شماره مدرک : LA-F-023-02

تاریخ : خرداد ۹۳ صفحه ۱ از ۴

# گزارش ماهانه کنترل کیفیت سیمان ممتازان کرمان

## نوع سیمان : پرتلند تیپ ۲

| Chemical Compositions & Phases % | | | | | | | | | | | | | | | | | | Physical Test | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | FINENESS | | SETTING TIME | | SOUNDNESS | | COMPRESSIVE STRENGTH (kg/cm$^2$) | | | | | BEND STRENGTH (kg/cm$^2$) | | | |
| DAY | IR | $SiO_2$ | $Al_2O_3$ | $Fe_2O_3$ | CaO | MgO | $SO_3$ | $K_2O$ | $Na_2O$ | Cl | LOSS | C3S | C2S | C3A | C4AF | C4AF +2C3A | F.CaO | Sieve 90 mic | Blaine (cm$^2$/gr) | INIT (min) | FINAL (min) | LEACHTELIER (mm) | Auto Clave (%) | 1 DAY | 2 DAYS | 3 DAYS | 7 DAYS | 28 DAYS | 2 DAYS | 7 DAYS | 28 DAYS | Lab.Code |
| 1 S | 0.45 | 20.14 | 4.45 | 3.72 | 62.71 | 1.56 | 2.85 | 0.62 | 0.78 | 0.023 | 1.69 | 58.9 | 13.3 | 5.5 | 11.3 | 22.3 | 1.75 | 1.6 | 3050 | 125 | 175 | 1.3 | 0.17 | - | 234 | 289 | 385 | 476 | 41 | 54 | 73 | 98 |
| 1 M | 0.43 | 20.16 | 4.45 | 3.72 | 62.89 | 1.57 | 2.91 | 0.62 | 0.75 | 0.023 | 1.12 | 59.3 | 13.1 | 5.5 | 11.3 | 22.3 | 1.65 | 1.9 | 3080 | 130 | 180 | 1.1 | 0.14 | - | 216 | 274 | 371 | 473 | 38 | 55 | 76 | 99 |
| 2 M | 0.30 | 20.20 | 4.47 | 3.73 | 62.92 | 1.57 | 3.08 | 0.61 | 0.75 | 0.023 | 1.92 | 58.5 | 13.8 | 5.5 | 11.4 | 22.4 | 1.70 | 1.6 | 3080 | 115 | 160 | 1.4 | 0.17 | - | 204 | 248 | 355 | 456 | 36 | 51 | 72 | 100 |
| 5 S | 0.18 | 20.12 | 4.43 | 3.75 | 62.41 | 1.56 | 2.91 | 0.62 | 0.74 | 0.022 | 1.94 | 57.7 | 14.1 | 5.4 | 11.4 | 22.2 | 1.60 | 1.6 | 3080 | 120 | 165 | 1.1 | 0.14 | - | 232 | 298 | 379 | 479 | 45 | 56 | 77 | 104 |
| 5 M | 0.20 | 20.11 | 4.45 | 3.76 | 62.55 | 1.56 | 2.75 | 0.62 | 0.74 | 0.023 | 1.92 | 58.7 | 13.4 | 5.4 | 11.4 | 22.3 | 1.50 | 1.5 | 3050 | 130 | 180 | 1.1 | 0.11 | - | 221 | 282 | 367 | 475 | 42 | 55 | 72 | 105 |
| 6 M | 0.25 | 20.07 | 4.43 | 3.71 | 62.00 | 1.53 | 2.74 | 0.61 | 0.73 | 0.022 | 2.14 | 57.0 | 14.5 | 5.5 | 11.3 | 22.2 | 1.20 | 1.7 | 3080 | 115 | 160 | 0.8 | 0.07 | - | 237 | 290 | 384 | 482 | 44 | 62 | 74 | 107 |
