

VALUE ENGINEERING CHANGE PROPOSAL  
MISSOURI DEPARTMENT OF TRANSPORTATION

Conceptual Proposal       Final Proposal      Date 8-13-10  
Contract ID 090220-201      Job No. J2P0755  
County Carroll/Saline      41      Original Bid Cost 14,838,238.82  
Contractor OCCI, Inc      By \_\_\_\_\_  
Designed By \_\_\_\_\_      Phone \_\_\_\_\_  
VECP# 10-82 (to be completed by C.O.)      VECF  or PDVECF

1. Description of existing requirements and proposed change(s). Advantages/Disadvantages  
This proposal is to change the method of protective coating on the concrete bents from a Urethane based material to Zycosil. According to the manufacturer the Zycosil provides great protection from the elements than a Urethane system.

2. Estimate of reduction in construction costs. \$4,250

3. Prediction of any effects the proposed change(s) will have on other department costs, such as maintenance and operations.  
This product should reduce the maintenance costs since it has a longer effective life than the current system used by MODOT.

4. Anticipated date for submittal of detailed change(s) of items required by Section 104.6 of the Specifications.

8-13-10  
(date)

5. Deadline for issuing a change order to obtain maximum cost reduction, noting the effect of contract completion time or delivery schedule.

8-27-10      Contractor needs time order materials and complete the work this  
(date)      season.      \_\_\_\_\_  
(effect)

6. Dates of any previous or concurrent submission of the same proposal.

N/A  
(date and/or dates)

Additional Comments:

**\*\* Portion Below This Line To Be Filled Out by MoDOT \*\***

**Comments:** I am recommending approval of this value engineering proposal. I have discussed this proposal with our Structural Liaison Engineer and District Bridge Engineer as well as others and the general consensus is to allow this substitution provided basic independent test data is provided by the manufacturer. The District Construction Liaison has been in contact with the manufacturer and this information is forthcoming. Zycosil is a silicon based waterproofing agent that is anticipated to provide up to twenty years of protection. This value engineering proposal would not only reduce the initial contract cost but also the future maintenance cost associated with maintaining the urethane sealer.

James P. Kelly  
Submitted By Resident Engineer

8/19/2010  
Date

**Comments:** I concur with the RE recommendation.

- Approval Recommended  
 Rejection Recommended

David A. [Signature]  
District Engineer *DNB*

8/20/2010  
Date

**Comments:**

- Approval Recommended  
 Rejection Recommended

Federal Highway Administration  
Required for FHWA Full Oversight Projects

Date

**Comments:**

*(SPD) 8/24/2010*

- Approval  
 Rejection

David D. [Signature]  
State Construction and Materials Engineer

8-30-10  
Date

Distribution: Resident Engineer, Project Manager, District Construction & Materials Engineer, State Construction & Materials Engineer, FHWA  
Value Engineering Administrator - MoDOT, P. O. Box 270, Jefferson City, MO 65102



2070 Highway Z  
 Pevely, MO 63070  
 Ph: 636 475-3500  
 Fx: 636 475-3512  
[www.thomasindcoatings.com](http://www.thomasindcoatings.com)

February 19, 2009

RE: MODOT Letting: Job J2P0755, Rt. 41 Carroll/Saline County

Dear Sir/Madam:

We propose to furnish all labor, material, supervision, and necessary insurance to complete all work per MODOT plans and specifications.

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY	UNIT PRICE		BID AMOUNT	
			DOLLARS	CTS	DOLLARS	CTS
0410*	MISC. CLEARANCE GUAGES	LUMP	<del>41500</del>	00	41500	00
*Removal of existing clearance guages is included in this price.						
0450	PROTECTIVE COATING - CONCRETE BENTS AND PIERS (URETHANE)	LUMP	<del>15400</del>	00	15400	00
0460	TEMPORARY COATING- CONCRETE BENTS AND PIERS	LUMP	<del>36400</del>	00	36400	00
MISC	STRUCTURAL STEEL PAINTING (SYSTEM H)	LUMP	<del>42700</del>	00	42700	00
			TOTAL BID		\$138,000.00	

Note 1: No traffic control included in our bid.

Note 2: All federal, state, local, and environmental permits are to be obtained by the G.C

Note 3: Access to our work located within or near the river is to be provided by the General Contractor.

