

# CERTIFICADO DE CONTROLE DA QUALIDADE DO CIMENTO



TIPO/CLASSE: CII-Z 40



FÁBRICA: FMN - FÁBRICA DE MANAUS - AM

MÊS/ANO: FEVEREIRO-2026

ENSAIOS QUÍMICOS				ENSAIOS FÍSICOS E MECÂNICOS									
ENSAIOS	PERDA AO	RESIDUO	TRIOXIDO DE	RESISTÊNCIA A COMPRESSÃO			FINURA			EXPANSIB. A QUENTE	TEMPO DE PEGA		CONSIST. NORMAL
	FOGO (PF)	INSOLÚVEL (RI)	ENXOFRE (SO3)	3 DIAS	7 DIAS	28 DIAS	BLAINE	#325	#200		INICIO	FIM	
UNIDADE	(%)	(%)	(%)	(MPa)	(MPa)	(MPa)	(g/cm <sup>2</sup> )	(%)	(%)	(mm)	(mim)	(mim)	(%)
LIMITE NORMATIVO (ABNT NBR 16697:2018)	≤ 8,5	≤ 18,5	≤ 4,5	≥ 15,0	≥ 25,0	≥ 40,0	-	-	≤ 10,0	≤ 5	≥ 60	≤ 600	-
02/02/2026	1.15	13.10	2.77	24.5	30.9		4870	3.3	0.3	0.0	120	190	29.1
03/02/2026	1.91	11.53	2.85	24.7	31.5		5170	3.7	0.3	0.0	125	210	29.0
04/02/2026	1.72	15.70	2.33	24.8	32.0		5580	2.7	0.2	0.0	130	205	29.0
05/02/2026	1.47	13.74	2.35	24.3	31.7		4680	2.7	0.2	0.0	135	215	29.1
06/02/2026	1.58	13.00	2.60	24.6	31.5		5080	2.1	0.3	0.0	120	210	29.2
07/02/2026	1.69	12.96	1.19	24.4	31.8		5100	2.3	0.2	0.0	130	240	29.2
09/02/2026	1.81	12.87	2.21	24.0	31.6		5170	2.4	0.2	0.0	125	220	29.6
10/02/2026	1.22	12.37	2.26	24.8	32.0		4660	3.6	0.2	0.0	120	215	29.6
11/02/2026	1.26	11.05	2.69	25.0	32.4		4930	2.2	0.2	0.0	130	220	29.8
12/02/2026	1.25	12.91	2.88	25.2	32.9		5330	1.9	0.2	0.0	120	225	29.4
13/02/2026	1.16	10.29	2.37	24.8	32.7		5270	1.9	0.1	0.0	130	240	29.6
14/02/2026	1.36	11.85	2.22	25.6	33.4		5080	2.3	0.3	0.0	140	230	29.3
16/02/2026	1.38	12.00	2.27	24.9	32.8		5110	2.0	0.2	0.0	130	240	29.6
17/02/2026	1.73	12.46	2.79	251.0			5330	1.7	0.1	0.0	135	230	293.0
18/02/2026	1.73	12.46	2.85	25.1			5330	1.7	0.1		135	230	29.3
19/02/2026	1.81	13.13	2.85	24.8			5730	2.7	0.2	0.0	135	230	29.8
MÉDIA	1.50	12.60	2.50	38.9	32.1		5151	2.5	0.2	0.0	129	222	45.9
DESVIO PADRÃO	0.30	1.20	0.40	56.6	0.7		287	0.6	0.1	0.0	7	14	65.9
MINIMO	1.15	10.29	1.19	24.0	30.9		4660	1.7	0.1	0.0	120	190	29.0
MAXIMO	1.91	15.70	2.88	251.0	33.4		5730	3.7	0.3	0.0	140	240	293.0

  
 Responsável Técnico  
**GABRIELE OLIVEIRA DA SILVA**  
 CRQ 14200571 - XIV Região

