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REPORT 69380/C

11 OLD PALACE LANE, RICHMOND

ANALYSIS OF A MORTAR SAMPLE

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Volute London Limited
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This report comprises
3 pages of text
Table 1 of 1 sheet

For the attention of Ms Olga Tumakha

10 March 2021

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ANALYSIS OF A MORTAR SAMPLE

References: Emailed instruction from Ms Olga Tumakha dated 26 February 2021.

1. INTRODUCTION

One mortar sample, taken by yourselves from the above site, was received in our laboratories on 26 February 2021.

We were asked to carry out analysis to determine the mix composition and proportions of the sample.

2. SAMPLE DETAILS

Sandberg Reference	Client Reference	Sample Details	Weight of Sample Received, g
C10772	-	Several light brown mortar pieces and powder, well compacted, variable hardness, mainly soft	35

3. ANALYSIS METHOD AND RESULTS

The mortar sample was prepared and analysed using a combination of hand separation and chemical analysis techniques in accordance with documented in-house methods, Sections 34.1 and 34.8, supported by qualitative chemical techniques where appropriate.

Examination of the analysis data in conjunction with the appearance, tactile properties and available background information for the sample suggested that the mix consisted of semi-hydraulic lime and sand, the mix proportions were calculated on this assumption, following documented in-house methods.

The lime content was calculated from the acid soluble calcium content making the assumptions shown in the analysis table. The approximate volume proportions were calculated using typical bulk densities for the constituents as indicated in the analysis table.

Details of the analysis are given in Table 1 of this report, including details of the assumptions made in the calculations. The mix proportions are summarized as follows:

Sandberg Reference	Sample Reference	Mix Constituents	Mix Proportions	
			by weight	by volume
C10772	-	Semi-hydraulic lime : sand	1 : 3.3	1 : 1.3

4. **REMARKS**

It is not always possible by chemical analysis alone to distinguish with certainty between Portland cement and lime binders or between hydraulic and non-hydraulic limes.

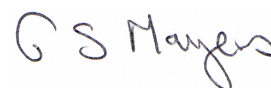
Microscopical examination can usually ascertain the presence or otherwise of Portland cement in the mortar and of calcareous material in the aggregate. In the absence of such confirmatory work, interpretation of the analytical results is made on the basis of consideration of the analysis in conjunction with the appearance and any available background information for the mortar.

The sample was found to comprise a semi-hydraulic lime and sand mix.

Volute London Limited
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For the attention of Ms Olga Tumakha

for Sandberg LLP



G S Mayers
 Department Manager
 10 March 2021



MORTAR - CHEMICAL ANALYSIS
DETERMINATION OF MIX PROPORTIONS
 Documented In-house Methods 34.1(*) and BS 4551:2005+A1:2010

Sandberg Reference	C10772			
Client Reference	-			
Details	Mortar			
CHEMICAL ANALYSIS		% by mass		
Insoluble Residue	68.94			
Soluble Silica, SiO ₂ *	1.53			
Acid soluble Alumina, Al ₂ O ₃ *	0.55			
Acid soluble Iron, Fe ₂ O ₃ *	0.20			
Acid soluble Calcium, CaO	13.62			
Acid soluble Magnesium, MgO	0.45			
Acid soluble Sulphate, SO ₃	3.44			
Loss on Ignition	11.02			
Total	99.75			

Calculated Mix Proportions				
Composition to nearest 0.5%	% by mass of dry mass			
Semi-hydraulic lime : sand				
Lime	23.5			
Sand	76.5			
Calculated volume proportions	1 : 1.3			
Remarks	-			

Assumptions used in calculations	SiO ₂ %	CaO %	bulk density kg/m ³	material type
Sand	-	0.0	1400	Siliceous
Semi-hydraulic lime	-	62.0	575	Semi-hydraulic

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Where test results are given, the results and our conclusions relate only to the samples tested and apply to the sample(s) as received, except where sampling has been conducted by Sandberg LLP.

Materials, samples and test specimens are retained for a period of 2 months from the issue of the final report.

Tests reported on sheets not bearing the UKAS mark in this report/certificate are not included in the UKAS accredited schedule for this laboratory.

Opinions and interpretations expressed herein are outside the scope for UKAS accreditation.

End of report.

