

CUSTOMER NAME: QUANZHOU XINXING STONE TECHNIC CO LTD
ADDRESS: QUANZHOU XINXING STONE TECHNIC CO LTD OF SHIJING TOWN,
NAN'AN CITY, QUANZHOU CITY, FUJIAN PROVINCE

Sample Name : XINXING QUARTZ STONE
Intended use : Internal and external flooring, stairs

Above information and sample(s) was/were submitted and confirmed by the client. SGS, however, assumes no responsibility to verify the accuracy, adequacy and completeness of the sample information provided by client.

Test Required : EN 15285:2008 Agglomerated stone - Modular tiles for flooring and stairs
(Internal and external)
SGS Refer No. : SDHL1712027505FB-01, SHIN1712078032MR, SHIN171203846CCM,
XMNMLC1701592101
Date of Receipt : Dec.15, 2017
Testing Start Date : Dec.15, 2017
Testing End Date : Jan.08, 2018
Test result(s) : For further details, please refer to the following page(s)
(Unless otherwise stated the results shown in this test report refer only to the
sample(s) tested)

***** To be continued*****

Signed for
SGS-CSTC Standards Technical
Services Co., Ltd. XM Branch



Civi Huang Authorized Signatory



Summary of test results:

(Average value)

Test items	Test methods	Test results
Water absorption	EN 14617-1:2013	0.08% Classification: W ₃
Apparent density		2368 kg/m ³
Flexural strength	EN 14617-2:2016	39.7 MPa Classification: F ₃
Abrasion resistance (polished)	EN 14617-4:2012	25.8mm Classification: A ₄
Freeze and thaw resistance	EN 14617-5:2012	Flexural strength after freeze and thaw: 40.2 MPa KM ₁₂₅ : 101.3
Thermal shock resistance	EN 14617-6:2012	Mass loss:0.02% Flexural strength after thermal shock:43.7 MPa Flexural strength loss: -10.8%
Impact resistance	EN 14617-9:2005	9.01 J
Chemical resistance	EN 14617-10:2012	Classification: C ₄
Linear thermal expansion coefficient	EN 14617-11:2005	29.6×10 ⁻⁶ /°C
Slip resistance (polished)	EN 14231:2003	SRV "dry": 51 SRV "wet": 10
Dimensional stability	EN 14617-12:2012	Class: A Vertical displacement: 0.02mm
Thermal performance	EN 12664:2001	0.695 W/(m·K)
Breaking load at dowel hole	EN 14617-8:2007	4940 N
Dimensions, geometric characteristics and surface quality	EN 14617-16:2005	See the following
Surface Resistivity	EN 14617-13:2005	1.88×10 ¹⁴ Ω/sq
Volume Resistivity	EN 14617-13:2005	3.13×10 ¹⁴ Ω/sq
Reaction to fire	EN 13501-1:2007+A1:2009	Classification: A2-s1, d0
Substances of Very High Concern (SVHC)	SGS In-House method	PASS See the following

Note: 1. Thermal performance, Surface Resistivity and Volume Resistivity were carried out by SGS-CSTC Standards Technical Services (SHANGHAI) Co., Ltd.

2. Reaction to fire was carried out by SGS-CSTC Standards Technical Services Co., Ltd. Shunde Branch

***** To be continued*****



1. Apparent density and water absorption

Test Method:

EN 14617-1:2013 Agglomerated stone - Test methods - Part 1: Determination of apparent density and water absorption

Specimens: Agglomerated stone, 100mm×100mm×8mm, 6pcs, one face polished

Test Result:

Specimens identification No.	1	2	3	4	5	6
Water absorption (%)	0.08	0.10	0.07	0.10	0.08	0.07
Arithmetic mean of the water absorption (%)	0.08					
Apparent density (kg/m ³)	2372	2357	2358	2373	2376	2375
Arithmetic mean of the apparent density (kg/m ³)	2368					

Classification according to EN 15285:2008: W₃^{note}

Note: W₁>2.0%, 2.0%≥W₂>0.5%, 0.5%≥W₃>0.05%, W₄≤0.05%

2. Flexural strength

Test Method:

EN 14617-2:2016 Agglomerated stone - Test methods - Part 2: Determination of flexural strength (bending)

Specimens: Agglomerated stone, 200mm×50mm×30mm, 10pcs, one face polished

Loading rate: (0.25±0.05)MPa/s

Test Result:

Specimens identification No.	1	2	3	4	5	6	7	8	9	10
Flexural strength (MPa)	39.6	43.2	36.5	35.9	42.8	37.7	42.8	40.3	39.6	38.1
Mean value (MPa)	39.7									
Standard deviation (MPa)	2.7									
Lower expected value (MPa)	34.4									

Classification according to EN 15285:2008: F₃^{note}

Note: F₁<12.0MPa, 12.0MPa≤F₂<25.0MPa, 25.0MPa≤F₃<40.0MPa, F₄≥40.0MPa

*****To be continued*****



3. Abrasion resistance

Test Method:

EN 14617-4:2012 Agglomerated stone - Test methods - Part 4: Determination of abrasion resistance

Specimens: Agglomerated stone, 150mm×100mm×30mm, 6pcs, one face polished

Testing surface: polished

Test Result:

Specimens identification No.	1	2	3	4	5	6
The length of the groove (mm)	25.0	26.0	26.5	26.5	26.0	26.0
Mean value (mm)	25.8					

Classification according to EN 15285:2008: A₄^{note}

Note: A₁>36.5mm, 36.5mm≥A₂>33.0mm, 33.0mm≥A₃>29.0mm, A₄≤29.0mm.

