

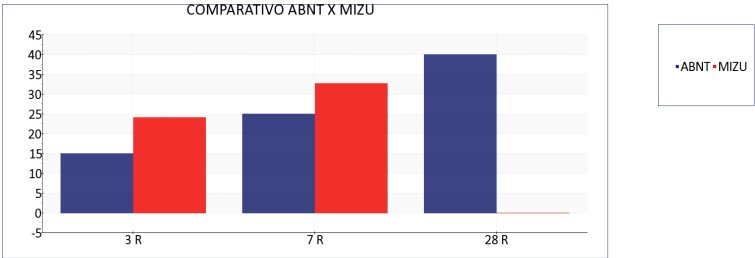
CERTIFICADO DA QUALIDADE - FMN

ENSAIOS QUÍMICOS E FÍSICOS DO CIMENTO CP II Z 40

Abril-2025

DATA	COMPOSIÇÃO QUIMICA					RESISTÊNCIA A COMPRESSÃO			MASSA	FINURA			EXP.	PEGA		CONSIST.
Parâmetros	PF	RI	SO3	CO2	CaO L.	3 DIAS	7 DIA	28 DIAS	ESPEC.	BLAINE	#325	#200	QUENTE	INICIO	FIM	NORMAL
Unidades	%	%	%	%	%	MPa	MPa	MPa	g/cm³	cm²/g	%	%	mm	min	min	%
01/04/2025	2.55	9.95	3.81	0.00	1.20	23.90	32.30		3.04	4852.00	1.80	0.25	0.00	140.00	230.00	31.00
02/04/2025	2.41	10.26	3.71	0.00	1.25	23.40	32.10		3.04	4755.00	1.90	0.26	0.00	130.00	235.00	31.80
03/04/2025	2.53	10.25	3.80	0.00	1.10	23.70	33.00		3.04	4812.00	1.75	0.30	0.00	125.00	240.00	30.80
04/04/2025	2.54	9.90	3.55	0.00	1.05	24.20	32.70		3.04	4786.00	1.65	0.28	0.00	135.00	235.00	31.30
05/04/2025	2.40	9.78	3.70	0.00	1.10	24.50	32.30		3.04	4922.00	1.70	0.25	0.00	140.00	230.00	31.00
07/04/2025	2.35	9.98	3.65	0.00	1.17	23.60	32.50		3.04	4875.00	1.50	0.20	0.00	150.00	210.00	30.80
08/04/2025	2.70	10.50	3.72	0.00	1.14	24.60	32.40		3.04	4796.00	1.65	0.23	0.00	155.00	230.00	30.70
09/04/2025	2.65	10.15	3.80	0.00	1.10	23.80	32.90		3.04	4825.00	1.71	0.26	0.00	145.00	230.00	30.50
10/04/2025	2.70	9.96	3.50	0.00	1.12	24.80	33.50		3.04	4796.00	1.80	0.25	0.00	140.00	240.00	31.00
11/04/2025	2.45	10.45	3.15	0.00	1.09	24.50	33.10		3.04	4800.00	1.70	0.26	0.00	135.00	230.00	30.90
12/04/2025	2.55	10.15	3.45	0.00	1.04	24.10	32.80		3.04	4756.00	1.80	0.29	0.00	145.00	235.00	31.30
14/04/2025	2.63	9.95	3.25	0.00	1.20	24.30	33.00		3.04	4722.00	1.55	0.18	0.00	135.00	225.00	31.80
15/04/2025	2.58	10.00	3.52	0.00	1.18	24.50	32.70		3.04	4685.00	1.50	0.17	0.00	140.00	220.00	31.00
16/04/2025	2.60	10.12	3.48	0.00	1.12	24.30	32.80		3.04	4661.00	1.80	0.20	0.00	135.00	225.00	31.80
17/04/2025	2.56	9.98	3.42	0.00	1.20	24.20	33.00		3.04	4758.00	1.60	0.19	0.00	145.00	230.00	31.00
19/04/2025	2.41	10.26	3.71	0.00	1.25	24.80			3.04	4725.00	1.80	0.25	0.00	150.00	240.00	30.50
22/04/2025	2.53	10.25	3.80	0.00	1.10	25.00			3.04	4822.00	1.71	0.22	0.00	130.00	225.00	31.90
23/04/2025	2.35	9.98	3.65	0.00	1.17	23.70			3.04	4756.00	1.65	0.24	0.00	140.00	230.00	32.00
24/04/2025	2.70	10.50	3.72	0.00	1.14	24.70			3.04	4722.00	1.75	0.26	0.00	125.00	220.00	31.50
25/04/2025	2.65	10.15	3.80	0.00	1.10				3.04	4796.00	1.85	0.33	0.00	130.00	225.00	31.90

Média	2.50	10.10	3.60	0.00	1.10	24.20	32.70		3.00	4781.10	1.70	0.20	0.00	138.50	229.30	31.20
Desvio (P)	0.10	0.20	0.20	0.00	0.10	0.50	0.40		0.00	63.10	0.10	0.00	0.00	8.30	7.50	0.50
NBR 16697:2018	<8,5	<18,5	<4,5	<5,5	-	>15,0	>25,0	>40,0	-	>2800	-	<10,0	<5,0	<60	-	-