*Includes exposed pipe coating*

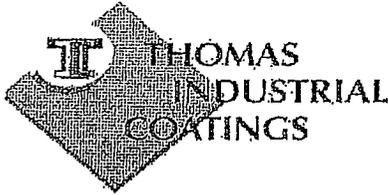
*per Dana  
 phone call  
 TC H.*

Thank you and please feel free to call with any questions or concerns.

Sincerely,  
 Thomas Industrial Coatings

Dane McGraw

COMPLETE PAINTING & INDUSTRIAL  
 SPRAYING-SANDBLASTING-SPECIAL COATINGS-GRAPHICS-FLOOR SEALING



2070 Highway Z  
 Pevely, MO 63070  
 Ph: 636 475-3500  
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[www.thomasindcoatings.com](http://www.thomasindcoatings.com)

August 11, 2010

OCCL, Inc.  
 3200 County Road 257  
 Fulton, MO 65251

RE: MODOT Job J2P0755 ZYCOSIL Change Order

Dear Dave:

We propose to furnish all labor, material, supervision, and necessary insurance to complete all work per MODOT plans and specifications and manufacturer's recommendations.

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY	UNIT PRICE		BID AMOUNT	
			DOLLARS	CTS	DOLLARS	CTS
0450 MISC	PROTECTIVE COATING - CONCRETE BENTS AND PIERS (ZYCOSIL)	LUMP	11150	00	11150	00
			TOTAL BID		\$11,150.00	

Note 1: No traffic control included in our bid.

Note 2: All federal, state, local, and environmental permits are to be obtained by the G.C

Note 3: Access to our work located within or near the river is to be provided by the General Contractor.

Thank you and please feel free to call with any questions or concerns.

Sincerely,  
 Thomas Industrial Coatings

Dane McGraw

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Singapore 608925  
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Fax: (65) 6566 7718  
Website: www.setsco.com  
Business Reg. No. 196900269D

Your Ref : -

Our Ref : CT-6675/SL/1  
**TEST REPORT**

Date : 09-Oct-07

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

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.)