| 7 M | 0.29 | 20.08 | 4.49 | 3.75 | 62.61 | 1.58 | 2.75 | 0.62 | 0.74 | 0.022 | 2.15 | 58.9 | 13.1 | 5.6 | 11.4 | 22.5 | 1.45 | 1.8 | 3110 | 120 | 160 | 1.1 | 0.11 | - | 226 | 294 | 389 | 478 | 45 | 61 | 71 | 109 |
| 8 M | 0.25 | 20.20 | 4.50 | 3.73 | 62.94 | 1.60 | 2.76 | 0.62 | 0.74 | 0.022 | 2.02 | 59.3 | 13.2 | 5.6 | 11.4 | 22.6 | 1.75 | 1.6 | 3080 | 125 | 170 | 1.2 | 0.17 | - | 223 | 278 | 364 | 467 | 40 | 56 | 68 | 111 |
| 9 M | 0.54 | 20.17 | 4.46 | 3.69 | 62.74 | 1.60 | 2.80 | 0.62 | 0.75 | 0.022 | 1.89 | 58.9 | 13.4 | 5.6 | 11.2 | 22.4 | 1.80 | 2.1 | 3050 | 120 | 165 | 1.3 | 0.17 | - | 243 | 285 | 364 | 479 | 44 | 62 | 71 | 113 |
| 11 S | 0.33 | 20.08 | 4.45 | 3.70 | 62.47 | 1.58 | 2.88 | 0.63 | 0.75 | 0.022 | 2.21 | 58.3 | 13.6 | 5.5 | 11.3 | 22.3 | 1.45 | 1.5 | 3050 | 120 | 165 | 1.2 | 0.14 | - | 225 | 284 | 365 | 471 | 43 | 62 | 70 | 115 |
| 11 M | 0.40 | 20.34 | 4.53 | 3.72 | 62.60 | 1.62 | 2.69 | 0.62 | 0.75 | 0.021 | 1.96 | 56.8 | 15.4 | 5.7 | 11.3 | 22.7 | 1.45 | 1.6 | 3110 | 125 | 175 | 1.1 | 0.11 | - | 237 | 296 | 382 | 480 | 44 | 60 | 73 | 116 |
| 12 M | 0.30 | 20.13 | 4.47 | 3.68 | 62.83 | 1.62 | 2.85 | 0.62 | 0.75 | 0.022 | 2.19 | 59.4 | 12.9 | 5.6 | 11.2 | 22.4 | 1.85 | 1.8 | 3140 | 130 | 180 | 1.3 | 0.17 | - | 204 | 256 | 350 | 462 | 39 | 55 | 74 | 118 |
| 13 S | 0.24 | 20.04 | 4.38 | 3.65 | 62.27 | 1.58 | 2.87 | 0.62 | 0.74 | 0.022 | 2.18 | 58.4 | 13.4 | 5.4 | 11.1 | 22.0 | 1.75 | 1.9 | 3080 | 115 | 160 | 1.3 | 0.17 | - | 231 | 288 | 372 | 468 | 38 | 58 | 76 | 119 |
| 14 S | 0.31 | 20.16 | 4.44 | 3.69 | 62.47 | 1.60 | 2.82 | 0.63 | 0.74 | 0.022 | 2.16 | 58.0 | 14.1 | 5.5 | 11.2 | 22.3 | 1.70 | 1.9 | 3110 | 120 | 160 | 1.3 | 0.17 | - | 227 | 281 | 369 | 467 | 42 | 56 | 77 | 121 |
| 14 M | 0.38 | 20.11 | 4.41 | 3.65 | 62.48 | 1.59 | 2.76 | 0.62 | 0.74 | 0.026 | 2.32 | 58.8 | 13.3 | 5.5 | 11.1 | 22.1 | 1.25 | 1.6 | 3110 | 125 | 175 | 0.9 | 0.07 | - | 208 | 264 | 350 | 458 | 40 | 56 | 73 | 122 |
| 17 M | 0.42 | 20.27 | 4.47 | 3.72 | 62.70 | 1.62 | 2.71 | 0.60 | 0.75 | 0.025 | 2.06 | 58.1 | 14.3 | 5.6 | 11.3 | 22.4 | 2.20 | 1.7 | 3050 | 120 | 165 | 1.5 | 0.20 | - | 213 | 262 | 346 | 459 | 43 | 50 | 74 | 124 |
