گزارش ماهانه کنترل کیفیت سیمان ممتازان کرمان

نوع سیمان: پرتلند تیپ ۲

شماره مدرک: LA-F-023-02

تاریخ: مهر ۹۷ صفحه ۱ از ۴

| Day | | Chemical Compositions & Phases % | | | | | | | | | | | | | | | | | Physical Test | | | | | | | | | | | | | | Lab.Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | Fineness | | Setting time | | Soundness | | Compressive Strength (kg/cm²) | | | | | Bend Strength (kg/cm²) | | | |
| | | 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 (cm²/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 | |
| 1 | S | 0.64 | 21.08 | 4.32 | 3.69 | 63.64 | 1.31 | 2.76 | 0.61 | 0.63 | 0.017 | 1.68 | 56.7 | 17.7 | 5.2 | 11.2 | 21.6 | 1.55 | 0.9 | 3140 | 125 | 175 | 1.1 | 0.14 | - | 239 | 294 | 382 | 488 | 41 | 64 | 84 | I-CE-97-301 |
| 1 | M | 0.65 | 21.00 | 4.31 | 3.70 | 63.26 | 1.29 | 2.75 | 0.62 | 0.63 | 0.018 | 1.86 | 55.8 | 18.1 | 5.2 | 11.3 | 21.6 | 1.70 | 0.9 | 2980 | 135 | 185 | 1.3 | 0.17 | - | 227 | 285 | 382 | 489 | 40 | 58 | 81 | I-CE-97-302 |
| 3 | M | 0.62 | 21.11 | 4.38 | 3.73 | 63.21 | 1.29 | 2.75 | 0.61 | 0.63 | 0.017 | 1.59 | 54.3 | 19.6 | 5.3 | 11.4 | 21.9 | 1.15 | 0.9 | 2950 | 130 | 185 | 0.9 | 0.11 | - | 213 | 264 | 358 | 477 | 39 | 64 | 82 | I-CE-97-305 |
| 7 | M | 0.45 | 21.13 | 4.38 | 3.73 | 63.48 | 1.31 | 2.79 | 0.63 | 0.64 | 0.018 | 1.40 | 55.1 | 19.0 | 5.3 | 11.4 | 21.9 | 1.25 | 0.8 | 2980 | 130 | 180 | 1.0 | 0.11 | - | 225 | 271 | 365 | 479 | 37 | 58 | 77 | I-CE-97-309 |
| 8 | S | 0.61 | 21.12 | 4.40 | 3.73 | 63.54 | 1.31 | 2.78 | 0.63 | 0.64 | 0.018 | 1.51 | 55.3 | 18.8 | 5.3 | 11.4 | 22.0 | 1.55 | 0.7 | 2980 | 125 | 175 | 1.1 | 0.14 | - | 241 | 298 | 387 | 491 | 51 | 68 | 82 | I-CE-97-310 |
| 8 | M | 0.65 | 21.11 | 4.35 | 3.72 | 63.64 | 1.30 | 2.70 | 0.64 | 0.64 | 0.018 | 1.49 | 56.4 | 18.0 | 5.2 | 11.3 | 21.8 | 1.65 | 0.8 | 2980 | 130 | 180 | 1.2 | 0.17 | - | 237 | 289 | 374 | 488 | 42 | 58 | 78 | I-CE-97-311 |
| 9 | S | 0.53 | 21.06 | 4.35 | 3.71 | 63.64 | 1.30 | 2.76 | 0.63 | 0.64 | 0.018 | 1.70 | 56.6 | 17.7 | 5.3 | 11.3 | 21.8 | 1.50 | 1.0 | 3140 | 125 | 175 | 1.1 | 0.14 | - | 257 | 335 | 430 | 514 | 48 | 66 | 84 | I-CE-97-312 |
