



## CERTIFICADO DE CONTROLE DA QUALIDADE DO CIMENTO

TIPO/CLASSE: **CPIII-40 RS ENSACADO**  
FÁBRICA: **FVI - FÁBRICA DE VITÓRIA - ES**  
MÊS/ANO: **AGOSTO/2026**



| ENSAIOS QUÍMICOS                          |              |                   |                  | ENSAIOS FÍSICOS E MECÂNICOS |        |         |         |      |       |           |               |       |          |
|-------------------------------------------|--------------|-------------------|------------------|-----------------------------|--------|---------|---------|------|-------|-----------|---------------|-------|----------|
| ENSAIOS                                   | PERDA AO     | RESIDUO           | TRIÓXIDO DE      | RESISTÊNCIA À COMPRESSÃO    |        |         | FINURA  |      |       | EXPANSIB. | TEMPO DE PEGA |       | CONSIST. |
|                                           | FOGO<br>(PF) | INSOLÚVEL<br>(RI) | ENXÓFRE<br>(SO3) | 3 DIAS                      | 7 DIAS | 28 DIAS | BLAINE  | #325 | #200  | A QUENTE  | INÍCIO        | FIM   |          |
| UNIDADE                                   | (%)          | (%)               | (%)              | (MPa)                       | (MPa)  | (MPa)   | (cm²/g) | (%)  | (%)   | (mm)      | (min)         | (min) | (%)      |
| LIMITE NORMATIVO<br>(ABNT NBR 16697:2018) | ≤ 6,5        | ≤ 5,0             | ≤ 4,5            | ≥ 12,0                      | ≥ 23,0 | ≥ 40,0  | –       | –    | ≤ 8,0 | ≤ 5       | ≥ 60          | ≤ 720 | –        |
| 01/08/2026                                | 0.28         | 0.67              | 1.20             | 17.3                        | 28.1   | 42.0    | 4759    | 1.4  | 0.2   | 0.0       | 235           | 300   | 32.1     |
| 03/08/2026                                | 1.14         | 0.60              | 1.18             | 18.3                        | 29.7   |         | 4760    | 1.2  | 0.2   | 0.0       | 220           | 275   | 32.1     |
| 04/08/2026                                | 1.23         | 0.69              | 1.27             | 18.8                        |        | 43.6    | 4631    | 1.6  | 0.2   | 0.0       | 220           | 290   | 32.1     |
| 05/08/2026                                | 1.20         | 0.52              | 1.10             | 18.4                        | 29.6   | 44.8    | 4627    | 1.3  | 0.2   | 0.0       | 220           | 270   | 31.9     |
| 06/08/2026                                | 0.62         | 0.53              | 1.02             | 18.9                        | 28.4   | 42.8    | 4701    | 1.5  | 0.2   | 0.0       | 225           | 285   | 31.8     |
| 07/08/2026                                | 0.69         | 0.57              | 1.25             | 18.7                        |        | 42.1    | 4702    | 1.4  | 0.2   | 0.0       | 215           | 275   | 31.9     |
| 08/08/2026                                | 1.22         | 0.51              | 1.20             | 17.5                        | 28.4   | 44.5    | 4603    | 1.6  | 0.2   | 0.0       | 215           | 270   | 31.9     |
| 10/08/2026                                | 0.94         | 0.71              | 1.14             | 16.4                        | 27.7   | 44.1    | 4582    | 1.5  | 0.3   | 0.0       | 220           | 270   | 31.8     |
| 11/08/2026                                | 1.10         | 0.49              | 1.16             | 17.8                        | 28.9   | 45.1    | 4660    | 1.0  | 0.2   | 0.0       | 225           | 275   | 32.0     |
| 12/08/2026                                | 1.10         | 0.60              | 1.20             | 16.9                        | 29.7   |         | 4728    | 1.3  | 0.3   | 0.0       | 235           | 295   | 32.0     |
| 13/08/2026                                | 1.32         | 0.49              | 0.81             | 15.7                        | 27.5   | 44.0    | 4544    | 1.3  | 0.1   | 0.0       | 215           | 280   | 32.3     |
| 14/08/2026                                | 0.81         | 0.68              | 0.65             | 16.8                        | 28.1   | 44.8    | 4724    | 1.7  | 0.1   | 0.0       | 240           | 305   | 32.1     |
