

# CERTIFICADO DE CONTROLE DA QUALIDADE DO CIMENTO



TIPO/CLASSE: **CPIII-40 RS**



FÁBRICA: **FMO - FÁBRICA DE MOGI DAS CRUZES - SP**

MÊS/ANO: **MARÇO/2026**

ENSAIOS QUÍMICOS				ENSAIOS FÍSICOS E MECÂNICOS									
ENSAIOS	PERDA AO	RESIDUO	TRIOXIDO DE	RESISTÊNCIA À COMPRESSÃO			FINURA			EXPANSIB. A QUENTE	TEMPO DE PEGA		CONSIST. NORMAL
	FOGO (PF)	INSOLÚVEL (RI)	ENXÓFRE (SO3)	3 DIAS	7 DIAS	28 DIAS	BLAINE	#325	#200		INÍCIO	FIM	
UNIDADE	(%)	(%)	(%)	(MPa)	(MPa)	(MPa)	(cm²/g)	(%)	(%)	(mm)	(min)	(min)	(%)
LIMITE NORMATIVO (ABNT NBR 16697:2018)	≤ 6,5	≤ 5,0	≤ 4,5	≥ 12,0	≥ 23,0	≥ 40,0	-	-	≤ 8,0	≤ 5	≥ 60	≤ 720	-
02/03/2026	3.64	1.80	1.54	23.0	35.7	50.2	4486	1.1	0.2	0.0	200	240	29.8
03/03/2026	4.14	1.60	1.54	25.0	36.0	50.7	4486	1.1	0.2	0.0	200	240	29.8
04/03/2026	4.44	2.10	1.40	23.3	36.7	49.7	4300	1.0	0.2	0.0	200	255	30.2
05/03/2026	4.27	2.10	1.51	23.3	36.7	49.7	4351	1.1	0.1	0.0	180	230	29.8
06/03/2026	4.32	1.90	1.65	23.0	36.3	51.6	4302	1.1	0.2	0.0	190	240	29.8
07/03/2026	3.67	1.90	1.54	23.1	36.5	51.7	4426	1.4	0.2	0.0	180	225	29.8
09/03/2026	4.56	1.90	1.40	23.8	34.4	50.2	4468	1.5	0.3	0.0	190	230	29.8
10/03/2026	4.06	1.70	1.65	23.5	34.0	49.7	4300	1.4	0.3	0.0	180	230	30.2
11/03/2026	4.60	1.60	1.40	23.0	35.2	50.2	4450	1.2	0.2	0.0	180	230	29.8
12/03/2026	4.11	2.00	1.54	23.0	35.2	50.2	4424	1.5	0.4	0.0	190	240	30.2
13/03/2026	4.32	1.60	1.58	23.5	34.7	49.5	4500	1.5	0.4	0.0	180	240	29.6
14/03/2026	4.49	2.00	1.44	22.0	35.3	50.5	4353	1.3	0.3	0.0	200	240	30.2
