

Tarmac  
PO Box 5  
Fell Bank  
Birtley, Chester-le-street  
Co. Durham  
DH3 2ST  
Contract: Sevenoaks

Date: 08 March 2023  
Test Report Ref: TR 920557

Order No: Duncan Hilton

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**LABORATORY TEST REPORT**

**TEST REQUIREMENTS:**

Petrographical examination of aggregate sample in accordance with **BS 812-104:1994**

**SAMPLE DETAILS:**

Certificate of sampling received:	<b>No</b>
Laboratory Ref. No:	<b>S106570</b>
Client Ref. No:	<b>0/2mm Dry Screened Building Sand</b>
Date and Time of Sampling:	<b>Unknown</b>
Date of Receipt at Lab:	<b>04/11/2022</b>
Date of Start of Test:	<b>07/03/2023</b>
Sampling Location:	<b>Unknown</b>
Name of Source:	<b>Sevenoaks</b>
Method of Sampling:	<b>Unknown</b>
Sampled By:	<b>Client (Test results apply to sample as received)</b>
Tested By:	<b>Subcontracted Laboratory</b>
Material Description:	<b>0/2mm Dry Screened Building Sand</b>
Target Specification:	<b>N/A</b>

This test report shall not be reproduced, except in full, without the written approval of Celtest Company Limited.

These results relate only to the items tested.

<p><b><u>Comments</u></b> None</p>	<p>Report checked and approved by:  Iwan Jones Aggregate Team Coordinator</p>
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#### SUMMARY OF FINDINGS

Based on the sieving data associated with this test method, the examined sample could be classified as a nominal 0/1.18mm size, continuously graded quartzose sand.

A photograph of a portion of the sample received, the constituents and their rounded proportions are presented on the next page. The description of the constituents and illustrative photomicrographs are presented on the next few pages. The detailed quantitative data is presented on the last page.

#### NOTE

Based on UK experience, the examined sample could be potentially classified as having normal alkali-silica reactivity, in accordance with BRE Digest 3301. Please note that the opinions and interpretations on the alkali-silica reactivity expressed herein are outside the scope of UKAS accreditation.

The findings relate specifically to the material as received and as examined in our laboratory.

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**Petrographic Examination of Fine Aggregates: BS 812-104: 1994**

View of a portion of the sample as received



**SUMMARY OF QUANTITATIVE EXAMINATION**

Test Portion:	1	2	Combined Sample	
Discrete Constituents	Percentage Composition <sup>2</sup>			95% CL <sup>3</sup>
Quartz	87	87	87	1.6
Glauconite	7	6	6	1.2
Ironstone	4	4	4	1.0
Sandstone	1	1	1	0.3
Chert	1	1	1	0.4
Siltstone	1	0	1	0.3
Quartzite	0	0	0	0.2
Opaque minerals	0	0	0	0.2
<b>Total:</b>	<b>100</b>	<b>100</b>	<b>100</b>	

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### Petrographic Examination of Fine Aggregates: BS 812-104: 1994

