



SETSCO SERVICES PTE LTD

18 Teban Gardens Crescent
Singapore 608925
Tel : (65) 65667777
Telefax : (65) 65667718
Website : www.setsco.com
Business Reg. No. 196900269D

Your Ref : -

PRELIMINARY REPORT

To :	Grace & Sachi	From :	Shirley Lim
Attn :	Mr. Manish	Date :	06-Feb-08
Fax :	65670119	Our Ref :	CT-6675/SL
Subject :	Preliminary Results for testing of 'Zycosil' Sealer		

Number of Pages Including Cover : Two

Dear Mr. Manish,

As requested.

Results:

Table 1: Natural Weathering

Sample reference	Zycosil		
	Control (Untreated)	S1	S2
Specimen reference			
Duration of exposure	3 months		
Condition before taking light reflectance value	Unwashed		
Dirt collection index, Dc	99	99	
Observation (e.g fungal growth and colour change)	None	None	None
Condition before taking light reflectance value	Washed		
Dirt collection index, Dc	100	100	100
Observation (e.g. fungal growth and colour change)	None	None	None

Table 2: QUV Accelerated Weathering

Sample reference	Zycosil			
Specimen reference	S1 (G40 concrete treated with Zycosil)	S2 (G40 concrete treated with Zycosil)	S3 (G40 concrete with emulsion paint)	S4 (G40 concrete with cement paint)
Duration of exposure	2000 hours			
Test conditions	8 hrs UV @ 60°C, 4 hrs condensation @ 50°C			
Light source	UVA-340			
Irradiance	0.77 W/m ² /nm			
Water absorption @ 500 hours for 20 mins (ml) In accordance to RILEM Test Method No.: 11.4	0.2	0.2	0.2	0.5
Water absorption @ 1000 hours for 20 mins (ml)	0.2	0.2	0.2	0.6
Water absorption @ 1500 hours for 20 mins (ml)	0.2	0.2	0.2	0.8
Water absorption @ 2000 hours for 20 mins (ml)	0.2	0.2	0.2	1.0
Visual observation (e.g. cracking, delamination)	None	None	None	None
Grey scale	4.5	4.5	4.0	3.5

Remarks:

- 1) Requirement for dirt collection index for elastomeric wall coating in accordance to SS 500 is minimum of Dc: 92 (before washing) and Dc: 95 (after washing).
- 2) Grey scale No.: 5 denotes mild or no discolouration; Grey scale No.: 1 denotes severe discolouration.

Should you have any queries, please do not hesitate to contact me

Best Regards,

Shirley Lim Suidi
Assistant Engineer
Construction Materials Technology Department
Construction Technology Division
DID: +65 68950 638
Fax: +65 65667 718
Email: shirleylim@setsco.com



Your Ref :

Our Ref : CT-6621/SL
TEST REPORT

Date : 01-Oct-07

(This Report is issued subject to the terms & conditions set out below)

Page 1 of 2

Subject : Determination of nonvolatile Content in Silane-Siloxane blends of "Zycosil"
submitted by Grace & Sachi

Tested For : **Grace & Sachi**
No.-1, Bukit Batok Street 25, Parkview
Tower 1, #06-15
Singapore 658882
Attn: Mr. Manish Shah

Method of Test : ASTM D5095:91 (2002)

Description of Samples : Six boxes of "Zycosil" were received on 13-Aug-07.
(Refer to *Photograph 1* attached.)

Results :

Table 1: Non Volatile Content

Sample Reference	Zycosil		
	S1	S2	S3
Specimen Reference			
Date of Test	14-Sep-2007		
Non Volatile Content, N _s (%)	4.3	4.4	4.3
Average Non Volatile Content, N _s (%)	4.3		
Non Volatile Content (round to whole number) (%)	4		

Ramanathan Sathammai
Testing Officer

Shirley Lim Suidi
Assistant Engineer
Construction Materials Testing Dept.
Construction Technology Division

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Your Ref : -

Our Ref : CT-6675/SL/3
TEST REPORT

Date : 20-Nov-07

(This Report is issued subject to the terms & conditions set out below)

Page 1 of 1

Subject : Determination of water penetration of "Zycosil" submitted by Grace & Sachi.

