



| Day  | Chemical Compositions & Phases % |                  |                                |                                |       |      |                 |                  |                   |       |      |      |      |      | Physical Test |           |       |                          |                              |                            |                             | Lab.Code |                            |                             |  |       |       |       |                                     |       |        |             |
|------|----------------------------------|------------------|--------------------------------|--------------------------------|-------|------|-----------------|------------------|-------------------|-------|------|------|------|------|---------------|-----------|-------|--------------------------|------------------------------|----------------------------|-----------------------------|----------|----------------------------|-----------------------------|--|-------|-------|-------|-------------------------------------|-------|--------|-------------|
|      | IR                               | SiO <sub>2</sub> | Al <sub>2</sub> O <sub>3</sub> | Fe <sub>2</sub> O <sub>3</sub> | CaO   | MgO  | SO <sub>3</sub> | K <sub>2</sub> O | Na <sub>2</sub> O | Cl    | LOSS | CS   | CZS  | CSA  | CAAF          | CAAF+2CSA | F.CaO | Fineness<br>Sieve 90 mic | Blaine (cm <sup>2</sup> /gr) | Setting time<br>INIT (min) | Setting time<br>FINAL (min) |          | Soundness<br>LEACHTER (mm) | Soundness<br>Auto Clave (%) | Compressive Strength (kg/cm <sup>2</sup> ) |       |       |       | Bend Strength (kg/cm <sup>2</sup> ) |       |        |             |
|      | 20.83                            | 4.37             | 3.68                           | 63.71                          | 1.26  | 2.73 | 0.60            | 0.61             | 0.016             | 1.93  | 58.6 | 15.5 | 5.4  | 11.2 | 21.9          | 1.70      | 0.9   |                          |                              |                            |                             |          |                            |                             | 3110                                       | 125   | 175   | 1.1   | 0.14                                | 1 DAY | 2 DAYS | 3 DAYS      |
| 3 S  | 0.48                             | 20.83            | 4.37                           | 3.68                           | 63.71 | 1.26 | 2.73            | 0.60             | 0.61              | 0.016 | 1.93 | 58.6 | 15.5 | 5.4  | 11.2          | 21.9      | 1.70  | 0.9                      | 3110                         | 125                        | 175                         | 1.1      | 0.14                       | -                           | 229  | 319   | 409   | 483   | 43                                  | 69    | 78     | I-CE-98-146 |
| 3 M  | 0.44                             | 20.83            | 4.39                           | 3.66                           | 63.41 | 1.23 | 2.72            | 0.59             | 0.59              | 0.016 | 1.65 | 57.4 | 16.5 | 5.4  | 11.1          | 22.0      | 1.60  | 0.8                      | 2980                         | 140                        | 190                         | 1.0      | 0.14                       | -                           | 219  | 299   | 378   | 489   | 42                                  | 63    | 80     | I-CE-98-147 |
| 4 S  | 0.49                             | 20.93            | 4.43                           | 3.66                           | 63.33 | 1.25 | 2.70            | 0.53             | 0.61              | 0.016 | 1.60 | 56.1 | 17.7 | 5.5  | 11.1          | 22.2      | 1.75  | 0.8                      | 3050                         | 125                        | 175                         | 1.2      | 0.17                       | -                           | 223  | 309   | 381   | 483   | 41                                  | 65    | 81     | I-CE-98-148 |
| 4 M  | 0.53                             | 21.05            | 4.45                           | 3.74                           | 63.83 | 1.26 | 2.68            | 0.60             | 0.62              | 0.017 | 1.56 | 57.0 | 17.4 | 5.5  | 11.4          | 22.3      | 1.70  | 1.1                      | 2920                         | 125                        | 175                         | 1.2      | 0.14                       | -                           | 207  | 276   | 340   | 471   | 40                                  | 60    | 76     | I-CE-98-149 |
| 5 S  | 0.52                             | 20.87            | 4.41                           | 3.70                           | 63.22 | 1.25 | 2.69            | 0.60             | 0.60              | 0.017 | 1.80 | 56.2 | 17.5 | 5.4  | 11.3          | 22.1      | 1.80  | 0.8                      | 3010                         | 130                        | 180                         | 1.3      | 0.17                       | -                           | 218  | 288   | 359   | 489   | 39                                  | 60    | 71     | I-CE-98-151 |
