

Anhang A (informativ)

Berechnungsbeispiel für die Ergebnisse der Siebung

Sieb- größen	R		R		Siebrückstand		Kumulierte Werte %	Siebdurchgang Kumulierte Werte %
	g		G		Einzelwerte R_i g	$\%$		
10		0,0			0,0	0,0	0,0	100,0
5		5,2			5,2	3,6	3,6	96,4
2	130,5	125,3			125,3	85,9	89,4	10,6
0,2				11,0	11,0	7,5	97,0	3,1
0,09			11,6	0,6	0,6	0,4	97,4	2,6
Pfanne	15,4		3,8		3,8	2,6	100,0	0,0
	145,9	130,5	15,4		145,9	100,0		

Masse der angelieferten Probe	9 087,0	g
Probeteilung	Ja	
Anzahl der Teilungen	6	
Masse der Messprobe	145,9	g

Einwaage auf 2 mm	145,9	g
Einwaage auf 5 mm	130,5	g
Einwaage auf 0,09 mm	15,4	g
Einwaage auf 0,2 mm	11,6	g

Anhang B (informativ)

Präzisionsdaten für die Prüfverfahren

Die Grenzen der Wiederholbarkeit und Vergleichbarkeit wurden in mehreren Ringversuchen nach ISO 5725-2 bestimmt.

Für chemische Prüfverfahren siehe Tabelle 2.

Tabelle B.1 — Präzisionsdaten für die chemischen Prüfverfahren

Parameter	Produkt	L	N	$\bar{x}$	s_r	s_R	$s_r(rel.)$	$s_R(rel.)$	r	R
CaO	CL90-Q	30	90	96,743	0,112	0,361	0,12	0,37	0,313	1,011
	CL80-Q	28	84	83,55	0,19	0,58	0,22	0,69	0,52	1,61
	DL90-Q	18	54	54,73	0,20	0,88	0,37	1,60	0,56	2,45
	CL90-S	15	57	74,187	0,148	0,341	0,2	0,46	0,409	0,946
	DL90-S	13	49	47,446	0,201	0,918	0,42	1,94	0,556	2,543
MgO	CL90-Q	26	77	0,778	0,012	0,067	1,5	8,6	0,032	0,187
	CL80-Q	26	77	0,77	0,01	0,1	1,94	13,31	0,04	0,29
	DL90-Q	16	48	37,99	0,17	0,59	0,45	1,56	0,48	1,66
	CL90-S	13	49	0,495	0,017	0,066	3,43	13,3	0,047	0,183
	DL90-S	13	49	32,786	0,267	0,678	0,81	2,07	0,74	1,878
CO ₂	CL90-Q	31	93	0,952	0,031	0,104	3,3	11,0	0,088	0,292
	CL80-Q	29	87	3,18	0,03	0,22	1,08	6,92	0,1	0,62
	DL90-Q	20	60	5,53	0,09	0,25	1,62	4,53	0,25	0,70
	CL90-S	13	50	0,561	0,038	0,076	6,77	3,39	0,105	0,21
	DL90-S	12	46	0,855	0,035	0,145	4,1	17	0,097	0,4
Freies Wasser	CL90-S	14	55	0,448	0,057	0,138	12,72	30,80	0,157	0,384
	DL90-S	13	52	0,465	0,044	0,158	9,46	33,98	0,122	0,437
Glühverlust	CL90-Q	29	87	2,145	0,038	0,222	1,8	10,4	0,106	0,621
	CL80-Q	21	63	4,01	0,07	0,12	1,64	2,99	0,07	0,12
	DL90-Q	15	45	6,36	0,07	0,33	1,15	5,22	0,20	0,93
	CL90-S	12	48	24,879	0,05	0,108	0,20	0,43	0,139	0,3
	DL90-S	13	52	17,101	0,061	0,15	0,36	0,88	0,17	0,415
Verfügbarer Kalk	CL90-Q	28	84	95,3	0,288	0,845	0,30	0,90	0,81	2,36
	CL90-S	17	68	92,38	0,29	0,70	0,31	0,76	0,82	1,96
	CL80-Q	14	56	69,6	0,29	1,06	0,42	1,52	0,81	3,0
	CL80-Q	21	63	71,09	0,42	1,78	0,60	2,50	1,19	4,97
	CL80-S	17	56	70,73	0,31	1,28	0,44	1,81	0,88	3,59
	FL A	17	64	52,97	0,45	1,49	0,85	2,81	1,25	4,18
	FL B	17	64	47,90	0,57	3,00	1,19	6,26	1,59	8,39
	NHL 3,5	17	64	32,12	0,41	3,18	1,28	9,90	1,16	8,90
L	Anzahl der ausgewerteten Labore				$s_r(rel.)$ relative Wiederholstandardabweichung					
N	Anzahl der ausreißerfreien Einzelwerte				$s_R(rel.)$ relative Vergleichstandardabweichung					
$\bar{x}$	Gesamtmittelwert				r Wiederholbarkeit					
s_r	Wiederholstandardabweichung				R Vergleichbarkeit					
s_R	Vergleichstandardabweichung									

