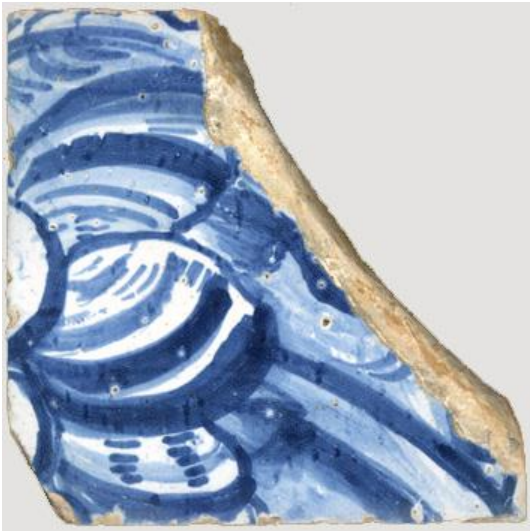


AzuRe170



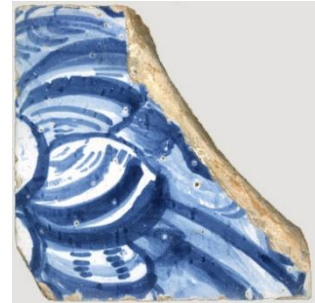
Descrição: Azulejo do século XVIII (1700-1750);
Origem: Coimbra.

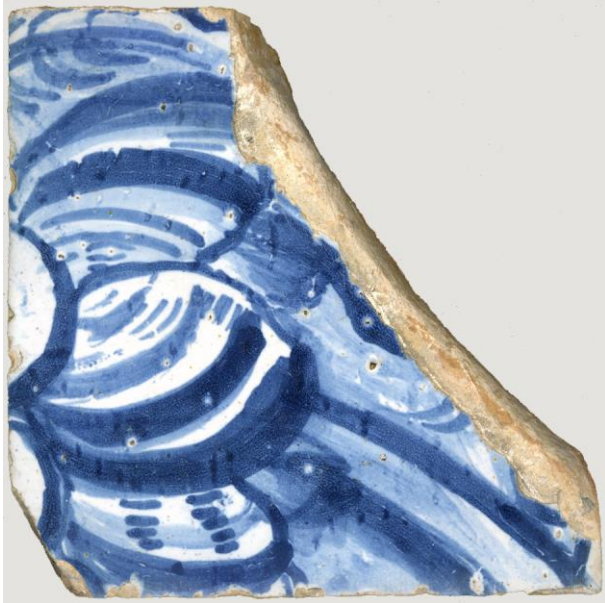
Amostras: Fragmentos e uma secção semi-polida em depósito no *Museu Nacional do Azulejo* em Lisboa.