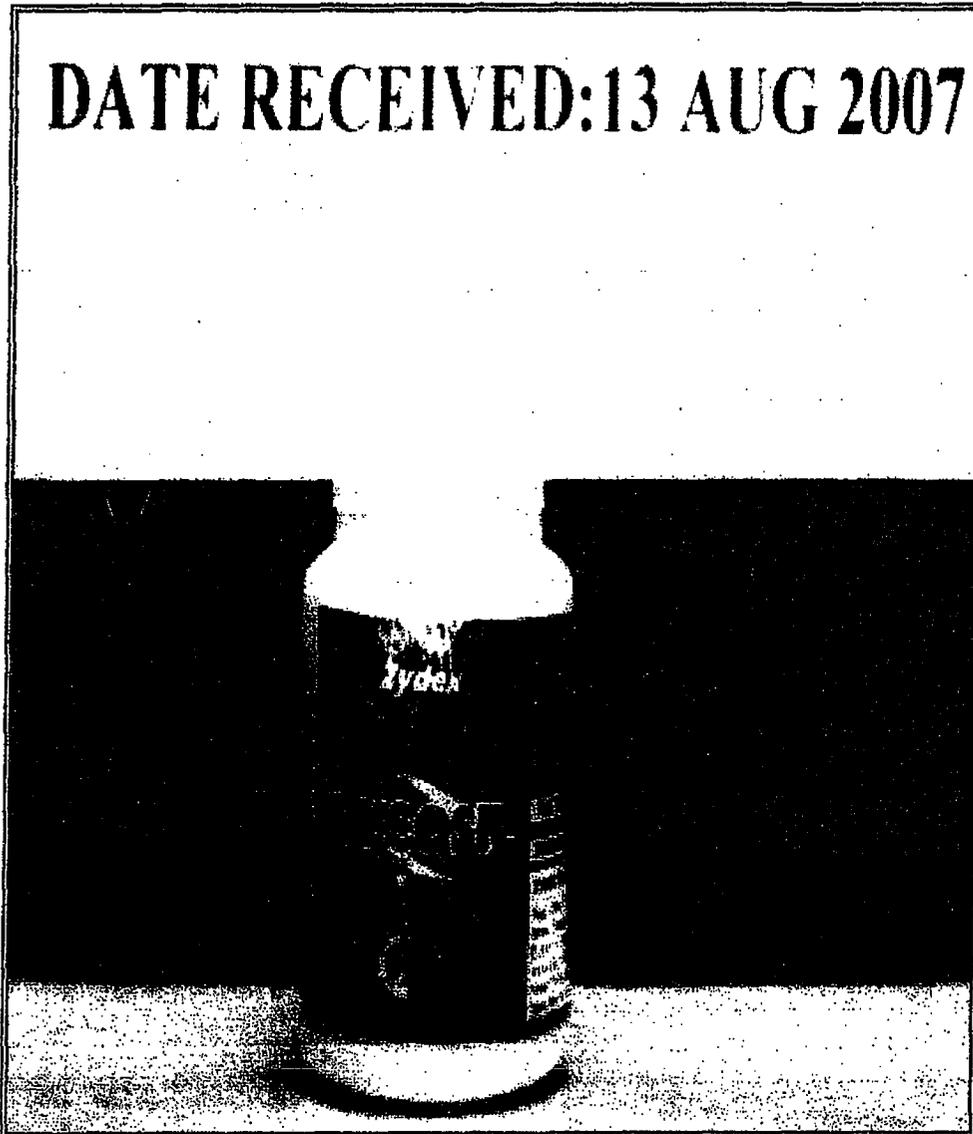
**Results :**

**Table 1: Abrasion Resistance**

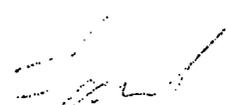
Sample Reference	ZYCOSIL		
	Untreated	S1	S2
Specimen Reference			
Type of Calibrase		CS - 17	
Number of Cycles		1000	
Date of Test		08-Oct-07	
Test Conditions		23°C; 50% R.H.	
Weight before Abrasion (mg)	77395.1	78037.4	85645.1
Weight after 1000 cycles of Abrasion (mg)	77160.4	77890.5	85517.4
Weight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

**Terms & conditions:**

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*Photograph 1 : One representative bottle of "Zycosil" as received.*



Hong Po Lo  
Testing Officer



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



SETSCO

18 Teban Gardens Crescent  
Singapore 608925  
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Business Reg. No. 196900269D

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

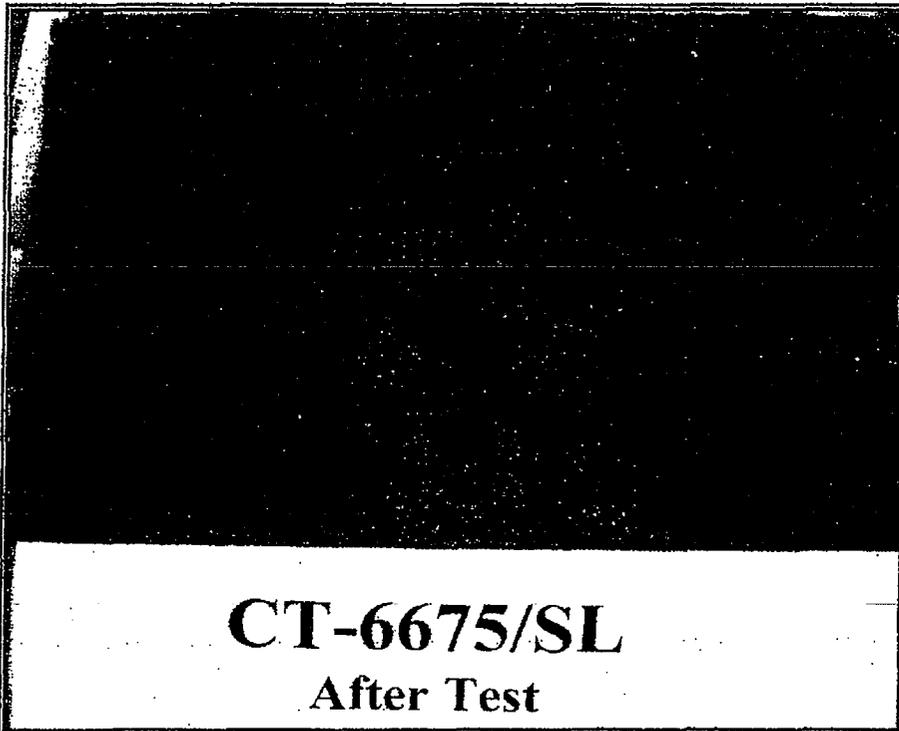
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**DATE RECEIVED: 13 AUG 2007**



