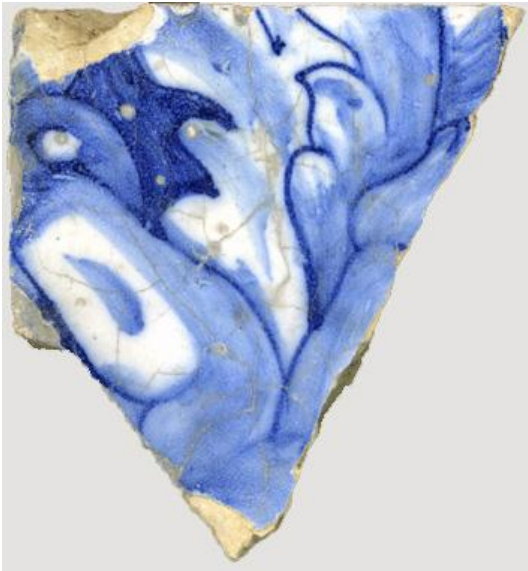


AzuRe169



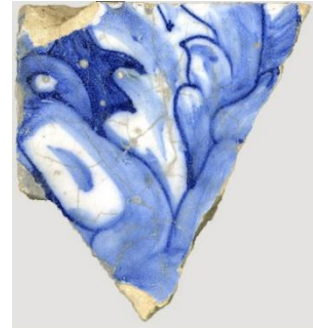
Descrição: Azulejo do século XVIII (1710-1740); Origem: Lisboa.

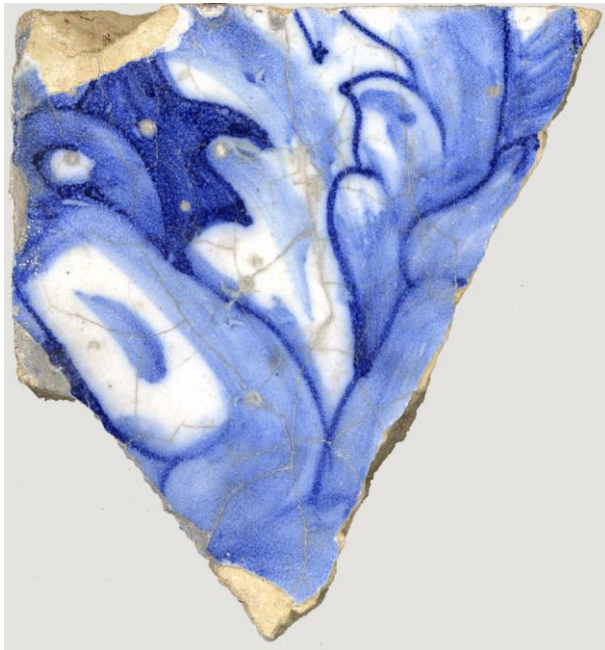
Amostras: Fragmento e uma secção semi-polida em depósito no *Museu Nacional do Azulejo* em Lisboa.

Índice

- **Caracterização Morfológica**
 - ✓ Imagens macroscópicas
 - ✓ Imagens de microscopia electrónica (SEM)
- **Caracterização Física**
 - ✓ Propriedades hídricas / Porosidade
- **Caracterização Química/Mineralógica**
 - ✓ Análise por SEM/EDS
 - ✓ Análise por XRF
 - ✓ Análise por XRD
 - ✓ Análise Térmica por TGA/DTA