Tabelle B.2 — Präzisionsdaten für die physikalischen Prüfverfahren

Parameter		Produkt	L	N	$\bar{x}$	s_r	s_R	r	R
Druckfestigkeit	MPa	NHL 2	10	28	4,1	0,24	0,71	0,67	1,97
		NHL 3,5	10	28	3,8	0,38	1,0	1,0	2,8
		FL A2	10	28	3,3	0,21	0,49	0,58	1,37
Wasseranspruch für Ausbreitmaß	ml	NHL 2	9	24	343,09	2,43	24,17	6,82	67,68
		NHL 3,5	9	22	324,33	2,54	14,70	7,11	41,15
		FL A2	8	21	380,91	3,72	25,99	10,42	72,77
Ausbreitmaß	mm	NHL 2	9	24	164,54	1,25	2,05	3,49	5,75
		NHL 3,5	10	27	184,73	1,42	1,78	3,98	4,99
		FL A2	9	24	165,63	1,76	1,54	4,94	4,30
Eindringmaß	mm	NHL 2	7	21	23,15	0,95	6,56	2,67	18,38
		NHL 3,5	7	21	28,76	2,00	10,32	5,60	28,90
		FL A2	7	21	20,22	1,59	7,21	4,45	20,17
Luftgehalt	%	NHL 2	8	24	2,79	0,17	0,61	0,46	1,70
		NHL 3,5	8	24	2,80	0,24	0,94	0,68	2,63
		FL A2	8	24	7,10	0,36	0,85	1,00	2,37
Erstarrungsbeginn	h	NHL 2	9	24	5,61	0,63	2,01	1,76	5,64
		NHL 3,5	9	24	4,95	0,62	1,64	1,73	4,58
		FL A2	9	24	5,61	0,18	2,09	0,49	5,85
Erstarrungsende	h	NHL 3,5	8	21	11,02	0,63	3,95	1,78	11,06
Reaktivität t_{50}	min	CL 80-Q	15	56	10,2	0,38	0,7	1,06	2,0
Reaktivität t_{60}	min	CL 80-Q	15	56	21	0,84	2,03	2,34	5,7
Reaktivität t_{60}	min	CL 90-Q (R5)	15	56	9,9	0,36	0,58	1,0	1,64
Reaktivität t_{60}	min	CL 90-Q (R5)	29	87	0,57	0,033	0,095	0,093	0,266
Luftstrahlsiebung 0,2 mm ^a	%	CL 80-Q	15	60	4,08	0,19	0,38	0,53	1,07
Luftstrahlsiebung 0,09 mm ^b	%	CL 90-Q	27	81	98,55	0,11	0,41	0,30	1,15
Luftstrahlsiebung 0,09 mm ^a	%	CL 80-Q	15	60	15,41	0,27	0,74	0,77	2,06
Luftstrahlsiebung 0,09 mm ^a	%	CL 90-Q	15	60	1,01	0,08	0,21	0,23	0,59
L Anzahl der ausgewerteten Labore s_R Vergleichstandardabweichung N Anzahl der ausreißerfreien Einzelwerte r Wiederholbarkeit $\bar{x}$ Gesamtmittelwert R Vergleichbarkeit s_r Wiederholstandardabweichung									
^a Alle statistischen Werte basieren auf dem Siebrückstand.									
^b Alle statistischen Werte basieren auf dem Siebdurchgang.									

Literaturhinweise

- [1] EN 10088-2, *Nichtrostende Stähle — Teil 2: Technische Lieferbedingungen für Blech und Band aus korrosionsbeständigen Stählen für allgemeine Verwendung*
- [2] ISO 383, *Laboratory glassware — Interchangeable conical ground joints*
- [3] ISO 2768-1:1989, *General tolerances — Part 1: Tolerances for linear and angular dimensions without individual tolerance indications*
- [4] ISO 5725-2, *Accuracy (trueness and precision) of measurement methods and results — Part 2: Basic method for the determination of repeatability and reproducibility of a standard measurement method*

- Entwurf -

English Version

Building lime - Part 2: Test methods

Chaux de construction - Partie 2: Méthodes d'essai

Baukalk - Teil 2: Prüfverfahren

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 51.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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European foreword

This document (prEN 459-2:2019) has been prepared by Technical Committee CEN/TC 51 “Cement and building limes”, the secretariat of which is held by NBN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 459-2:2010.

In comparison with EN 459-2:2010, the following modifications have been:

- description of fusion with lithium tetraborate;
- a new Clause 4.1 included;
- amendments for the determinations of CaO and MgO;
- change of the order of methods for determination of CO₂;
- Phenolphthalein as indicator replaced by thymolphthalein;
- Amendments for the determination of available lime;
- amendments of the methods for particle size determination;
- amendment for the description of bulk density;
- amendments for the determination of reactivity;
- amendments for the Table B.1 and Table B.2 in Annex B;
- editorial changes were made and minor mistakes corrected.

EN 459, *Building lime*, is currently composed of the following parts:

- *Part 1: Definitions, specifications and conformity criteria*;
- *Part 2: Test methods*;
- *Part 3: Conformity evaluation*.

The existing standards from the EN 196 series were used as a basis for the testing of physical and mechanical properties in EN 459-2. For the testing of chemical properties of building limes, test methods described in EN 12485 have been incorporated into this document.