

DIN EN ISO 27971:2015-11 (E)

Cereals and cereal products - Common wheat (*Triticum aestivum* L.) - Determination of alveograph properties of dough at constant hydration from commercial or test flours and test milling methodology (ISO 27971:2015)

Contents		Page
Foreword		4
Introduction		5
1	Scope	6
2	Normative references	6
3	Principle	6
4	Reagents	6
5	Apparatus	7
6	Sampling	14
7	Preparation of the wheat for laboratory milling	15
7.1	Cleaning the laboratory sample	15
7.2	Test portion	15
7.3	Wheat moisture content determination	15
7.4	Wheat preparation	15
7.4.1	General	15
7.4.2	Wheat with initial moisture content between 13 % and 15 % (one-stage moistening)	15
7.4.3	Wheat with a moisture content less than 13 % (two-stage moistening)	15
7.4.4	Wheat with a moisture content greater than 15 % (preliminary drying followed by moistening, as described above)	16
8	Laboratory milling	16
8.1	General	16
8.2	Milling procedure	16
8.2.1	Breaking	16
8.2.2	Reduction	16
8.2.3	Flour homogenization	17
8.2.4	Storage of the flour	17
8.3	Expression of milling results	17
9	Preparation and alveograph test	18
9.1	Preliminary checks	18
9.2	Preliminary operations	19
9.3	Kneading	20
9.4	Preparation of dough test pieces	21
9.5	Alveograph test	25
9.5.1	Initial preparation	25
9.5.2	First operation: Adjusting the dough test piece	26
9.5.3	Second operation: biaxial extension	27
9.6	Expression of alveograph test results	28
9.6.1	General	28
9.6.2	Maximum pressure parameter, P	28
9.6.3	Mean abscissa at rupture, L	28

9.6.4	Swelling index, G	29
9.6.5	Elasticity index	29
9.6.6	Curve configuration ratio, P/L	29
9.6.7	Deformation work, W	29
10	Precision	29
10.1	Interlaboratory tests	29
10.2	Repeatability limits	30
10.2.1	Commercial flour: limits established by the interlaboratory test	30
10.2.2	Flour obtained from laboratory milling	30
10.3	Reproducibility limits	30
10.3.1	Commercial flour: Limits established by the proficiency tests	30
10.3.2	Flour obtained from laboratory milling	31
10.4	Uncertainty	31
11	Test report	31
Annex A (informative) Characteristics of the Chopin-Dubois CD1 mil		32
Annex B (normative) Quantity of water to be added to wheat for conditioning		34
Annex C (informative) Sample milling sheet		36
Annex D (informative) Conversion table from L to G		37
Annex E (informative) Interlaboratory and proficiency test data for commercial flours		39
Annex F (informative) Interlaboratory data for laboratory milled flour		49
Annex G (informative) Routine maintenance instructions for the alveograph		66
Annex H (informative) Assessment of proteolytic activity in wheat (<i>T. aestivum</i> L.) or flour		68
Bibliography		70