AzuRe169

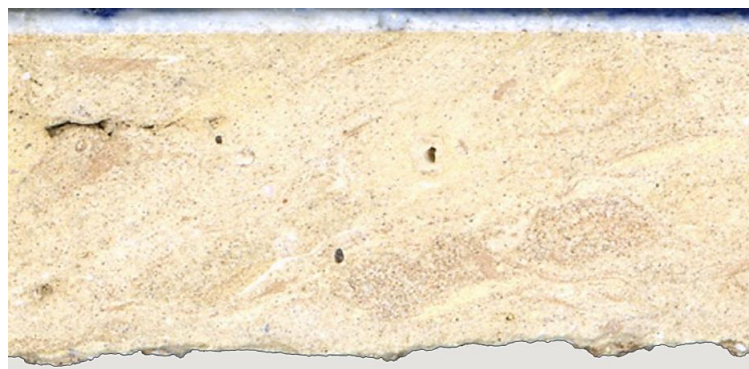




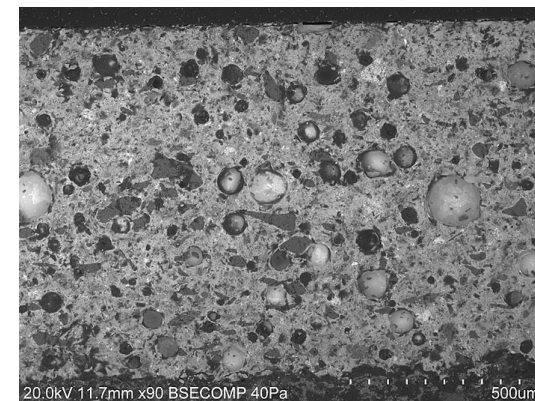
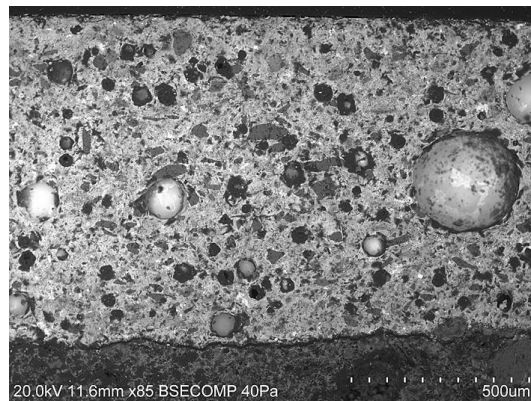
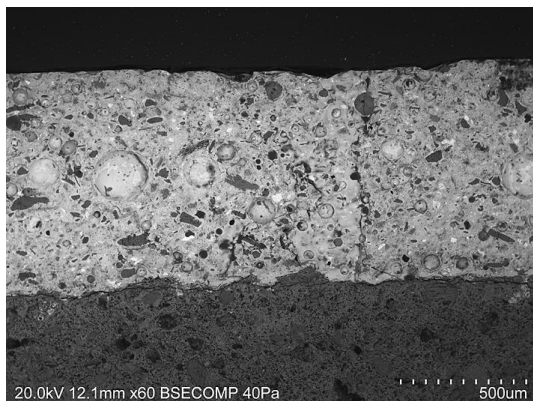
Azulejo com linhas de craquelé e fissuração evidentes.



- Espessura do Azulejo = 14 mm



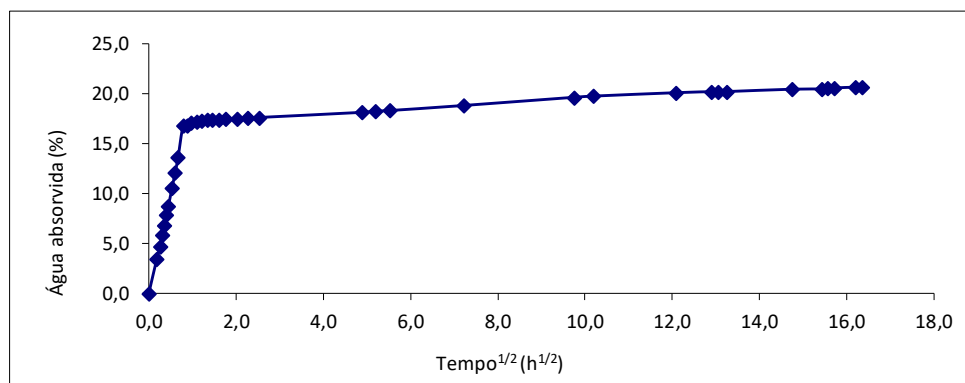
Chacota amarelada compacta com alguns poros alongados e circulares; efeito de marmoreado claro; vazios alongados e pequenas inclusões.



- Observa-se craquelé.
- Espessura do Vidrado = 887 μm

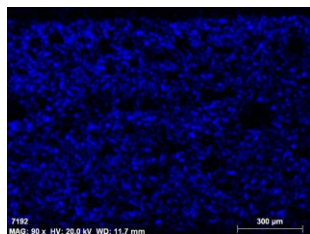
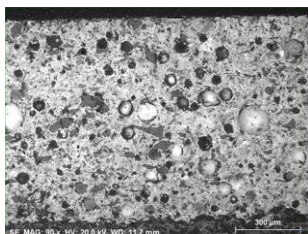
Equipamento: Microscópio eletrónico de varrimento HITACHI 3700N acoplado a um espectrómetro de energia dispersiva de raios-X Bruker Xflash 5010.

Curva de Absorção de Água (Chacota)

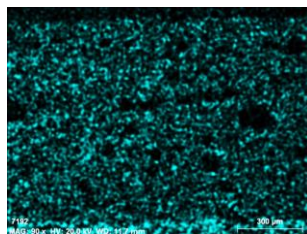


Massa volúmica real (kg/m³)	--
Massa volúmica aparente (kg/m³)	--
Porosidade aberta (vol %)	40,6
Coefficiente de capilaridade (kg/m²/h^{1/2})	4,3
Teor máximo de água (%)	24,9

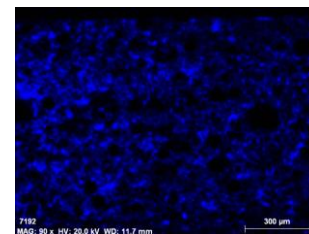
Procedimento: baseado na norma NP EN-13755.