Tested For : **Grace & Sachi**
No.-1, Bukit Batok Street 25, Parkview
Tower 1, #06-15
Singapore 658882
Attn: Mr. Manish Shah

Method of Test : Adopted DIN 1048:Part 5:1991

Description of Samples : Six boxes of "Zycosil" were received on 13-Aug-07.

Results :

Table 1 : Water Penetration

Sample Reference	ZYCOSIL		
Specimen Reference	S1	S2	S3
Date of Test	07-Nov-07		
Test Condition	27°C / 65% R.H.		
Type of Waterproofing Material	Sealer		
Water Pressure Applied (kgf/cm ²)	0.2		
Duration of Test (hr)	6		
Mean Maximum Depth of Penetration (mm)	0		

Hong Po Lo
Testing Officer

Shirley Lim Suidi
Assistant Engineer
Construction Materials Testing Dept.
Construction Technology Division

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Your Ref : -

Our Ref : CT-6675/SL/2
TEST REPORT

Date : 20-Nov-07

(This Report is issued subject to the terms & conditions set out below)

Page 1 of 2

Subject : Determination of resistance to stain of "Zycosil" submitted by Grace & Sachi.

Tested For : **Grace & Sachi**
No.-1, Bukit Batok Street 25, Parkview
Tower 1, #06-15
Singapore 658882
Attn: Mr. Manish Shah

Method of Test : ISO 10545 : 14 : 1995

Description of Samples : Six boxes of "Zycosil" were received on 13-Aug-07.
(Refer to Photograph 1 attached)

Results :

Table 1: Stain Resistance

Sample Reference	ZYCOSIL			
	1	2	3	4
Used Engine Oil	Class 4			
Olive Oil	Class 4			
Coffee	Class 4			
Black Rubber Hose	Class 5			

(Refer to Photograph 2 attached)

Remark : Class 5 corresponds to the greatest ease of removing the particular stain.
Class 1 corresponds to the impossibility of removing the particular stain with any of the test procedures and/or to irreversible damage on the proper surface.

Hong Po Lo
Testing Officer

Shirley Lim Suidi
Assistant Engineer
Construction Materials Testing Dept.
Construction Technology Division

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Your Ref : -

Our Ref : CT-7265/SL
TEST REPORT

Date : 09-Jan-08

(This Report is issued subject to the terms & conditions set out below)

Page 1 of 2

Subject : Determination of skid resistance of "Zycosil" requested by Grace & Sachi.

Tested For : **Grace & Sachi**
No.-1, Bukit Batok Street 25, Parkview
Tower 1, #06-15
Singapore 658882
Attn: Mr. Manish Shah

Method of Test : ASTM E303 : 93 (2003)


Specification : SS 485 : 2001 - Specificaiton for slip resistance classification of Public Pedestrian Surface Material


Description of Samples : Six boxes of "Zycosil" were received on 13-Aug-07.
(Refer to *Photograph 1* attached.)

Results :

Table 1 : Skid Resistance Test

Sample Reference		ZYCOSIL				
Specimen Reference	Untreated Grade 40 Concrete	1	2	3	4	5
Surface Condition	British Pendulum Number, BPN (Wet)					
British Pendulum Number, BPN	30	30	30	31	32	31
Average British Pendulum Number, BPN	Nil	31				


Hong Po Lo
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Our Ref : CT-6675/SL/1
TEST REPORT

Date : 09-Oct-07

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Page 1 of 2

Subject : Determination of abrasion resistance of "Zycosil" submitted by Grace & Sachi.

Tested For : **Grace & Sachi**
No.-1, Bukit Batok Street 25, Parkview
Tower 1, #06-15
Singapore 658882
Attn: Mr. Manish Shah

Method of Test : ASTM D4060 : 01

Description of Samples : Six boxes of "Zycosil" were received on 13-Aug-07.
(Refer to *Photograph 1* attached.)

Results :

Table 1: Abrasion Resistance

Sample Reference	ZYCOSIL		
	Untreated	S1	S2
Specimen Reference			
Type of Calibrase	CS - 17		
Number of Cycles	1000		
Date of Test	08-Oct-07		
Test Conditions	23°C; 50% R.H.		
Weight before Abrasion (mg)	77395.1	78037.4	85645.1
Weight after 1000 cycles of Abrasion (mg)	77160.4	77890.5	85517.4
Weight loss after Abrasion (mg)	234.7	146.9	127.7
Average Weight loss after Abrasion (mg)	Nil	137.3	
Wear Index, I	234.7	146.9	127.7
Average Wear Index, I	Nil	137.3	

Remark : 1) Water absorption in accordance to RILEMTEST METHOD NO. 11.4 was conducted after abrasion resistance test.
2) Water absorption of 0.1ml was recorded after 20 minutes.