16/03/2026	4.20	1.60	1.61	23.2	34.4	49.3	4434	0.8	0.3	0.0	190	250	30.0
17/03/2026	4.16	2.10	1.54	23.3	35.6	50.3	4353	0.9	0.2	0.0	200	250	30.2
18/03/2026	3.99	1.30	1.61	23.1	34.3	49.2	4582	1.8	0.8	0.0	190	240	29.4
19/03/2026	4.30	2.00	1.37	23.1	34.3	49.2	4483	1.8	0.5	0.0	180	230	29.8
20/03/2026	4.04	1.50	1.44	23.3	35.5	50.8	4198	1.9	0.5	0.0	210	260	30.0
21/03/2026	4.21	1.50	1.54	23.2	36.7	49.0	4516	1.6	0.8	0.0	190	230	29.8
23/03/2026	3.91	1.50	1.58	24.6	35.5	49.2	4274	1.5	0.4	0.0	200	250	29.6
24/03/2026	3.81	1.70	1.58	24.2	35.0	50.3	4322	1.6	0.4	0.0	200	240	30.2
25/03/2026	3.70	1.90	1.68	23.7	35.9	49.7	4391	1.5	0.3	0.0	180	240	29.8
26/03/2026	3.45	1.80	1.65	23.7	35.9	49.7	4391	1.1	0.4	0.0	195	250	30.2
27/03/2026	4.46	2.00	1.61	23.3	35.4	49.5	4358	1.6	0.3	0.0	190	250	29.6
28/03/2026	4.18	1.70	1.61	23.3	36.0	49.7	4462	1.1	0.2	0.0	180	250	29.8
30/03/2026	4.00	2.10	1.72	23.2	34.7	50.7	4222	0.9	0.3	0.0	190	240	30.2
31/03/2026	3.34	2.10	1.44	23.7	35.8	50.5	4476	0.7	0.1	0.0	200	260	30.0
<b>MÉDIA</b>	<b>4.09</b>	<b>1.81</b>	<b>1.55</b>	<b>23.4</b>	<b>35.5</b>	<b>50.0</b>	<b>4396</b>	<b>1.3</b>	<b>0.3</b>	<b>0.0</b>	<b>191</b>	<b>242</b>	<b>29.9</b>
<b>MÁXIMO</b>	<b>4.60</b>	<b>2.10</b>	<b>1.72</b>	<b>25.0</b>	<b>36.7</b>	<b>51.7</b>	<b>4582</b>	<b>1.9</b>	<b>0.8</b>	<b>0.0</b>	<b>210</b>	<b>260</b>	<b>30.2</b>
<b>MÍNIMO</b>	<b>3.34</b>	<b>1.30</b>	<b>1.37</b>	<b>22.0</b>	<b>34.0</b>	<b>49.0</b>	<b>4198</b>	<b>0.7</b>	<b>0.1</b>	<b>0.0</b>	<b>180</b>	<b>225</b>	<b>29.4</b>