Índice

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

AzuRe170

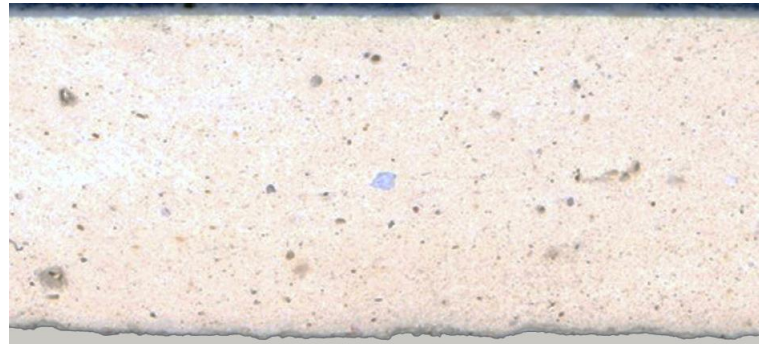




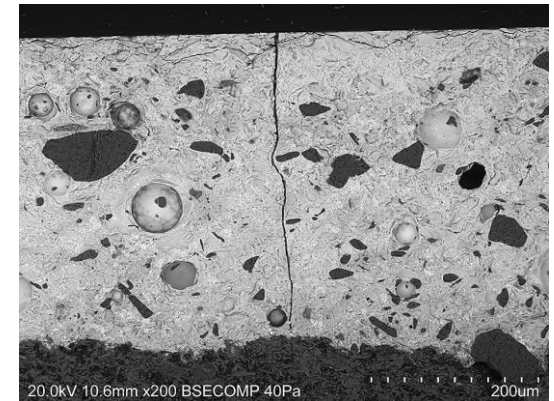
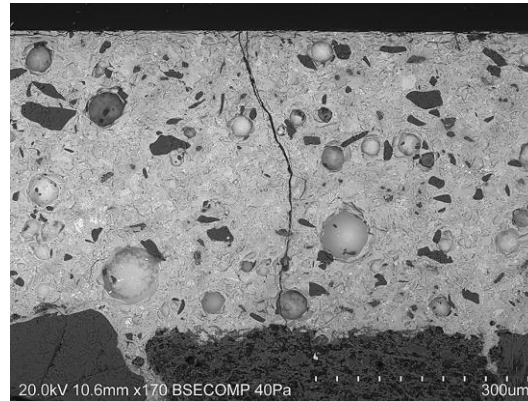
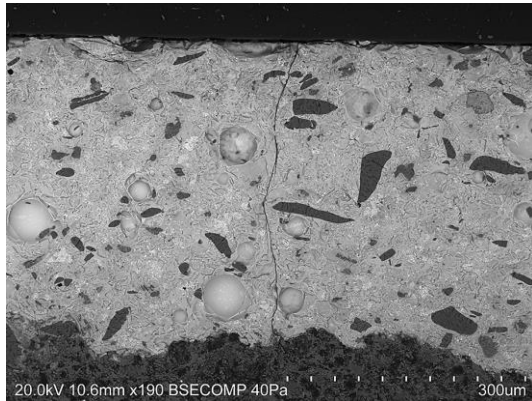
Azulejo com falha de vidro a partir da aresta de fratura, craquelé pouco evidenciado e grande número de poros.



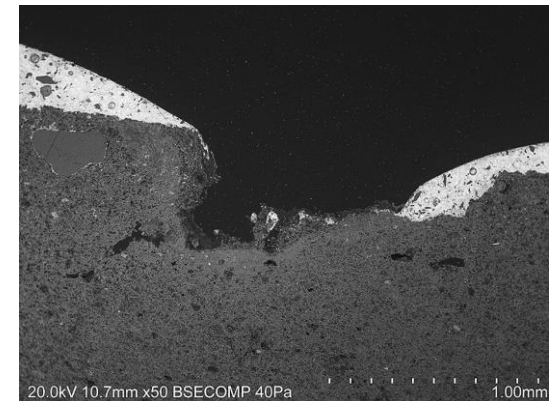
- Espessura do Azulejo = 13 mm



Chacota bege compacta com alguns poros alongados e circulares; vazios alongados e pequenas inclusões.