Responsável Técnico
Gabriele Oliveira da Silva
CRQ 14200571 - XIV Região

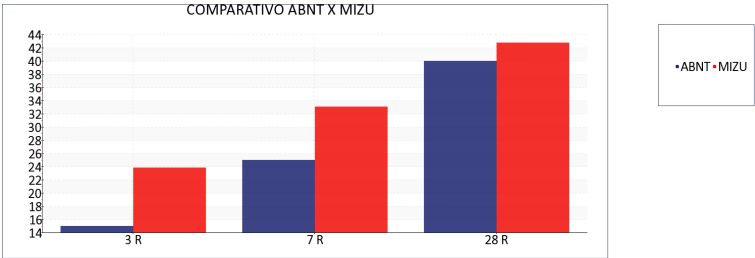
CERTIFICADO DA QUALIDADE - FMN

ENSAIOS QUÍMICOS E FÍSICOS DO CIMENTO CP II Z 40

Março-2025

DATA	COMPOSIÇÃO QUÍMICA					RESISTÊNCIA A COMPRESSÃO			MASSA	FINURA			EXP.	PEGA		CONSIST.
Parâmetros	PF	RI	SO3	CO2	CaO L.	3 DIAS	7 DIA	28 DIAS	ESPEC.	BLAINE	#325	#200	QUENTE	INICIO	FIM	NORMAL
Unidades	%	%	%	%	%	MPa	MPa	MPa	g/cm³	cm²/g	%	%	mm	min	min	%
05/03/2025	2.82	10.46	3.61	0.00	2.19	25.30	34.20	42.50	3.10	4822.00	1.85	0.20	0.00	130.00	230.00	29.00
06/03/2025	2.00	9.04	2.92	0.00	1.96	24.80	33.10	42.80	3.04	4856.00	1.78	0.26	0.00	135.00	230.00	30.00
07/03/2025	2.42	9.57	3.19	0.00	2.25	24.70	32.00	43.70	3.04	4757.00	1.90	0.28	0.00	135.00	235.00	29.50
08/03/2025	2.14	9.41	2.89	0.00	2.05	24.00	33.80	42.20	3.04	4689.00	1.80	0.25	0.00	145.00	235.00	30.10
10/03/2025	2.76	10.22	3.34	0.00	1.97	23.80	33.60	42.50	3.04	4865.00	1.75	0.26	0.00	130.00	230.00	29.70
11/03/2025	2.47	12.13	3.54	0.00	2.27	23.60	32.80	42.80	3.04	4785.00	1.85	0.30	0.00	125.00	230.00	30.30
12/03/2025	2.55	10.96	3.57	0.00	2.00	23.00	32.70	42.00	3.04	4800.00	1.90	0.33	0.00	130.00	220.00	30.60
13/03/2025	3.05	9.68	3.71	0.00	1.97	23.60	33.30	42.50	3.04	4856.00	1.70	0.25	0.00	125.00	225.00	30.50
14/03/2025	3.29	9.96	3.62	0.00	2.00	23.70	33.60	43.00	3.04	4786.00	1.85	0.20	0.00	130.00	230.00	30.70
15/03/2025	2.42	9.57	3.19	0.00	2.25	23.90	33.90	42.80	3.04	4800.00	1.80	0.23	0.00	135.00	219.00	3.06
17/03/2025	2.14	9.41	2.89	0.00	2.15	24.20	34.50	43.80	3.04	4659.00	1.82	0.26	0.00	135.00	220.00	29.80
18/03/2025	1.96	8.89	2.96	0.00	2.10	23.80	32.50	43.50	3.04	4725.00	1.80	0.25	0.00	130.00	225.00	29.30
19/03/2025	2.88	10.54	3.78	0.00	2.20	24.10	33.90	42.90	3.04	4822.00	1.71	0.22	0.00	130.00	230.00	29.00
20/03/2025	2.65	9.20	3.58	0.00	2.28	24.30	32.50	42.00	3.04	4756.00	1.65	0.24	0.00	140.00	230.00	29.80
21/03/2025	2.48	9.53	3.56	0.00	2.39	23.30	32.90	41.90	3.04	4722.00	1.75	0.26	0.00	135.00	225.00	29.50
22/03/2025	2.61	9.72	3.71	0.00	2.30	23.00	32.60	42.90	3.04	4796.00	1.85	0.33	0.00	145.00	235.00	30.80
24/03/2025	2.55	9.95	3.56	0.00	1.96	23.30	33.00	43.00	3.04	4822.00	1.90	0.35	0.00	150.00	230.00	30.80
25/03/2025	2.60	9.00	3.65	0.00	2.10	23.30	33.50	43.10	3.04	4785.00	1.85	0.33	0.00	130.00	225.00	30.60
26/03/2025	2.78	9.15	3.71	0.00	1.99	23.60	32.80	42.60	3.04	4800.00	1.90	0.30	0.00	135.00	235.00	30.30
27/03/2025	2.83	10.48	3.61	0.00	2.00	23.80	33.80	43.30	3.04	4793.00	1.92	0.34	0.00	130.00	225.00	30.50
28/03/2025	2.42	9.57	3.19	0.00	2.10	23.30	33.30		3.04	4855.00	1.85	0.30	0.00	140.00	230.00	30.80
29/03/2025	2.50	10.50	3.65	0.00	2.03	23.50	32.50		3.04	4822.00	1.80	0.32	0.00	130.00	230.00	30.50
31/03/2025	2.56	9.27	3.80	0.00	0.84	24.70	30.80		3.04	4726.00	1.75	0.30	0.00	130.00	225.00	30.80

Média	2.60	9.80	3.40	0.00	2.10	23.90	33.10	42.80	3.00	4786.90	1.80	0.30	0.00	133.90	228.20	29.00
Desvio (P)	0.30	0.80	0.30	0.00	0.30	0.60	0.80	0.50	0.00	54.50	0.10	0.00	0.00	6.40	4.80	5.70
NBR 16697:2018	<8,5	<18,5	<4,5	<5,5	-	>15,0	>25,0	>40,0	-	>2800	-	<10,0	<5,0	<60	-	-




Responsável Técnico
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