4. Freeze and thaw resistance

Test Method:

EN 14617-5:2012 Agglomerated stone - Test methods - Part 5: Determination of freeze and thaw resistance

Specimens: Agglomerated stone, 200mm×50mm×30mm, 10pcs, one face polished

Loading rate: (0.25±0.05)MPa/s

Test Result:

Specimens subjected to 25 cycles freeze/thaw resistance:

Specimens identification No.	1	2	3	4	5	6	7	8	9	10
Flexural strength (MPa)	40.7	38.7	42.9	38.8	40.4	38.5	43.5	40.5	39.5	38.9
Mean value (MPa)	40.2									
Standard deviation (MPa)	1.8									
Lower expected value (MPa)	36.7									
KM _{f25}	101									

$KM_{f25} = R_{Mf} / R_f \times 100$

R_f means the flexural strength in natural condition

R_{Mf} means the flexural strength subjected to 25 cycles freeze/thaw resistance

*****To be continued*****



5. Thermal shock resistance

Test Method:

EN 14617-6:2012 Agglomerated stone - Test methods - Part 6: Determination of thermal shock resistance

Specimens: Agglomerated stone, 200mm×50mm×30mm, 10pcs, one face polished

Loading rate: (0.25±0.05) MPa/s

Test Result:

After 20 cycles of thermal shock:

For each specimen, there is no obvious change of colour, no obvious appearance of spots, no obvious swelling, no obvious cracking, no obvious scaling or exfoliation.

The change in mass:

Specimens identification No.	1	2	3	4	5	6	7	8	9	10
Mass loss (%)	0.02	0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02
Mean mass loss (%)	0.02									

The flexural strength after 20 cycles thermal shock resistance:

Specimens identification No.	1	2	3	4	5	6	7	8	9	10
Flexural strength (MPa)	42.7	40.9	43.9	47.3	41.7	43.4	45.7	38.0	46.3	46.7
Mean value (MPa)	43.7									
Standard deviation (MPa)	3.0									
Lower expected value (MPa)	37.7									

The change in flexural strength: -10.8%

***** To be continued*****



6. Impact resistance

Test Method:

EN 14617-9:2005 Agglomerated stone - Test methods - Part 9: Determination of impact resistance

Specimens: Agglomerated stone, 200mm×200mm×30mm, 4pcs, one face polished

Testing surface: polished

Test Result:

Specimens identification No.	1	2	3	4
Drop height, <i>h</i> (m)	0.85	0.80	0.90	0.95
Fracture work, <i>L</i> (J)	8.75	8.24	9.27	9.78
Average value (J)	9.01			

Note:

The fracture work *L* in joule is expressed by the formula

$$L = M \times h \times g$$

Where

M is the sphere mass, 1.050kg,

h is the drop height in meters of the sphere which causes the sample to break,

g is the gravity acceleration equal to 9.806m/s².

***** To be continued*****



7. Chemical resistance

Test Method:

EN 14617-10:2012 Agglomerated stone - Test methods - Part 10: Determination of chemical resistance

Specimens: Agglomerated stone, 300mm×300mm×30mm, 4pcs, polished surface

Water solutions preparation:

- 1) Hydrochloric acid solution, 50% (V/V), prepared from N hydrochloric acid solution
- 2) Sodium hydroxide solution, 50% (V/V), prepared from a normal water sodium hydroxide non-carbonated solution

Type of glossmeter used and the kind and intensity of the light source: Sheen 260, CIE D65

Reflection direction of the light: 60°

Test Result:

Chemical resistance	Sample No.	Reference value	Classification
Hydrochloric acid solution (HCl)	1 (1h)	95.8%	C ₄ note
	2 (8h)	96.6%	
Sodium hydroxide solution (NaOH)	3 (1h)	93.6%	
	4 (8h)	94.3%	

Note:

C₁: Agglomerated stones which keep less than 60 % of the reference reflection values (see EN 14617-10) after 1 h ± 30 min of alkali and acid attack.

C₂: Agglomerated stones which keep between 60 % and 80 % of the reference reflection value (see EN 14617-10) after 1 h ± 30 min of alkali and acid attack.

C₃: Agglomerated stones which keep between 60 % and 80 % of the reference reflection value (see EN 14617-10) after 8 h ± 30 min of alkali and acid attack.

C₄: Agglomerated stones which keep at least 80 % of the reference reflection value (see EN 14617-10) after 8 h ± 30 min of acid and alkali attack (or if only in one specimen the attack is between 60 % and 80 %, see EN 14617-10).

***** To be continued*****



8. Linear thermal expansion coefficient

Test Method:

EN 14617-11:2005 Agglomerated stone - Test methods - Part 11: Determination of linear thermal expansion coefficient

Specimens: Agglomerated stone, 50mm×10mm×10mm, 3pcs, one face polished

Heating rate: 3°C/min

Test Result:

Temperature range: from 30°C to 60°C.

Specimens identification No.	1	2	3
Linear thermal expansion coefficient (10 ⁻⁶ /°C)	29.3	26.9	32.6
Mean value(10 ⁻⁶ /°C)	29.6		

9. Slip resistance

Test Method:

EN 14231:2003 Natural stone test methods - Determination of the slip resistance by means of the pendulum tester

Specimens: Agglomerated stone, 200mm×150mm×30mm, 6pcs, one face polished

Slider material: Slider 55 rubber

Testing surface: polished

Test Result:

Specimens identification No.	1	2	3	4	5	6
Mean pendulum value (Dry condition)	53	44	49	58	50	50
Slip resistance value (SRV "dry")	51					
Mean pendulum value (Wet condition)	11	10	9	11	10	10
Slip resistance value (SRV "wet")	10					

***** To be continued*****



10. Dimensional stability

Test Method:

EN 14617-12:2012 Agglomerated stone - Test methods - Part 12: Determination of dimensional stability

Specimens: Agglomerated stone, 300mm×300mm×30mm, 1pc, one face polished

Test Result:

Vertical displacement: 0.02mm.

Classification: Class A^{note}

Note:

Vertical displacement after the test

Class A: ≤ 0.3 mm

Class B: > 0.3 mm and ≤ 0.6 mm

Class C: > 0.6 mm

11. Thermal conductivity

Test Method:

EN 12664:2001 Heat flow meter method

Test condition:

Specimen: 300mm×300mm×29.6mm, 1pc

Density: about 2382kg/m³

Mean temperature: 25°C

Temperature difference: 10°C

Lab environmental condition: 23±2°C, 50±5%RH

Test Result:

Test Item	Test Result
Thermal conductivity	0.695 W/(m·K)

Note: The test result can not be compared with other results obtained from different test conditions, and should not be cited to the use condition directly.

