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GB/T 19515-2023
Replaces GB/T 19515-2015

**Road Vehicles - Recyclability and Recoverability Rate -
Requirement and Calculation Method**
**道路车辆 可再利用率和可回收利用
要求及计算方法**

(English Translation)

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FOREWORD

This document is drafted in accordance with the rules given in GB/T 1.1-2020 “*Directives for standardization - Part 1: Rules for the structure and drafting of standardizing documents*”.

This document replaces GB/T 19515-2015 “*Road Vehicles - Recyclability and Recoverability - Calculation Method*”. In addition to structural adjustments and editorial modifications, the following technical deviations have been made with respect to GB/T 19515-2015:

- a) Modified the scope of application (See Clause 1 vs. Clause 1 of GB/T 19515-2015);
- b) Modified some terms and definitions (See 3.1 and 3.2 vs. 3.1 and 3.2 of GB/T 19515-2015);
- c) Added some terms and definitions (See 3.3 and 3.4);
- d) Added the requirements for recyclability rate and recoverability rate of complete vehicle (See Clause 5);
- e) Added the general rules for calculation (See 6.1);
- f) Modified the pass criteria for the step “Dismantling - Determination of m_D ” (See 6.3.2 vs. 5.3.2 of GB/T 19515-2015);
- g) Modified the scope of dismantlable component parts (See 6.3.2.6 vs. 5.3.2.5 of GB/T 19515-2015);
- h) Modified the “Non-metallic residue treatment - Determination of m_{TR} and m_{Te} ” (See 6.3.4 vs. 5.3.4 of GB/T 19515-2015);
- i) Added the information on proven recycling technology (See Annex C).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. The organizations issuing this document shall not be held responsible for identifying any or all such patent rights.

This document was proposed by the Ministry of Industry and Information Technology of the People's Republic of China.

This document was prepared by SAC/TC 114 (National Technical Committee on Road Vehicles of Standardization Administration of China).

This document was drafted by China Automotive Technology Research Center Co., Ltd., Pan Asia Automotive Technology Center Co., Ltd., SAIC Volkswagen Co., Ltd., Guangdong Bangpu Recycling Technology Co., Ltd., SAIC GM Wuling Automobile Co., Ltd., Jiangxi Green Recycling Industry Co., Ltd., China Automotive Information Technology (Tianjin) Co., Ltd., Shanghai Tianxiang Quality and Technical Services Co., Ltd., and Tongbiao Standard Technical Services (Shanghai) Co., Ltd., Chery Automobile Co., Ltd. and BMW (China) Service Co., Ltd.

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This document was first issued in 2004, and first revised in 2015; this edition is the second revision.

INTRODUCTION

With the rapid development of automotive industry, the resource and environmental problems arising from end-of-life vehicles (ELVs) are becoming more and more serious. In order to reduce the environmental impact and resource waste of ELVs, it is necessary to consider the recycling of automotive products from the perspective of the whole life cycle. Therefore, vehicle manufacturers are required to consider the recoverability of ELVs at the beginning of product design, so as to improve the level of resource recycling and promote the automotive industry to realize green, low-carbon and recycling development.

This document is based on the four main stages of recycling and treating road vehicles, and combined with the proven recycling technologies in the current ELVs recycling and dismantling industry, with the aim of establishing standardized and reasonable calculation methods and limit requirements for recyclability rate and recoverability rate of new vehicles, and guiding vehicle manufacturers to make environmental design, dismantlability design and selection of green materials, thus to improve the recyclability of ELVs.

The calculation methods and limit requirements for recyclability rate and recoverability rate specified in this document are applicable to the evaluation of a new vehicle, but not applicable to end-of-life road vehicles. In order to achieve scientific and rational calculation of recyclability rate and recoverability rate of a new vehicle, Subclause 6.1.2, i.e., requirements for marks of automotive parts, is added in this revision. In order to ensure the implementation of this document, it is recommended that a certain transitional period be given to vehicle manufacturers to ensure that they can modify product technical documents, production molds and responsibility allocation based on the supply chain in accordance with the requirements of this document. Therefore, it is recommended that, for vehicle types which initially apply for type approval, Subclause 6.1.2 should come into force from the 13th month after the implementation date of this document; for vehicle types which have already been type approved, Subclause 6.1.2 should come into force from the 25th month after the implementation date of this document.

Road Vehicles - Recyclability and Recoverability Rate - Requirement and Calculation Method

1 SCOPE

This document specifies the symbols for recyclability rate and recoverability rate of road vehicles, and the requirements and calculation methods of recyclability rate and recoverability rate of complete vehicle.

This document is applicable to the newly produced vehicles of Categories M₁ and N₁, while other vehicles may use this document as a reference.

2 NORMATIVE REFERENCES

The following normative documents contain provisions which, through normative reference in this text, constitute essential provision of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendment) applies.

GB/T 3730.2-1996	Road vehicles - Masses - Vocabulary and codes
GB/T 26988	Marks for recoverability of automobile parts
GB/T 26989	Automobile recovery – Terminology
GB/T 33460	Specifications for compiling dismantling manual of end-of-life vehicles
GB/T 34490	Recycled sintered neodymium iron boron permanent magnets
QC/T 797	Material identification & marking of automotive plastic, rubber & thermoplastic elastomer parts

3 TERMS AND DEFINITIONS

For the purpose of this document, the terms and definitions given in GB/T 3730.2-1996 and GB/T 26989, as well as the following apply.

- 3.1 vehicle mass, m_v
 total mass of a vehicle in running order without carrying driver, passenger or goods, but the fuel tank filled to 90% of the capacity, complete with standard tool kit and spare type (if so equipped as specified by the vehicle manufacturer)
 [Source: GB/T 3730.2-1996, 4.6, modified]
- 3.2 proven recycling technology
 the recycling technology of automobile materials, which is currently available and applied in mass production or trial production
- 3.3 recyclability rate, R_{cyc}
 the mass of the complete vehicle potentially able to be reused and/or recycled, as a percentage of the vehicle mass
- 3.4 recoverability rate, R_{cov}
 the mass of the complete vehicle potentially able to be reused and/or recycled and/or recovered, as a percentage of the vehicle mass

4 SYMBOLS

For the purpose of this document, the symbols shown in Table 1 apply.

Table 1 Symbols and Descriptions of the Mass Variables

Symbol	Description
m_P	mass of materials taken into account at the pretreatment step
m_D	mass of materials taken into account at the dismantling step

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