# CERTIFICADO DE CONTROLE DA QUALIDADE DO CIMENTO



TIPO/CLASSE: CII-Z 40



FÁBRICA: FMN - FÁBRICA DE MANAUS - AM

MÊS/ANO: JANEIRO-2026

ENSAIOS QUÍMICOS				ENSAIOS FÍSICOS E MECÂNICOS									
ENSAIOS	PERDA AO	RESIDUO	TRIOXIDO DE	RESISTÊNCIA A COMPRESSÃO			FINURA			EXPANSIB. A QUENTE	TEMPO DE PEGA		CONSIST. NORMAL
	FOGO (PF)	INSOLÚVEL (RI)	ENXOFRE (SO3)	3 DIAS	7 DIAS	28 DIAS	BLAINE	#325	#200		INICIO	FIM	
UNIDADE	(%)	(%)	(%)	(MPa)	(MPa)	(MPa)	(g/cm <sup>2</sup> )	(%)	(%)	(mm)	(mim)	(mim)	(%)
LIMITE NORMATIVO (ABNT NBR 16697:2018)	≤ 8,5	≤ 18,5	≤ 4,5	≥ 15,0	≥ 25,0	≥ 40,0	-	-	≤ 10,0	≤ 5	≥ 60	≤ 600	-
02/01/2026	3.13	12.57	3.43	25.0	33.3	41.1	5010	2.5	0.3	0.0	145	250	30.3
03/01/2026	2.97	12.38	3.41	25.8	33.6	41.0	5040	2.5	0.3	0.0	140	250	30.0
05/01/2026	2.87	12.25	3.41	26.0	32.5	41.8	5080	2.8	0.3	0.0	150	255	30.8
06/01/2026	3.54	14.02	3.79	24.0	34.0	42.2	5460	2.7	0.3	0.0	155	250	30.4
07/01/2026	3.43	13.55	3.64	23.8	33.6	42.2	5670	3.2	0.3	0.0	150	250	30.3
08/01/2026	2.87	13.13	3.37	24.6	33.3	42.6	5460	3.3	0.4	0.0	145	245	30.8
09/01/2026	2.87	11.90	3.41	24.1	33.0	42.4	5700	3.2	0.4	0.0	150	245	30.0
10/01/2026	3.08	11.78	3.57	24.2	32.5	41.6	5670	3.2	0.3	0.0	145	250	30.3
12/01/2026	3.15	12.53	3.38	24.0	32.5	42.0	4910	2.6	0.3	0.0	150	250	30.8
13/01/2026	3.19	14.08	3.77	23.8	32.8	41.7	5580	2.6	0.2	0.0	155	255	30.7
14/01/2026	3.19	13.80	3.96	23.9	32.9	41.4	5330	2.5	0.2	0.0	160	245	30.9
15/01/2026	2.73	13.25	3.79	24.3	33.3	42.0	4910	2.9	0.2	0.0	155	255	30.7
16/01/2026	3.14	11.04	3.59	24.2	32.9	41.0	4770	2.4	0.2	0.0	145	250	30.8
17/01/2026	3.15	11.78	3.41	23.9	33.0	41.3	5040	2.8	0.2	0.0	150	250	30.9
19/01/2026	3.22	11.98	3.56	24.0	32.4	41.6	4905	2.6	0.2	0.0	185	220	31.5
20/01/2026	2.84	13.23	3.80	24.2	31.5	41.5	4970	2.7	0.2	0.0	140	230	31.0
21/01/2026	2.69	10.55	3.64	24.7	32.2	42.4	4810	3.0	0.2	0.0	145	235	31.2
22/01/2026	2.67	11.11	3.49	24.2	31.8	42.0	4910	2.6	0.2	0.0	150	230	30.9
23/01/2026	3.55	14.10	3.62	24.8	32.0	42.3	4680	2.9	0.2	0.0	145	235	31.4
24/01/2026	3.24	13.97	3.58	23.8	30.2	41.0	4440	3.1	0.1	0.0	150	240	31.0
26/01/2026	0.56	12.98	2.87	24.0	29.5		4550	1.5	0.1	0.0	155	230	31.3
27/01/2026	0.28	12.93	1.26	22.9	28.7		4660	2.3	0.2	0.0	110	190	32.5
28/01/2026	1.75	12.06	1.93	23.7	30.5		4050	2.1	0.1	0.0	135	220	31.6
29/01/2026	1.32	15.18	2.77	24.2	31.5		4370	2.2	0.1	0.0	120	210	29.2
30/01/2026	1.28	14.49	2.74	24.8	32.0		4550	2.3	0.1	0.0	125	205	28.9
31/01/2026	1.30	14.87	2.71	25.0	32.3		4460	2.4	0.2	0.0	115	200	28.5
MÉDIA	2.60	12.90	3.30	24.3	32.2	41.8	4961	2.7	0.2	0.0	145	236	30.6
DESVIO PADRÃO	0.90	1.20	0.60	0.7	1.3	0.5	442	0.4	0.1	0.0	15	19	0.8
MINIMO	0.28	10.55	1.26	22.9	28.7	41.0	4050	1.5	0.1	0.0	110	190	28.5
MAXIMO	3.55	15.18	3.96	26.0	34.0	42.6	5700	3.3	0.4	0.0	185	255	32.5

  
 Responsável Técnico  
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