

## Statistické hodnocení kvality cementu dle EN 197-1

**Cement: CEM II/A-LL 52,5 R**

Období: Od: **01.06.2024**

Závod: **Mokrá**

Do: **30.06.2024**

### Mechanické a fyzikální vlastnosti

| Datum         | Měrný povrch           | Normální konzistence | Počátek tuhnutí | Konec tuhnutí | Objemová stálost | Pevnost v tlaku |             | Pevnost v ohybu |            |
|---------------|------------------------|----------------------|-----------------|---------------|------------------|-----------------|-------------|-----------------|------------|
|               |                        |                      |                 |               |                  | 2 dny           | 28 dní      | 2 dny           | 28 dní     |
| Jednotka      | [ m <sup>2</sup> /kg ] | [ % ]                | [ min ]         | [ min ]       | [ mm ]           | [ MPa ]         | [ MPa ]     | [ MPa ]         | [ MPa ]    |
| 03.06.2024    | 589                    | 31,8                 | 152             | 208           | 0,0              | 39,8            | 64,8        | 7,1             | 8,2        |
| 05.06.2024    | 602                    | 31,2                 | 151             | 215           | 0,0              | 39,7            | 61,2        | 7,4             | 8,5        |
| 11.06.2024    | 584                    | 31,4                 | 158             | 213           | 0,5              | 40,3            | 63,7        | 7,3             | 8,3        |
| 13.06.2024    | 583                    | 31,4                 | 155             | 234           | 0,5              | 37,5            | 64,5        | 7,1             | 8,5        |
| 17.06.2024    | 594                    | 32,0                 | 167             | 240           | 1,5              | 38,3            | 64,4        | 7,4             | 8,5        |
| 18.06.2024    | 569                    | 32,0                 | 172             | 260           | 1,0              | 39,4            | 65,3        | 7,5             | 8,6        |
| 24.06.2024    | 596                    | 31,4                 | 152             | 203           | 0,0              | 38,1            | 62,2        | 7,5             | 8,4        |
| 26.06.2024    | 594                    | 31,2                 | 155             | 204           | 0,5              | 40,5            | 63,4        | 7,4             | 8,7        |
| ---           | ---                    | ---                  | ---             | ---           | ---              | ---             | ---         | ---             | ---        |
| ---           | ---                    | ---                  | ---             | ---           | ---              | ---             | ---         | ---             | ---        |
| ---           | ---                    | ---                  | ---             | ---           | ---              | ---             | ---         | ---             | ---        |
| ---           | ---                    | ---                  | ---             | ---           | ---              | ---             | ---         | ---             | ---        |
| <b>Průměr</b> | <b>589</b>             | <b>31,6</b>          | <b>158</b>      | <b>222</b>    | <b>0,5</b>       | <b>39,2</b>     | <b>63,7</b> | <b>7,3</b>      | <b>8,5</b> |
| Max           | 602                    | 32,0                 | 172             | 260           | 1,5              | 40,5            | 65,3        | 7,5             | 8,7        |
| Min           | 569                    | 31,2                 | 151             | 203           | 0,0              | 37,5            | 61,2        | 7,1             | 8,2        |
| Std           | 10                     | 0,3                  | 7               | 19            | 0,5              | 1,0             | 1,3         | 0,2             | 0,2        |
| Četnost       | 8                      | 8                    | 8               | 8             | 8                | 8               | 8           | 8               | 8          |
| Norma-min     |                        |                      | 45              |               |                  | 30,0            | 52,5        |                 |            |
| Norma-max     |                        |                      |                 |               | 10               |                 |             |                 |            |

