined or cannot be used as the basis for distribution, use its economic relationship for allocation, such as product output value or profit ratio relationship. But this method has high uncertainty. In general, the economic allocation method is not recommended.

A.3.2.5 Data calculation

Carbon emissions in the life cycle of vehicles shall be calculated according to formula (A.1). It can also be calculated according to the vehicle life cycle assessment model. Calculated results are rounded (rounded) to two decimal places:

Annex B

(informative)

Examples for product life cycle assessment report

B.1 Preparation basis

The vehicle life cycle assessment report shall be compiled according to the given life cycle assessment functional units, accounting scope, data and data quality requirements.

B.2 Report content framework

B.2.1 Basic information

The report shall provide basic information such as report information, applicant information, assessment object information, adopted standard information. Report information shall include report number, name of preparer, name of reviewer and date of issue. Applicant information shall include full company name, unified social credit code, address, contact name and contact information.

The main technical parameters and functions of the product shall be marked in the report, including vehicle model, sales model, registered trademark, time to market, energy type, fuel type, traction battery type, traction battery capacity and traction battery quality of automotive products.

B.2.2 Compliance assessment

The compliance with the basic requirements and assessment indicator requirements shall be provided in the report. Provide a description of the improvement in the reporting period compared to the base period for all assessment indicators.

B.2.3 Life cycle assessment

B.2.3.1 Assessment objects and tools

The report shall describe the assessed object, functional unit and product performance in detail. Make a list to state the material composition and technical parameters of the product. Draw and illustrate the system boundaries of the product.

Disclose the computational tools used, such as the vehicle life cycle assessment model.

B.2.3.2 Life cycle list analysis

The life cycle stage considered shall be provided in the report. Describe the list factors considered at each stage and field or background data collected. Where data allocation

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