| 9 | M | 0.59 | 21.28 | 4.34 | 3.70 | 63.87 | 1.30 | 2.71 | 0.64 | 0.65 | 0.018 | 1.57 | 56.1 | 18.7 | 5.2 | 11.3 | 21.7 | 1.85 | 0.8 | 3050 | 130 | 180 | 1.3 | 0.17 | - | 251 | 324 | 407 | 505 | 46 | 65 | 78 | I-CE-97-313 |
| 11 | S | 0.50 | 21.09 | 4.34 | 3.71 | 63.51 | 1.30 | 2.72 | 0.63 | 0.64 | 0.018 | 1.61 | 56.0 | 18.2 | 5.2 | 11.3 | 21.7 | 1.70 | 0.7 | 3140 | 130 | 180 | 1.1 | 0.17 | - | 246 | 310 | 398 | 502 | 44 | 69 | 78 | I-CE-97-315 |
| 12 | M | 0.31 | 21.23 | 4.44 | 3.75 | 63.72 | 1.33 | 2.71 | 0.63 | 0.63 | 0.018 | 1.68 | 55.1 | 19.3 | 5.4 | 11.4 | 22.3 | 1.75 | 0.8 | 3010 | 130 | 180 | 1.2 | 0.17 | - | 222 | 286 | 364 | 485 | 40 | 61 | 80 | I-CE-97-318 |
| 13 | S | 0.63 | 21.17 | 4.41 | 3.75 | 63.59 | 1.30 | 2.70 | 0.61 | 0.63 | 0.018 | 1.52 | 55.3 | 19.0 | 5.3 | 11.4 | 22.1 | 1.35 | 0.8 | 3010 | 120 | 165 | 1.0 | 0.11 | | 244 | 308 | 392 | 495 | 45 | 70 | 78 | I-CE-97-319 |
| 13 | M | 0.59 | 21.21 | 4.39 | 3.72 | 63.57 | 1.31 | 2.67 | 0.63 | 0.63 | 0.018 | 1.51 | 55.2 | 19.2 | 5.3 | 11.3 | 22.0 | 1.60 | 0.7 | 3050 | 135 | 185 | 1.1 | 0.14 | - | 233 | 282 | 362 | 484 | 46 | 64 | 80 | I-CE-97-320 |
| 14 | M | 0.66 | 21.10 | 4.34 | 3.68 | 63.26 | 1.32 | 2.67 | 0.61 | 0.63 | 0.017 | 1.65 | 55.1 | 18.9 | 5.3 | 11.2 | 21.7 | 1.55 | 0.8 | 3050 | 135 | 185 | 1.1 | 0.14 | - | 232 | 289 | 380 | 488 | 45 | 66 | 76 | I-CE-97-321 |
| 15 | S | 0.54 | 21.09 | 4.35 | 3.71 | 63.30 | 1.31 | 2.69 | 0.62 | 0.63 | 0.018 | 1.52 | 55.2 | 18.8 | 5.3 | 11.3 | 21.8 | 1.65 | 0.8 | 3050 | 130 | 175 | 1.3 | 0.17 | - | 250 | 317 | 396 | 493 | 47 | 64 | 76 | I-CE-97-322 |
| 15 | M | 0.59 | 21.06 | 4.31 | 3.65 | 63.39 | 1.31 | 2.71 | 0.61 | 0.63 | 0.016 | 1.62 | 56.1 | 18.1 | 5.2 | 11.1 | 21.6 | 1.50 | 0.8 | 3010 | 135 | 180 | 1.2 | 0.14 | - | 211 | 281 | 372 | 489 | 42 | 64 | 77 | I-CE-97-323 |
| 16 | S | 0.40 | 21.02 | 4.32 | 3.67 | 63.19 | 1.30 | 2.71 | 0.62 | 0.62 | 0.017 | 1.35 | 55.5 | 18.4 | 5.2 | 11.2 | 21.6 | 1.55 | 0.7 | 3110 | 130 | 180 | 0.9 | 0.11 | - | 247 | 302 | 405 | 502 | 47 | 66 | 84 | I-CE-97-324 |