| 15/08/2026                                | 0.83         | 0.57              | 0.68             | 16.3                        | 28.1   | 44.1    | 4677    | 1.4  | 0.3   | 0.0       | 225           | 285   | 32.0     |
| 17/08/2026                                | 1.07         | 0.51              | 0.68             | 17.8                        | 29.0   | 45.4    | 4594    | 1.8  | 0.4   | 0.0       | 235           | 300   | 32.0     |
| 18/08/2026                                | 0.93         | 0.65              | 0.71             | 16.9                        | 30.3   | 45.5    | 4652    | 1.7  | 0.2   | 0.0       | 225           | 290   | 31.9     |
| 19/08/2026                                | 0.83         | 0.46              | 0.78             | 16.0                        | 27.9   | 44.8    | 4656    | 1.1  | 0.2   | 0.0       | 225           | 290   | 31.0     |
| 20/08/2026                                | 1.07         | 0.49              | 0.69             | 19.9                        | 31.9   |         | 4595    | 1.7  | 0.3   | 0.0       | 225           | 290   | 31.7     |
| 21/08/2026                                | 1.39         | 0.51              | 0.81             | 17.5                        | 30.2   |         | 4668    | 1.5  | 0.3   | 0.0       | 225           | 290   | 31.8     |
| 22/08/2026                                | 1.49         | 0.41              | 0.85             | 19.6                        | 31.1   | 44.6    | 4546    | 1.5  | 0.3   | 0.0       | 210           | 275   | 31.7     |
| 24/08/2026                                | 1.21         | 0.53              | 0.86             | 16.6                        | 28.5   | 44.4    | 4704    | 1.7  | 0.3   | 0.0       | 210           | 270   | 31.8     |
| 25/08/2026                                | 1.34         | 0.65              | 0.76             | 19.5                        | 29.1   | 45.6    | 4704    | 1.7  | 0.3   | 0.0       | 210           | 270   | 31.9     |
| 26/08/2026                                | 1.23         | 0.45              | 0.84             | 19.5                        | 28.5   | 44.3    | 4661    | 1.7  | 0.2   | 0.0       | 210           | 270   | 31.9     |
| 27/08/2026                                | 1.30         | 0.40              | 0.73             | 19.8                        | 28.2   | 44.9    | 4686    | 1.5  | 0.2   | 0.0       | 225           | 290   | 31.9     |
| 28/08/2026                                | 0.88         | 0.57              | 0.88             | 20.0                        | 29.8   | 45.4    | 4597    | 1.5  | 0.3   | 0.0       | 200           | 260   | 31.8     |
| 30/08/2026                                | 1.07         | 0.57              | 0.97             | 18.0                        | 27.5   |         | 4625    | 1.7  | 0.3   | 0.0       | 210           | 275   | 31.5     |
| 31/08/2026                                | 1.00         | 0.56              | 0.85             | 16.9                        | 27.9   | 44.0    | 4569    | 1.1  | 0.2   | 0.0       | 225           | 275   | 31.3     |
| MÉDIA                                     | 1.05         | 0.55              | 0.93             | 17.9                        | 28.9   | 44.3    | 4652    | 1.5  | 0.2   | 0.0       | 221           | 282   | 31.9     |
| DESVIO PADRÃO                             | 0.27         | 0.08              | 0.21             | 1.3                         | 1.2    | 1.0     | 62      | 0.2  | 0.1   | 0.0       | 9             | 12    | 0.3      |
| MÍNIMO                                    | 0.28         | 0.40              | 0.65             | 15.7                        | 27.5   | 42.0    | 4544    | 1.0  | 0.1   | 0.0       | 200           | 260   | 31.0     |
| MÁXIMO                                    | 1.49         | 0.71              | 1.27             | 20.0                        | 31.9   | 45.6    | 4760    | 1.8  | 0.4   | 0.0       | 240           | 305   | 32.3     |

