



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

GB/T 6683.1-2021

**Petroleum and related products - Precision of measurement
methods and results - Part 1: Determination of precision data in
relation to methods of test**

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules of Standardization Documents"

Drafting.

This document is the first part of GB/T 6683 "Measurement Methods and Precision of Results for Petroleum and Related Products". GB/T 6683 has

The following sections were released.

---Part 1. Determination of the precision data of the test method.

This document replaces GB/T 6683-1997 "Precision Data Determination Method for Petroleum Products Test Methods", and is consistent with GB/T 6683-1997

In addition to structural adjustments and editorial changes, the main technical changes are as follows.

- a) Added and changed some terms and definitions (see Chapter 3, Chapter 3 of the.1997 edition);
- b) Preliminary test procedures have been added (see 4.3);
- c) Increased the parameter leverage ratio of the inspected samples (see 4.4);
- d) The method of determining the number of laboratories and the number of samples has been changed (see 4.4, 4.3 in the.1997 edition);
- e) The specific requirements for performing inter-laboratory research have been changed (see 4.5, 4.4 and 4.5 of the.1997 edition);
- f) Added flow chart 1 (see 5.1) showing the procedure of transformation and outlier detection;
- g) The technology "Generalized Extreme Average Deviation (GESD)" (see 5.2), which is used for the results of the pre-screening test, has been added;
- h) Added the requirements and examples of whether data transformation is required and whether the transformation is successful or not (see 5.3.1);
- i) A description of outliers has been added (see 5.3.2);

- j) Added the requirement to check whether the used transformation is valid after discarding the outlier data (see 5.6);
- k) Added the requirements, methods and examples of selected transformation confirmation (see 5.7);
- l) The expression including the expectation of the mean square of the estimated value has been changed (see 6.3.2, 6.2.2 of the.1997 edition);
- m) Added suggestions for optimizing the test method when the degree of freedom of reproducibility is less than 30 (see 6.3.3.2);
- n) The precision expression method has been changed (see 6.4, 6.3 of the.1997 edition);
- o) The instructions for determining the number of samples have been added as Appendix B;
- p) Changed Appendix C on data tables and inspections (see Appendix C, Appendix A of the.1997 edition);
- q) Added a description of GESD technology as Appendix D;
- r) The calculation of the critical value of the normal distribution has been added (see E.8 in Appendix E);
- s) Appendix F of the association type and transformation has been changed (see Appendix F, Appendix C of the.1997 edition);
- t) Added the description of weighted linear regression analysis as Appendix G;
- u) The method of using different transformations for repeatability and reproducibility has been added as Appendix H.

This document uses the redrafting method to modify and adopt ISO 4259-1.2017 "Petroleum and Related Products Measurement Methods and Results Precision No.

Part 1.Determination of the precision data of the test method".

Compared with ISO 4259-1.2017, this document has made the following structural adjustments.

- Adjusted the number and order of appendices;
- Move the calculation example content in Appendix D into 5.3~6.3;
- Move the content of F.3 into Appendix G;
- Move the content of F.4 into 5.3.1.

The main technical differences between this document and ISO 4259-1.2017 and the reasons are as follows.

---Regarding normative reference documents, this document has made adjustments with technical differences to adapt to my country's technical conditions and adjustments.

The situation is collectively reflected in Chapter 2 "Normative Reference Documents", and the specific adjustments are as follows.

* Replace ISO 5725-2:1994 (see 5.3.1) with GB/T 6379.2 which is equivalent to the international standard;

* Added reference to GB/T 8170 (see H.5.1).

--- Increase the repeatability and reproducibility of using different transformation methods to meet the requirements of use.

---The terms 3.6 and 3.10 that are not used in the text in ISO 4259-1:2017 are deleted.

---Deleted ISO 4259-1:2017 6.5 on the scope of the test method to adapt to the situation in my country.

---Deleted ISO 4259-1:2017 6.6 on the test method report limit description, in order to adapt to my country's use.

---Deleted the description of the R/r ratio in Chapter 7 in ISO 4259-1:2017 to adapt to the situation in my country.

---The introduction of symbols in ISO 4259-1:2017 C.1 was deleted to meet the requirements of GB/T 1.1.

--- Deleted the content about amendments in Appendix G of ISO 4259-1:2017.

The following editorial changes have been made to this document.

---Incorporated the amendments of ISO 4259-1:2017/Amd1:2019 and ISO 4259-1:2017/Amd2:2020, which are involved

The terms of has been marked by a vertical double line (||) on the outer margin of the page;

---Changed Figure 1 in 5.3.1 to reflect the technical differences between this document and ISO 4259-1:2017;

---Changed the expression in 5.3.3 to conform to the Chinese expression habits;

---Changed the expression in 5.3.4 to conform to the Chinese expression habits;

---Changed the expression in 5.4 to conform to the Chinese expression habits;

---Change the symbol K in 6.3.2 (change to J) to avoid duplication with K in 5.3.1 formula (5);

--- Deleted the formulas and chapters in Table I.1 to avoid duplication.