***** To be continued*****



12. Breaking load at dowel hole

Test Method:

EN 14617-8:2007 Agglomerated stone - test methods - Determination of resistance to fixing (dowel hole)

Specimens: Agglomerated stone, 200mm×200mm×30mm, 3pcs, one face polished, 3 holes were drilled on each specimen.

Diameter of the hole: 10 mm; Diameter of the dowel: 8 mm

Loading rate: (50±5) N/s

Test Result:

Specimens identification No.		d ₁ (mm)	b _A (mm)	Breaking load F (N)
1	Hole 1	9	31	3150
	Hole 2	10	35	4650
2	Hole 1	9	42	3950
	Hole 2	10	29	5000
	Hole 3	10	37	5800
	Hole 4	10	37	4850
3	Hole 1	9	37	5550
	Hole 2	9	35	5850
	Hole 3	10	31	5350
	Hole 4	10	30	5250
Mean value		10	34	4940
Lower expected value		/	/	3250
Standard deviation		/	/	849

d₁: Distance from the hole to the face

b_A: Maximum distance from the centre of the hole to the edge of the fracture

***** To be continued*****



13. Dimensions, geometric characteristics and surface quality

Test Method:

EN 14617-16:2005 Agglomerated stone - Test methods - Part 16: Determination of dimensions, geometric characteristics and surface quality of modular tiles

Specimens: Agglomerated stone, 300mm×300mm×30mm, 10pcs, one face polished

Test Result:

Work size: 300mm×300mm×30.0mm

Test items		Requirements: EN 15285:2008	Test results
Length and width	Average dimension of 10 test specimens	300± 0.5 mm	300.06mm
	Deviation, as a percentage, of the average size of each tile from work size		-0.03%~+0.05% -0.09mm~+0.16mm
Thickness	Average thickness of 10 test specimens	30.0± 0.7 mm	30.08mm
	The deviation, as a percentage, of the average thickness of each tile from the work size thickness		-1.13%~+1.30% -0.34mm~+0.39mm
Straightness	Maximum deviation from straightness	± 0.3 mm	-0.26mm~+0.16mm
Rectangularity	Maximum deviation from rectangularity	± 0.9 mm	-0.41mm~+0.53mm
Flatness	Maximum centre curvature, as a percentage, related to the length	± 2% referred to length	-0.06%~+0.03%
	Maximum edge curvature, as a percentage, related to the length	± 2% referred to length	-0.08%~+0.12%
	Maximum warping, as a percentage, related to the length	± 2% referred to length	-0.13%~+0.18%
Surface finish	/	/	Polished

***** To be continued*****



14. Surface Resistivity and volume Resistivity

Test Method:

EN 14617-13:2005 Agglomerated stone - Test methods - Part 13: Determination of electrical resistivity

Specimens: Agglomerated stone, 100mm×100mm, 5pcs

Test Result:

Test Condition:

Precondition: 23±2℃, 50±5%RH, 48h

Test condition: 23.2 ℃, 56 % RH

Test electrode diameter: D1=50mm D2=60mm

Test voltage: 500Vdc

Electrification time: 60s

Specimens identification No.	1	2	3	4	5
Surface Resistance R_s (Ω)	6.13×10^{12}	5.23×10^{12}	3.78×10^{12}	5.44×10^{12}	8.33×10^{12}
Median (Ω)	5.44×10^{12}				
Surface Resistivity ρ_s (Ω/sq)	2.12×10^{14}	1.81×10^{14}	1.31×10^{14}	1.88×10^{14}	2.88×10^{14}
Median (Ω)	1.88×10^{12}				
Volume Resistance R_s (Ω)	3.31×10^{12}	3.30×10^{12}	2.32×10^{12}	3.78×10^{12}	2.70×10^{12}
Median ($\Omega \cdot \text{m}$)	3.30×10^{12}				
Volume Resistivity ρ_s (Ω/sq)	3.13×10^{14}	3.14×10^{14}	2.18×10^{14}	3.54×10^{14}	2.54×10^{14}
Median ($\Omega \cdot \text{m}$)	3.13×10^{14}				

***** To be continued*****



15. Reaction to fire

Test Method:

This test is conducted as per EN 13501-1:2007+A1:2009 Fire classification of construction products and building elements-Part 1: Classification using data from reaction to fire tests.

And the test methods as following:

1. EN 13823:2010+A1:2014 Reaction to fire tests for building products - Building products excluding floorings exposed to the thermal attack by a single burning item.
2. EN ISO 1716:2010 Reaction to fire tests for products -Determination of the gross heat of combustion. (Calorific Value)

Mounting and fixing (For EN 13823:2010+A1:2014):

The specimen was tested free standing at a distance of at least 80 mm from the backing board.

Both wings were clamped at the top and the bottom.

Test Results:

Test method	Parameter	Number of tests	Results
EN 13823:2010+A1:2014	FIGRA _{0.2MJ} (W/s)	3	24.3
	THR _{600s} (MJ)		1.1
	SMOGRA(m ² /s ²)		0.4
	TSP _{600s} (m ²)		1.4
	LFS < edge of specimen		Yes
	Flaming particles or droplets		No
EN ISO 1716:2010	For homogeneous products: Heat of Combustion -PCS (MJ/kg)	3	2.3

Remark:

FIGRA-Fire growth rate index used for classification purposes [W/s]

For the classes A2 and B, FIGRA_{0.2MJ}

For the classes C and D, FIGRA_{0.4MJ}

LFS -Lateral flame spread m

THR_{600s}-Total heat release within 600 s MJ

SMOGRA -Smoke growth rate [m²/s²]

TSP_{600s} -Total smoke production within 600 s m²

PCS -gross heat of combustion [MJ/kg or MJ/m²]

***** To be continued*****



Classification and direct field of application

This classification has been carried out in accordance with **EN 13501-1:2007+A1:2009**.