| 17 | M | 0.51 | 21.46 | 4.47 | 3.99 | 63.86 | 1.34 | 2.55 | 0.60 | 0.64 | 0.016 | 1.48 | 53.9 | 20.9 | 5.1 | 12.1 | 22.3 | 1.55 | 0.8 | 3010 | 130 | 180 | 1.1 | 0.14 | - | 218 | 281 | 371 | 482 | 42 | 69 | 84 | I-CE-97-327 |
| 18 | S | 0.68 | 21.24 | 4.46 | 3.76 | 63.81 | 1.33 | 2.71 | 0.62 | 0.63 | 0.016 | 1.50 | 55.3 | 19.2 | 5.5 | 11.4 | 22.4 | 1.55 | 0.8 | 3080 | 130 | 180 | 1.0 | 0.14 | - | 229 | 310 | 396 | 492 | 49 | 68 | 84 | I-CE-97-328 |
| 19 | M | 0.69 | 21.41 | 4.55 | 3.75 | 63.73 | 1.35 | 2.63 | 0.61 | 0.63 | 0.016 | 1.54 | 53.3 | 21.2 | 5.7 | 11.4 | 22.8 | 1.45 | 0.6 | 3140 | 130 | 180 | 1.1 | 0.11 | - | 214 | 273 | 374 | 496 | 45 | 65 | 80 | I-CE-97-330 |
| 20 | M | 0.50 | 21.36 | 4.46 | 3.73 | 63.74 | 1.36 | 2.65 | 0.61 | 0.63 | 0.016 | 1.48 | 54.3 | 20.3 | 5.5 | 11.4 | 22.4 | 1.70 | 0.5 | 3140 | 130 | 180 | 1.2 | 0.17 | - | 241 | 310 | 384 | 493 | 46 | 63 | 78 | I-CE-97-332 |
| 21 | M | 0.46 | 21.28 | 4.53 | 3.76 | 63.46 | 1.33 | 2.64 | 0.58 | 0.62 | 0.015 | 1.50 | 53.3 | 20.8 | 5.6 | 11.4 | 22.7 | 1.50 | 0.7 | 3110 | 130 | 185 | 1.1 | 0.14 | - | 222 | 281 | 387 | 496 | 43 | 62 | 76 | I-CE-97-333 |
| 22 | S | 0.52 | 21.32 | 4.45 | 3.73 | 63.72 | 1.34 | 2.66 | 0.61 | 0.63 | 0.016 | 1.54 | 54.6 | 20.0 | 5.5 | 11.4 | 22.3 | 1.55 | 0.5 | 3170 | 120 | 170 | 1.0 | 0.14 | - | 235 | 315 | 406 | 509 | 46 | 71 | 80 | I-CE-97-334 |
| 22 | M | 0.54 | 21.28 | 4.49 | 3.72 | 63.55 | 1.34 | 2.66 | 0.61 | 0.63 | 0.016 | 1.59 | 53.9 | 20.3 | 5.6 | 11.3 | 22.5 | 1.80 | 0.8 | 3010 | 135 | 185 | 1.3 | 0.17 | - | 213 | 278 | 380 | 485 | 41 | 63 | 81 | I-CE-97-335 |
| 23 | M | 0.45 | 21.17 | 4.44 | 3.69 | 63.38 | 1.34 | 2.66 | 0.61 | 0.61 | 0.016 | 1.63 | 54.4 | 19.6 | 5.5 | 11.2 | 22.3 | 1.85 | 0.7 | 2950 | 140 | 190 | 1.2 | 0.17 | - | 211 | 267 | 358 | 470 | 46 | 59 | 74 | I-CE-97-337 |
| 24 | S | 0.63 | 21.36 | 4.49 | 3.78 | 64.19 | 1.37 | 2.68 | 0.61 | 0.64 | 0.016 | 1.53 | 55.8 | 19.2 | 5.5 | 11.5 | 22.5 | 1.75 | 0.8 | 3080 | 125 | 175 | 1.2 | 0.14 | - | 242 | 304 | 393 | 505 | 48 | 69 | 80 | I-CE-97-338 |