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CRQ: 21.3.00318 - V Região



## CERTIFICADO DE CONTROLE DA QUALIDADE DO CIMENTO

TIPO/CLASSE: **CPIII-40 RS ENSACADO**  
FÁBRICA: **FVI - FÁBRICA DE VITÓRIA - ES**  
MÊS/ANO: **SETEMBRO/2026**



| ENSAIOS QUÍMICOS                          |           |                |               | ENSAIOS FÍSICOS E MECÂNICOS |        |         |         |      |       |           |               |       |                 |
|-------------------------------------------|-----------|----------------|---------------|-----------------------------|--------|---------|---------|------|-------|-----------|---------------|-------|-----------------|
| ENSAIOS                                   | PERDA AO  | RESIDUO        | TRIÓXIDO DE   | RESISTÊNCIA À COMPRESSÃO    |        |         | FINURA  |      |       | EXPANSIB. | TEMPO DE PEGA |       | CONSIST. NORMAL |
|                                           | FOGO (PF) | INSOLÚVEL (RI) | ENXÓFRE (SO3) | 3 DIAS                      | 7 DIAS | 28 DIAS | BLAINE  | #325 | #200  | A QUENTE  | INÍCIO        | FIM   |                 |
| UNIDADE                                   | (%)       | (%)            | (%)           | (MPa)                       | (MPa)  | (MPa)   | (cm²/g) | (%)  | (%)   | (mm)      | (min)         | (min) | (%)             |
| LIMITE NORMATIVO<br>(ABNT NBR 16697:2018) | ≤ 6,5     | ≤ 5,0          | ≤ 4,5         | ≥ 12,0                      | ≥ 23,0 | ≥ 40,0  | –       | –    | ≤ 8,0 | ≤ 5       | ≥ 60          | ≤ 720 | –               |
| 01/09/2026                                | 0.96      | 0.65           | 0.98          | 16.1                        | 27.0   | 44.3    | 4646    | 1.3  | 0.2   | 0.0       | 225           | 285   | 31.2            |
| 03/09/2026                                | 0.87      | 0.56           | 1.08          | 16.4                        | 28.0   | 45.0    | 4590    | 1.7  | 0.3   | 0.0       | 215           | 280   | 31.4            |
| 04/09/2026                                | 1.18      |                | 0.99          | 17.6                        | 28.1   | 45.3    | 4698    | 1.5  | 0.3   | 0.0       | 225           | 290   | 31.5            |
| 06/09/2026                                | 0.98      |                | 1.02          | 17.7                        | 28.2   | 45.3    | 4927    | 1.5  | 0.3   | 0.0       | 220           | 285   | 31.5            |
| 08/09/2026                                | 1.16      |                | 0.97          | 16.3                        | 27.8   | 46.1    | 4727    | 1.7  | 0.4   | 0.0       | 210           | 275   | 31.5            |
| 09/09/2026                                | 0.73      |                | 1.20          | 16.0                        | 27.7   | 45.5    | 4677    | 1.5  | 0.2   | 0.0       | 215           | 280   | 31.5            |
| 10/09/2026                                | 1.01      |                | 1.38          | 17.0                        | 27.3   | 45.2    | 4710    | 1.4  | 0.2   | 0.0       | 235           | 295   | 31.6            |
| 14/09/2026                                | 1.13      |                | 0.70          | 17.3                        | 27.8   | 44.0    | 4636    | 2.4  | 0.9   | 0.0       | 230           | 310   | 31.4            |
| 15/09/2026                                | 1.14      |                | 0.72          | 17.0                        | 27.7   | 44.0    | 4597    | 1.4  | 0.3   | 0.0       | 210           | 270   | 31.7            |
| 16/09/2026                                | 0.93      |                | 0.74          | 16.5                        | 26.6   | 42.8    | 4710    | 1.5  | 0.3   | 0.0       | 225           | 295   | 31.7            |