Classification:

Fire behaviour		Smoke production			Flaming droplets	
A2	—	s	1	,	d	0

Remark:

The classes with their corresponding fire performance are given in Table 1.

Reaction to fire classification is based on the 7-step scale of A1 to F, where A1 is good and F is bad

Statement:

The test results relate to the behaviour of the test specimens of a product under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.

Warning:

This classification report does not represent type approval or certification of the product.

The test laboratory has, therefore, play no part in sampling the product for the test, although it holds appropriate references to the manufacturer’s factory production control that is aimed to be relevant to the samples tested and that will provide for their traceability.

***** To be continued*****



Table 1 — Classes of reaction to fire performance for construction products excluding floorings and linear pipe thermal insulation products.

Class	Test method(s)	Classification criteria	Additional classification
A1	EN ISO 1182 ^a and	$\Delta T \leq 30^\circ\text{C}$, and $\Delta m \leq 50\%$, and $t_f = 0$ (i.e. no sustained flaming)	-
	EN ISO 1716	$PCS \leq 2.0\text{MJ/kg}$ ^a and $PCS \leq 2.0\text{MJ/kg}$ ^{b,c} and $PCS \leq 1.4\text{MJ/m}^2$ ^d and $PCS \leq 2.0\text{MJ/kg}$ ^e	-
A2	EN ISO 1182 ^a or	and $\Delta T \leq 50^\circ\text{C}$, and $\Delta m \leq 50\%$, and $t_f \leq 20\text{ s}$	-
	EN ISO 1716		-
	EN 13823	$FIGRA \leq 120\text{W/s}$ and $LFS < \text{edge of specimen}$ and $THR_{600s} \leq 7.5\text{MJ}$	Smoke production ^f and Flaming droplets/particles ^g
B	EN 13823 and	$FIGRA \leq 120\text{W/s}$ and $LFS < \text{edge of specimen}$ and $THR_{600s} \leq 7.5\text{MJ}$	Smoke production ^f and Flaming droplets/particles ^g
	EN ISO 11925-2 ⁱ Exposure = 30s	$F_s \leq 150\text{mm}$ within 60 s	
C	EN 13823 and	$FIGRA \leq 250\text{W/s}$ and $LFS < \text{edge of specimen}$ and $THR_{600s} \leq 15\text{MJ}$	Smoke production ^f and Flaming droplets/particles ^g
	EN ISO 11925-2 ⁱ Exposure = 30s	$F_s \leq 150\text{mm}$ within 60 s	
D	EN 13823 and	$FIGRA \leq 750\text{W/s}$	Smoke production ^f and Flaming droplets/particles ^g
	EN ISO 11925-2 ⁱ Exposure = 30s	$F_s \leq 150\text{mm}$ within 60 s	
E	EN ISO 11925-2 ⁱ Exposure = 15s	$F_s \leq 150\text{mm}$ within 20 s	flaming droplets/particles ^h
F	No performance determined		

***** To be continued*****



- ^a For homogeneous products and substantial components of non-homogeneous products.
- ^b For any external non-substantial component of non-homogeneous products.
- ^c Alternatively, any external non-substantial component having a PCS $\leq 2,0 \text{ MJ/m}^2$, provided that the product satisfies the following criteria of EN 13823: FIGRA $\leq 20 \text{ W/s}$, and LFS < edge of specimen, and THR_{600s} $\leq 4,0 \text{ MJ}$, and s1, and d0.
- ^d For any internal non-substantial component of non-homogeneous products.
- ^e For the product as a whole.

^f In the last phase of the development of the test procedure, modifications of the smoke measurement system have been introduced, the effect of which needs further investigation. This may result in a modification of the limit values and/or parameters for the evaluation of the smoke production.

s1 = SMOGRA $\leq 30\text{m}^2/\text{s}^2$ and TSP_{600s} $\leq 50\text{m}^2$; s2 = SMOGRA $\leq 180\text{m}^2/\text{s}^2$ and TSP_{600s} $\leq 200\text{m}^2$; s3 = not s1 or s2

^g d0 = No flaming droplets/ particles in EN 13823 within 600 s;

d1 = no flaming droplets/ particles persisting longer than 10 s in EN 13823 within 600 s;

d2 = not d0 or d1.

Ignition of the paper in EN ISO 11925-2 results in a d2 classification.

^h Pass = no ignition of the paper (no classification);

Fail = ignition of the paper (d2 classification).

ⁱ Under conditions of surface flame attack and, if appropriate to the end-use application of the product, edge flame attack.

***** To be continued*****



16. Substances of Very High Concern (SVHC)

Test Requested:

As requested by client, SVHC screening is performed according to:

- (i) One hundred and seventy four (174) substances in the Candidate List of Substances of Very High Concern (SVHC) for authorization published by European Chemicals Agency (ECHA) on and before Jul 7, 2017 regarding Regulation (EC) No 1907/2006 concerning the REACH
- (ii) Eight (8) substances in the Public Consultation List of potential Substances of Very High Concern (SVHC) published by European Chemicals Agency (ECHA) on Sep 5, 2017 regarding Regulation (EC) No 1907/2006 concerning the REACH.

Summary:

According to the specified scope and evaluation screening, the test results of SVHC are $\leq 0.1\%$ (w/w) in the submitted sample.	PASS
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Remark:

- (1) The chemical analysis of specified SVHC is performed by means of currently available analytical techniques against the following SVHC related documents published by ECHA: <http://echa.europa.eu/web/guest/candidate-list-table>
These lists are under evaluation by ECHA and may subject to change in the future.
- (2) Concerning article(s):
In accordance with Regulation (EC) No 1907/2006, any EU producer or importer of articles shall notify ECHA, in accordance with paragraph 4 of Article 7, if a substance meets the criteria in Article 57 and is identified in accordance with Article 59(1) of the Regulation, if (a) the substance in the Candidate List is present in those articles in quantities totaling over one tonne per producer or importer per year; and (b) the substance in the Candidate List is present in those articles above a concentration of 0.1% weight by weight (w/w).
Article 33 of Regulation (EC) No 1907/2006 requires supplier of an article containing a substance meeting the criteria in Article 57 and identified in accordance with Article 59(1) in a concentration above 0.1% weight by weight (w/w) shall provide the recipient of the article with sufficient information, available to the supplier, to allow safe use of the article including, as a minimum, the name of that substance in the Candidate List.
SGS adopts the ruling of the Court of Justice of the European Union on the definition of an article under REACH unless indicated otherwise. Detail explanation is available at the following link:
<http://www.sgs.com/-/media/global/documents/technical-documents/technical-bulletins/sgs-crs-position-statement-on-svhc-in-articles-a4-en-16-06.pdf?la=en>

***** To be continued*****



(3) Concerning material(s):

Test results in this report are based on the tested sample. This report refers to testing result of tested sample submitted as homogenous material(s). In case such material is being used to compose an article, the results indicated in this report may not represent SVHC concentration in such article. If this report refers to testing result of composite material group by equal weight proportion, the material in each composite test group may come from more than one article.