| 18 S | 0.43 | 20.30 | 4.50 | 3.70 | 62.53 | 1.60 | 2.80 | 0.61 | 0.75 | 0.025 | 1.98 | 56.8 | 15.4 | 5.7 | 11.3 | 22.6 | 2.15 | 1.6 | 3110 | 120 | 160 | 1.4 | 0.19 | - | 233 | 294 | 371 | 484 | 42 | 62 | 76 | 125 |
| 18 M | 0.33 | 20.23 | 4.37 | 3.72 | 62.80 | 1.65 | 2.83 | 0.62 | 0.75 | 0.023 | 2.07 | 59.2 | 13.4 | 5.3 | 11.3 | 21.9 | 2.20 | 1.7 | 3050 | 120 | 165 | 1.5 | 0.17 | - | 226 | 281 | 353 | 455 | 37 | 59 | 75 | 126 |
| 19 M | 0.32 | 20.36 | 4.44 | 3.74 | 62.44 | 1.62 | 2.89 | 0.62 | 0.75 | 0.025 | 1.96 | 56.0 | 16.1 | 5.4 | 11.4 | 22.3 | 2.10 | 1.6 | 3010 | 125 | 170 | 1.4 | 0.19 | - | 221 | 267 | 348 | 459 | 39 | 58 | 72 | 128 |
| 20 M | 0.30 | 20.33 | 4.49 | 3.70 | 62.69 | 1.61 | 2.89 | 0.62 | 0.75 | 0.025 | 1.73 | 57.0 | 15.3 | 5.6 | 11.3 | 22.5 | 2.00 | 1.9 | 3170 | 130 | 180 | 1.5 | 0.17 | - | 231 | 287 | 369 | 469 | 42 | 62 | 74 | 130 |
| 21 M | 0.24 | 20.36 | 4.52 | 4.00 | 62.64 | 1.62 | 3.03 | 0.62 | 0.75 | 0.023 | 1.92 | 55.5 | 16.5 | 5.2 | 12.2 | 22.6 | 1.85 | 1.1 | 3200 | 125 | 175 | 1.4 | 0.17 | - | 224 | 271 | 368 | 477 | 38 | 60 | 76 | 132 |
| 24 M | 0.14 | 20.33 | 4.44 | 3.96 | 62.48 | 1.61 | 2.67 | 0.61 | 0.75 | 0.021 | 2.06 | 56.7 | 15.5 | 5.1 | 12.1 | 22.2 | 1.75 | 1.3 | 3050 | 125 | 175 | 1.2 | 0.17 | - | 212 | 271 | 360 | 461 | 42 | 53 | 78 | 137 |
| 25 S | 0.13 | 20.23 | 4.52 | 4.04 | 62.58 | 1.65 | 2.80 | 0.62 | 0.76 | 0.022 | 1.77 | 56.9 | 15.1 | 5.1 | 12.3 | 22.6 | 1.85 | 1.5 | 3110 | 120 | 165 | 1.3 | 0.17 | - | 227 | 291 | 384 | 487 | 43 | 63 | 80 | 138 |
| 27 M | 0.41 | 20.76 | 4.58 | 3.79 | 63.17 | 1.60 | 2.76 | 0.62 | 0.75 | 0.021 | 1.77 | 55.3 | 17.8 | 5.7 | 11.5 | 23.0 | 1.65 | 1.3 | 3010 | 125 | 175 | 1.1 | 0.14 | - | 221 | 278 | 361 | 472 | 41 | 59 | 77 | 143 |
| 28 S | 0.37 | 20.49 | 4.49 | 3.74 | 62.80 | 1.58 | 2.82 | 0.62 | 0.75 | 0.021 | 1.79 | 56.4 | 16.2 | 5.6 | 11.4 | 22.5 | 1.85 | 1.4 | 2980 | 125 | 175 | 1.3 | 0.17 | - | 222 | 278 | 369 | 473 | 41 | 60 | 79 | 144 |