| 6 M  | 0.58                             | 20.92            | 4.43                           | 3.69                           | 63.33 | 1.24 | 2.74            | 0.59             | 0.60              | 0.016 | 1.48 | 56.0 | 17.8 | 5.5  | 11.2          | 22.2      | 1.85  | 0.6                      | 3110                         | 125                        | 180                         | 1.2      | 0.17                       | -                           | 240  | 320   | 421   | 512   | 44                                  | 66    | 82     | I-CE-98-153 |
| 7 S  | 0.42                             | 20.80            | 4.38                           | 3.68                           | 63.20 | 1.24 | 2.67            | 0.59             | 0.59              | 0.016 | 1.59 | 56.9 | 16.7 | 5.4  | 11.2          | 22.0      | 1.90  | 1.0                      | 3050                         | 125                        | 175                         | 1.3      | 0.17                       | -                           | 224  | 287   | 372   | 477   | 43                                  | 64    | 78     | I-CE-98-154 |
| 7 M  | 0.43                             | 20.84            | 4.37                           | 3.70                           | 63.52 | 1.23 | 2.71            | 0.60             | 0.62              | 0.016 | 1.68 | 57.8 | 16.1 | 5.3  | 11.3          | 21.9      | 1.80  | 0.8                      | 2950                         | 130                        | 180                         | 1.2      | 0.17                       | -                           | 217  | 281   | 368   | 491   | 41                                  | 62    | 81     | I-CE-98-155 |
| 8 S  | 0.46                             | 20.91            | 4.39                           | 3.72                           | 64.07 | 1.28 | 2.68            | 0.60             | 0.62              | 0.017 | 1.89 | 59.5 | 15.1 | 5.3  | 11.3          | 22.0      | 1.90  | 0.8                      | 2980                         | 130                        | 180                         | 1.3      | 0.17                       | -                           | 216  | 279   | 350   | 477   | 42                                  | 59    | 78     | I-CE-98-156 |
| 9 M  | 0.57                             | 20.74            | 4.36                           | 3.70                           | 63.33 | 1.26 | 2.70            | 0.60             | 0.60              | 0.017 | 1.76 | 57.9 | 15.8 | 5.3  | 11.3          | 21.8      | 1.90  | 0.9                      | 3010                         | 125                        | 175                         | 1.4      | 0.20                       | -                           | 223  | 282   | 342   | 481   | 41                                  | 59    | 76     | I-CE-98-157 |
| 10 S | 0.54                             | 20.59            | 4.28                           | 3.64                           | 62.95 | 1.21 | 2.67            | 0.60             | 0.59              | 0.017 | 1.70 | 58.2 | 15.1 | 5.2  | 11.1          | 21.4      | 1.95  | 1.2                      | 3050                         | 130                        | 180                         | 1.3      | 0.20                       | -                           | 229  | 309   | 393   | 493   | 44                                  | 69    | 78     | I-CE-98-158 |
| 11 M | 0.52                             | 21.10            | 4.48                           | 3.71                           | 63.62 | 1.27 | 2.61            | 0.60             | 0.61              | 0.016 | 1.73 | 55.8 | 18.4 | 5.6  | 11.2          | 21.5      | 1.85  | 1.2                      | 2980                         | 140                        | 190                         | 1.3      | 0.17                       | -                           | 225  | 290   | 376   | 475   | 43                                  | 64    | 80     | I-CE-98-160 |
| 13 S | 0.64                             | 20.85            | 4.33                           | 3.68                           | 63.38 | 1.27 | 2.72            | 0.59             | 0.60              | 0.016 | 1.79 | 57.5 | 16.4 | 5.2  | 11.2          | 21.7      | 1.80  | 0.9                      | 2980                         | 120                        | 165                         | 1.2      | 0.17                       | -                           | 242  | 315   | 372   | 489   | 44                                  | 67    | 76     | I-CE-98-163 |
| 14 S | 0.48                             | 20.96            | 4.38                           | 3.73                           | 63.40 | 1.27 | 2.68            | 0.59             | 0.61              | 0.016 | 1.57 | 56.4 | 17.5 | 5.3  | 11.4          | 21.9      | 1.45  | 1.1                      | 3080                         | 125                        | 175                         | 1.0      | 0.11                       | -                           | 221  | 295   | 370   | 477   | 46                                  | 61    | 73     | I-CE-98-164 |