| 24 | M | 0.52 | 21.22 | 4.40 | 3.72 | 63.61 | 1.33 | 2.61 | 0.64 | 0.63 | 0.018 | 1.90 | 55.4 | 19.1 | 5.4 | 11.3 | 22.1 | 1.85 | 0.7 | 2950 | 130 | 180 | 1.0 | 0.11 | - | 221 | 280 | 365 | 471 | 42 | 62 | 75 | I-CE-97-339 |
| 26 | M | 0.64 | 21.37 | 4.49 | 3.70 | 63.42 | 1.33 | 2.61 | 0.60 | 0.62 | 0.016 | 1.57 | 52.9 | 21.4 | 5.6 | 11.3 | 22.5 | 1.80 | 0.7 | 3010 | 125 | 175 | 1.3 | 0.17 | - | 198 | 241 | 353 | 464 | 37 | 57 | 76 | I-CE-97-343 |
| 27 | M | 0.61 | 21.27 | 4.52 | 3.68 | 63.17 | 1.30 | 2.65 | 0.59 | 0.61 | 0.016 | 1.63 | 52.3 | 21.5 | 5.8 | 11.2 | 22.7 | 1.50 | 0.8 | 2980 | 130 | 180 | 1.1 | 0.14 | - | 192 | 247 | 349 | 466 | 36 | 62 | 80 | I-CE-97-345 |
| 30 | S | 0.52 | 21.02 | 4.37 | 3.65 | 62.96 | 1.31 | 2.65 | 0.60 | 0.62 | 0.016 | 1.36 | 54.4 | 19.2 | 5.4 | 11.1 | 21.9 | 1.90 | 0.8 | 3080 | 120 | 165 | 1.3 | 0.17 | - | 233 | 300 | 382 | 462 | 47 | 68 | 82 | I-CE-97-349 |
| 30 | M | 0.67 | 21.22 | 4.40 | 3.69 | 63.53 | 1.35 | 2.64 | 0.60 | 0.63 | 0.016 | 1.60 | 55.0 | 19.4 | 5.4 | 11.2 | 22.1 | 1.75 | 0.7 | 2920 | 135 | 185 | 1.2 | 0.17 | - | 191 | 252 | 357 | 451 | 40 | 61 | 75 | I-CE-97-350 |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Avg | | 0.56 | 21.19 | 4.41 | 3.72 | 63.53 | 1.32 | 2.69 | 0.62 | 0.63 | 0.017 | 1.57 | 55.0 | 19.3 | 5.4 | 11.3 | 22.1 | 1.61 | 0.8 | 3042 | 130 | 179 | 1.1 | 0.15 | - | 228 | 289 | 380 | 487 | 44 | 64 | 79 | - |
| Min | | 0.31 | 21.00 | 4.31 | 3.65 | 62.96 | 1.29 | 2.55 | 0.58 | 0.61 | 0.015 | 1.35 | 52.3 | 17.7 | 5.1 | 11.1 | 21.6 | 1.15 | 0.5 | 2920 | 120 | 165 | 0.9 | 0.11 | - | 191 | 241 | 349 | 451 | 36 | 57 | 74 | - |
| Max | | 0.69 | 21.46 | 4.55 | 3.99 | 64.19 | 1.37 | 2.79 | 0.64 | 0.65 | 0.018 | 1.90 | 56.7 | 21.5 | 5.8 | 12.1 | 22.8 | 1.90 | 1.0 | 3170 | 140 | 190 | 1.3 | 0.17 | - | 257 | 335 | 430 | 514 | 51 | 71 | 84 | - |
| S.D | | 0.09 | 0.13 | 0.07 | 0.06 | 0.25 | 0.02 | 0.05 | 0.01 | 0.01 | 0.001 | 0.12 | 1.10 | 1.08 | 0.17 | 0.18 | 0.36 | 0.18 | 0.11 | 70.44 | 4.80 | 5.74 | 0.12 | 0.02 | - | 17.29 | 22.51 | 18.79 | 14.74 | 3.81 | 3.88 | 3.04 | - |