| 28 M | 0.54 | 20.53 | 4.52 | 3.75 | 62.75 | 1.57 | 2.85 | 0.61 | 0.75 | 0.020 | 1.67 | 55.6 | 16.9 | 5.6 | 11.4 | 22.7 | 1.78 | 1.3 | 3010 | 120 | 170 | 1.3 | 0.17 | - | 201 | 256 | 345 | 447 | 39 | 55 | 70 | 145 |
| 29 M | 0.42 | 20.44 | 4.54 | 3.79 | 62.67 | 1.59 | 2.88 | 0.62 | 0.74 | 0.019 | 1.49 | 55.7 | 16.6 | 5.6 | 11.5 | 22.8 | 1.83 | 1.3 | 2980 | 125 | 175 | 1.4 | 0.17 | - | 216 | 263 | 351 | 469 | 43 | 60 | 74 | 147 |
| 30 S | 0.23 | 20.45 | 4.52 | 3.77 | 62.64 | 1.58 | 2.91 | 0.62 | 0.75 | 0.021 | 1.51 | 55.5 | 16.7 | 5.6 | 11.5 | 22.7 | 1.95 | 1.5 | 3010 | 120 | 165 | 1.4 | 0.19 | - | 215 | 274 | 363 | 460 | 43 | 63 | 77 | 148 |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Avg | **0.33** | **20.26** | **4.47** | **3.75** | **62.64** | **1.59** | **2.83** | **0.62** | **0.75** | **0.022** | **1.91** | **57.6** | **14.7** | **5.5** | **11.4** | **22.4** | **1.75** | **1.6** | **3071** | **123** | **169** | **1.3** | **0.16** | **-** | **223** | **278** | **366** | **469** | **41** | **58** | **74** | **-** |
| Min | **0.13** | **20.04** | **4.37** | **3.65** | **62.00** | **1.53** | **2.67** | **0.60** | **0.73** | **0.019** | **1.12** | **55.3** | **12.9** | **5.1** | **11.1** | **21.9** | **1.20** | **1.1** | **2980** | **115** | **160** | **0.8** | **0.07** | **-** | **201** | **248** | **345** | **447** | **36** | **50** | **68** | **-** |
| Max | **0.54** | **20.76** | **4.58** | **4.04** | **63.17** | **1.65** | **3.08** | **0.63** | **0.78** | **0.026** | **2.32** | **59.4** | **17.8** | **5.7** | **12.3** | **23.0** | **2.20** | **2.1** | **3200** | **130** | **180** | **1.5** | **0.20** | **-** | **243** | **298** | **389** | **487** | **45** | **63** | **80** | **-** |
| S.D | **0.11** | **0.17** | **0.05** | **0.09** | **0.23** | **0.03** | **0.09** | **0.01** | **0.01** | **0.002** | **0.26** | **1.36** | **1.44** | **0.16** | **0.29** | **0.24** | **0.26** | **0.23** | **52.82** | **4.41** | **7.12** | **0.17** | **0.03** | **-** | **10.71** | **13.29** | **12.69** | **9.97** | **2.47** | **3.67** | **2.91** | **-** |