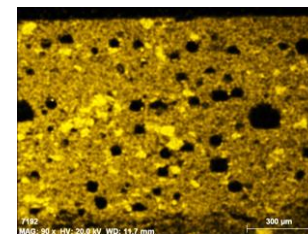
Na



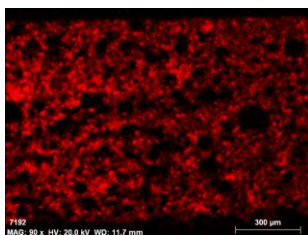
Mg



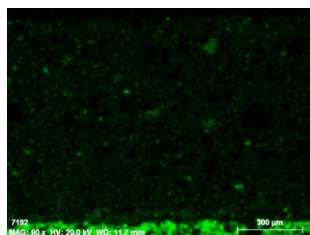
Al



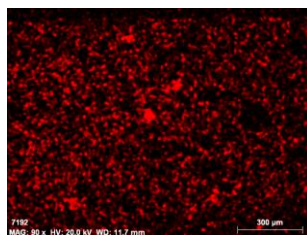
Si



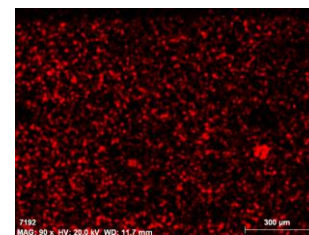
K



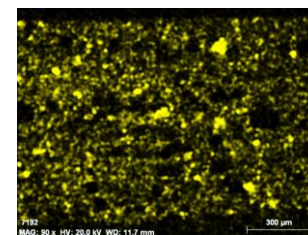
Ca



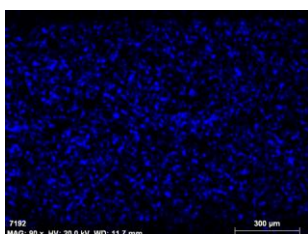
Ti



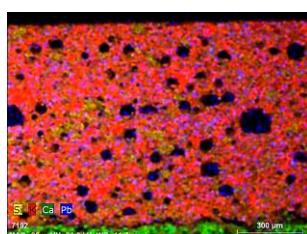
Fe



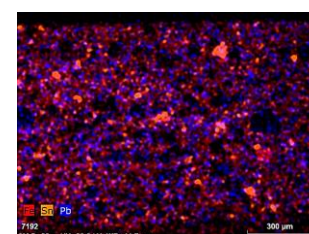