S : Silo M : Mill

مدیر کارخانه: سید رضا ایازی ۱۳۹۷/۱۰/۱۲

مدیرکنترل کیفی و آزمایشگاهها: مرتضی نیدکخواه

رئیس آزمایشگاهها:

کارشناس آزمایشگاه: اشرف مجیریان

شماره مدرک: LA-F-023-02

تاریخ: مهر ۹۷ صفحه ۲ از ۴

# گزارش ماهانه کنترل کیفیت سیمان ممتازان کرمان

## نوع سیمان: پرتلند پوزولانی ویژه

| Day | | Chemical Compositions & Phases % | | | | | | | | | | | | | | | | Physical Test | | | | | | | | | | | | Lab.Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 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 | Fineness | | Setting time | | Soundness | | Compressive Strength ($kg/cm^2$) | | | | | Bend Strength ($kg/cm^2$) | | | |
| | | | | | | | | | | | | | | | | | | | 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 | |
| 6 | S | - | 28.46 | 8.60 | 4.13 | 51.20 | 1.22 | 2.39 | 0.91 | 1.05 | 0.017 | 1.99 | - | - | - | - | - | 1.35 | 1.0 | 3820 | 140 | 190 | 0.9 | 0.11 | - | 178 | 218 | 331 | 427 | 37 | 65 | 77 | I-CE-97-308 |
| 17 | S | - | 27.42 | 7.96 | 4.08 | 53.21 | 1.23 | 2.42 | 0.89 | 1.10 | 0.017 | 1.63 | - | - | - | - | - | 1.30 | 0.9 | 3890 | 135 | 190 | 0.9 | 0.11 | - | 182 | 235 | 327 | 429 | 39 | 60 | 78 | I-CE-97-326 |
| 19 | S | - | 26.90 | 7.97 | 4.07 | 53.62 | 1.25 | 2.46 | 0.90 | 1.21 | 0.017 | 1.57 | - | - | - | - | - | 1.40 | 0.8 | 3870 | 140 | 190 | 0.9 | 0.11 | - | 206 | 251 | 343 | 433 | 39 | 62 | 74 | I-CE-97-329 |
| 23 | S | - | 27.69 | 8.16 | 4.08 | 51.58 | 1.22 | 2.40 | 0.91 | 1.15 | 0.017 | 2.77 | - | - | - | - | - | 1.25 | 0.8 | 3870 | 135 | 185 | 0.8 | 0.07 | - | 195 | 236 | 329 | 430 | 44 | 62 | 80 | I-CE-97-336 |
| 25 | M | - | 28.64 | 8.70 | 4.17 | 50.95 | 1.24 | 2.31 | 0.82 | 1.15 | 0.018 | 1.97 | - | - | - | - | - | 1.70 | 0.7 | 3610 | 140 | 195 | 1.2 | 0.14 | - | 161 | 197 | 283 | 408 | 35 | 52 | 70 | I-CE-97-341 |
| 26 | S | - | 27.86 | 8.27 | 4.12 | 52.25 | 1.23 | 2.40 | 0.91 | 1.20 | 0.017 | 1.72 | - | - | - | - | - | 1.15 | 0.5 | 3840 | 135 | 185 | 0.9 | 0.07 | - | 179 | 215 | 316 | 423 | 35 | 54 | 68 | I-CE-97-342 |
| 27 | S | - | 27.40 | 8.01 | 4.05 | 53.09 | 1.21 | 2.41 | 0.90 | 1.00 | 0.017 | 1.86 | - | - | - | - | - | 1.30 | 0.9 | 3790 | 140 | 190 | 1.0 | 0.11 | - | 170 | 231 | 310 | 418 | 37 | 56 | 73 | I-CE-97-344 |
| Avg | - | - | 27.77 | 8.24 | 4.10 | 52.27 | 1.23 | 2.40 | 0.89 | 1.12 | 0.017 | 1.93 | - | - | - | - | - | 1.35 | 0.8 | 3813 | 138 | 189 | 0.9 | 0.10 | - | 182 | 226 | 320 | 424 | 38 | 59 | 74 | - |
| Min | - | - | 26.90 | 7.96 | 4.05 | 50.95 | 1.21 | 2.31 | 0.82 | 1.00 | 0.017 | 1.57 | - | - | - | - | - | 1.15 | 0.5 | 3610 | 135 | 185 | 0.8 | 0.07 | - | 161 | 197 | 283 | 408 | 35 | 52 | 68 | - |
| Max | - | - | 28.64 | 8.70 | 4.17 | 53.62 | 1.25 | 2.46 | 0.91 | 1.21 | 0.018 | 2.77 | - | - | - | - | - | 1.70 | 1.0 | 3890 | 140 | 195 | 1.2 | 0.14 | - | 206 | 251 | 343 | 433 | 44 | 65 | 80 | - |
| S.D | - | - | 0.61 | 0.30 | 0.04 | 1.06 | 0.01 | 0.05 | 0.03 | 0.08 | 0.000 | 0.40 | - | - | - | - | - | 0.17 | 0.16 | 95.69 | 2.67 | 3.45 | 0.13 | 0.02 | - | 15.02 | 17.59 | 19.43 | 8.60 | 3.11 | 4.79 | 4.35 | - |