S : Silo M : Mill

کارشناس آزمایشگاه : رئیس آزمایشگاهها : مدیرکنترل کیفی و آزمایشگاهها : مدیر کارخانه :

شماره مدرک : LA-F-023-02

تاریخ : خرداد ۹۳ صفحه ۲ از ۴

# گزارش ماهانه کنترل کیفیت سیمان ممتازان کرمان

## نوع سیمان : پرتلند تیپ ۵

| Chemical Compositions & Phases % | | | | | | | | | | | | | | | | | | Physical Test | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | FINENESS | | SETTING TIME | | SOUNDNESS | | COMPRESSIVE STRENGTH (kg/cm$^2$) | | | | | BEND STRENGTH (kg/cm$^2$) | | | |
| DAY | IR | $SiO_2$ | $Al_2O_3$ | $Fe_2O_3$ | CaO | MgO | $SO_3$ | $K_2O$ | $Na_2O$ | Cl | LOSS | C3S | C2S | C3A | C4AF | C4AF +2C3A | F.CaO | Sieve 9O mic | Blaine (cm$^2$/gr) | INIT (min) | FINAL (min) | LEACHTELIER (mm) | Auto Clave (%) | 1 DAY | 2 DAYS | 3 DAYS | 7 DAYS | 28 DAYS | 2 DAYS | 7 DAYS | 28 DAYS | Lab.Code |
| 3 M | 0.43 | 20.73 | 4.67 | 5.63 | 63.67 | 1.82 | 2.14 | 0.51 | 0.65 | 0.013 | 1.09 | 56.1 | 17.1 | 2.8 | 17.1 | 22.8 | 1.40 | 0.8 | 3110 | 130 | 180 | 1.1 | 0.11 | - | 172 | 217 | 331 | 452 | 38 | 55 | 74 | 101 |
| 4 M | 0.25 | 20.82 | 4.64 | 5.46 | 63.55 | 1.81 | 2.02 | 0.51 | 0.65 | 0.012 | 0.93 | 55.7 | 17.6 | 3.1 | 16.6 | 22.7 | 1.35 | 0.6 | 3010 | 135 | 185 | 0.9 | 0.11 | - | 140 | 191 | 309 | 452 | 34 | 49 | 75 | 103 |
| 6 S | 0.59 | 20.42 | 4.54 | 5.52 | 62.67 | 1.76 | 2.05 | 0.52 | 0.64 | 0.012 | 1.16 | 55.7 | 16.5 | 2.7 | 16.8 | 22.2 | 1.40 | 0.6 | 3080 | 130 | 180 | 0.8 | 0.07 | - | 162 | 205 | 322 | 451 | 31 | 58 | 71 | 106 |
| 8 S | 0.30 | 20.73 | 4.64 | 5.50 | 63.33 | 1.81 | 2.02 | 0.51 | 0.65 | 0.012 | 1.51 | 55.5 | 17.6 | 3.0 | 16.7 | 22.7 | 1.35 | 0.7 | 3050 | 120 | 165 | 0.9 | 0.11 | - | 153 | 201 | 302 | 447 | 35 | 56 | 70 | 110 |
| 12 S | 0.26 | 20.75 | 4.62 | 5.50 | 63.41 | 1.82 | 2.01 | 0.51 | 0.65 | 0.013 | 1.05 | 55.8 | 17.4 | 2.9 | 16.7 | 22.6 | 1.35 | 0.5 | 3050 | 125 | 175 | 1.0 | 0.11 | - | 145 | 188 | 291 | 443 | 32 | 56 | 68 | 117 |
| 13 M | 0.31 | 20.39 | 4.59 | 5.46 | 62.84 | 1.81 | 2.18 | 0.52 | 0.64 | 0.013 | 1.05 | 56.0 | 16.2 | 2.9 | 16.6 | 22.5 | 1.35 | 0.7 | 3080 | 120 | 165 | 0.9 | 0.07 | - | 172 | 215 | 318 | 454 | 37 | 61 | 74 | 120 |
| 20 S | 0.32 | 20.64 | 4.61 | 5.51 | 63.08 | 1.79 | 2.01 | 0.51 | 0.65 | 0.012 | 0.98 | 55.4 | 17.4 | 2.9 | 16.8 | 22.6 | 1.35 | 0.5 | 3050 | 125 | 175 | 1.1 | 0.11 | - | 144 | 186 | 308 | 452 | 33 | 56 | 72 | 129 |
| 22 M | 0.29 | 20.47 | 4.58 | 5.67 | 62.77 | 1.83 | 2.07 | 0.51 | 0.64 | 0.012 | 0.98 | 55.2 | 17.1 | 2.5 | 17.3 | 22.3 | 1.25 | 0.7 | 3050 | 135 | 185 | 1.0 | 0.11 | - | 146 | 194 | 317 | 461 | 35 | 56 | 72 | 134 |