Sn



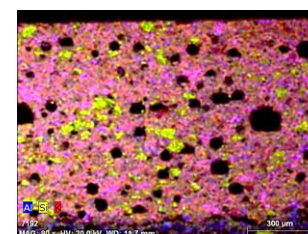
Pb



Combinação
Si_K_Ca_Pb



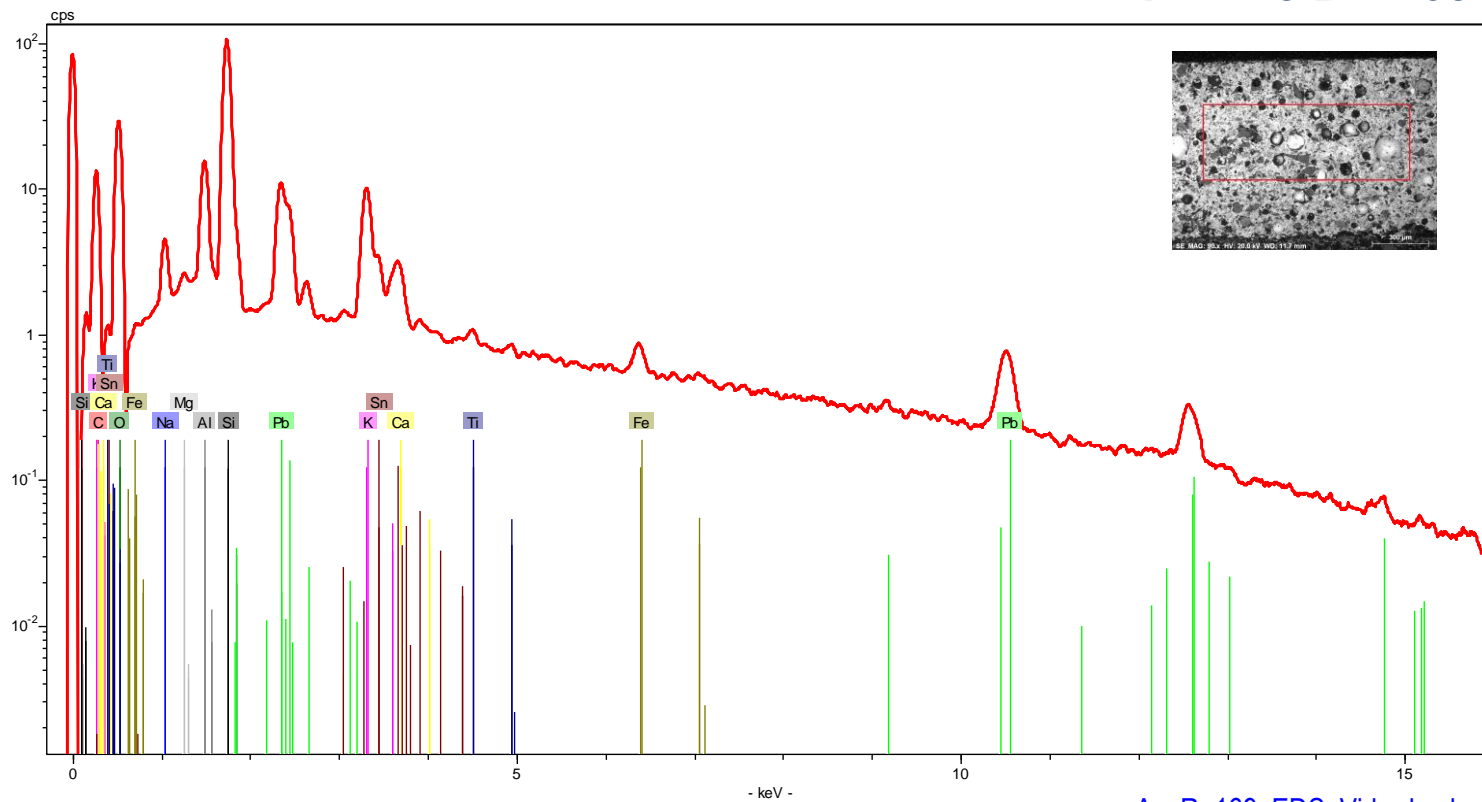
Combinação
Fe_Sn_Pb



Combinação
Al_Si_K

Equipamento: Microscópio eletrónico de varrimento HITACHI 3700N acoplado a um espectrómetro de energia dispersiva de raios-X Bruker Xflash 5010.

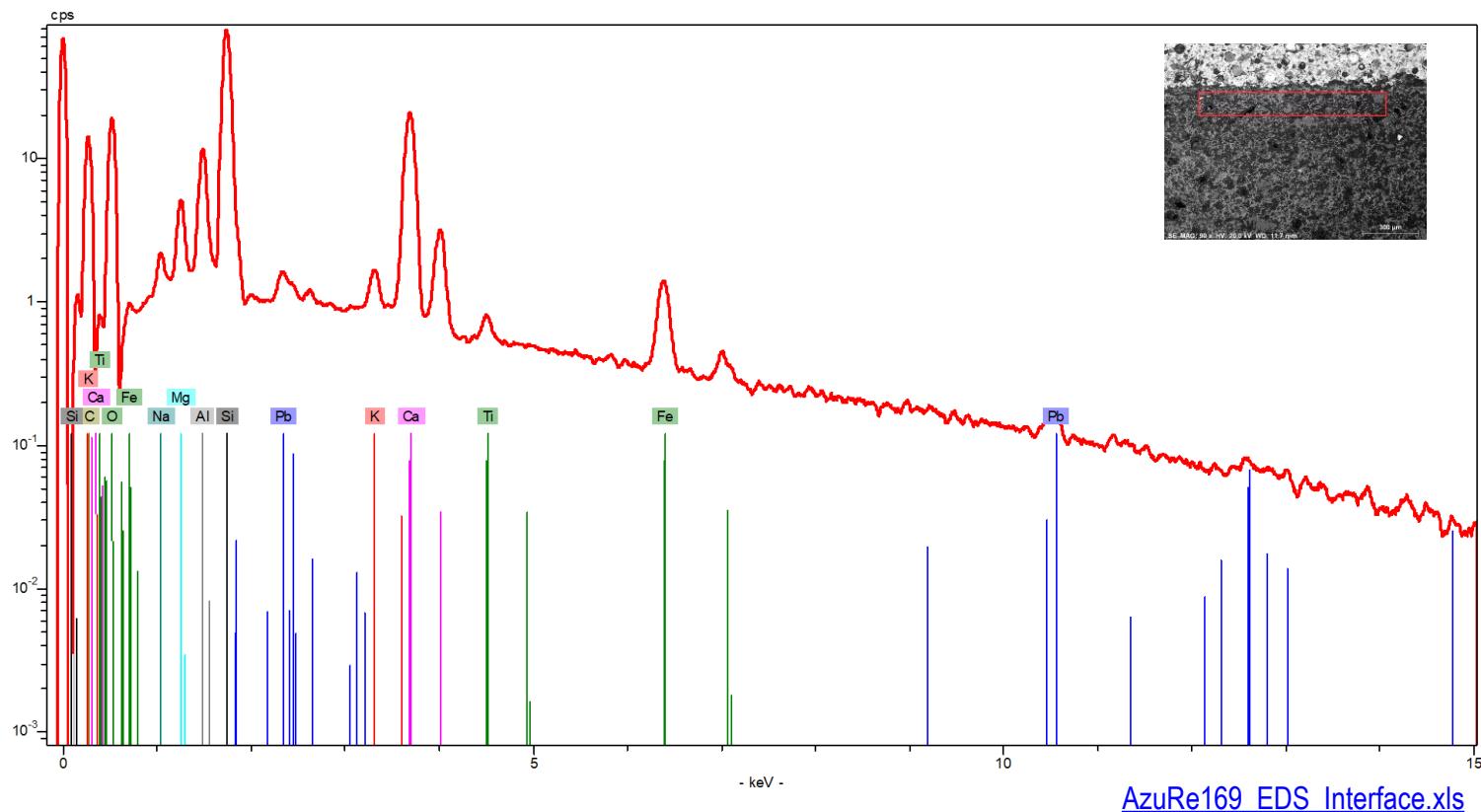
VIDRADO BRANCO



[AzuRe169 EDS Vidrado.xls](#)