| 17 S | 0.51                             | 20.69            | 4.30                           | 3.75                           | 63.09 | 1.26 | 2.75            | 0.60             | 0.60              | 0.016 | 1.59 | 57.5 | 15.9 | 5.1  | 11.4          | 21.5      | 1.70  | 0.9                      | 3080                         | 130                        | 180                         | 1.1      | 0.14                       | -                           | 237  | 307   | 361   | 472   | 46                                  | 65    | 78     | I-CE-98-169 |
| 17 M | 0.51                             | 20.97            | 4.48                           | 3.71                           | 63.25 | 1.27 | 2.69            | 0.60             | 0.60              | 0.016 | 1.59 | 55.0 | 18.6 | 5.6  | 11.3          | 22.5      | 1.55  | 0.6                      | 3200                         | 140                        | 190                         | 1.0      | 0.14                       | -                           | 259  | 327   | 424   | 502   | 48                                  | 69    | 76     | I-CE-98-170 |
| 18 M | -                                | 20.93            | 4.44                           | 3.74                           | 63.45 | 1.27 | 2.71            | 0.59             | 0.61              | 0.016 | 1.65 | 56.3 | 17.5 | 5.4  | 11.4          | 22.3      | 1.65  | 0.7                      | 3170                         | 125                        | 175                         | 1.1      | 0.14                       | -                           | 243  | 326   | 430   | 498   | 46                                  | 69    | 78     | I-CE-98-172 |
| 19 M | 0.56                             | 20.91            | 4.46                           | 3.68                           | 63.11 | 1.26 | 2.72            | 0.60             | 0.60              | 0.016 | 1.71 | 55.0 | 18.4 | 5.6  | 11.2          | 22.4      | 1.95  | 0.8                      | 3140                         | 125                        | 175                         | 1.4      | 0.17                       | -                           | 241  | 328   | 396   | 490   | 45                                  | 69    | 77     | I-CE-98-175 |
| 20 M | 0.66                             | 20.89            | 4.43                           | 3.72                           | 63.22 | 1.28 | 2.72            | 0.58             | 0.60              | 0.016 | 1.74 | 55.8 | 17.8 | 5.4  | 11.3          | 22.2      | 1.70  | 0.8                      | 3110                         | 135                        | 185                         | 1.2      | 0.17                       | -                           | 237  | 306   | 391   | 478   | 44                                  | 66    | 78     | I-CE-98-177 |
| 21 M | 0.65                             | 20.80            | 4.38                           | 3.70                           | 63.12 | 1.28 | 2.78            | 0.60             | 0.60              | 0.016 | 1.46 | 56.2 | 17.2 | 5.3  | 11.3          | 22.0      | 1.35  | 0.9                      | 3050                         | 130                        | 180                         | 1.2      | 0.14                       | -                           | 246  | 307   | 400   | 491   | 45                                  | 66    | 78     | I-CE-98-179 |
| 23 S | 0.69                             | 21.01            | 4.55                           | 3.75                           | 63.14 | 1.29 | 2.71            | 0.59             | 0.61              | 0.016 | 2.02 | 53.7 | 19.7 | 5.7  | 11.4          | 22.8      | 1.55  | 0.6                      | 3110                         | 125                        | 175                         | 1.1      | 0.11                       | -                           | 248  | 329   | 398   | 498   | 44                                  | 67    | 80     | I-CE-98-180 |
| 23 M | 0.65                             | 20.83            | 4.39                           | 3.73                           | 63.09 | 1.28 | 2.67            | 0.60             | 0.60              | 0.016 | 1.53 | 56.1 | 17.4 | 5.3  | 11.4          | 22.0      | 1.30  | 0.7                      | 3200                         | 120                        | 165                         | 1.0      | 0.11                       | -                           | 250  | 335   | 430   | 489   | 43                                  | 65    | 77     | I-CE-98-182 |