If the sample is a substance or mixture, and it directly exports to EU, client has the obligation to comply with the supply chain communication obligation under Article 31 of Regulation (EC) No. 1907/2006 and the conditions of Authorization of substance of very high concern included in the Annex XIV of the Regulation (EC) No. 1907/2006.

(4) Concerning substance and preparation:

If a SVHC is found over 0.1% (w/w) and/or the specific concentration limit which is set in Regulation (EC) No 1272/2008 and No 790/2009, client is suggested to prepare a Safety Data Sheet (SDS) against the SVHC to comply with the supply chain communication obligation under Regulation (EC) No 1907/2006, in which:

- a substance that is classified as hazardous under the CLP Regulation (EC) No 1272/2008.
- a mixture that is classified as dangerous according Dangerous Preparations Directive 1999/45/EC or classified as hazardous under the CLP Regulation (EC) No 1272/2008, when their concentrations are equal to, or greater than, those defined in the Article 3(3) of 1999/45/EC or the lower values given in Part 3 of Annex VI of Regulation (EC) No. 1272/2008; or
- a mixture is not classified as dangerous under Directive 1999/45/EC, but contains either:
 - (a) a substance posing human health or environmental hazards in an individual concentration of $\geq 1\%$ by weight for mixtures that are solid or liquids (i.e., non-gaseous mixtures) or $\geq 0.2\%$ by volume for gaseous mixtures; or
 - (b) a substance that is PBT, or vPvB in an individual concentration of $\geq 0.1\%$ by weight for mixtures that are solid or liquids (i.e., non-gaseous mixtures); or
 - (c) a substance on the SVHC candidate list (for reasons other than those listed above), in an individual concentration of $\geq 0.1\%$ by weight for non-gaseous mixtures; or
 - (d) a substance for which there are Europe-wide workplace exposure limits.

(5) If a SVHC is found over the reporting limit, client is suggested to identify the component which contains the SVHC and the exact concentration of the SVHC by requesting further quantitative analysis from the laboratory.

***** To be continued*****



Sample Description: see photo

Test Method:

SGS In-House method- GZTC CHEM-TOP-092-01, GZTC CHEM-TOP-092-02, Analyzed by ICP-OES, UV-VIS, GC-MS, HPLC-DAD/MS and Colorimetric Method.

Test Result: (Substances in the Candidate List of SVHC)

Batch	Substance Name	CAS No.	Result Concentration (%)	RL (%)
VIII	N,N-dimethylformamide	68-12-2	0.098	0.050
-	Other tested SVHC in candidate list	-	ND	-

Test Result: (Substances in the Consultation List of potential SVHC)

Batch	Substance Name	CAS No.	Result Concentration (%)	RL (%)
-	All tested SVHC in consultation list	-	ND	-

Notes:

- The table above only shows detected SVHC, and SVHC that below RL are not reported. Please refer to Appendix for the full list of tested SVHC.
- RL = Reporting Limit. All RL are based on homogenous material. ND = Not detected (lower than RL), ND is denoted on the SVHC substance.
- * The test result is based on the calculation of selected element(s) and to the worst-case scenario.
- ** The test result is based on the calculation of selected marker(s) and to the worst-case scenario. For detail information, please refer to the SGS REACH website:
www.reach.sgs.com/substance-of-very-high-concern-analysis-information-page.htm
- RL = 0.005% is evaluated for element (i.e. cobalt, arsenic, lead, chromium (VI), aluminum, zirconium, boron, strontium, zinc, antimony, cadmium, titanium and barium respectively), except molybdenum RL=0.0005%, boron RL=0.0025% (only for Lead bis(tetrafluoroborate)).
- Calculated concentration of boric compounds are based on the water extractive boron by ICP-OES.
- △ CAS No. of diastereoisomers identified (α-HBCDD, β-HBCDD, γ-HBCDD): 134237-50-6, 134237-51-7, 134237-52-8.
- ☆ CAS No. of Hexahydromethylphthalic anhydride, Hexahydro-4-methylphthalic anhydride, Hexahydro-1-methylphthalic anhydride, Hexahydro-3-methylphthalic anhydride: 25550-51-0, 19438-60-9, 48122-14-1, 57110-29-9; EC No. of those: 247-094-1, 243-072-0, 256-356-4, 260-566-1.
- § The substance is proposed for the identification as SVHC only where it contains Michler's ketone (CAS Number: 90-94-8) or Michler's base (CAS Number: 101-61-1) ≥0.1% (w/w).
- / = Substances in the Consultation List of SVHC.