*Richard de S. Souza*

**Responsável Técnico**  
RICHARD DE SIQUEIRA SOUZA  
CRQ:04498092 - IV Região

# CERTIFICADO DE CONTROLE DA QUALIDADE DO CIMENTO



TIPO/CLASSE: **CPIII-40 RS**



FÁBRICA: **FMO - FÁBRICA DE MOGI DAS CRUZES - SP**

MÊS/ANO: **ABRIL/2026**

ENSAIOS QUÍMICOS				ENSAIOS FÍSICOS E MECÂNICOS									
ENSAIOS	PERDA AO FOGO (PF)	RESÍDUO INSOLÚVEL (RI)	TRIOXÍDIO DE ENXÓFRE (SO <sub>3</sub> )	RESISTÊNCIA À COMPRESSÃO			FINURA			EXPANSIB. A QUENTE	TEMPO DE PEGA		CONSIST. NORMAL
				3 DIAS	7 DIAS	28 DIAS	BLAINE	#325	#200		INÍCIO	FIM	
UNIDADE	(%)	(%)	(%)	(MPa)	(MPa)	(MPa)	(cm <sup>2</sup> /g)	(%)	(%)	(mm)	(min)	(min)	(%)
LIMITE NORMATIVO (ABNT NBR 16697:2018)	≤ 6,5	≤ 5,0	≤ 4,5	≥ 12,0	≥ 23,0	≥ 40,0	-	-	≤ 8,0	≤ 5	≥ 60	≤ 720	-
01/04/2026	4.19	1.80	1.47	24.7	36.4	51.1	4247	1.3	0.2	0.0	205	255	30.2
02/04/2026	3.96	2.00	1.58	24.7	36.4	49.4	4411	1.3	0.2	0.0	190	240	30.6
04/04/2026	4.30	1.60	1.51	23.4	35.5	49.6	4430	1.2	0.3	0.0	180	220	30.2
06/04/2026	4.26	1.70	1.58	23.2	36.2	49.6	4541	1.4	0.2	0.0	190	260	30.0
07/04/2026	4.26	1.70	1.46	23.1	34.3	49.6	4245	1.2	0.2	0.0	210	255	30.2
08/04/2026	4.18	1.50	1.61	23.2	34.7	49.2	4548	1.3	0.2	0.0	190	250	29.6
09/04/2026	3.87	1.70	1.47	23.2	34.7	49.2	4348	1.1	0.1	0.0	190	240	29.8
10/04/2026	4.17	1.50	1.61	23.6	35.4	51.3	4500	1.3	0.2	0.0	190	245	29.6
11/04/2026	3.97	1.30	1.47	23.1	36.0	49.5	4660	1.3	0.2	0.0	200	250	29.8
13/04/2026	4.04	1.60	1.61	23.4	36.0	49.2	4643	1.0	0.2	0.0	195	250	30.0
14/04/2026	3.99	1.60	1.78	23.2	35.0	49.7	4572	1.3	0.3	0.0	200	250	30.0
15/04/2026	3.72	1.70	1.78	23.1	35.5	49.4	4263	0.9	0.2	0.0	205	260	30.0
16/04/2026	3.90	1.80	1.48	23.1	35.5	49.4	4294	0.9	0.2	0.0	210	270	30.0
17/04/2026	3.76	1.60	1.89	23.6	35.0	50.0	4403	1.0	0.3	0.0	190	250	29.6
18/04/2026	3.78	1.80	1.75	23.6	35.0	50.0	4343	0.8	0.2	0.0	210	260	29.8
20/04/2026	4.01	1.60	1.47	23.5	35.8	49.8	4414	1.2	0.2	0.0	200	250	29.8
22/04/2026	4.61	1.70	1.40	23.8	35.2	50.5	4492	1.1	0.2	0.0	180	230	30.0
23/04/2026	4.44	1.70	1.58	23.8	35.2	50.5	4535	1.2	0.3	0.0	180	240	30.0
24/04/2026	4.03	1.40	1.51	23.3	35.9	50.7	4429	1.2	0.2	0.0	195	220	30.0
27/04/2026	4.14	1.40	1.58	23.3	34.2	50.2	4247	1.5	0.2	0.0	180	230	29.6
28/04/2026	4.28	1.70	1.65	23.2	34.0	49.8	4353	1.5	0.2	0.0	190	250	30.0
29/04/2026	4.08	1.70	1.47	23.5	36.7	50.9	4406	0.7	0.1	0.0	190	240	30.0
30/04/2026	4.24	1.20	1.47	23.5	36.7	50.9	4561	1.0	0.2	0.0	190	240	30.0
MÉDIA	4.09	1.62	1.57	23.5	35.4	50.0	4430	1.2	0.2	0.0	194	246	29.9
MÁXIMO	4.61	2.00	1.89	24.7	36.7	51.3	4660	1.5	0.3	0.0	210	270	30.6
MÍNIMO	3.72	1.20	1.40	23.1	34.0	49.2	4245	0.7	0.1	0.0	180	220	29.6

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TIPO/CLASSE: **CPIII-40 RS**