### Chemické vlastnosti

| Datum         | SiO <sub>2</sub> | Al <sub>2</sub> O <sub>3</sub> | Fe <sub>2</sub> O <sub>3</sub> | CaO          | MgO         | K <sub>2</sub> O | Na <sub>2</sub> O | Obsah síranů (jako SO <sub>3</sub> ) | Na <sub>2</sub> O ekv. | Obsah Cl     | Ztráta žháním | Nerozpustný zbytek | Vodorozpustný chrom (Cr <sup>6+</sup> ) | C <sub>3</sub> A ve slínku |
|---------------|------------------|--------------------------------|--------------------------------|--------------|-------------|------------------|-------------------|--------------------------------------|------------------------|--------------|---------------|--------------------|---|----------------------------|
| Jednotka      | [ % ]            | [ % ]                          | [ % ]                          | [ % ]        | [ % ]       | [ % ]            | [ % ]             | [ % ]                                | [ % ]                  | [ % ]        | [ % ]         | [ % ]              | [ ppm ]                                 | [ % ]                      |
| 03.06.2024    | 18,36            | 4,58                           | 3,05                           | 63,57        | 1,19        | 0,80             | 0,11              | 3,03                                 | 0,64                   | 0,048        | ---           | ---                | ---                                     | 6,97                       |
| 05.06.2024    | 18,20            | 4,56                           | 3,02                           | 62,71        | 1,24        | 0,78             | 0,11              | 2,97                                 | 0,62                   | 0,040        | ---           | ---                | ---                                     | 6,97                       |
| 11.06.2024    | 18,14            | 4,59                           | 3,10                           | 62,64        | 1,18        | 0,76             | 0,09              | 3,03                                 | 0,59                   | 0,044        | ---           | ---                | ---                                     | 6,76                       |
| 13.06.2024    | 18,40            | 4,67                           | 3,11                           | 62,08        | 1,33        | 0,76             | 0,10              | 2,99                                 | 0,60                   | 0,050        | ---           | ---                | ---                                     | 6,76                       |
| 17.06.2024    | 18,16            | 4,54                           | 3,05                           | 63,13        | 1,16        | 0,76             | 0,10              | 3,00                                 | 0,60                   | 0,033        | ---           | ---                | ---                                     | 6,76                       |
| 18.06.2024    | 18,36            | 4,73                           | 3,24                           | 62,31        | 1,17        | 0,75             | 0,09              | 2,99                                 | 0,58                   | 0,048        | ---           | ---                | ---                                     | 6,81                       |
| 24.06.2024    | 18,16            | 4,60                           | 3,10                           | 61,91        | 1,23        | 0,78             | 0,10              | 2,98                                 | 0,61                   | 0,058        | ---           | ---                | ---                                     | 6,81                       |
| 26.06.2024    | 18,02            | 4,58                           | 3,14                           | 61,97        | 1,20        | 0,79             | 0,11              | 2,90                                 | 0,63                   | 0,056        | ---           | ---                | ---                                     | 6,95                       |
| ---           | ---              | ---                            | ---                            | ---          | ---         | ---              | ---               | ---                                  | ---                    | ---          | ---           | ---                | ---                                     | ---                        |
| ---           | ---              | ---                            | ---                            | ---          | ---         | ---              | ---               | ---                                  | ---                    | ---          | ---           | ---                | ---                                     | ---                        |
| ---           | ---              | ---                            | ---                            | ---          | ---         | ---              | ---               | ---                                  | ---                    | ---          | ---           | ---                | ---                                     | ---                        |
| ---           | ---              | ---                            | ---                            | ---          | ---         | ---              | ---               | ---                                  | ---                    | ---          | ---           | ---                | ---                                     | ---                        |
| <b>Průměr</b> | <b>18,23</b>     | <b>4,61</b>                    | <b>3,10</b>                    | <b>62,54</b> | <b>1,21</b> | <b>0,77</b>      | <b>0,10</b>       | <b>2,98</b>                          | <b>0,61</b>            | <b>0,047</b> | <b>---</b>    | <b>---</b>         | <b>---</b>                              | <b>6,85</b>                |
| Max           | 18,40            | 4,73                           | 3,24                           | 63,57        | 1,33        | 0,80             | 0,11              | 3,03                                 | 0,64                   | 0,058        | ---           | ---                | ---                                     | 6,97                       |
| Min           | 18,02            | 4,54                           | 3,02                           | 61,91        | 1,16        | 0,75             | 0,09              | 2,90                                 | 0,58                   | 0,033        | ---           | ---                | ---                                     | 6,76                       |
| Std           | 0,13             | 0,06                           | 0,06                           | 0,55         | 0,05        | 0,02             | 0,01              | 0,04                                 | 0,02                   | 0,008        | ---           | ---                | ---                                     | 0,09                       |
| Četnost       | 8                | 8                              | 8                              | 8            | 8           | 8                | 8                 | 8                                    | 8                      | 8            | 0             | 0                  | 0                                       | 8                          |
| Norma-min     |                  |                                |                                |              |             |                  |                   |                                      |                        |              |               |                    |   |                            |
| Norma-max     |                  |                                |                                |              |             |                  |                   | 4,0                                  | 0,10                   |              |               |                    |   |                            |

V Mokré dne : 08.08.2024

Ing. Vojtěch Smutný - vedoucí útvaru řízení jakosti

Technická podpora prodeje:  
e-mail: [technicka.podpora@heidelbergmaterials.com](mailto:technicka.podpora@heidelbergmaterials.com)  
tel: +420 544 122 544



**Heidelberg Materials CZ, a.s.**  
Mokrá 359, 664 04 Mokrá-Horákov  
IČ: 26209578, DIČ: CZ26209578