| 24 S | 0.62                             | 20.07            | 4.56                           | 3.75                           | 63.32 | 1.29 | 2.73            | 0.60             | 0.61              | 0.016 | 1.46 | 61.5 | 11.2 | 5.7  | 11.4          | 22.9      | 1.35  | 0.8                      | 3110                         | 125                        | 175                         | 1.2      | 0.14                       | -                           | 246  | 329   | 413   | 483   | 45                                  | 62    | 75     | I-CE-98-183 |
| 24 M | 0.68                             | 20.97            | 4.46                           | 3.75                           | 63.25 | 1.29 | 2.79            | 0.60             | 0.60              | 0.016 | 1.40 | 54.8 | 18.8 | 5.5  | 11.4          | 22.4      | 1.65  | 0.6                      | 3080                         | 130                        | 180                         | 1.1      | 0.14                       | -                           | 241  | 326   | 417   | 504   | 45                                  | 65    | 80     | I-CE-98-185 |
| 26 M | 0.65                             | 21.01            | 4.50                           | 3.75                           | 63.17 | 1.29 | 2.74            | 0.60             | 0.60              | 0.016 | 1.60 | 54.1 | 19.4 | 5.6  | 11.4          | 22.6      | 1.35  | 0.4                      | 3230                         | 130                        | 185                         | 1.1      | 0.11                       | -                           | 239  | 315   | 415   | 515   | 47                                  | 66    | 80     | I-CE-98-187 |
| 28 S | 0.58                             | 20.95            | 4.43                           | 3.74                           | 63.11 | 1.29 | 2.58            | 0.62             | 0.61              | 0.017 | 1.56 | 55.2 | 18.4 | 5.4  | 11.4          | 22.2      | 1.60  | 0.9                      | 3010                         | 125                        | 170                         | 1.2      | 0.14                       | -                           | 234  | 313   | 359   | 480   | 46                                  | 65    | 79     | I-CE-98-190 |
| 30 S | 0.55                             | 21.13            | 4.62                           | 3.74                           | 63.15 | 1.30 | 2.61            | 0.63             | 0.61              | 0.018 | 0.91 | 52.7 | 20.8 | 5.9  | 11.4          | 23.2      | 1.85  | 0.7                      | 2980                         | 120                        | 165                         | 1.3      | 0.17                       | -                           | 221  | 287   | 353   | 462   | 43                                  | 68    | 80     | I-CE-98-193 |
| 30 M | 0.60                             | 21.65            | 4.66                           | 3.79                           | 63.42 | 1.30 | 2.45            | 0.66             | 0.62              | 0.019 | 0.46 | 49.9 | 24.4 | 5.9  | 11.5          | 23.4      | 1.90  | 0.4                      | 3010                         | 115                        | 160                         | 1.4      | 0.17                       | -                           | 166  | 229   | 363   | 516   | 32                                  | 63    | 77     | I-CE-98-194 |
| 31 M | 0.40                             | 21.84            | 4.61                           | 3.81                           | 64.35 | 1.39 | 1.85            | 0.67             | 0.61              | 0.020 | 0.38 | 54.3 | 21.7 | 5.8  | 11.6          | 23.1      | 1.90  | 0.8                      | 3050                         | 110                        | 155                         | 1.4      | 0.17                       | -                           | 163  | 206   | 329   | 480   | 31                                  | 61    | 73     | I-CE-98-196 |
| Ave  | 0.55                             | 20.92            | 4.44                           | 3.72                           | 63.36 | 1.28 | 2.66            | 0.60             | 0.61              | 0.017 | 1.55 | 56.2 | 17.6 | 5.5  | 11.3          | 22.2      | 1.70  | 0.8                      | 3064                         | 127                        | 176                         | 1.2      | 0.15                       | -                           | 228  | 302   | 383   | 488   | 43                                  | 65    | 78     | -           |
| Min  | 0.40                             | 20.07            | 4.28                           | 3.64                           | 62.95 | 1.21 | 1.85            | 0.53             | 0.59              | 0.016 | 0.38 | 49.9 | 11.2 | 5.1  | 11.1          | 21.4      | 1.30  | 0.4                      | 2920                         | 110                        | 155                         | 1.0      | 0.11                       | -                           | 163  | 206   | 329   | 462   | 31                                  | 59    | 71     | -           |