| 17/09/2026                                | 1.12      |                | 0.83          | 15.6                        | 27.9   | 42.7    | 4641    | 1.6  | 0.2   | 0.0       | 230           | 295   | 31.7            |
| 18/09/2026                                | 1.11      |                | 0.62          | 17.2                        | 26.8   |         | 4613    | 1.5  | 0.2   | 0.0       | 235           | 300   | 31.6            |
| 19/09/2026                                | 1.27      |                | 0.67          | 17.6                        | 26.9   | 41.0    | 4643    | 1.6  | 0.2   | 0.0       | 225           | 295   | 31.4            |
| 21/09/2026                                | 1.12      |                | 0.71          | 15.0                        | 25.4   | 42.8    | 4593    | 1.6  | 0.3   | 0.0       | 225           | 290   | 32.0            |
| 22/09/2026                                | 1.27      |                | 0.60          | 16.6                        | 26.4   |         | 4629    | 1.6  | 0.2   | 0.0       | 220           | 275   | 31.7            |
| 23/09/2026                                | 0.81      |                | 0.88          | 16.3                        | 26.4   | 41.5    | 4895    | 1.5  | 0.2   | 0.0       | 230           | 295   | 31.6            |
| 24/09/2026                                | 1.25      |                | 2.35          | 16.8                        | 26.7   | 42.1    | 4808    | 1.6  | 0.2   | 0.0       | 235           | 300   | 31.6            |
| 25/09/2026                                | 1.27      |                | 0.92          | 16.2                        | 26.7   | 42.1    | 4725    | 1.4  | 0.2   | 0.0       | 240           | 305   | 32.2            |
| 26/09/2026                                | 1.30      |                | 0.59          | 15.7                        | 24.6   |         | 4685    | 1.3  | 0.2   | 0.0       | 235           | 300   | 32.2            |
| 27/09/2026                                | 1.49      |                | 0.57          | 17.4                        | 25.3   |         | 4802    | 1.2  | 0.2   | 0.0       | 250           | 320   | 32.1            |
| 28/09/2026                                | 1.96      |                | 0.60          | 17.4                        | 25.8   |         | 4828    | 1.3  | 0.2   | 0.0       | 235           | 300   | 32.1            |
| 29/09/2026                                | 1.09      |                | 1.03          | 14.2                        | 25.3   |         | 4768    | 1.4  | 0.2   | 0.0       | 245           | 310   | 31.9            |
| 30/09/2026                                | 1.40      |                | 0.42          | 14.1                        | 25.1   |         | 4673    | 1.1  | 0.2   | 0.0       | 230           | 295   | 31.6            |
| MÉDIA                                     | 1.15      | 0.61           | 0.89          | 16.4                        | 26.8   | 43.7    | 4705    | 1.5  | 0.3   | 0.0       | 228           | 293   | 31.7            |
| DESVIO PADRÃO                             | 0.25      | 0.06           | 0.39          | 1.0                         | 1.1    | 1.6     | 94      | 0.3  | 0.2   | 0.0       | 10            | 12    | 0.3             |
| MÍNIMO                                    | 0.73      | 0.56           | 0.42          | 14.1                        | 24.6   | 41.0    | 4590    | 1.1  | 0.2   | 0.0       | 210           | 270   | 31.2            |
| MÁXIMO                                    | 1.96      | 0.65           | 2.35          | 17.7                        | 28.2   | 46.1    | 4927    | 2.4  | 0.9   | 0.0       | 250           | 320   | 32.2            |

