

Lafarge Cement S.A.  
ul. Warszawska 110  
28-366 Małogoszcz  
Cementownia Kujawy  
Doradztwo Techniczne  
www.lafarge.pl

tel.: (52) 58 65 000, fax: (52) 58 65 011  
tel.: (41) 24 87 533, fax: (41) 24 87 531

KUJAWY CEMENT  
PLANT IN BIELAWY

## Quality Certificate of cement

Type of cement : **CEM I 42,5R**

Requirements acc. to: EN 197-1:2011

Values obtained for the period of: **March 2023**

|  | Unit | Results | Requirements acc. to:<br>EN 197-1:2011 |
|--|------|---------|----------------------------------------|
|--|------|---------|----------------------------------------|

### 1. Properties (by standards)

|                                                                   |     |       |                           |
|-------------------------------------------------------------------|-----|-------|---------------------------|
| Compressive strength                                              |     |       |                           |
| Early strength, after 2 days                                      | MPa | 27,0  | $\geq 20$                 |
| Standard strength, after 28 days<br>(results from previous month) | MPa | 56,5  | $\geq 42,5$ i $\leq 62,5$ |
| Initial setting time                                              | min | 185   | $\geq 60$                 |
| Expansion of cement                                               | mm  | 0,5   | $\leq 10$                 |
| Sulfate content (as SO <sub>3</sub> )                             | %   | 3,28  | $\leq 4,0$                |
| Chloride content Cl <sup>-</sup>                                  | %   | 0,079 | $\leq 0,10$               |
| Loss on ignition <sup>a)</sup>                                    | %   | 3,04  | $\leq 5,0$                |
| Insoluble residues <sup>a)</sup>                                  | %   | 0,79  | $\leq 5,0$                |

### 2. Additional information

|                                                                  |   |       |   |
|------------------------------------------------------------------|---|-------|---|
| Laser particle size distribution<br>passing 8 $\mu$ m/32 $\mu$ m | % | 30/73 | - |
|------------------------------------------------------------------|---|-------|---|

a) only for CEM I and CEM III

*Anna Kozłowska*

Kierownik Jakości  
*Kozłowska*  
Cementownia Kujawy w Bielawach

.....  
stamp/signature