***** To be continued*****



Appendix

Full list of tested SVHC:

Batch	No.	Substance Name	CAS No.	RL (%)
I	1	4,4' -Diaminodiphenylmethane(MDA)	101-77-9	0.050
I	2	5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene)	81-15-2	0.050
I	3	Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)	85535-84-8	0.050
I	4	Anthracene	120-12-7	0.050
I	5	Benzyl butyl phthalate (BBP)	85-68-7	0.050
I	6	Bis (2-ethylhexyl)phthalate (DEHP)	117-81-7	0.050
I	7	Bis(tributyltin)oxide (TBTO)	56-35-9	0.050
I	8	Cobalt dichloride*	7646-79-9	0.005
I	9	Diarsenic pentaoxide*	1303-28-2	0.005
I	10	Diarsenic trioxide*	1327-53-3	0.005
I	11	Dibutyl phthalate (DBP)	84-74-2	0.050
I	12	Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α -HBCDD, β -HBCDD, γ -HBCDD) Δ	25637-99-4,3194-55-6	0.050
I	13	Lead hydrogen arsenate*	7784-40-9	0.005
I	14	Sodium dichromate*	7789-12-0, 10588-01-9	0.005
I	15	Triethyl arsenate*	15606-95-8	0.005
II	16	2,4-Dinitrotoluene	121-14-2	0.050
II	17	Acrylamide	79-06-1	0.050
II	18	Anthracene oil**	90640-80-5	0.050
II	19	Anthracene oil, anthracene paste**	90640-81-6	0.050
II	20	Anthracene oil, anthracene paste, anthracene fraction**	91995-15-2	0.050
II	21	Anthracene oil, anthracene paste, distn. lights**	91995-17-4	0.050
II	22	Anthracene oil, anthracene-low**	90640-82-7	0.050
II	23	Diisobutyl phthalate	84-69-5	0.050
II	24	Lead chromate molybdate sulphate red (C.I. Pigment Red 104)*	12656-85-8	0.005
II	25	Lead chromate*	7758-97-6	0.005
II	26	Lead sulfochromate yellow (C.I. Pigment Yellow 34)*	1344-37-2	0.005
II	27	Pitch, coal tar, high temp.**	65996-93-2	0.050

***** To be continued*****



Appendix

Full list of tested SVHC:

Batch	No.	Substance Name	CAS No.	RL (%)
II	28	Tris(2-chloroethyl)phosphate	115-96-8	0.050
III	29	Ammonium dichromate*	7789-09-05	0.005
III	30	Boric acid*	10043-35-3, 11113-50-1	0.005
III	31	Disodium tetraborate, anhydrous*	1303-96-4, 1330-43-4, 12179-04-3	0.005
III	32	Potassium chromate*	7789-00-6	0.005
III	33	Potassium dichromate*	7778-50-9	0.005
III	34	Sodium chromate*	7775-11-03	0.005
III	35	Tetraboron disodium heptaoxide, hydrate*	12267-73-1	0.005
III	36	Trichloroethylene	79-01-6	0.050
IV	37	2-Ethoxyethanol	110-80-5	0.050
IV	38	2-Methoxyethanol	109-86-4	0.050
IV	39	Chromic acid, Oligomers of chromic acid and dichromic acid, Dichromic acid*	7738-94-5,- 13530-68-2	0.005
IV	40	Chromium trioxide*	1333-82-0	0.005
IV	41	Cobalt(II) carbonate*	513-79-1	0.005
IV	42	Cobalt(II) diacetate*	71-48-7	0.005
IV	43	Cobalt(II) dinitrate*	10141-05-6	0.005
IV	44	Cobalt(II) sulphate*	10124-43-3	0.005
V	45	1,2,3-trichloropropane	96-18-4	0.050
V	46	1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich	71888-89-6	0.050
V	47	1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters	68515-42-4	0.050
V	48	1-methyl-2-pyrrolidone	872-50-4	0.050
V	49	2-ethoxyethyl acetate	111-15-9	0.050
V	50	Hydrazine	7803-57-8, 302-01-2	0.050
V	51	Strontium chromate*	7789-06-02	0.005

***** To be continued*****



Appendix

Full list of tested SVHC:

Batch	No.	Substance Name	CAS No.	RL (%)
VI	52	1,2-Dichloroethane	107-06-2	0.050
VI	53	2,2'-dichloro-4,4'-methylenedianiline	101-14-4	0.050
VI	54	2-Methoxyaniline; o-Anisidine	90-04-0	0.050
VI	55	4-(1,1,3,3-tetramethylbutyl)phenol	140-66-9	0.050
VI	56	Aluminosilicate Refractory Ceramic Fibres *	650-017-00-8 (Index no.)	0.005
VI	57	Arsenic acid*	7778-39-4	0.005
VI	58	Bis(2-methoxyethyl) ether	111-96-6	0.050
VI	59	Bis(2-methoxyethyl) phthalate	117-82-8	0.050
VI	60	Calcium arsenate*	7778-44-1	0.005
VI	61	Dichromium tris(chromate) *	24613-89-6	0.005
VI	62	Formaldehyde, oligomeric reaction products with aniline	25214-70-4	0.050
VI	63	Lead diazide, Lead azide*	13424-46-9	0.005
VI	64	Lead dipicrate*	6477-64-1	0.005
VI	65	Lead styphnate*	15245-44-0	0.005
VI	66	N,N-dimethylacetamide	127-19-5	0.050
VI	67	Pentazinc chromate octahydroxide*	49663-84-5	0.005
VI	68	Phenolphthalein	77-09-8	0.050
VI	69	Potassium hydroxyoctaoxodizincatedichromate*	11103-86-9	0.005
VI	70	Trilead diarsenate*	3687-31-8	0.005
VI	71	Zirconia Aluminosilicate Refractory Ceramic Fibres*	650-017-00-8 (Index no.)	0.005
VII	72	[4-[[4-anilino-1-naphthyl][4-(dimethylamino)phenyl]methylene]cyclohexa-2,5-dien-1-ylidene] dimethylammonium chloride (C.I. Basic Blue 26)§	2580-56-5	0.050
VII	73	[4-[4,4'-bis(dimethylamino)benzhydrylidene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. Basic Violet 3)§	548-62-9	0.050
VII	74	1,2-bis(2-methoxyethoxy)ethane (TEGDME; triglyme)	112-49-2	0.050
VII	75	1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	110-71-4	0.050
VII	76	4,4'-bis(dimethylamino) benzophenone (Michler's Ketone)	90-94-8	0.050

***** To be continued*****



Appendix

Full list of tested SVHC:

Batch	No.	Substance Name	CAS No.	RL (%)
VII	77	4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol§	561-41-1	0.050
VII	78	Diboron trioxide*	1303-86-2	0.005
VII	79	Formamide	75-12-7	0.050
VII	80	Lead(II) bis(methanesulfonate)*	17570-76-2	0.005
VII	81	N,N,N',N'-tetramethyl-4,4'-methylenedianiline (Michler's base)	101-61-1	0.050
VII	82	TGIC (1,3,5-tris(oxiranylmethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione)	2451-62-9	0.050
VII	83	α,α-Bis[4-(dimethylamino)phenyl]-4 (phenylamino)naphthalene-1-methanol (C.I. Solvent Blue 4) §	6786-83-0	0.050
VII	84	β-TGIC (1,3,5-tris[(2S and 2R)-2,3-epoxypropyl]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione)	59653-74-6	0.050
VIII	85	[Phthalato(2-)]dioxotrilead*	69011-06-9	0.005
VIII	86	1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	84777-06-0	0.050
VIII	87	1,2-Diethoxyethane	629-14-1	0.050
VIII	88	1-Bromopropane	106-94-5	0.050
VIII	89	3-Ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine	143860-04-2	0.050
VIII	90	4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated	-	0.050
VIII	91	4,4'-Methylenedi-o-toluidine	838-88-0	0.050
VIII	92	4,4'-Oxydianiline and its salts	101-80-4	0.050
VIII	93	4-Aminoazobenzene	60-09-03	0.050
VIII	94	4-Methyl-m-phenylenediamine	95-80-7	0.050
VIII	95	4-Nonylphenol, branched and linear	-	0.050
VIII	96	6-Methoxy-m-toluidine	120-71-8	0.050
VIII	97	Acetic acid, lead salt, basic*	51404-69-4	0.005
VIII	98	Biphenyl-4-ylamine	92-67-1	0.050
VIII	99	Bis(pentabromophenyl) ether (DecaBDE)	1163-19-5	0.050

***** To be continued*****



Appendix

Full list of tested SVHC:

Batch	No.	Substance Name	CAS No.	RL (%)
VIII	100	Cyclohexane-1,2-dicarboxylic anhydride, cis-cyclohexane-1,2-dicarboxylic anhydride, trans-cyclohexane-1,2-dicarboxylic anhydride	85-42-7,13149-00-3,1 4166-21-3	0.050
VIII	101	Diazene-1,2-dicarboxamide (C,C'-azodi(formamide))	123-77-3	0.050
VIII	102	Dibutyltin dichloride (DBTC)	683-18-1	0.050
VIII	103	Diethyl sulphate	64-67-5	0.050
VIII	104	Diisopentylphthalate	605-50-5	0.050
VIII	105	Dimethyl sulphate	77-78-1	0.050
VIII	106	Dinoseb	88-85-7	0.050
VIII	107	Dioxobis(stearato)trilead*	12578-12-0	0.005
VIII	108	Fatty acids, C16-18, lead salts*	91031-62-8	0.005
VIII	109	Furan	110-00-9	0.050
VIII	110	Henicosafuoroundecanoic acid	2058-94-8	0.050
VIII	111	Heptacosafuorotetradecanoic acid	376-06-7	0.050
VIII	112	Hexahydromethylphthalic anhydride, Hexahydro-4-methylphthalic anhydride, Hexahydro-1-methylphthalic anhydride, Hexahydro-3-methylphthalic anhydride	☆	0.050
VIII	113	Lead bis(tetrafluoroborate)*	13814-96-5	0.005
VIII	114	Lead cyanamidate*	20837-86-9	0.005
VIII	115	Lead dinitrate*	10099-74-8	0.005
VIII	116	Lead monoxide*	1317-36-8	0.005
VIII	117	Lead oxide sulfate*	12036-76-9	0.005
VIII	118	Lead tetroxide (orange lead)*	1314-41-6	0.005
VIII	119	Lead titanium trioxide*	12060-00-3	0.005
VIII	120	Lead titanium zirconium oxide*	12626-81-2	0.005
VIII	121	Methoxyacetic acid	625-45-6	0.050
VIII	122	Methyloxirane (Propylene oxide)	75-56-9	0.050
VIII	123	N,N-dimethylformamide	68-12-2	0.050
VIII	124	N-Methylacetamide	79-16-3	0.050
VIII	125	N-Pentyl-isopentylphthalate	776297-69-9	0.050
VIII	126	o-Aminoazotoluene	97-56-3	0.050

***** To be continued*****



Appendix

Full list of tested SVHC:

Batch	No.	Substance Name	CAS No.	RL (%)
VIII	127	o-Toluidine	95-53-4	0.050
VIII	128	Pentacosafuorotridecanoic acid	72629-94-8	0.050
VIII	129	Pentalead tetraoxide sulphate*	12065-90-6	0.005
VIII	130	Pyrochlore, antimony lead yellow*	8012-00-8	0.005
VIII	131	Silicic acid, barium salt, lead-doped*	68784-75-8	0.005
VIII	132	Silicic acid, lead salt*	11120-22-2	0.005
VIII	133	Sulfurous acid, lead salt, dibasic*	62229-08-7	0.005
VIII	134	Tetraethyllead*	78-00-2	0.005
VIII	135	Tetralead trioxide sulphate*	12202-17-4	0.005
VIII	136	Tricosafuorododecanoic acid	307-55-1	0.050
VIII	137	Trilead bis(carbonate)dihydroxide (basic lead carbonate)*	1319-46-6	0.005
VIII	138	Trilead dioxide phosphonate*	12141-20-7	0.005
IX	139	4-Nonylphenol, branched and linear, ethoxylated	-	0.050
IX	140	Ammonium pentadecafluorooctanoate (APFO)	3825-26-1	0.050
IX	141	Cadmium oxide*	1306-19-0	0.005
IX	142	Cadmium*	7440-43-9	0.005
IX	143	Dipentyl phthalate (DPP)	131-18-0	0.050
IX	144	Pentadecafluorooctanoic acid (PFOA)	335-67-1	0.050
X	145	Cadmium sulphide*	1306-23-6	0.005
X	146	Dihexyl phthalate	84-75-3	0.050
X	147	Disodium 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis(4-aminonaphthalene-1-sulphonate) (C.I. Direct Red 28)	573-58-0	0.050
X	148	Disodium 4-amino-3-[[4'-[(2,4-diaminophenyl)azo][1,1'-biphenyl]-4-yl]azo]-5-hydroxy-6-(phenylazo)naphthalene-2,7-disulphonate (C.I. Direct Black 38)	1937-37-7	0.050
X	149	Imidazolidine-2-thione; (2-imidazoline-2-thiol)	96-45-7	0.050
X	150	Lead di(acetate)*	301-04-2	0.005
X	151	Trixylyl phosphate	25155-23-1	0.050
XI	152	1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear	68515-50-4	0.050