S : Silo M : Mill

مهندس رضا امانی
۱۳۹۷/۹/۱۲

مهر کارخانه:

مدیرکنترل کیفی و آزمایشگاهها: مرتضی نیکخواه

رئیس آزمایشگاهها:

کارشناس آزمایشگاه:

شماره مدرک: LA-F-023-02

تاریخ: مهر ۹۷ صفحه ۳ از ۴

# گزارش ماهانه کنترل کیفیت سیمان ممتازان کرمان

## نوع سیمان: پرتلند تیپ ۵

| Day | | Chemical Compositions & Phases % | | | | | | | | | | | | | | | | | Physical Test | | | | | | | | | | | | | | | | Lab.Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | Fineness | | Setting time | | Soundness | | Compressive Strength (kg/cm²) | | | | | Bend Strength (kg/cm²) | | | |
| | | 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 (cm²/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 | |
| 3 | S | 0.37 | 21.35 | 4.35 | 4.38 | 63.80 | 1.68 | 2.04 | 0.64 | 0.61 | 0.017 | 0.91 | 56.2 | 18.8 | 4.1 | 13.3 | 21.6 | 1.60 | 0.5 | 3080 | 120 | 165 | 1.2 | 0.14 | - | 156 | 204 | 349 | 492 | 36 | 62 | 76 | I-CE-97-304 |
| 5 | S | 0.46 | 21.32 | 4.36 | 4.40 | 63.83 | 1.68 | 2.05 | 0.64 | 0.61 | 0.017 | 0.77 | 56.4 | 18.6 | 4.1 | 13.4 | 21.6 | 1.45 | 0.6 | 3080 | 130 | 180 | 1.1 | 0.14 | - | 162 | 202 | 371 | 508 | 36 | 68 | 77 | I-CE-97-307 |
| 10 | S | 0.38 | 21.35 | 4.33 | 4.38 | 63.78 | 1.68 | 2.03 | 0.64 | 0.61 | 0.017 | 0.73 | 56.2 | 18.8 | 4.1 | 13.3 | 21.5 | - | 0.3 | 3170 | 125 | 170 | 1.2 | 0.17 | - | 157 | 211 | 391 | 508 | 34 | 62 | 76 | I-CE-97-314 |
| 11 | M | 0.43 | 21.38 | 4.37 | 4.31 | 63.85 | 1.69 | 2.07 | 0.65 | 0.61 | 0.017 | 0.64 | 56.0 | 19.0 | 4.3 | 13.1 | 21.7 | 1.65 | 0.4 | 3010 | 125 | 175 | 1.1 | 0.14 | - | 159 | 207 | 370 | 509 | 35 | 71 | 79 | I-CE-97-316 |