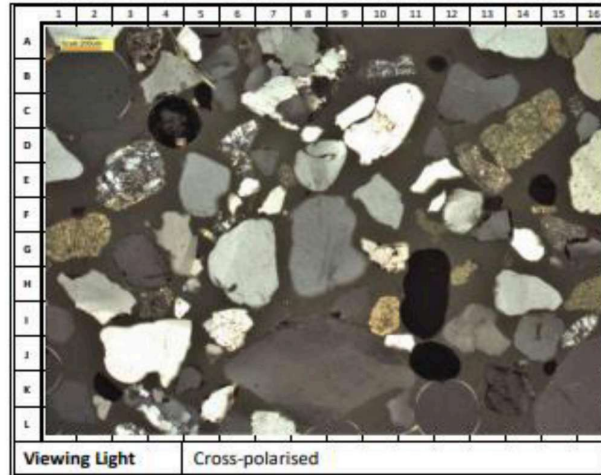
#### DESCRIPTION OF CONSTITUENTS

Discrete Constituents	Maximum size, mm	Shape/surface texture	Petrographic Details <sup>4</sup>
Quartz	3	Angular to well rounded, rough to smooth	Fresh, very hard, white, translucent grey, translucent greyish orange, particles of silica. The particles frequently exhibited iron oxide stain and rarely exhibited encrust of clayey materials.
Glauconite	3	Subrounded to well rounded, moderately smooth to smooth	Fresh, soft, greenish grey to dark greenish grey, dusky yellow green very fine grained sedimentary particles comprising chiefly clayey materials. The particles commonly exhibited iron oxide stain.
Ironstone	3	Angular to well rounded, rough to smooth	Fresh, moderately soft to moderately hard, moderate brown, dusky brown, very fine grained sedimentary particles comprising abundant iron oxide compounds. The particles exhibited iron oxide stain.
Sandstone	3	Angular, rough	Fresh, moderately soft to moderately hard, very pale orange, yellowish grey, greyish orange, light brown, fine grained sedimentary particles comprising chiefly sand-size materials chiefly bound by clayey materials. The particles frequently exhibited iron oxide stain.
Chert	2.36	Subangular to well rounded, moderately rough to smooth	Fresh, hard to very hard, dark yellowish brown, very pale orange, dark grey particles comprising chiefly microcrystalline silica and chalcedonic silica.
Siltstone	3	Subangular to well rounded, moderately rough to smooth	Fresh, moderately soft, olive grey, light brown, moderate yellowish brown, dark greenish grey, very fine grained sedimentary particles comprising chiefly silt-size materials. The particles commonly exhibited iron oxide stain.
Quartzite	3	Subangular to well rounded, moderately rough to smooth	Fresh, hard, moderate yellowish brown, dark greenish grey, fine grained sedimentary particles estimated to comprise more than 90% quartz grains. The particles commonly exhibited iron oxide stain.
Opaque minerals	<1.18	Angular to rounded, rough to smooth	Fresh to partially oxidised isotropic minerals. The particles frequently exhibited iron oxide stain.

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**Petrographic Examination of Fine Aggregates: BS 812-104: 1994**

**RECORD PHOTOMICROGRAPH**



**Description**

View of a section through the <1.18 fraction of the sample, showing chiefly quartz (light grey to dark grey, yellowish grey, pale yellowish brown, white: A7, A14, B16, C10, C12 and G6), glauconite (dusky yellow green, yellowish brown: A15, C14, E13, G1 and I10), ironstone (black: B11/12, E14/15 and H11), sandstone (medium grey/medium light grey: G15), chert (medium grey/white: B10, D6 and I16) and siltstone (medium grey/white/moderate yellow: E3).

The thin section mounting medium appears medium dark grey (A11).

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## Petrographic Examination of Fine Aggregates: BS 812-104: 1994

## HAND SEPARATION DATA

Test Portion:	1					2					
	>4	4-2.36	2.36-1.18	<1.18	Total	>4	4-2.36	2.36-1.18	<1.18	Total	
Size Fraction, mm:	>4	4-2.36	2.36-1.18	<1.18	Total	>4	4-2.36	2.36-1.18	<1.18	Total	
Proportion, g:	0.16	0.05	0.76	53.06	54.02	0.19	0.81	53.69	54.69	54.69	
Proportion, %:	0.30	0.08	1.40	98.22	100.00	0.34	1.48	98.18	100.00	100.00	
Discrete Constituent	Gravimetric Determination, g				Point counted	Gravimetric Determination, g				Point counted	
Quartz			0.40	728		0.08	0.46	712			
Glauconite			0.05	54		0.02	0.03	47			
Ironstone			0.01	23		0.01	0.04	26			
Sandstone	0.16	0.01	0.24	2		0.08	0.21	3			
Chert			0.02	7			0.02	6			
Siltstone		0.01	0.02	4			0.01	4			
Quartzite		0.03	0.01	1			0.02	2			
Opaque minerals				1				1			
Total:	0.16	0.05	0.75	820		0.19	0.79	801			
Discrete Constituent	Gravimetric Determination, %					Gravimetric Determination, %				COMBINED 1 & 2	
Quartz			53.33	87.99	87.17		42.11	58.23	87.97	87.38	MEAN %
Glauconite			6.67	6.53	6.50		10.53	3.80	5.81	5.79	95% CL <sup>2</sup>
Ironstone			1.33	3.67	3.62		5.26	5.06	4.24	4.26	87.27
Sandstone	100.00	20.00	32.00	0.24	0.99		42.11	26.58	0.36	0.89	6.15
Chert			2.67	0.85	0.87			2.53	0.74	0.77	1.17
Siltstone		20.00	2.67	0.47	0.52			1.27	0.48	0.49	3.94
Quartzite		60.00	1.33	0.12	0.19			2.53	0.25	0.28	0.95
Opaque minerals				0.14	0.13			0.14	0.14	0.14	0.30
Total:	100.00	100.00	100.00	100.00	100.00		100.00	100.00	100.00	100.00	0.82

Note: All masses are recorded to 0.01g, while all percentages are rounded to two decimal places.  
 The percentages determined for point counted data also reflect the average (or assigned) density of particular minerals or rocks. The percentage proportions of constituents with identical number of points counted could therefore be different.