

DIN EN ISO 4259:2006-10 (E)

Petroleum products - Determination and application of precision data in relation to methods of test (ISO 4259:2006)

Contents		Page
Foreword		2
Introduction		4
1	Scope	5
2	Normative references	5
3	Terms and definitions	5
4	Stages in the planning of an inter-laboratory test programme for the determination of the precision of a test method	8
4.1	General	8
4.2	Preparing a draft method of test	9
4.3	Planning a pilot programme with at least two laboratories	9
4.4	Planning the inter-laboratory programme	9
4.5	Executing the inter-laboratory programme	9
5	Inspection of inter-laboratory results for uniformity and for outliers	10
5.1	General	10
5.2	Transformation of data	11
5.3	Tests for outliers	12
5.4	Rejection of complete data from a sample	15
5.5	Estimating missing or rejected values	16
5.6	Rejection test for outlying laboratories	17
5.7	Confirmation of selected transformation	18
6	Analysis of variance, calculation and expression of precision estimates	18
6.1	General	18
6.2	Analysis of variance	18
6.3	Expectation of mean squares and calculation of precision estimates	21
6.4	Expression of precision estimates of a method of test	24
7	Significance of repeatability (r) and reproducibility (R)	25
7.1	General	25
7.2	Repeatability, r	25
7.3	Reproducibility, R	26
8	Specifications	28
8.1	Aim of specifications	28
8.2	Construction of specifications limits in relation to precision	28
9	Quality control against specifications	29
9.1	General	29
9.2	Testing margin at the supplier	29
9.3	Testing margin at the recipient	29
10	Dispute procedure	29
Annex A (normative)	Determination of number of samples required	32

Annex B (informative) Derivation of equation for calculating the number of samples required	34
Annex C (normative) Notation and tests	35
Annex D (normative) Example results of test for determination of bromine number and statistical tables	40
Annex E (normative) Types of dependence and corresponding transformations	49
Annex F (normative) Weighted linear regression analysis	53
Annex G (normative) Rules for rounding off results	60
Annex H (informative) Explanation of equations given in Clause 7	61
Annex I (informative) Specifications that relate to a specified degree of criticality	63
Bibliography	66