| 23 M | 0.25 | 20.56 | 4.61 | 5.54 | 62.91 | 1.81 | 2.06 | 0.51 | 0.65 | 0.012 | 0.95 | 55.1 | 17.4 | 2.8 | 16.9 | 22.5 | 1.25 | 0.7 | 3010 | 125 | 175 | 0.8 | 0.07 | - | 143 | 198 | 309 | 449 | 31 | 54 | 71 | 136 |
| 26 S | 0.26 | 20.73 | 4.63 | 5.59 | 63.57 | 1.79 | 2.04 | 0.51 | 0.65 | 0.012 | 0.89 | 56.3 | 16.9 | 2.8 | 17.0 | 22.6 | 1.25 | 0.6 | 3080 | 120 | 165 | 1.1 | 0.04 | - | 163 | 209 | 321 | 468 | 33 | 59 | 81 | 140 |
| 29 S | 0.50 | 20.62 | 4.60 | 5.64 | 63.27 | 1.77 | 2.02 | 0.52 | 0.65 | 0.012 | 0.90 | 56.1 | 16.8 | 2.6 | 17.2 | 22.5 | 1.25 | 0.7 | 2950 | 120 | 165 | 0.9 | 0.07 | - | 144 | 195 | 297 | 447 | 32 | 58 | 78 | 146 |
| 30 M | 0.30 | 20.35 | 4.56 | 5.57 | 63.17 | 1.73 | 2.41 | 0.51 | 0.65 | 0.013 | 1.51 | 57.0 | 15.3 | 2.7 | 16.9 | 22.3 | 1.35 | 1.1 | 3140 | 130 | 180 | 0.8 | 0.07 | - | 171 | 225 | 332 | 451 | 35 | 60 | 79 | 149 |
| 31 M | 0.21 | 20.31 | 4.49 | 5.49 | 62.51 | 1.76 | 2.19 | 0.51 | 0.65 | 0.013 | 1.00 | 55.9 | 16.1 | 2.6 | 16.7 | 21.9 | 1.28 | 0.6 | 3050 | 135 | 185 | 0.7 | 0.04 | - | 162 | 201 | 303 | 454 | 33 | 48 | 75 | 150 |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Avg | **0.33** | **20.58** | **4.60** | **5.54** | **63.13** | **1.79** | **2.09** | **0.51** | **0.65** | **0.012** | **1.08** | **55.8** | **16.9** | **2.8** | **16.9** | **22.5** | **1.32** | **0.7** | **3055** | **127** | **175** | **0.9** | **0.08** | - | **155** | **202** | **312** | **452** | **34** | **56** | **74** | - |
| Min | **0.21** | **20.31** | **4.49** | **5.46** | **62.51** | **1.73** | **2.01** | **0.51** | **0.64** | **0.012** | **0.89** | **55.1** | **15.3** | **2.5** | **16.6** | **21.9** | **1.25** | **0.5** | **2950** | **120** | **165** | **0.7** | **0.04** | - | **140** | **186** | **291** | **443** | **31** | **48** | **68** | - |
| Max | **0.59** | **20.82** | **4.67** | **5.67** | **63.67** | **1.83** | **2.41** | **0.52** | **0.65** | **0.013** | **1.51** | **57.0** | **17.6** | **3.1** | **17.3** | **22.8** | **1.40** | **1.1** | **3140** | **135** | **185** | **1.1** | **0.11** | - | **172** | **225** | **332** | **468** | **38** | **61** | **81** | - |
| S.D | **0.11** | **0.17** | **0.05** | **0.07** | **0.37** | **0.03** | **0.11** | **0.00** | **0.00** | **0.001** | **0.21** | **0.52** | **0.68** | **0.16** | **0.21** | **0.25** | **0.06** | **0.15** | **47.72** | **5.96** | **8.03** | **0.13** | **0.03** | - | **12.22** | **11.85** | **12.53** | **6.36** | **2.17** | **3.83** | **3.76** | - |