| 16 | M | 0.42 | 21.47 | 4.37 | 4.60 | 64.13 | 1.71 | 2.00 | 0.63 | 0.62 | 0.017 | 0.86 | 56.3 | 19.1 | 3.8 | 14.0 | 21.6 | 1.35 | 0.4 | 3080 | 125 | 175 | 0.8 | 0.09 | - | 151 | 197 | 358 | 508 | 31 | 64 | 81 | I-CE-97-325 |
| 20 | S | 0.37 | 21.42 | 4.33 | 4.49 | 64.02 | 1.69 | 2.00 | 0.64 | 0.62 | 0.017 | 0.51 | 56.6 | 18.7 | 3.9 | 13.7 | 21.4 | 1.55 | 0.4 | 3080 | 125 | 175 | 1.2 | 0.14 | - | 164 | 227 | 359 | 504 | 30 | 61 | 82 | I-CE-97-331 |
| 28 | M | 0.33 | 21.30 | 4.26 | 4.57 | 63.63 | 1.69 | 2.01 | 0.63 | 0.61 | 0.017 | 0.78 | 56.3 | 18.6 | 3.6 | 13.9 | 21.0 | 1.40 | 0.5 | 3010 | 125 | 175 | 1.0 | 0.11 | - | 151 | 205 | 357 | 493 | 30 | 63 | 82 | I-CE-97-346 |
| 29 | M | 0.56 | 21.30 | 4.28 | 4.55 | 63.64 | 1.69 | 2.04 | 0.64 | 0.60 | 0.018 | 0.79 | 56.1 | 18.7 | 3.6 | 13.8 | 21.1 | 1.40 | 0.5 | 3050 | 130 | 180 | 1.0 | 0.11 | - | 154 | 195 | 363 | 506 | 31 | 62 | 81 | I-CE-97-348 |
| Avg | | 0.42 | 21.36 | 4.33 | 4.46 | 63.84 | 1.69 | 2.03 | 0.64 | 0.61 | 0.017 | 0.75 | 56.3 | 18.8 | 3.9 | 13.6 | 21.4 | 1.49 | 0.5 | 3070 | 126 | 174 | 1.1 | 0.13 | - | 157 | 206 | 365 | 504 | 33 | 64 | 79 | - |
| Min | | 0.33 | 21.30 | 4.26 | 4.31 | 63.63 | 1.68 | 2.00 | 0.63 | 0.60 | 0.017 | 0.51 | 56.0 | 18.6 | 3.6 | 13.1 | 21.0 | 1.35 | 0.3 | 3010 | 120 | 165 | 0.8 | 0.09 | - | 151 | 195 | 349 | 492 | 30 | 61 | 76 | - |
| Max | | 0.56 | 21.47 | 4.37 | 4.60 | 64.13 | 1.71 | 2.07 | 0.65 | 0.62 | 0.018 | 0.91 | 56.6 | 19.1 | 4.3 | 14.0 | 21.7 | 1.65 | 0.6 | 3170 | 130 | 180 | 1.2 | 0.17 | - | 164 | 227 | 391 | 509 | 36 | 71 | 82 | - |
| S.D | | 0.07 | 0.06 | 0.04 | 0.11 | 0.17 | 0.01 | 0.03 | 0.01 | 0.01 | 0.000 | 0.13 | 0.18 | 0.19 | 0.25 | 0.32 | 0.24 | 0.11 | 0.09 | 50.71 | 3.20 | 4.96 | 0.14 | 0.03 | - | 4.77 | 9.93 | 12.79 | 6.97 | 2.64 | 3.52 | 2.60 | - |