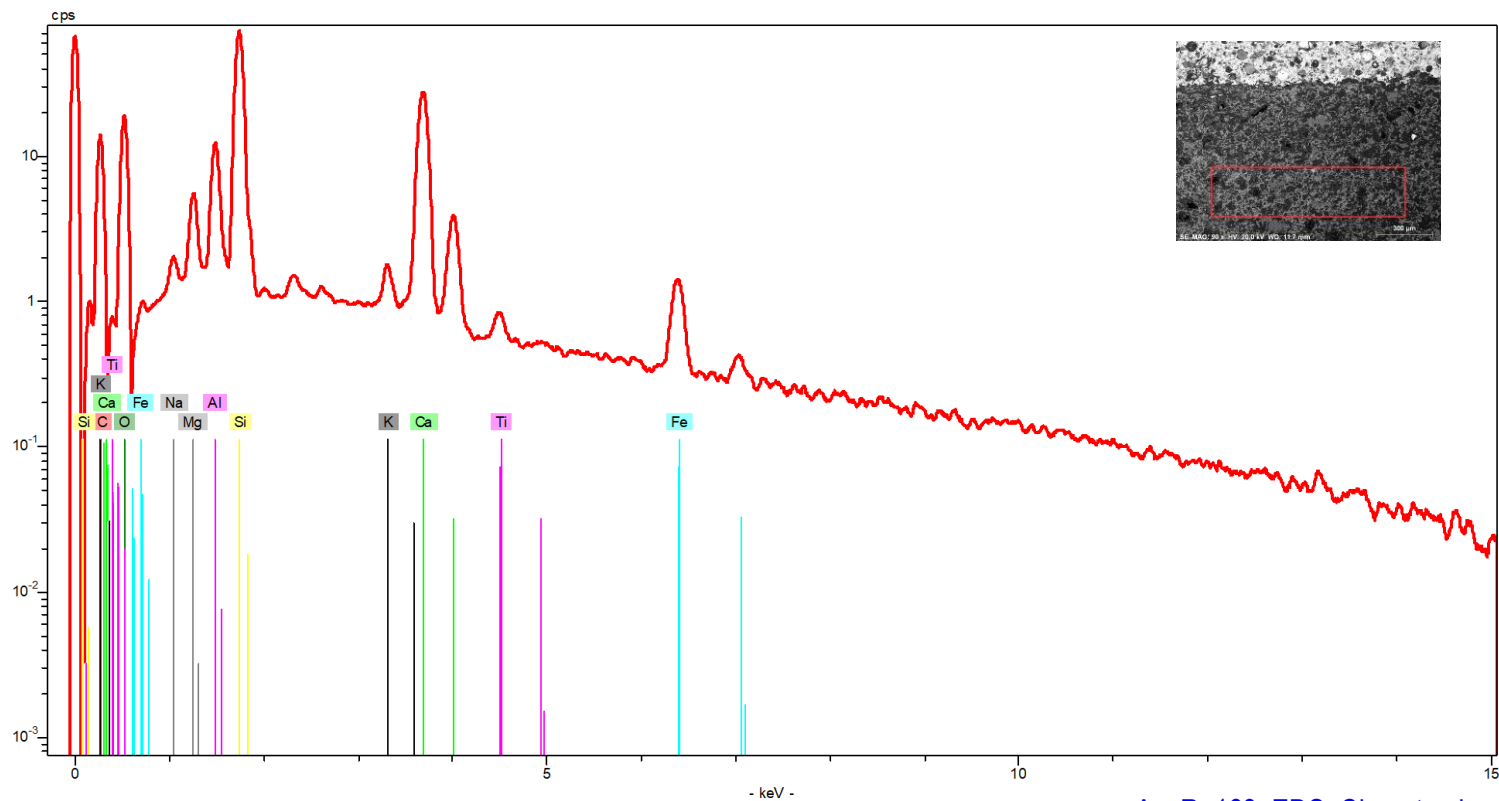
Equipamento: Microscópio eletrónico de varrimento HITACHI 3700N acoplado a um espectrómetro de energia dispersiva de raios-X Bruker Xflash 5010.

INTERFACE



Equipamento: Microscópio eletrónico de varrimento HITACHI 3700N acoplado a um espectrómetro de energia dispersiva de raios-X Bruker Xflash 5010.

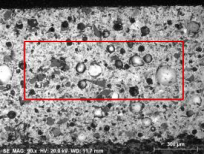
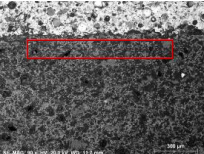
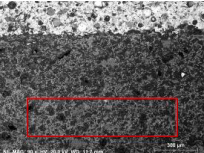
CHACOTA



[AzuRe169_EDS_Chacota.xls](#)

Equipamento: Microscópio eletrônico de varrimento HITACHI 3700N acoplado a um espectrómetro de energia dispersiva de raios-X Bruker Xflash 5010.