S : Silo M : Mill

کارشناس آزمایشگاه : رئیس آزمایشگاهها : مدیرکنترل کیفی و آزمایشگاهها : مدیر کارخانه :

شماره مدرک : LA-F-023-02

تاریخ : خرداد ۹۳ صفحه ۳ از ۴

# گزارش ماهانه کنترل کیفیت سیمان ممتازان کرمان

## نوع سیمان : پرتلند تیپ ۴۲۵-۱

| Chemical Compositions & Phases % | | | | | | | | | | | | | | | | | | Physical Test | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | FINENESS | | SETTING TIME | | SOUNDNESS | | COMPRESSIVE STRENGTH ($kg/cm^2$) | | | | | BEND STRENGTH ($kg/cm^2$) | | | |
| DAY | IR | $SiO_2$ | $Al_2O_3$ | $Fe_2O_3$ | CaO | MgO | $SO_3$ | $K_2O$ | $Na_2O$ | Cl | LOSS | C3S | C2S | C3A | C4AF | C4AF +2C3A | F.CaO | Sieve 90 mic | Blaine ($cm^2/gr$) | INIT (min) | FINAL (min) | LEACHTELIER (mm) | Auto Clave (%) | 1 DAY | 2 DAYS | 3 DAYS | 7 DAYS | 28 DAYS | 2 DAYS | 7 DAYS | 28 DAYS | Lab.Code |
| 7 S | 0.60 | 20.14 | 4.51 | 3.73 | 61.74 | 1.56 | 2.69 | 0.62 | 0.74 | 0.022 | 2.03 | 55.0 | 16.3 | 5.6 | 11.4 | 22.6 | 1.40 | 1.8 | 3110 | 120 | 165 | 0.9 | 0.07 | - | 241 | 302 | 394 | 492 | 45 | 59 | 74 | 108 |
| 16 S | 0.41 | 20.04 | 4.45 | 3.70 | 62.94 | 1.62 | 2.86 | 0.63 | 0.75 | 0.025 | 2.13 | 60.6 | 11.8 | 5.5 | 11.3 | 22.3 | 2.15 | 1.9 | 3170 | 125 | 175 | 1.3 | 0.17 | - | 219 | 272 | 360 | 461 | 37 | 56 | 75 | 123 |
| 19 S | 0.34 | 20.10 | 4.36 | 3.71 | 62.05 | 1.61 | 2.93 | 0.62 | 0.75 | 0.024 | 1.96 | 56.9 | 14.7 | 5.3 | 11.3 | 21.8 | 2.10 | 1.7 | 3010 | 120 | 165 | 1.4 | 0.17 | - | 220 | 279 | 352 | 460 | 38 | 63 | 77 | 127 |
| 27 S | 0.25 | 20.54 | 4.48 | 3.79 | 63 | 1.58 | 2.83 | 0.62 | 0.75 | 0.021 | 1.78 | 56.8 | 16.1 | 5.5 | 11.5 | 22.5 | 1.75 | 1.2 | 3140 | 120 | 165 | 1.3 | 0.17 | - | 246 | 304 | 383 | 475 | 45 | 60 | 78 | 142 |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Avg | 0.40 | 20.21 | 4.45 | 3.73 | 62.43 | 1.59 | 2.83 | 0.62 | 0.75 | 0.023 | 1.98 | 57.3 | 14.7 | 5.5 | 11.4 | 22.3 | 1.85 | 1.7 | 3108 | 121 | 168 | 1.2 | 0.15 | - | 232 | 289 | 372 | 472 | 41 | 60 | 76 | - |
| Min | 0.25 | 20.04 | 4.36 | 3.70 | 61.74 | 1.56 | 2.69 | 0.62 | 0.74 | 0.021 | 1.78 | 55.0 | 11.8 | 5.3 | 11.3 | 21.8 | 1.40 | 1.2 | 3010 | 120 | 165 | 0.9 | 0.07 | - | 219 | 272 | 352 | 460 | 37 | 56 | 74 | - |
| Max | 0.60 | 20.54 | 4.51 | 3.79 | 63.00 | 1.62 | 2.93 | 0.63 | 0.75 | 0.025 | 2.13 | 60.6 | 16.3 | 5.6 | 11.5 | 22.6 | 2.15 | 1.9 | 3170 | 125 | 175 | 1.4 | 0.17 | - | 246 | 304 | 394 | 492 | 45 | 63 | 78 | - |
| S.D | 0.15 | 0.23 | 0.06 | 0.04 | 0.63 | 0.03 | 0.10 | 0.01 | 0.01 | 0.002 | 0.15 | 2.35 | 2.08 | 0.15 | 0.12 | 0.34 | 0.35 | 0.31 | 69.46 | 2.50 | 5.00 | 0.22 | 0.05 | - | 14.01 | 16.15 | 19.57 | 14.99 | 4.35 | 2.89 | 1.83 | - |

S : Silo M : Mill

کارشناس آزمایشگاه : رئیس آزمایشگاهها : مدیرکنترل کیفی و آزمایشگاهها : مدیر کارخانه :

