

# ISO 1928:2009-06 (E)

## Solid mineral fuels - Determination of gross calorific value by the bomb calorimetric method and calculation of net calorific value

---

<b>Contents</b>		<b>Page</b>
Foreword .....		v
1	Scope .....	1
2	Normative references .....	1
3	Terms, definitions and symbols .....	2
3.1	Terms and definitions .....	2
3.2	Symbols .....	3
4	Principle .....	5
4.1	Gross calorific value .....	5
4.2	Net calorific value .....	5
5	Reagents .....	5
6	Apparatus .....	7
7	Preparation of test sample .....	10
8	Calorimetric procedure .....	11
8.1	General .....	11
8.2	Preparing the bomb for measurement .....	12
8.3	Assembling the calorimeter .....	13
8.4	Combustion reaction and temperature measurements .....	13
8.5	Analysis of products of combustion .....	14
8.6	Corrected temperature rise .....	14
8.7	Reference temperature .....	16
9	Calibration .....	16
9.1	Principle .....	16
9.2	Calibrant .....	16
9.3	Valid working range of the effective heat capacity .....	17
9.4	Ancillary contributions .....	18
9.5	Calibration procedure .....	18
9.6	Calculation of effective heat capacity for the individual test .....	18
9.7	Precision of the mean value of the effective heat capacity .....	20
9.8	Redetermination of the effective heat capacity .....	20
10	Gross calorific value .....	20
10.1	General .....	20
10.2	Coal combustions .....	21
10.3	Coke combustions .....	21
10.4	Calculation of gross calorific value .....	21
10.5	Expression of results .....	23
10.6	Calculation to other bases .....	24
11	Precision .....	24
11.1	Repeatability limit .....	24
11.2	Reproducibility limit .....	24
12	Calculation of net calorific value .....	24
12.1	General .....	24

12.2	Calculations .....	25
13	Test report .....	28
Annex A (normative)	Adiabatic bomb calorimeters .....	29
Annex B (normative)	Isoperibol and static-jacket bomb calorimeters .....	33
Annex C (normative)	Automated bomb calorimeters .....	38
Annex D (informative)	Checklists for the design of combustion tests and their procedures .....	41
Annex E (informative)	Examples to illustrate some of the calculations used in this International Standard .....	46
Annex F (informative)	Safe use, maintenance and testing of calorimeter bombs .....	51
Bibliography .....		57
Alphabetical index .....		58