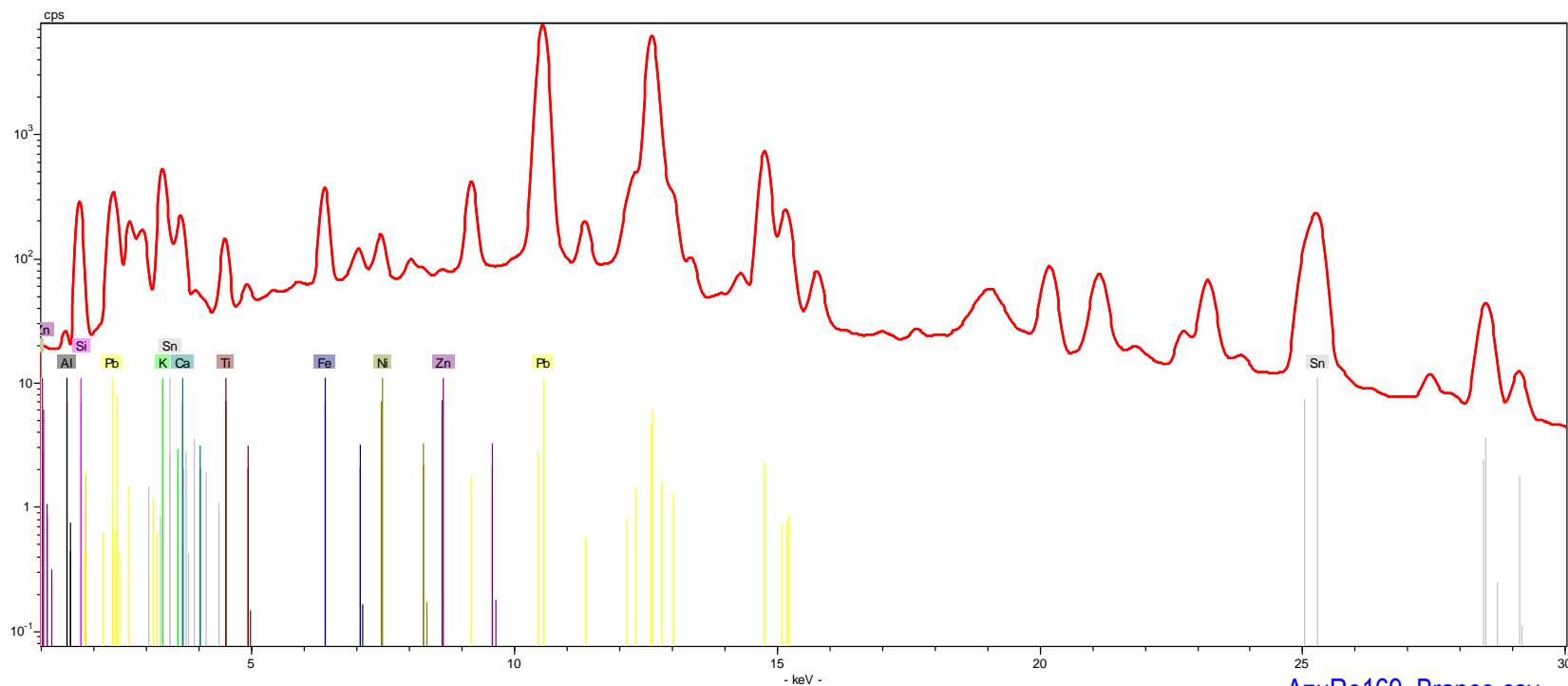
Composição química (% m/m)*

Área Analisada	Na	Mg	Al	Si	K	Ca	Ti	Fe	Sn	Pb
 vidrado branco	1,92	0,06	6,38	43,94	9,75	2,45	0,23	0,91	a)	34,36
 chacota (próximo interface)	0,91	2,68	6,90	46,00	1,14	32,83	0,48	4,67	--	4,40
 chacota	0,74	2,97	7,30	41,43	1,16	41,18	0,57	4,65	--	--

* - Os valores apresentados na tabela correspondem às percentagens mássicas dos elementos detetado na amostra, não considerando o teor de oxigénio e normalizados a 100% ([ver aviso](#)); a) detetado mas não quantificado.

