

## CERTIFICADO DA QUALIDADE

### ENSAIOS QUÍMICOS E FÍSICOS DO CIMENTO CP III 40 RS ENSACADO

Mar/2024

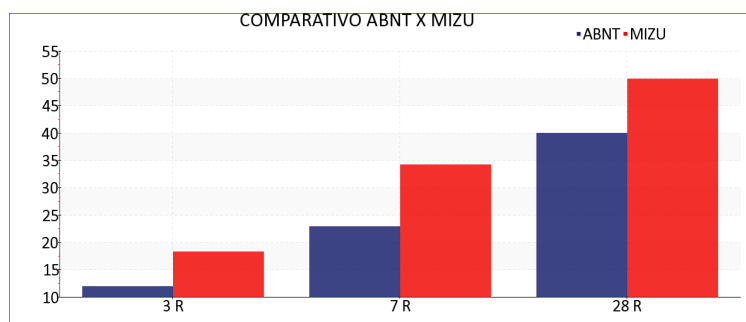
DATA	COMPOSIÇÃO QUÍMICA				RESISTÊNCIA A COMPRESSÃO			FINURA				EXP.	PEGA		CONSIST. NORMAL
	PF	RI	SO3	CaO.	3 DIAS	7 DIA	28 DIAS	MASSA	BLAINE	#P325	#200	QUENTE	INICIO	FIM	
	<6,5	<5,0	<4,5	Livre	>12,0	>23,0	>40,0	ESPECIFICA	cm <sup>2</sup> /g	%	%	mm	>60	<720	
	%	%	%	%	MPa	MPa	MPa	g/cm <sup>3</sup>					min	min	%
01/03/2024	0.66	0.45	1.38	0.65	17.23	32.73	50.00	2.94	4803	1.23	0.18	0.00	214	268	32.40
02/03/2024	1.00	0.57	1.26	0.62	19.03	33.26		2.94	4911	1.46	0.15	0.00	214	269	32.36
04/03/2024	0.81	0.47	1.35	0.68	20.43	35.60	51.53	2.94	4904	1.28	0.12	0.00	195	245	32.28
05/03/2024	0.56	0.52	1.49	0.60	20.86	36.70	48.10	2.94	4904	1.12	0.12	0.00	198	250	32.32
06/03/2024	0.68	0.54	1.54	0.62	19.16	35.60	48.23	2.94	4830	1.09	0.09	0.00	204	259	32.26
07/03/2024	0.66	0.38	1.51	0.65	19.46	33.56	50.15	2.94	5035	1.21	0.15	0.00	200	253	32.18
08/03/2024	0.96	0.45	1.23	0.62	16.53		52.40	2.94	4904	1.21	0.12	0.00	197	249	32.14
09/03/2024	1.29	0.66	1.26	0.71	18.23	36.26	49.80	2.94	5017	1.13	0.11	0.00	202	256	32.24
11/03/2024	1.05	0.61	1.32	0.82	18.20	35.53	51.92	2.94	4964	1.49	0.17	0.00	203	256	31.96
12/03/2024	1.09	0.45	1.35	0.71	18.03	37.20	51.55	2.94	5113	1.18	0.13	0.00	209	263	32.22
13/03/2024	0.73	0.65	1.18	0.76	18.16	36.90	52.27	2.94	5043	1.21	0.10	0.00	200	255	32.34
14/03/2024	1.13	0.68	1.14	0.54	19.96	35.46	50.50	2.94	5035	1.27	0.15	0.00	207	262	32.30
15/03/2024	1.15	0.55	1.30	0.65	19.26	34.36	48.20	2.94	4938	1.28	0.14	0.00	208	263	32.32
16/03/2024	1.00	0.50	1.37	0.62	18.43	33.56	50.37	2.94	5017	1.34	0.16	0.00	210	265	32.24
18/03/2024	0.76	0.38	1.41	0.71	19.30	34.73	51.67	2.94	4964	1.18	0.18	0.00	211	266	32.28
19/03/2024	0.65	0.57	1.72	0.68	20.40	36.60	50.65	2.94	5069	1.19	0.12	0.00	212	265	32.12
20/03/2024	1.30	0.32	1.15	0.79	17.20	34.06	47.32	2.94	5043	1.31	0.18	0.00	208	263	32.06
21/03/2024	1.29	0.45	1.24	0.82	18.56	33.80	45.00	2.94	4990	1.33	0.14	0.00	205	260	32.02
22/03/2024	1.52	0.29	1.25	0.71	17.50	32.96		2.94	5035	1.18	0.18	0.00	217	273	32.00
25/03/2024	1.36	0.62	1.08	0.76	16.63	33.40		2.94	4964	1.26	0.13	0.00	237	315	32.12
26/03/2024	1.29	0.45	1.15	0.71	17.13	32.93		2.94	5009	1.10	0.14	0.00	220	275	32.24
27/03/2024	1.36	0.45	0.96	0.76	15.66	30.53		2.94	4950	1.19	0.14	0.00	220	278	31.98
28/03/2024	1.28	0.22	1.17	0.62	17.03	30.63		2.94	4964	1.22	0.13	0.00	210	267	31.86
30/03/2024	1.24	0.35	1.04	0.71	17.70	32.60		2.94	4938	1.31	0.11	0.00	209	265	32.10