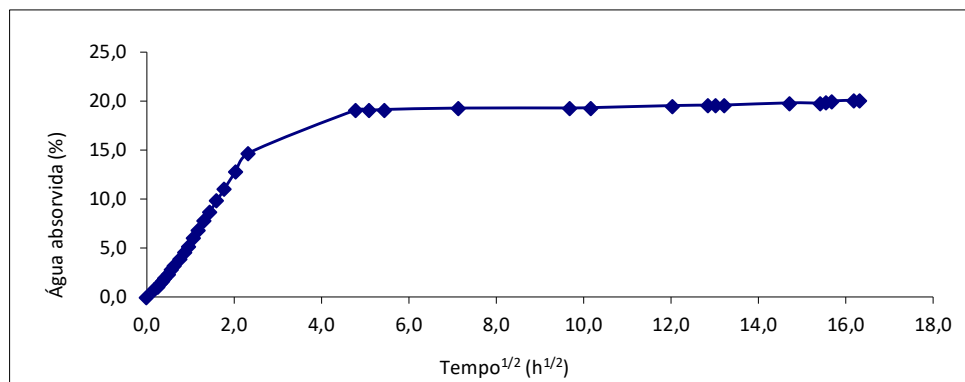


- Observa-se craquelé.
- Espessura do Vidrado = 394 μm



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

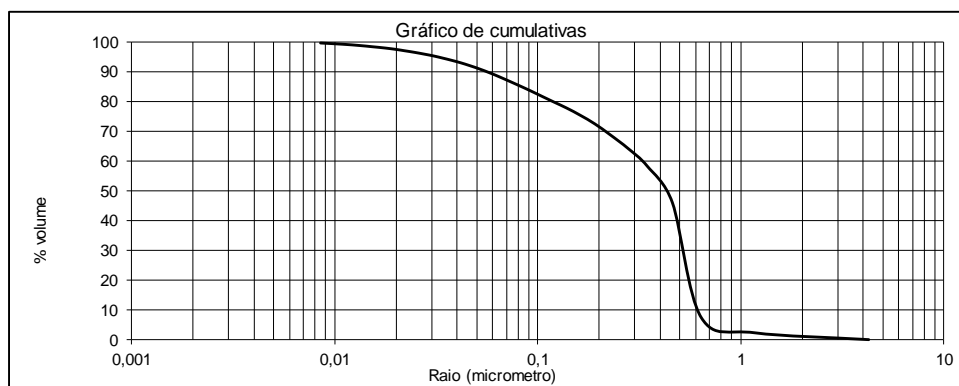
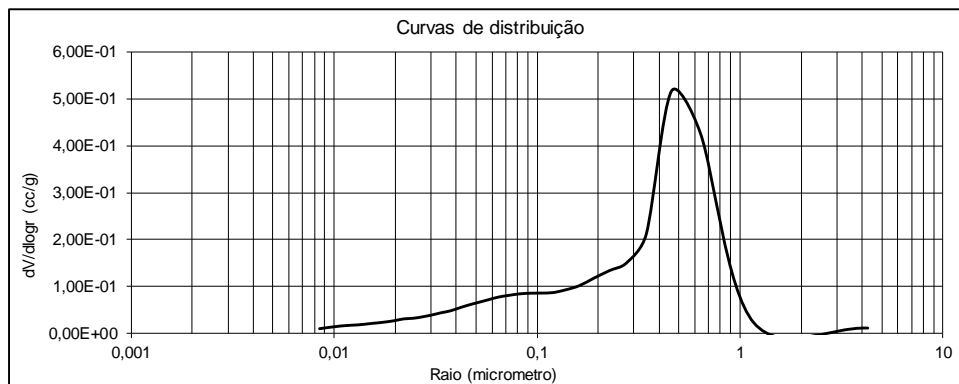
Curva de Absorção de Água (Chacota)



Massa volúmica real (kg/m³)	2932
Massa volúmica aparente (kg/m³)	1648
Porosidade aberta (vol %)	40,1
Coefficiente de capilaridade (kg/m²/h^{1/2})	1,2
Teor máximo de água (%)	23,8

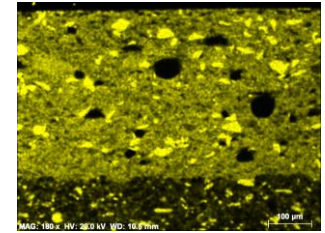
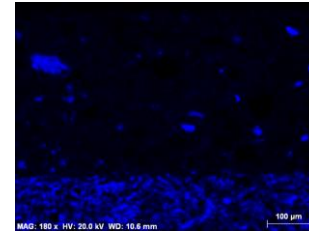
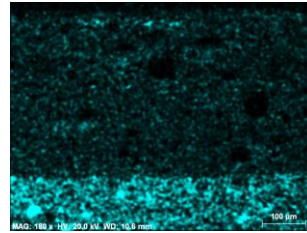
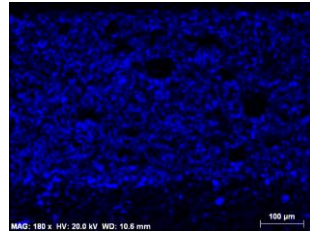
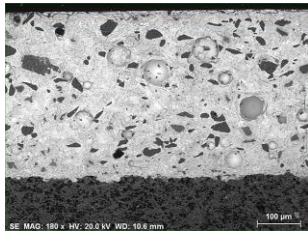
Procedimento: baseado na norma NP EN-13755.

Curvas de Porosimetria (Chacota)



Procedimento: baseado na norma ASTM D4404-84.

