ISO 27971:2015-06 (E)

Cereals and cereal products - Com mon wheat (Triticum aestivum L.) - Determination of alveograph properties of dough at constant hydration from commercial or test flours and test milling methodology

Contents

Page

Foreword v

Introduction vi

1 Scope 1

2 Normative references 1

3 Principle 1

4 Reagents 1

5 Apparatus 2

6 Sampling 9

7 Preparation of the wheat for laboratory milling 10
7.1 Cleaning the laboratory sample 10
7.2 Test portion 10
7.3 Wheat moisture content determination 10
7.4 Wheat preparation 10
7.4.1 General 10
7.4.2 Wheat with initial moisture content between 13 % and 15 % (one- stage moistening) 10
7.4.3 Wheat with a moisture content less than 13 % (two-stage moistening) 10
7.4.4 Wheat with a moisture content greater than 15 % (preliminary drying followed by moistening, as described above) 11

8 Laboratory milling 11
8.1 General 11
8.2 Milling procedure 11
8.2.1 Breaking 11
8.2.2 Reduction 11
8.2.3 Flour homogenization 12
8.2.4 Storage of the flour 12
8.3 Expression of milling results 12

9 Preparation and alveograph test 13
9.1 Preliminary checks 13
9.2 Preliminary operations 14
9.3 Kneading 15
9.4 Preparation of dough test pieces 16
9.5 Alveograph test 20
9.5.1 Initial preparation 20
9.5.2 First operation: Adjusting the dough test piece 21
9.5.3 Second operation: biaxial extension 22
9.6 Expression of alveograph test results 23
9.6.1 General 23
9.6.2 Maximum pressure parameter, P 23
9.6.3 Mean abscissa at rupture, L 23

9.6.4 Swelling index, G 24
9.6.5 Elasticity index 24
9.6.6 Curve configuration ratio, P/L 24
9.6.7 Deformation work, W 24

10 Precision 24
10.1 Interlaboratory tests 24
10.2 Repeatability limits 25
10.2.1 Commercial flour: limits established by the interlaboratory test 25
10.2.2 Flour obtained from laboratory milling 25
10.3 Reproducibility limits 25

10.3.1 Commercial flour: Limits established by the proficiency tests 25
10.3.2 Flour obtained from laboratory milling 26
10.4 Uncertainty 26

11 Test report 26

Annex A (informative) Characteristics of the Chopin-Dubois CD1 mill 27

Annex B (normative) Quantity of water to be added to wheat for conditioning 29

Annex C (informative) Sample milling sheet 31

Annex D (informative) Conversion table from L to G 32

Annex E (informative) Interlaboratory and proficiency test data for commercial flours 34

Annex F (informative) Interlaboratory data for laboratory milled flour 44

Annex G (informative) Routine maintenance instructions for the alveograph 61

Annex H (informative) Assessment of proteolytic activity in wheat (T. aestivum L.) or flour 63

Bibliography 65