***** To be continued*****



Appendix

Full list of tested SVHC:

Batch	No.	Substance Name	CAS No.	RL (%)
XI	153	Cadmium chloride*	10108-64-2	0.005
XI	154	Sodium perborate; perboric acid, sodium salt*	-	0.005
XI	155	Sodium peroxometaborate*	7632-04-04	0.005
XII	156	2-(2H-Benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	25973-55-1	0.050
XII	157	2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)	3846-71-7	0.050
XII	158	2-Ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate; DOTE	15571-58-1	0.050
XII	159	Cadmium fluoride*	7790-79-6	0.005
XII	160	Cadmium sulphate*	10124-36-4, 31119-53-6	0.005
XII	161	Reaction mass of 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate & 2-ethylhexyl 10-ethyl-4-[[2- [(2-ethylhexyl)oxy]-2-oxoethyl]thio]-4-octyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (reaction mass of DOTE & MOTE)	-	0.050
XIII	162	1,2-benzenedicarboxylic acid, di-C6-10-alkyl esters; 1,2-benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters with ≥ 0.3% of dihexyl phthalate	68515-51-5, 68648-93-1	0.050
XIII	163	5-sec-butyl-2- (2,4-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane [1], 5-sec-butyl-2- (4,6-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane [2] [covering any of the individual isomers of [1] and [2] or any combination thereof]	-	0.050
XIV	164	1,3-propanesultone	1120-71-4	0.050
XIV	165	2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol (UV-327)	3864-99-1	0.050
XIV	166	2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350)	36437-37-3	0.050
XIV	167	Nitrobenzene	98-95-3	0.050
XIV	168	Perfluorononan-1-oiic-acid and its sodium and ammonium salts	375-95-1,21049-39-8, 4149-60-4	0.050
XV	169	Benzo[def]chrysene (Benzo[a]pyrene)	50-32-8	0.050
XVI	170	4,4'-isopropylidenediphenol (bisphenol A)	80-05-7	0.050

***** To be continued*****



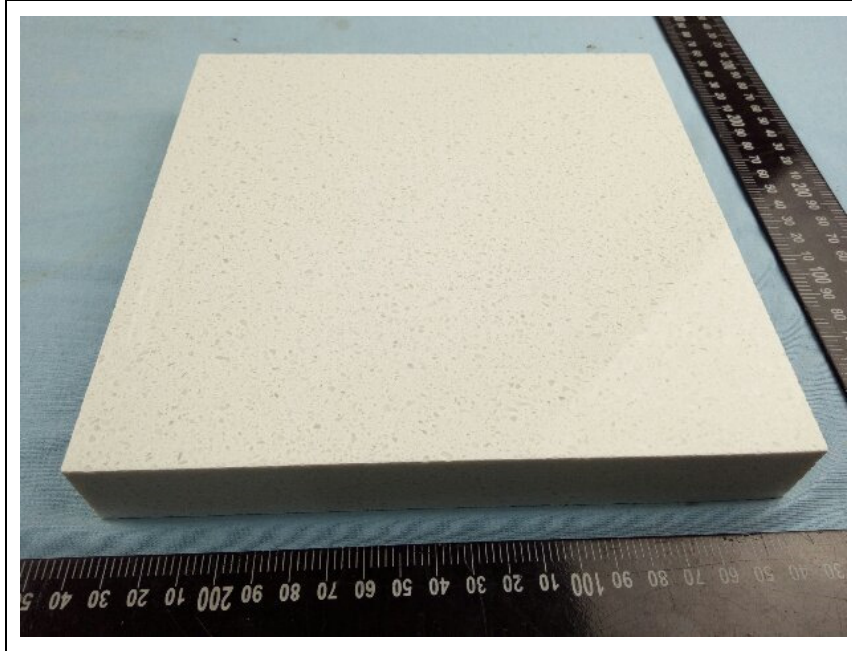
Appendix

Full list of tested SVHC:

Batch	No.	Substance Name	CAS No.	RL (%)
XVI	171	4-Heptylphenol, branched and linear	-	0.050
XVI	172	Nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts	3108-42-7,335-76-2,3 830-45-3	0.050
XVI	173	p-(1,1-dimethylpropyl)phenol	80-46-6	0.050
XVII	174	Perfluorohexane-1-sulphonic acid and its salts	-	0.050
/	175	1,6,7,8,9,14,15,16,17,17,18,18-Dodecachloropentacyclo[12.2.1.16,9.02,13.05,10]octadeca-7,15-diene ("Dechlorane Plus"™) [covering any of its individual anti- and syn-isomers or any combination thereof]	-	0.050
/	176	Benz[a]anthracene	56-55-3	0.050
/	177	Cadmium nitrate*	10325-94-7	0.005
/	178	Cadmium carbonate*	513-78-0	0.005
/	179	Cadmium hydroxide*	21041-95-2	0.005
/	180	Chrysene	218-01-9	0.050
/	181	Reaction products of 1,3,4-thiadiazolidine-2,5-dithione, formaldehyde and 4-heptylphenol, branched and linear (RP-HP) [with ≥0.1% w/w 4-heptylphenol, branched and linear]	-	0.050
/	182	Tricobalt tetroxide containing ≥ 0.1% w/w nickel oxides* ***** To be continued*****	1308-06-1	0.005



Specimen photograph:



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*****End of report*****



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