Equipamento: Porosímetro Quantachrome Autoscan

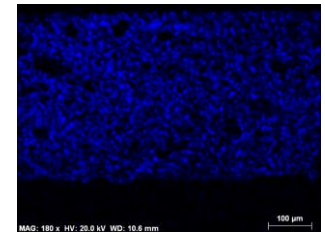
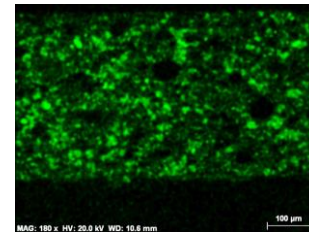
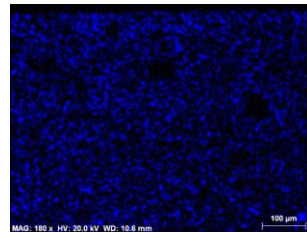
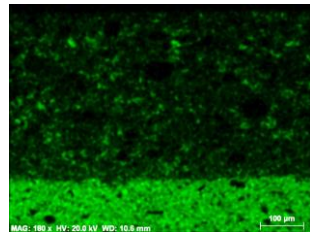
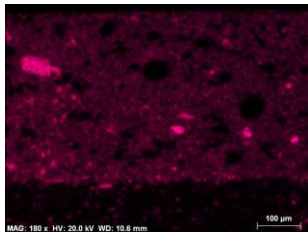