S : Silo M : Mill

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

مرتضی نیکخواه

۱۳۹۷/۱۹/۱۲

شماره مدرک: LA-F-023-02

تاریخ: مهر ۹۷ صفحه ۴ از ۴

# گزارش ماهانه کنترل کیفیت سیمان ممتازان کرمان

## نوع سیمان: پرتلند تیپ ۴۲۵-۱

| Day | Chemical Compositions & Phases % | | | | | | | | | | | | | | | | | Physical Test | | | | | | | | | | | | Lab.Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | Fineness | | Setting time | | Soundness | | Compressive Strength ($kg/cm^2$) | | | | | Bend Strength ($kg/cm^2$) | | | |
| | 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 | |
| 2 S | 0.60 | 20.95 | 4.32 | 3.67 | 63.47 | 1.31 | 2.75 | 0.61 | 0.63 | 0.017 | 1.85 | 57.1 | 17.0 | 5.2 | 11.2 | 21.6 | 1.45 | 0.8 | 3080 | 130 | 180 | 1.1 | 0.14 | - | 239 | 292 | 380 | 497 | 44 | 67 | 78 | I-CE-97-303 |
| 4 S | 0.49 | 20.94 | 4.34 | 3.67 | 63.48 | 1.31 | 2.77 | 0.62 | 0.63 | 0.017 | 1.72 | 57.0 | 17.1 | 5.3 | 11.2 | 21.8 | 1.65 | 0.9 | 3200 | 140 | 190 | 1.2 | 0.14 | - | 250 | 330 | 394 | 499 | 45 | 67 | 84 | I-CE-97-306 |
| 12 S | - | 20.96 | 4.31 | 3.67 | 63.28 | 1.27 | 2.72 | 0.63 | 0.63 | 0.018 | 1.43 | 56.4 | 17.6 | 5.2 | 11.2 | 21.6 | 1.70 | 0.9 | 3170 | 125 | 175 | 1.2 | 0.17 | - | 250 | 319 | 398 | 505 | 48 | 67 | 82 | I-CE-97-317 |
| 25 S | 0.44 | 21.14 | 4.42 | 3.73 | 63.63 | 1.34 | 2.66 | 0.62 | 0.63 | 0.017 | 1.58 | 55.8 | 18.5 | 5.4 | 11.4 | 22.2 | 1.65 | 0.8 | 3140 | 125 | 175 | 1.1 | 0.14 | - | 227 | 282 | 376 | 471 | 43 | 61 | 79 | I-CE-97-340 |
| 29 S | 0.58 | 21.13 | 4.43 | 3.70 | 63.52 | 1.32 | 2.68 | 0.61 | 0.62 | 0.017 | 1.62 | 55.3 | 18.9 | 5.5 | 11.3 | 22.2 | 1.65 | 0.7 | 3080 | 125 | 175 | 1.1 | 0.14 | - | 227 | 281 | 370 | 465 | 46 | 67 | 79 | I-CE-97-347 |
| Avg | 0.53 | 21.02 | 4.36 | 3.69 | 63.48 | 1.31 | 2.72 | 0.62 | 0.63 | 0.017 | 1.64 | 56.3 | 17.8 | 5.3 | 11.2 | 21.9 | 1.62 | 0.8 | 3134 | 129 | 179 | 1.1 | 0.15 | - | 239 | 301 | 384 | 487 | 45 | 66 | 80 | - |
| Min | 0.44 | 20.94 | 4.31 | 3.67 | 63.28 | 1.27 | 2.66 | 0.61 | 0.62 | 0.017 | 1.43 | 55.3 | 17.0 | 5.2 | 11.2 | 21.6 | 1.45 | 0.7 | 3080 | 125 | 175 | 1.1 | 0.14 | - | 227 | 281 | 370 | 465 | 43 | 61 | 78 | - |
| Max | 0.60 | 21.14 | 4.43 | 3.73 | 63.63 | 1.34 | 2.77 | 0.63 | 0.63 | 0.018 | 1.85 | 57.1 | 18.9 | 5.5 | 11.4 | 22.2 | 1.70 | 0.9 | 3200 | 140 | 190 | 1.2 | 0.17 | - | 250 | 330 | 398 | 505 | 48 | 67 | 84 | - |
| S.D | 0.08 | 0.10 | 0.06 | 0.03 | 0.13 | 0.03 | 0.05 | 0.01 | 0.00 | 0.000 | 0.16 | 0.76 | 0.85 | 0.11 | 0.08 | 0.29 | 0.10 | 0.08 | 53.67 | 6.52 | 6.52 | 0.05 | 0.01 | - | 11.50 | 22.40 | 11.95 | 18.08 | 1.92 | 2.68 | 2.51 | - |

S : Silo M : Mill

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