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Your Ref : -

**Our Ref : CT-6675/SL/4
TEST REPORT**

Date : 18-Jan-08

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Page 1 of 2

Subject : Determination of water vapour transmission of "Zycosil" submitted by Grace & Sachi.

Tested For : **Grace & Sachi**
No.-1, Bukit Batok Street 25, Parkview
Tower 1, #06-15
Singapore 658882
Attn: Mr. Manish Shah

Method of Test : ASTM D1653 : 03

Description of Samples : Six boxes of "Zycosil" were received on 13-Aug-07.
(Refer to *Photograph 1* attached.)

Results :

Table 1 : Water Vapour Transmission

Sample Reference	ZYCOSIL			
	Untreated	S1	S2	S3
Specimen Reference				
Date of Test	19-Nov-07 to 30-Nov-07			
Test Condition	32°C / 50% R.H.			
Test Method	Wet Cup			
Test Area (m ²)	0.003848			
Slope of Graph (g/h)	0.3120	0.1292	0.0865	0.1723
Water Vapour Transmission (g/h.m ²)	7.5	33.6	22.5	44.8
Average Water Vapour Transmission (g/h.m ²)	NIL	33.6		
Perm	0.6	68.7	46.0	91.6

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Your Ref : -

Our Ref : CT-6266/SL/1
TEST REPORT

Date : 13-Sep-07

(This Report is issued subject to the terms & conditions set out below)

Page 1 of 2

Subject : Determination of water absorption for "Zycosil" requested by Grace & Sachi.

Tested For : **Grace & Sachi**
No.-1, Bukit Batok Street 25, Parkview
Tower 1, #06-15
Singapore 658882
Attn: Mr. Manish Shah


Method of Test : ASTM D6489 : 99 (2006) - Adopted

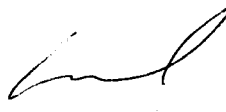
Description of : Six boxes of "Zycosil" were received on 13-Aug-07.

Sample(s) (Refer to *Photograph 1* attached.)

Table 1 : Water absorption of concrete treated with water repellent

Sample Reference	Zycosil			
	Control (Untreated)	S1	S2	S3
Specimen Reference				
Type of concrete	Grade 40			
Size of concrete	75 mm in diameter and 75 mm in length			
Application procedure	One part of "Zycosil" diluted with 10 parts of water. Substrates were dipped in "Zycosil" for 2 - 3 minutes			
24 hours water absorption (%)	2.48	0.19	0.19	0.19
48 hours water absorption (%)	2.95	0.20	0.21	0.22


Hong Po Lo
Testing Officer


Shirley Lim Suidi
Assistant Engineer
Construction Material Testing Dept.
Construction Technology Division

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Your Ref : -

**Our Ref : CT-6266/SL/2
 TEST REPORT**

Date : 27-Sep-07

(This Report is issued subject to the terms & conditions set out below)

Page 1 of 2

Subject : Determination of water absorption for "Zycosil" requested by Grace & Sachi.

Tested For : **Grace & Sachi**
 No.-1, Bukit Batok Street 25, Parkview
 Tower 1, #06-15
 Singapore 658882
Attn: Mr. Manish Shah

Method of Test : ASTM D6489 : 99 (2006) - Adopted

Description of : Six boxes of "Zycosil" were received on 13-Aug-07.
Sample(s) (Refer to *Photograph 1* attached.)

Table 1 : Water absorption of brick treated with water repellent

Sample Reference	Zycosil			
	Control (Untreated)	S1	S2	S3
Specimen Reference				
Type of material	Brick			
Size of brick	85 mm x 90 mm x 15mm			
Application procedure	One part of "Zycosil" diluted with 10 parts of water. Substrates were dipped in "Zycosil" for 2 - 3 minutes			
24 hours water absorption (%)	7.14	2.30	2.50	2.38
48 hours water absorption (%)	7.32	2.45	2.62	2.53

Hong Po Lo
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 Construction Technology Division

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