Na

Mg

Al

Si



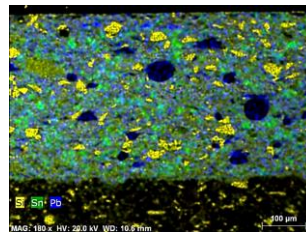
K

Ca

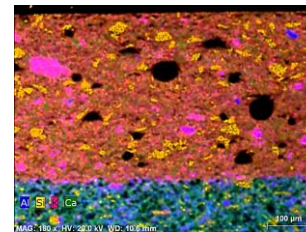
Fe

Sn

Pb



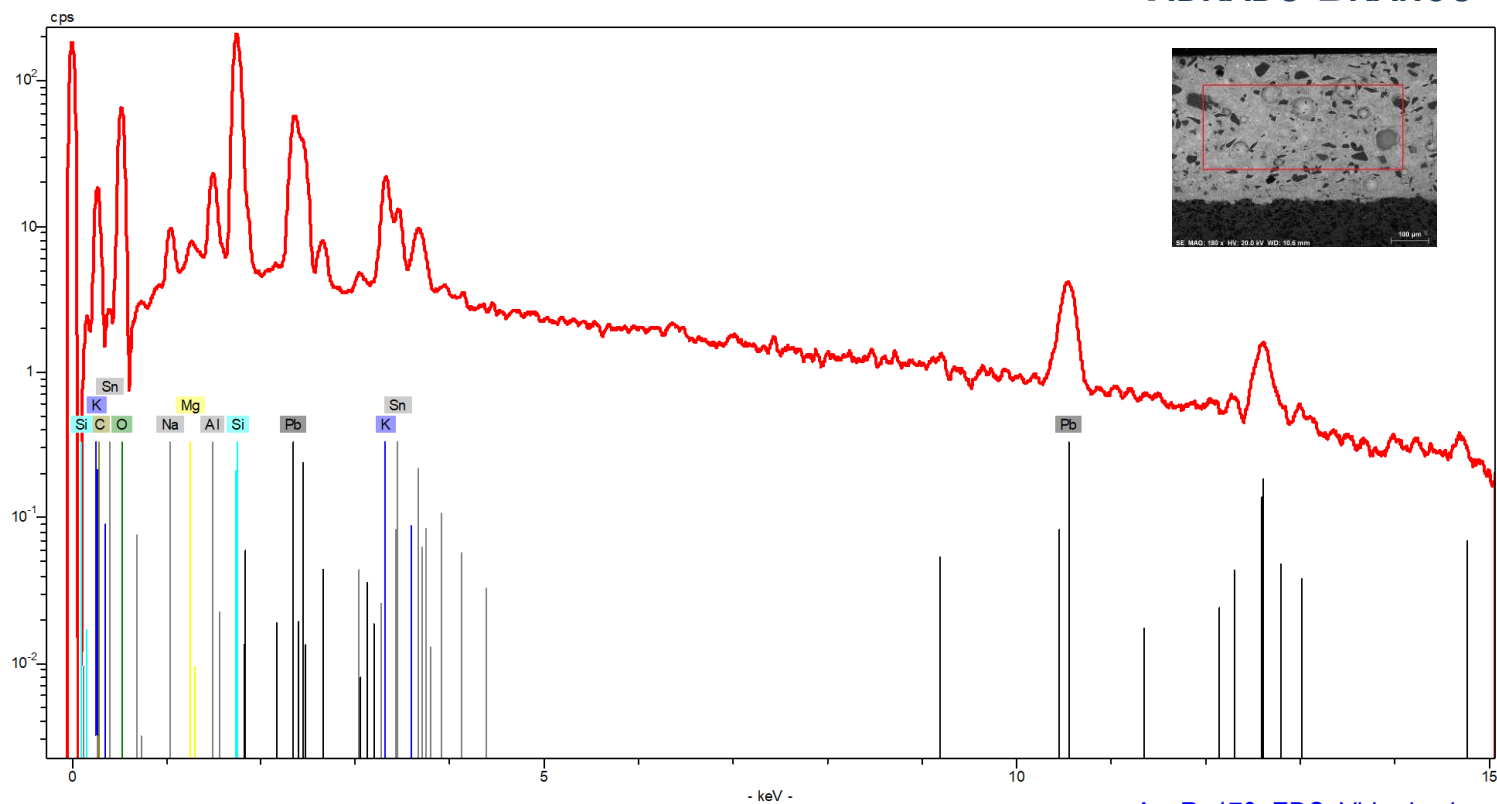
Combinação
Si_Sn_Pb



Combinação
Al_Si_K_Ca

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

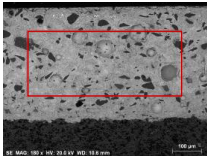
VIDRADO BRANCO



[Azure170_EDS_Vidrado.xls](#)

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

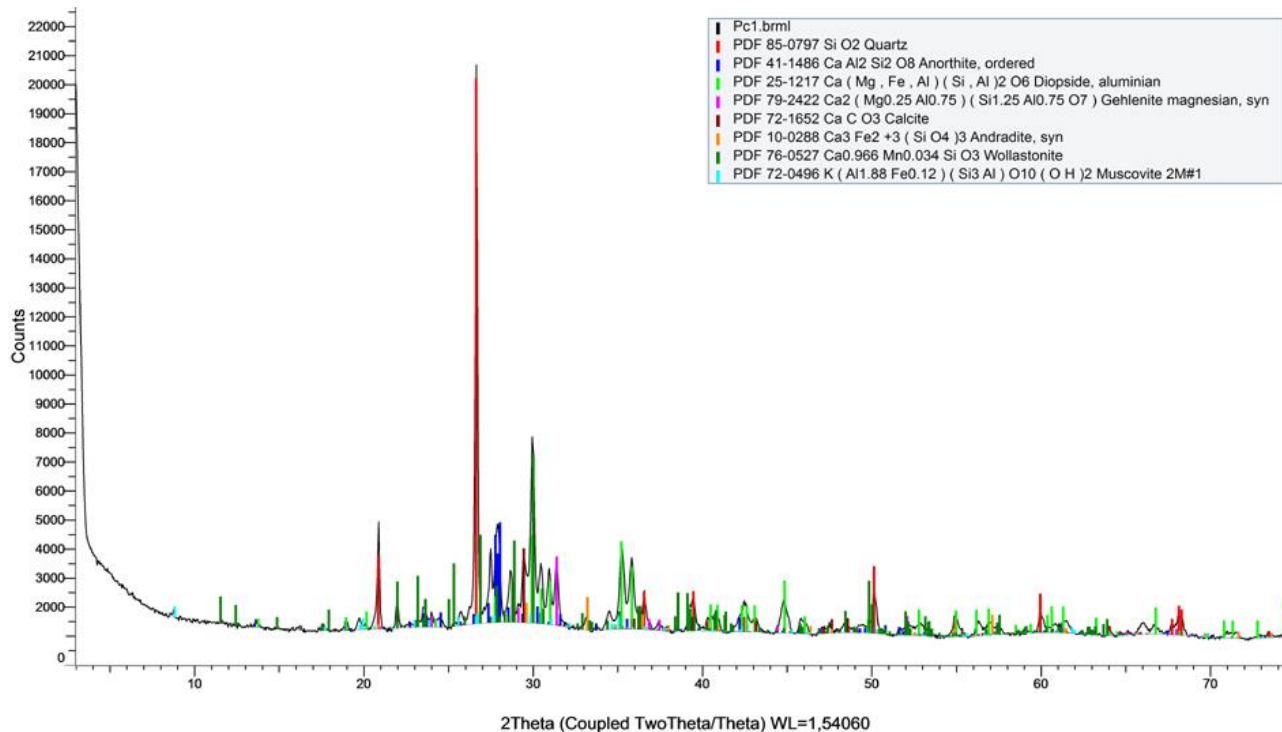
Composição química (% m/m)*

Área Analisada	Na	Mg	Al	Si	K	Sn	Pb
	1,81	0,70	3,26	30,96	6,38	9,72	47,17
vidrado branco							

