

ICS 43.020
CCS R06



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 14951-2023

**Measurement method of fuel saving technology for
automobiles**

汽车节油技术评定方法

Issued on: May 23, 2023

Implemented on: May 23, 2023

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

Table of Contents

Foreword	3
1 Scope	5
2 Normative References	5
3 Terms and Definitions	6
4 Abbreviations	6
5 Evaluation Indexes	7
6 Test Items and Test Methods.....	8
7 Calculation of Evaluation Indexes	17
Appendix A (normative) Test Method for Emitted Pollutant of Engines under Full-load Steady-speed Emission	26
Appendix B (normative) Test Method for Actual Operation of Vehicle Fleet.....	28
Appendix C (normative) Test Method for Automobile Fuel-saving Additives and Fuel Compatibility	32
Appendix D (normative) Test Method for the Stability of Engine Lubricating Oil-saving Additives	34

Foreword

This document was issued on 23 May 2023 by the State Administration for Market Regulation; Standardization Administration of the PRC and takes effect on 23 May 2023.

It is a GB/T standard: recommended rather than compulsory, but it is the text a Chinese reviewer applies when assessing a submission.

1 Scope

GB/T 14951-2023 covers how a claimed fuel saving on vehicles already in service is measured and judged - the evaluation indexes, the test items and test methods used to obtain them, and the calculation that turns the measurements into an index. The terms and abbreviations clauses tie the vocabulary to the vehicle classification and emission documents already in force. Four normative appendices carry the harder procedures: the pollutants emitted by an engine under full-load steady speed, the running of a vehicle fleet in actual operation rather than on a bench, the compatibility of a fuel-saving additive with the fuel itself, and the stability of an additive meant to save engine lubricating oil. Fuel-saving devices and additives are sold on claims a driver cannot check, and a difference of a few percent sits well inside the scatter of ordinary driving, so without a fixed

comparison procedure almost any product can be shown to work. The compatibility and stability appendices exist for the other half of the problem: a product that lowers consumption while attacking the fuel system or thinning the oil costs more than it saves. Written for fleet operators, test laboratories, and suppliers of fuel-saving products.

This document describes the evaluation index, test items and test methods of the fuel saving

technology of vehicles in use, as well as the calculation of the evaluation index.

This document is applicable to the evaluation of the application effect of fuel saving products

and technology of vehicles in use.

2 Normative References

The contents of the following documents constitute indispensable clauses of this document through the normative references in the text. 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 260 Test Method for Water in Petroleum Products - Distillation Method

GB/T 265 Petroleum Products - Determination of Kinematic Viscosity and Calculation of Dynamic Viscosity

GB/T 511 Petroleum, Petroleum Products and Additives - Method for Determination of Mechanical Admixtures

GB/T 3142 Standard Test Method for Determination of Load-carrying Capacity of Lubricants - Four-ball Method

GB/T 3535 Petroleum Products - Determination of Pour Point

GB/T 3536 Petroleum Products - Determination of Flash and Fire Points - Cleveland Open Cup

Method

GB/T 3730.1 Terms and Definitions of Motor Vehicles, Trailers and Combination Vehicle - Part

1: Types

GB 3847-2018 Limits and Measurement Methods for Emissions from Diesel Vehicles under Free Acceleration and Lugdown Cycle

GB/T 5096 Test Method for Corrosiveness to Copper from Petroleum Products by Copper Strip

Test

GB/T 5181 Automotive Emission - Terms and Definitions

GB/T 6538 Determination of Apparent Viscosity of Engine Oils - Using the Cold-cranking Simulator

GB/T 12543 Motor Vehicles - Acceleration Performance - Test Method

GB/T 12545.1-2008 Measurement Methods of Fuel Consumption for Automobiles - Part 1: Measurement Methods of Fuel Consumption for Passenger Cars

GB 18285-2018 Limits and Measurement Methods for Emissions from Gasoline Vehicles under

Two-speed Idle Conditions and Short Driving Mode Conditions

GB/T 18297-2001 Performance Test Code for Road Vehicle Engines

GB 18352.6-2016 Limits and Measurement Methods for Emissions from Light-duty Vehicles (CHINA 6)

GB/T 19233 Measurement Methods of Fuel Consumption for Light-duty Vehicles

JT/T 711-2016 Limits and Measurement Methods of Fuel Consumption for Commercial Vehicle for Passenger Transportation

JT/T 719-2016 Limits and Measurement Methods of Fuel Consumption for Commercial Vehicle for Cargos Transportation

JT/T 1045 Technical Specifications of Vehicle Management for Road Transportation Enterprises

3 Terms and Definitions

What is defined in GB/T 3730.1, GB/T 5181, JT/T 711 and JT/T 719, and the following terms

and definitions are applicable to this document.

3.1 fuel saving technologies for automobile

Fuel saving technologies for automobile are technologies that reduce the fuel consumption of

automobile without causing any adverse effects on other operational performances of the automobile.

4 Abbreviations

The following abbreviations are applicable to this document.

CO: carbon monoxide

HC: hydrocarbons

conditions;

2) Emitted pollutant comparison test of diesel engines under full load and steady speed.

6.1.2 Road test of vehicle performance

The test items of the road test of vehicle performance include:

a) Comprehensive fuel consumption comparison test of vehicles running at constant speed;

b) Comparison test of vehicle full-throttle overrun acceleration performance;

c) Vehicle emitted pollutant comparison test, which is divided into:

1) Emitted pollutant comparison test of gasoline vehicles under two-speed idle conditions;

2) Emitted pollutant comparison test of diesel vehicles under free acceleration.

6.1.3 Chassis dynamometer test of vehicle performance

The test items of the chassis dynamometer test of vehicle performance include:

a) Fuel consumption comparison test of vehicles operating under multiple operating conditions;

b) Emitted pollutant comparison test of vehicles operating under multiple operating conditions.

6.1.4 Actual operation test of vehicle fleet