| Max  | 0.69                             | 21.84            | 4.66                           | 3.81                           | 64.35 | 1.67 | 2.79            | 0.67             | 0.62              | 0.020 | 2.02 | 61.5 | 24.4 | 5.9  | 11.6          | 23.4      | 1.95  | 1.2                      | 3230                         | 140                        | 190                         | 1.4      | 0.20                       | -                           | 259  | 335   | 430   | 516   | 48                                  | 69    | 82     | -           |
| S.D  | 0.08                             | 0.29             | 0.09                           | 0.04                           | 0.30  | 0.08 | 0.17            | 0.02             | 0.01              | 0.001 | 0.37 | 2.14 | 2.32 | 0.20 | 0.12          | 0.48      | 0.19  | 0.20                     | 78.86                        | 6.63                       | 8.48                        | 0.12     | 0.02                       | -                           | 21.25                                      | 28.94 | 28.40 | 12.99 | 3.76                                | 3.11  | 2.52   | -           |

کارشناس آزمایشگاه:

رئیس آزمایشگاهها:

مدیر کنترل کیفی و آزمایشگاهها:

مدیر کارخانه:





| Day  | Chemical Compositions & Phases % |                  |                                |                                |         |         |                 |                  |                   |         |         |        |         | Physical Test |        |           |        |                              |              |                    |            |             |               | Lab.Code |                |  |             |  |  |  |                                     |  |  |
|------|----------------------------------|------------------|--------------------------------|--------------------------------|---------|---------|-----------------|------------------|-------------------|---------|---------|--------|---------|---------------|--------|-----------|--------|------------------------------|--------------|--------------------|------------|-------------|---------------|----------|----------------|--|-------------|--|--|--|-------------------------------------|--|--|
|      | IR                               | SiO <sub>2</sub> | Al <sub>2</sub> O <sub>3</sub> | Fe <sub>2</sub> O <sub>3</sub> | CaO     | MgO     | SO <sub>3</sub> | K <sub>2</sub> O | Na <sub>2</sub> O | Cl      | LOSS    | C3S    | C2S     | C3A           | CAAF   | CAAF+2C3A | F.CaO  | Blaine (cm <sup>3</sup> /gr) | Sieve 90 mic | Setting time (min) | INIT (min) | FINAL (min) | LEACHTER (mm) |          | Auto Clave (%) | Compressive Strength (kg/cm <sup>2</sup> ) |             |  |  |  | Bend Strength (kg/cm <sup>2</sup> ) |  |  |
|      | 1 DAY                            | 2 DAYS           | 3 DAYS                         | 7 DAYS                         | 28 DAYS | 28 DAYS | 7 DAYS          | 3 DAYS           | 7 DAYS            | 28 DAYS | 28 DAYS | 7 DAYS | 28 DAYS | 28 DAYS       | 7 DAYS | 28 DAYS   | 7 DAYS |                              |              |                    |            |             |               |          |                | 28 DAYS                                    |             |  |  |  |                                     |  |  |
| 1 M  | 25.76                            | 7.04             | 3.96                           | 55.83                          | 1.21    | 2.46    | 0.85            | 1.00             | 0.025             | 1.82    | 1.65    | 1.65   | 1.85    | 135           | 185    | 1.0       | 3610   | 1.2                          | 0.14         | 195                | 252        | 325         | 437           | 39       | 60             | 72   | I-CE-98-143 |  |  |  |                                     |  |  |
| 2 S  | 27.88                            | 8.38             | 4.11                           | 52.60                          | 1.19    | 2.28    | 0.72            | 1.15             | 0.018             | 1.64    | 1.80    | 1.80   | 190     | 135           | 190    | 1.2       | 3840   | 1.3                          | 0.17         | 171                | 206        | 294         | 437           | 39       | 58             | 77   | I-CE-98-144 |  |  |  |                                     |  |  |
| 2 M  | 29.06                            | 8.90             | 4.16                           | 50.55                          | 1.18    | 2.29    | 0.91            | 1.21             | 0.028             | 1.68    | 1.60    | 1.60   | 195     | 140           | 195    | 0.8       | 3790   | 1.1                          | 0.11         | 176                | 224        | 315         | 446           | 35       | 61             | 79   | I-CE-98-145 |  |  |  |                                     |  |  |
| 13 S | 27.36                            | 8.02             | 4.06                           | 53.39                          | 1.19    | 2.32    | 0.85            | 1.15             | 0.020             | 1.58    | 1.45    | 1.45   | 185     | 130           | 185    | 1.2       | 3740   | 1.0                          | 0.11         | 182                | 228        | 315         | 426           | 37       | 63             | 75   | I-CE-98-162 |  |  |  |                                     |  |  |