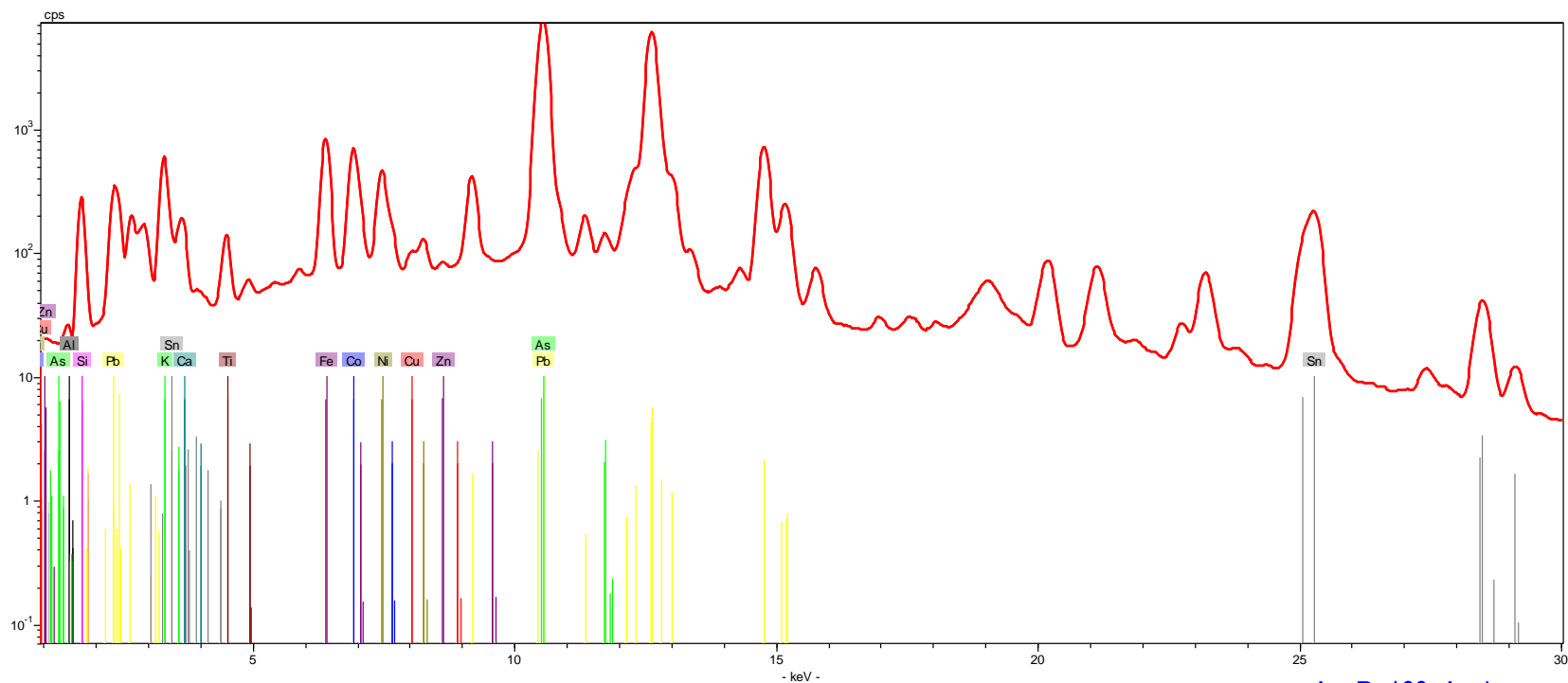
Equipamento: Microscópio eletrónico de varrimento HITACHI 3700N acoplado a um espectrómetro de energia dispersiva de raios-X Bruker Xflash 5010.

VIDRADO BRANCO

[AzuRe169 Branco.csv](#)

Equipamento: Espectrómetro portátil por fluorescência de raios-X Bruker Tracer III-SD.