شماره مدرک : LA-F-023-02

تاریخ : خرداد ۹۳ صفحه ۴ از ۴

# گزارش ماهانه کنترل کیفیت سیمان ممتازان کرمان

## نوع سیمان : پرتلند پوزولانی ویژه

| Chemical Compositions & Phases % | | | | | | | | | | | | | | | | | | Physical Test | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | FINENESS | | SETTING TIME | | SOUNDNESS | | COMPRESSIVE STRENGTH (kg/cm$^2$) | | | | | BEND STRENGTH (kg/cm$^2$) | | | |
| DAY | IR | $SiO_2$ | $Al_2O_3$ | $Fe_2O_3$ | CaO | MgO | $SO_3$ | $K_2O$ | $Na_2O$ | Cl | LOSS | C3S | C2S | C3A | C4AF | C4AF +2C3A | F.CaO | Sieve 90 mic | Blaine (cm$^2$/gr) | INIT (min) | FINAL (min) | LEACHTELIER (mm) | Auto Clave (%) | 1 DAY | 2 DAYS | 3 DAYS | 7 DAYS | 28 DAYS | 2 DAYS | 7 DAYS | 28 DAYS | Lab.Code |
| 4 S | - | - | - | - | - | 1.58 | 2.22 | - | - | 0.022 | 1.65 | - | - | - | - | - | 1.35 | 1.3 | 3690 | 125 | 180 | 0.9 | 0.11 | - | 178 | 222 | 299 | 381 | 39 | 56 | 71 | 102 |
| 9 S | - | - | - | - | - | 1.62 | 2.18 | - | - | 0.022 | 1.78 | - | - | - | - | - | 1.35 | 1.1 | 3640 | 135 | 185 | 0.9 | 0.11 | - | 173 | 213 | 292 | 387 | 36 | 55 | 67 | 112 |
| 10 M | - | - | - | - | - | 1.58 | 2.12 | - | - | 0.022 | 1.94 | - | - | - | - | - | 1.40 | 1.4 | 3480 | 135 | 190 | 1.0 | 0.14 | - | 156 | 194 | 268 | 371 | 33 | 47 | 62 | 114 |
| 21 S | - | - | - | - | - | 1.62 | 2.41 | - | - | 0.024 | 1.75 | - | - | - | - | - | 1.75 | 1.4 | 3480 | 130 | 185 | 1.3 | 0.14 | - | 196 | 235 | 299 | 378 | 42 | 61 | 71 | 131 |
| 22 S | - | - | - | - | - | 1.57 | 2.19 | - | - | 0.023 | 1.74 | - | - | - | - | - | 1.38 | 1.2 | 3640 | 125 | 175 | 1.0 | 0.11 | - | 184 | 227 | 292 | 375 | 42 | 59 | 71 | 133 |
| 23 S | - | - | - | - | - | 1.59 | 2.19 | - | - | 0.023 | 1.74 | - | - | - | - | - | 1.40 | 1.1 | 3690 | 120 | 165 | 0.9 | 0.11 | - | 178 | 220 | 299 | 381 | 40 | 57 | 74 | 135 |
| 25 M | - | - | - | - | - | 1.63 | 1.99 | - | - | 0.024 | 1.52 | - | - | - | - | - | 1.30 | 1.7 | 3400 | 130 | 180 | 1.1 | 0.11 | - | 158 | 199 | 275 | 371 | 29 | 53 | 67 | 139 |
| 26 M | - | - | - | - | - | 1.56 | 2.32 | - | - | 0.023 | 2.49 | - | - | - | - | - | 1.60 | 1.3 | 3430 | 135 | 190 | 1.3 | 0.17 | - | 161 | 201 | 277 | 371 | 35 | 45 | 71 | 141 |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Avg | - | - | - | - | - | **1.59** | **2.20** | - | - | **0.023** | **1.83** | - | - | - | - | - | **1.44** | **1.3** | **3556** | **129** | **181** | **1.1** | **0.13** | - | **173** | **214** | **288** | **377** | **37** | **54** | **69** | - |
| Min | - | - | - | - | - | **1.56** | **1.99** | - | - | **0.022** | **1.52** | - | - | - | - | - | **1.30** | **1.1** | **3400** | **120** | **165** | **0.9** | **0.11** | - | **156** | **194** | **268** | **371** | **29** | **45** | **62** | - |
| Max | - | - | - | - | - | **1.63** | **2.41** | - | - | **0.024** | **2.49** | - | - | - | - | - | **1.75** | **1.7** | **3690** | **135** | **190** | **1.3** | **0.17** | - | **196** | **235** | **299** | **387** | **42** | **61** | **74** | - |
| S.D | - | - | - | - | - | **0.03** | **0.13** | - | - | **0.001** | **0.29** | - | - | - | - | - | **0.15** | **0.20** | **120.59** | **5.63** | **8.35** | **0.17** | **0.02** | - | **13.93** | **14.66** | **12.44** | **5.91** | **4.60** | **5.59** | **3.73** | - |

S : Silo M : Mill

کارشناس آزمایشگاه : رئیس آزمایشگاهها : مدیرکنترل کیفی و آزمایشگاهها : مدیر کارخانه :