**Controle Estatístico**

					R3	R7	R28								
<b>Média</b>	1.03	0.48	1.29	0.69	18.34	34.30	49.98	2.94	4973	1.24	0.14	0.00	209	264	32.18
<b>Desvio</b>	0.28	0.12	0.17	0.07	1.35	1.86	2.02	0.00	74	0.10	0.03	0.00	9	14	0.14
NBR 16697:2018	<6,5	<5,0	<4,5	-	>12,0	>23,0	>40,0	-	-	-	<8,0	<5,0	>60	<720	-

**Comparativo ABNT x MIZU**

	ABNT	MIZU
R3	12	18.34
R7	23	34.30
R28	40	49.98



*Kênia gomes aires*

**Responsável Técnico**  
**Kênia Gomes Aires**  
**CRQ: 21.3.00318**

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### ENSAIOS QUÍMICOS E FÍSICOS DO CIMENTO CP III 40 RS ENSACADO

Abr/2024

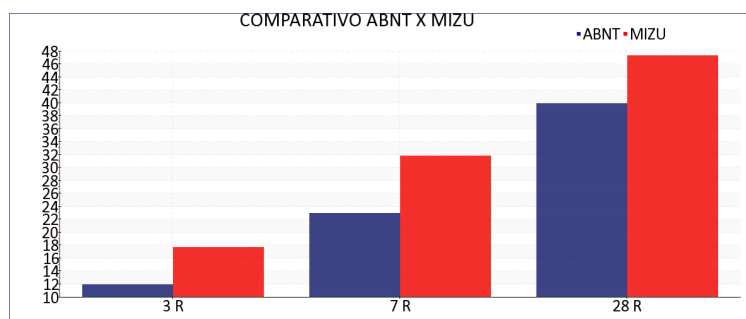
DATA	COMPOSIÇÃO QUÍMICA				RESISTÊNCIA A COMPRESSÃO			FINURA				EXP.	PEGA		CONSIST. NORMAL
	PF	RI	SO3	CaO.	3 DIAS	7 DIA	28 DIAS	MASSA	BLAINE	#P325	#200	QUENTE	INICIO	FIM	
	<6,5	<5,0	<4,5	Livre	>12,0	>23,0	>40,0	ESPECÍFICA	cm <sup>2</sup> /g	%	%	mm	>60	<720	
	%	%	%	%	MPa	MPa	MPa	g/cm <sup>3</sup>					min	min	%
01/04/2024	1.72	0.36	1.01	0.65	19.00	32.86	47.62	2.94	5017	1.45	0.15	0.00	215	271	32.06
02/04/2024	0.96	0.51	1.05	0.54	18.43	31.93	46.75	2.94	4957	1.46	0.13	0.00	228	288	31.78
03/04/2024	0.99	0.42	0.89	0.68	17.83	30.66		2.94	4938	1.38	0.14	0.00	234	296	31.68
04/04/2024	0.96	0.63	1.15	0.71	18.83	33.23	46.32	2.94	4884	1.22	0.15	0.00	220	277	31.74
05/04/2024	1.19	0.67	1.08	0.60	18.70	33.46	46.50	2.94	4857	1.49	0.16	0.00	220	282	31.70
06/04/2024	1.18	0.63	1.16	0.68	19.83		47.66	2.94	4911	1.16	0.13	0.00	211	261	31.78
08/04/2024	1.02	0.45	1.10	0.71	20.40		49.07	2.94	4938	1.14	0.15	0.00	212	264	31.80
09/04/2024	0.93	0.65	1.23	0.62	18.13	31.96		2.94	4884	1.34	0.19	0.00	214	269	31.60
10/04/2024	0.93	0.68	1.29	0.87	20.00	32.60		2.94	4911	1.28	0.15	0.00	216	271	31.58
11/04/2024	1.46	0.60	1.18	0.84	20.43	34.70		2.94	4938	1.28	0.14	0.00	209	261	31.64
12/04/2024	1.12	0.50	0.84	0.73	17.86	33.43		2.94	4938	1.40	0.16	0.00	226	282	31.66
13/04/2024	1.43	0.46	0.88	0.90	17.90	32.43		2.94	4884	1.45	0.19	0.00	224	277	31.64
15/04/2024	1.16	0.53	1.37	0.90	16.96	31.76		2.94	4884	0.99	0.14	0.00	224	287	31.64
16/04/2024	1.37	0.46	1.13	0.90	15.33	31.73		2.94	4830	1.22	0.16	0.00	224	287	31.64
17/04/2024	1.15	0.33	1.26	0.68	17.86	31.16		2.94	4938	1.24	0.11	0.00	225	287	31.66
18/04/2024	1.14	0.41	1.06	0.71	17.46	33.03		2.94	4938	1.23	0.14	0.00	221	286	31.64
19/04/2024	1.64	0.65	1.03	0.62	16.20	30.00		2.94	4930	1.44	0.18	0.00	227	293	31.62
20/04/2024	1.55	0.40	1.07	0.62	15.65	29.90		2.94	4957	1.52	0.16	0.00	217	277	31.60
22/04/2024	1.41	0.34	1.08	0.84	16.60	29.80		2.94	4911	1.28	0.13	0.00	221	284	31.60
23/04/2024	1.19	0.48	0.97	0.71	15.06			2.94	4911	1.51	0.23	0.00	235	299	31.54
24/04/2024	1.04	0.60	0.97	0.73	15.16	29.36		2.94	4857	1.32	0.16	0.00	217	270	31.50
25/04/2024	1.25	0.56	1.41	0.68	16.50	30.86		2.94	4857	1.06	0.12	0.00	225	276	31.48
26/04/2024	0.55	0.66	1.41	0.71	17.83	33.13		2.94	4567	1.32	0.14	0.00	211	261	31.48
27/04/2024	0.30	0.60	1.97	0.76	17.83	32.90		2.94	4669	1.35	0.13	0.00	208	260	31.42
29/04/2024	0.22	0.72	2.13	0.73	17.03	30.50		2.94	4850	0.98	0.22	0.00	209	260	31.38
30/04/2024	1.29		0.89	0.65				2.94	4830	1.14	0.12	0.00	209	261	31.74