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

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

CHACOTA

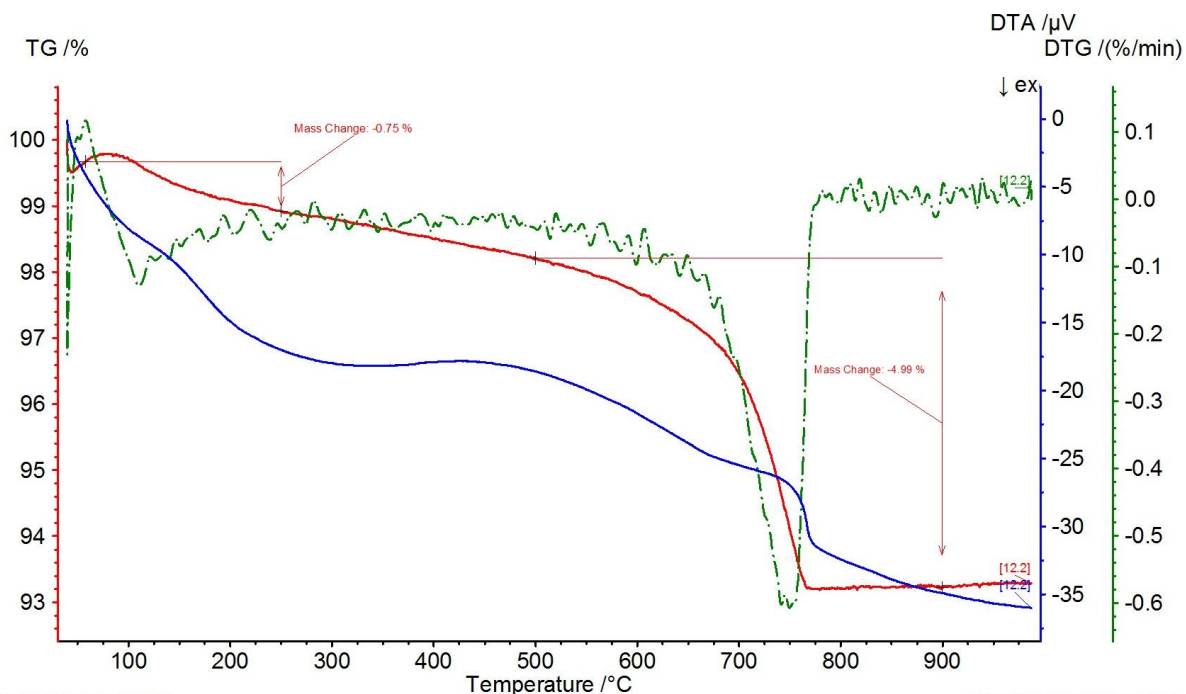


Composição mineralógica semi-quantitativa (% m/m)

Quartzo	Anortite	Diópsido	Gehlenite Magnesiana	Calcite	Andradite	Wollastonite	Muscovite
SiO ₂	CaAl ₂ Si ₂ O ₈	Ca(Mg,Al)(Si,Al) ₂ O ₆	Ca ₂ (Mg _{0.25} Al _{0.75})(Al _{0.75} Si _{1.25} O ₇)	CaCO ₃	Ca ₃ Fe ₂ (SiO ₄) ₃	CaSiO ₃	KAl ₂ (AlSi ₃ O ₁₀)(OH) ₂
18,06	26,70	12,12	3,06	2,55	2,81	31,26	3,44

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

CHACOTA



Perda de massa (%)	Teor de carbonatos (%)
4,99	11

PC1 2015-07-03 12:36 User: W7

total com brancosLurdes esteves.ngb-taa

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