FÁBRICA: **FMO - FÁBRICA DE MOGI DAS CRUZES - SP**

MÊS/ANO: **MAIO/2026**

ENSAIOS QUÍMICOS				ENSAIOS FÍSICOS E MECÂNICOS									
ENSAIOS	PERDA AO FOGO (PF)	RESÍDUO INSOLÚVEL (RI)	TRIOXÍDEO DE ENXÓFRE (SO <sub>3</sub> )	RESISTÊNCIA À COMPRESSÃO			FINURA			EXPANSIBILIDADE A QUENTE	TEMPO DE PEGA		CONSISTÊNCIA NORMAL
				3 DIAS	7 DIAS	28 DIAS	BLAINE	#325	#200		INÍCIO	FIM	
UNIDADE	(%)	(%)	(%)	(MPa)	(MPa)	(MPa)	(cm <sup>2</sup> /g)	(%)	(%)	(mm)	(min)	(min)	(%)
LIMITE NORMATIVO (ABNT NBR 16697:2018)	≤ 6,5	≤ 5,0	≤ 4,5	≥ 12,0	≥ 23,0	≥ 40,0	-	-	≤ 8,0	≤ 5	≥ 60	≤ 720	-
02/05/2026	4.13	1.70	1.75	23.7	35.2	49.2	4407	1.1	0.2	0.0	190	240	29.6
04/05/2026	3.97	1.50	1.58	23.4	34.9	50.2	4471	1.1	0.2	0.0	190	240	29.6
05/05/2026	3.79	1.50	1.41	23.2	34.5		4468	1.4	0.2	0.0	180	235	29.6
06/05/2026	3.96	1.50	1.47	23.2	33.7		4603	0.9	0.2	0.0	180	220	29.8
07/05/2026	4.22	1.50	1.54	23.2	33.7		4370	1.5	0.2	0.0	185	225	29.8
08/05/2026	4.07	1.90	1.75	23.2	35.7		4404	1.5	0.2	0.0	200	250	29.8
09/05/2026	4.47	1.40	1.44	23.4	33.7		4567	1.8	0.3	0.0	185	260	29.4
11/05/2026	3.58	1.20	1.71	23.4	35.1		4471	1.5	0.2	0.0	205	270	29.6
12/05/2026	4.01	1.50	1.61	23.2	35.7		4541	1.4	0.2	0.0	180	235	29.2
13/05/2026	4.39	1.90	1.47	23.4	35.6		4502	1.4	0.2	0.0	180	230	29.6
14/05/2026	4.26	2.00	1.58	23.4	35.6		4750	1.9	0.3	0.0	180	240	29.8
15/05/2026	3.95	1.90	1.58	23.2	35.1		4403	1.6	0.2	0.0	190	250	29.6
16/05/2026	3.74	2.00	1.72	23.3	34.6		4664	0.6	0.1	0.0	180	230	29.6
18/05/2026	3.49	2.00	1.71	23.2	34.0		4464	1.5	0.2	0.0	190	250	29.6
19/05/2026	4.07	2.00	1.68	23.1	34.5		4653	1.3	0.2	0.0	180	230	29.6
20/05/2026	3.99	2.00	1.65	23.3	34.0		4488	1.4	0.2	0.0	190	220	29.6
21/05/2026	4.18	1.70	1.58	23.3	34.0		4560	1.3	0.1	0.0	180	220	29.6
22/05/2026	4.37	1.90	1.44	23.2	34.2		4541	1.7	0.2	0.0	195	235	29.8
23/05/2026	3.96	2.00	1.65	23.3	35.5		4509	0.9	0.1	0.0	190	240	30.0
25/05/2026	4.06	2.00	1.47	23.4	34.3		4775	1.6	0.1	0.0	205	260	30.0
26/05/2026	3.70	1.70	1.54	23.5			4712	1.1	0.1	0.0	185	235	30.0
27/05/2026	3.43	1.40	1.47	23.2			4480	1.6	0.1	0.0	180	230	30.0
28/05/2026	4.01	1.70	1.68	23.2			4491	1.4	0.1	0.0	200	240	29.8
29/05/2026	4.02	1.70	1.75				4458	1.3	0.1	0.0	195	245	30.0
30/05/2026	3.95	2.00	1.78				4432	1.4	0.1	0.0	190	250	30.0
<b>MÉDIA</b>	3.99	1.74	1.60	23.3	34.7	49.7	4527	1.4	0.2	0.0	188	239	29.7
<b>MÁXIMO</b>	4.47	2.00	1.78	23.7	35.7	50.2	4775	1.9	0.3	0.0	205	270	30.0
<b>MÍNIMO</b>	3.43	1.20	1.41	23.1	33.7	49.2	4370	0.6	0.1	0.0	180	220	29.2

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