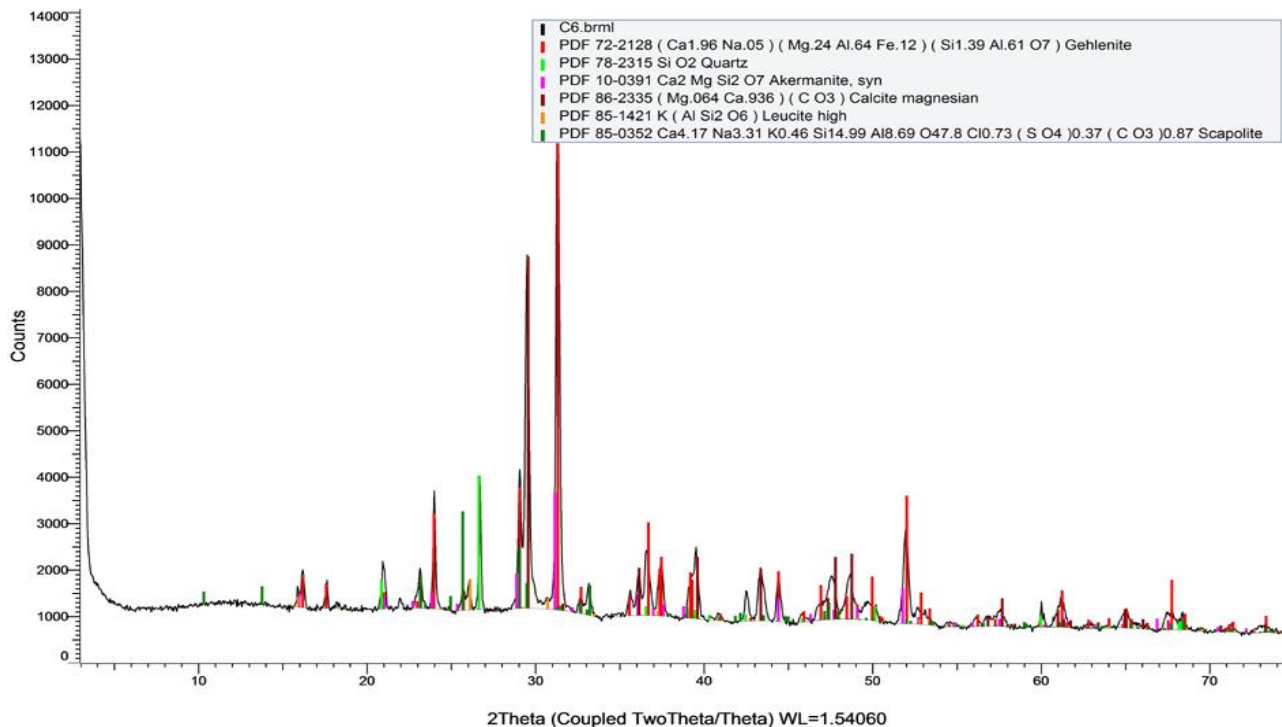
VIDRADO AZUL

[Azure169 Azul.csv](#)

Equipamento: Espectrômetro portátil por fluorescência de raios-X Bruker Tracer III-SD.



CHACOTA

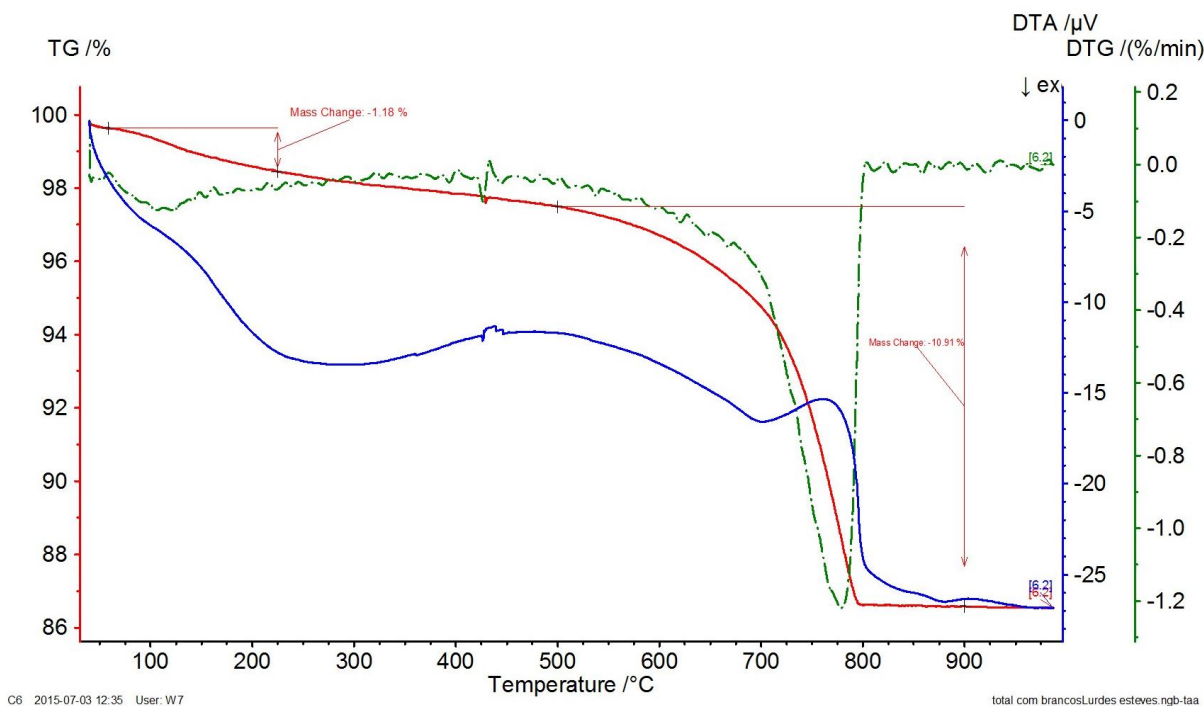


Composição mineralógica semi-quantitativa (% m/m)

Quartzo	Gehlenite	Calcite	Leucite	Akermatite	Scapolite
SiO ₂	Ca ₂ Al(AlSiO ₇)	CaCO ₃	K(AlSi ₂ O ₆)	Ca ₂ Mg(Si ₂ O ₇)	(Ca ₄ Al ₆ Si ₆ O ₂₄ CO ₃)(Na ₄ Al ₃ Si ₉ O ₂₄ Cl)(SO ₄ , CO ₃)
7,59	38,35	20,24	1,59	20,52	11,70

Equipamento: Difrátometro de raio-X Bruker AXS-D8 Discover

CHACOTA



Perda de massa (%)	Teor de carbonatos (%)
10,91	25

Equipamento: Analisador térmico TGA/DTA Netzsch STA 449 F3 Jupiter.