

Sample	Layer		SiO ₂	TiO ₂	Al ₂ O ₃	FeO ₂	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	SO ₃	ClO	HI
TBE 4	arriccio		24.6	0.0	6.3	0.7	8.9	59.5	0.0	0.0	0.0	0.0	0.0	0.46
			33.4	0.0	8.2	1.6	11.0	43.2	0.0	1.3	1.4	0.0	0.1	0.80
			59.6	0.0	14.1	1.0	19.6	4.6	0.0	1.0	0.0	0.0	0.2	3.08
			58.9	0.0	14.4	1.3	19.3	5.4	0.0	0.7	0.0	0.0	0.2	3.02
			44.2	0.0	14.3	0.0	13.2	27.2	0.0	1.2	0.0	0.0	0.0	1.45
			45.9	0.0	13.9	1.2	14.0	23.0	0.7	1.2	0.0	0.0	0.2	1.65
			average											1.74
	intonachino		47.3	0.0	14.1	0.8	4.6	30.8	0.0	2.4	0.0	0.0	0.0	1.76
			43.4	0.0	12.9	1.0	5.9	32.6	0.0	2.0	0.4	1.8	0.3	1.49
			32.5	0.0	10.5	0.0	6.5	48.5	0.0	2.0	0.0	0.0	0.0	0.78
			43.6	0.0	13.1	1.5	5.9	32.8	0.0	1.9	0.0	1.3	0.4	1.51
			31.5	0.0	9.4	2.4	5.2	44.7	2.3	2.1	0.0	2.4	1.6	0.87
			41.5	0.0	13.2	1.7	5.8	34.4	0.0	2.2	0.0	1.3	0.5	1.41
			33.5	0.0	10.1	2.0	5.7	44.2	0.0	1.7	0.5	2.3	0.7	0.92
			average											1.25
TBE 15	arriccio	brighter zone	6.3	0.0	2.1	0.5	4.0	87.2	0.0	0.0	0.0	0.0	0.2	0.10
			6.1	0.0	2.0	0.9	3.3	87.6	0.0	0.0	0.0	0.0	0.0	0.10
			5.3	0.0	2.6	0.7	3.3	87.9	0.0	0.0	0.1	0.0	0.0	0.10
			3.2	0.0	1.3	0.3	3.0	92.2	0.0	0.0	0.0	0.0	0.0	0.05
			3.2	0.0	1.1	0.0	2.8	92.9	0.0	0.0	0.0	0.0	0.0	0.05
			average											0.08
		darker zone	56.0	0.2	16.9	3.0	18.4	4.2	0.0	0.4	0.0	0.6	0.2	3.35
			57.6	0.3	17.6	2.1	18.8	3.2	0.0	0.5	0.0	0.0	0.1	3.51
			57.4	0.0	17.7	0.4	19.3	4.8	0.0	0.3	0.0	0.0	0.1	3.14
			67.2	0.0	0.0	0.8	26.6	4.9	0.0	0.5	0.0	0.0	0.0	2.16
			44.2	0.0	12.4	0.8	15.1	26.8	0.0	0.0	0.0	0.5	0.0	1.37
	intonachino		38.4	0.0	11.1	0.9	13.8	34.4	0.0	0.0	0.3	1.1	0.0	1.05
			38.1	0.0	11.0	0.8	14.0	35.1	0.0	0.0	0.3	0.6	0.0	1.02
			average											2.23
			3.0	0.0	1.0	0.0	2.1	93.9	0.0	0.0	0.0	0.0	0.1	0.04
			4.0	0.0	1.1	0.0	2.5	92.5	0.0	0.0	0.0	0.0	0.1	0.05
			3.9	0.0	1.4	0.0	2.7	92.0	0.0	0.0	0.0	0.0	0.0	0.06
			2.2	0.0	0.8	0.0	5.6	91.4	0.0	0.0	0.0	0.0	0.0	0.03
			0.6	0.0	0.0	0.0	1.7	97.7	0.0	0.0	0.0	0.0	0.0	0.01
			2.4	0.0	0.7	0.0	1.9	95.0	0.0	0.0	0.0	0.0	0.0	0.03
			2.9	0.0	0.8	0.0	1.8	94.6	0.0	0.0	0.0	0.0	0.0	0.04
			average											0.04
TBE5	intonachino		3.5	0.0	1.4	0.0	4.1	91.0	0.0	0.0	0.0	0.0	0.2	0.05
			8.5	0.0	3.1	0.0	5.7	81.8	0.0	0.0	0.4	0.5	0.5	0.13
			1.7	0.0	0.5	0.0	1.2	96.5	0.0	0.0	0.0	0.0	0.1	0.02
			1.3	0.0	0.4	0.0	1.1	97.1	0.0	0.0	0.0	0.0	0.0	0.02
			1.6	0.0	0.5	0.0	2.6	95.0	0.0	0.0	0.3	0.0	0.1	0.02
			2.1	0.0	0.6	0.0	1.7	95.6	0.0	0.0	0.0	0.0	0.1	0.03
			average											0.04

Supplementary Table 1 Chemical composition of binders in selected mortars and Hydraulic Index (HI).