Controle Estatístico

					R3	R7	R28								
Média	1.12	0.53	1.18	0.72	17.71	31.88	47.32	2.94	4884	1.29	0.15	0.00	219	276	31.64
Desvio	0.36	0.12	0.30	0.10	1.56	1.44	1.03	0.00	91	0.15	0.03	0.00	8	12	0.14
NBR 16697:2018	<6,5	<5,0	<4,5	-	>12,0	>23,0	>40,0	-	-	-	<8,0	<5,0	>60	<720	-

Comparativo ABNT x MIZU

	ABNT	MIZU
R3	12	17.71
R7	23	31.88
R28	40	47.32



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Responsável Técnico

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Mai/2024

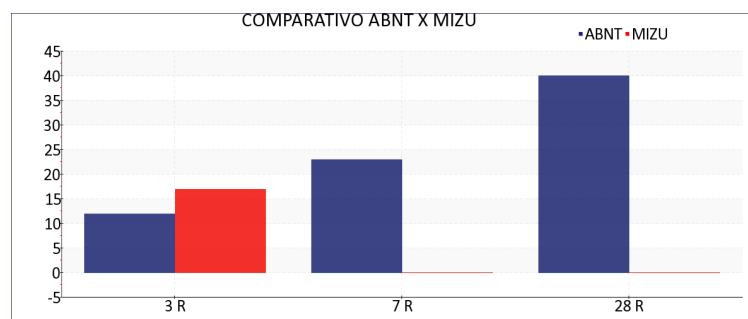
DATA	COMPOSIÇÃO QUÍMICA				RESISTÊNCIA A COMPRESSÃO			FINURA				EXP.	PEGA		CONSIST. NORMAL
	PF	RI	SO3	CaO.	3 DIAS	7 DIA	28 DIAS	MASSA ESPECÍFICA	BLAINE	#P325	#200	QUENTE	INICIO	FIM	
	<6,5	<5,0	<4,5	Livre	>12,0	>23,0	>40,0	g/cm³	cm²/g	%	%	mm	>60	<720	
	%	%	%	%	MPa	MPa	MPa						min	min	%
01/05/2024	1.19		0.81	0.82				2.94	4911	1.25	0.16	0.00	215	271	32.12
02/05/2024	1.40		0.93	0.60	16.93			2.94	4735	1.00	0.14	0.00	215	269	31.78
03/05/2024	1.22		1.20					2.94	4626	1.59	0.17	0.00	200	252	31.72

Controle Estatístico

					R3	R7	R28								
Média	1.27		0.98	0.71	16.93			2.94	4757	1.28	0.16	0.00	210	264	31.87
Desvio	0.11		0.20	0.16				0.00	144	0.30	0.02	0.00	9	10	0.22
NBR 16697:2018	<6,5	<5,0	<4,5	-	>12,0	>23,0	>40,0	-	-	-	<8,0	<5,0	>60	<720	-

Comparativo ABNT x MIZU

	ABNT	MIZU
R3	12	16.93
R7	23	
R28	40	



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