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# CERTIFICADO DE CONTROLE DA QUALIDADE DO CIMENTO

TIPO/CLASSE: **CPIII-40 RS ENSACADO**  
FÁBRICA: **FVI - FÁBRICA DE VITÓRIA - ES**  
MÊS/ANO: **OUTUBRO/2026**



| ENSAIOS QUÍMICOS                          |              |                   |                  | ENSAIOS FÍSICOS E MECÂNICOS |        |         |         |      |       |           |               |       |          |
|-------------------------------------------|--------------|-------------------|------------------|-----------------------------|--------|---------|---------|------|-------|-----------|---------------|-------|----------|
| ENSAIOS                                   | PERDA AO     | RESIDUO           | TRIÓXIDO DE      | RESISTÊNCIA À COMPRESSÃO    |        |         | FINURA  |      |       | EXPANSIB. | TEMPO DE PEGA |       | CONSIST. |
|                                           | FOGO<br>(PF) | INSOLÚVEL<br>(RI) | ENXÓFRE<br>(SO3) | 3 DIAS                      | 7 DIAS | 28 DIAS | BLAINE  | #325 | #200  | A QUENTE  | INÍCIO        | FIM   |          |
| UNIDADE                                   | (%)          | (%)               | (%)              | (MPa)                       | (MPa)  | (MPa)   | (cm²/g) | (%)  | (%)   | (mm)      | (min)         | (min) | (%)      |
| LIMITE NORMATIVO<br>(ABNT NBR 16697:2018) | ≤ 6,5        | ≤ 5,0             | ≤ 4,5            | ≥ 12,0                      | ≥ 23,0 | ≥ 40,0  | –       | –    | ≤ 8,0 | ≤ 5       | ≥ 60          | ≤ 720 | –        |
| 01/10/2026                                | 1.20         |                   | 0.46             | 14.6                        | 25.1   |         | 4583    | 1.3  | 0.2   | 0.0       | 220           | 285   | 31.0     |
| 02/10/2026                                | 1.41         |                   | 0.39             | 15.5                        | 24.0   |         | 4543    | 1.4  | 0.2   | 0.0       | 220           | 280   | 31.8     |
| 03/10/2026                                | 1.47         |                   | 0.64             | 16.9                        | 25.5   |         | 4490    | 2.0  | 0.4   | 0.0       | 220           | 275   | 31.7     |
| 05/10/2026                                | 1.38         |                   | 0.64             | 15.8                        | 26.1   |         | 4515    | 1.7  | 0.4   | 0.0       | 210           | 260   | 31.7     |
| 06/10/2026                                | 1.39         |                   | 0.67             | 16.3                        | 26.4   |         | 4612    | 2.3  | 0.4   | 0.0       | 205           | 270   | 31.7     |
| 07/10/2026                                | 1.17         |                   | 0.72             | 14.1                        | 26.1   |         | 4493    | 1.6  | 0.3   | 0.0       | 205           | 270   | 31.8     |
| 08/10/2026                                | 1.18         |                   | 0.64             | 15.6                        | 27.2   |         | 4527    | 1.5  | 0.3   | 0.0       | 200           | 265   | 31.5     |
| 09/10/2026                                | 1.21         |                   | 0.92             | 19.0                        |        |         | 4477    | 1.3  | 0.2   | 0.0       | 210           | 260   | 31.4     |
| 10/10/2026                                | 1.43         |                   | 0.70             | 18.6                        | 29.6   |         | 4714    | 1.5  | 0.2   | 0.0       | 215           | 270   | 31.4     |
| 13/10/2026                                | 1.39         |                   | 0.81             | 17.3                        | 29.8   |         | 4609    | 1.8  | 0.2   | 0.0       | 200           | 250   | 31.2     |
| 14/10/2026                                | 1.40         |                   | 0.60             | 15.6                        | 24.1   |         | 4566    | 1.9  | 0.2   | 0.0       | 220           | 280   | 31.2     |
| 15/10/2026                                | 1.31         |                   | 0.71             | 15.4                        | 26.6   |         | 4561    | 1.6  | 0.2   | 0.0       | 205           | 270   | 31.2     |
| 16/10/2026                                | 1.32         |                   | 0.75             | 15.3                        | 26.7   |         | 4551    | 1.3  | 0.2   | 0.0       | 220           | 280   | 31.4     |
| 17/10/2026                                | 1.33         |                   | 0.82             | 16.8                        | 27.9   |         | 4704    | 1.0  | 0.2   | 0.0       | 215           | 270   | 31.8     |
| 18/10/2026                                | 1.71         |                   | 0.79             | 17.3                        | 28.2   |         | 4721    | 1.3  | 0.2   | 0.0       | 220           | 285   | 32.2     |
| 19/10/2026                                | 1.31         |                   | 0.82             | 15.7                        |        |         | 4586    | 1.3  | 0.2   | 0.0       | 205           | 265   | 32.3     |
| 20/10/2026                                | 1.07         |                   | 1.14             | 19.0                        |        |         | 4524    | 2.1  | 0.2   | 0.0       | 220           | 285   | 32.3     |
| 21/10/2026                                | 1.14         |                   | 0.95             |                             |        |         | 4877    | 1.7  | 0.2   | 0.0       | 215           | 280   | 32.0     |
| 22/10/2026                                | 1.18         |                   | 1.01             | 17.3                        |        |         | 4602    | 1.6  | 0.2   | 0.0       | 215           | 280   | 32.1     |
| 23/10/2026                                | 0.82         |                   | 1.17             |                             |        |         | 4569    | 1.8  | 0.2   | 0.0       | 190           | 250   | 31.9     |
| 24/10/2026                                | 0.88         |                   | 1.12             |                             |        |         | 4547    | 1.6  | 0.2   | 0.0       | 205           | 270   | 31.8     |
| MÉDIA                                     | 1.27         |                   | 0.78             | 16.5                        | 26.7   |         | 4589    | 1.6  | 0.2   | 0.0       | 211           | 271   | 31.7     |
| DESVIO PADRÃO                             | 0.20         |                   | 0.21             | 1.4                         | 1.8    |         | 96      | 0.3  | 0.1   | 0.0       | 9             | 11    | 0.4      |
| MÍNIMO                                    | 0.82         |                   | 0.39             | 14.1                        | 24.0   |         | 4477    | 1.0  | 0.2   | 0.0       | 190           | 250   | 31.0     |
| MÁXIMO                                    | 1.71         |                   | 1.17             | 19.0                        | 29.8   |         | 4877    | 2.3  | 0.4   | 0.0       | 220           | 285   | 32.3     |

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