| 16 S | 27.57                            | 8.08             | 4.15                           | 53.10                          | 1.20    | 2.30    | 0.83            | 1.18             | 0.020             | 1.54    | 1.45    | 1.45   | 185     | 135           | 185    | 1.3       | 3770   | 0.9                          | 0.07         | 157                | 197        | 287         | 394           | 34       | 59             | 70   | I-CE-98-167 |  |  |  |                                     |  |  |
| 19 S | 26.90                            | 7.73             | 4.06                           | 53.87                          | 1.18    | 2.33    | 0.87            | 1.14             | 0.018             | 1.87    | 1.50    | 1.50   | 180     | 130           | 180    | 0.9       | 3670   | 1.1                          | 0.14         | 180                | 231        | 326         | 431           | 39       | 60             | 75   | I-CE-98-173 |  |  |  |                                     |  |  |
| 25 S | 28.03                            | 8.36             | 4.14                           | 52.42                          | 1.17    | 2.28    | 0.91            | 1.17             | 0.025             | 1.46    | 1.55    | 1.55   | 195     | 140           | 195    | 1.1       | 3770   | 1.2                          | 0.11         | 182                | 213        | 302         | 407           | 38       | 57             | 73   | I-CE-98-184 |  |  |  |                                     |  |  |
| 28 M | 28.86                            | 8.86             | 4.13                           | 50.43                          | 1.17    | 2.35    | 0.88            | 1.17             | 0.030             | 2.06    | 1.60    | 1.60   | 185     | 135           | 185    | 1.1       | 3720   | 1.1                          | 0.14         | 180                | 220        | 278         | 372           | 34       | 53             | 73   | I-CE-98-191 |  |  |  |                                     |  |  |
| 29 M | 28.57                            | 8.71             | 4.15                           | 51.23                          | 1.18    | 2.32    | 0.75            | 1.20             | 0.030             | 1.76    | 1.65    | 1.65   | 185     | 135           | 185    | 0.9       | 3890   | 1.3                          | 0.17         | 206                | 246        | 317         | 450           | 38       | 63             | 75   | I-CE-98-192 |  |  |  |                                     |  |  |
| Avg  | 27.78                            | 8.23             | 4.10                           | 52.60                          | 1.19    | 2.33    | 0.84            | 1.15             | 0.024             | 1.71    | 1.58    | 1.58   | 187     | 135           | 187    | 1.1       | 3756   | 1.1                          | 0.13         | 181                | 224        | 307         | 422           | 37       | 59             | 74   | -           |  |  |  |                                     |  |  |
| Min  | 25.76                            | 7.04             | 3.96                           | 50.43                          | 1.17    | 2.28    | 0.72            | 1.00             | 0.018             | 1.46    | 1.45    | 1.45   | 180     | 130           | 180    | 0.8       | 3610   | 0.9                          | 0.07         | 157                | 197        | 278         | 372           | 34       | 53             | 70   | -           |  |  |  |                                     |  |  |
| Max  | 29.06                            | 8.90             | 4.16                           | 55.83                          | 1.21    | 2.46    | 0.91            | 1.21             | 0.030             | 2.06    | 1.80    | 1.80   | 195     | 140           | 195    | 1.3       | 3890   | 1.3                          | 0.17         | 206                | 252        | 326         | 450           | 39       | 63             | 79   | -           |  |  |  |                                     |  |  |
| S.D  | 1.04                             | 0.60             | 0.07                           | 1.72                           | 0.01    | 0.06    | 0.07            | 0.06             | 0.005             | 0.19    | 0.11    | 0.11   | 5.07    | 3.54          | 5.07   | 0.17      | 84.28  | 0.13                         | 0.03         | 13.81              | 17.76      | 17.13       | 26.02         | 2.12     | 3.12           | 2.69                                       | -           |  |  |  |                                     |  |  |

مدیر کنترل کیفی و آزمایشگاهها: *[Signature]*

مدیر کارخانه: *[Signature]*

رئیس آزمایشگاهها: *[Signature]*

کارشناس آزمایشگاه: *[Signature]*