*Photograph 1 : One representative bottle of "Zycosil" as received.*



**CT-6675/SL**  
**After Test**

*Photograph 2 : "Zycosil" applied concrete after Stain Resistance Test.*

*[Handwritten signatures]*



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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 <sup>2</sup> )	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-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 Sample(s)** : Six boxes of "Zycosil" were received on 13-Aug-07.  
(Refer to *Photograph 1* attached.)

**Table 1 : Water absorption of concrete treated with water repellent**

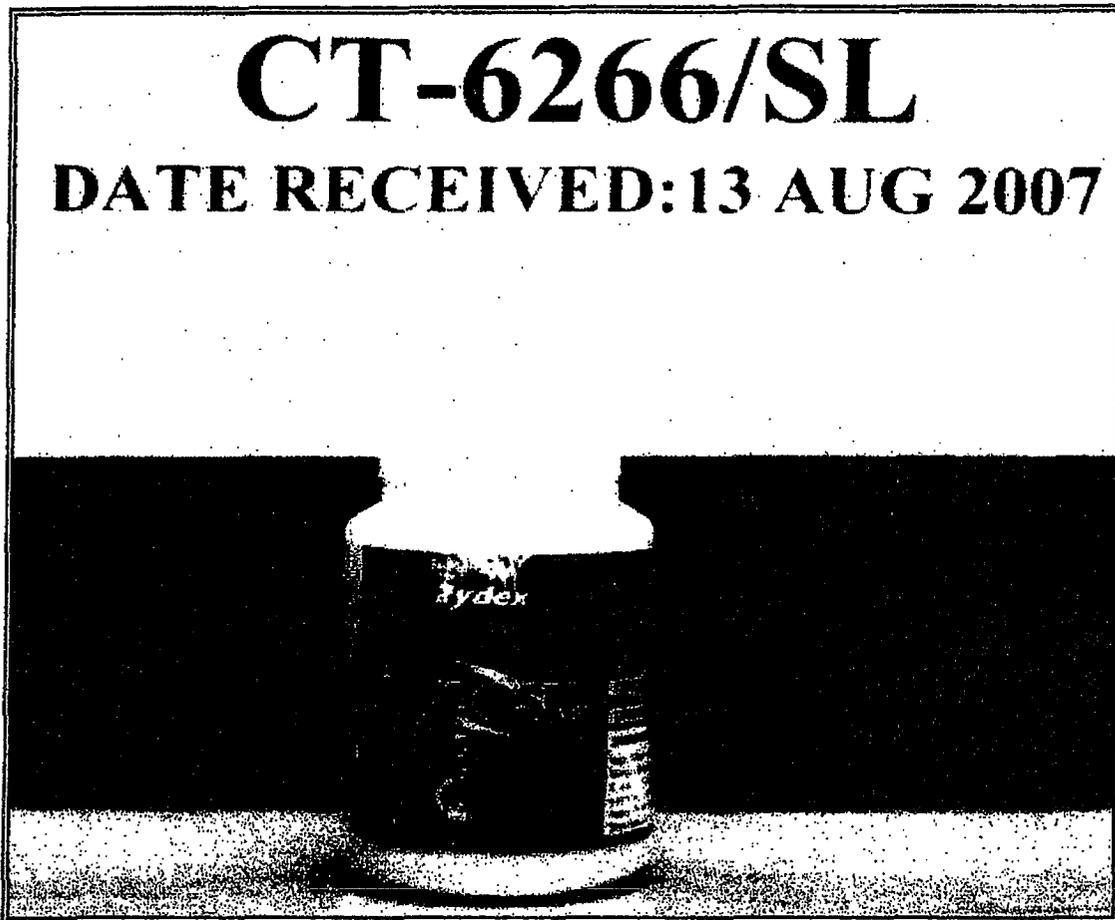
Sample Reference	Zycosil			
Specimen Reference	Control (Untreated)	S1	S2	S3
Type of concrete	Grade 40			
Size of concrete	75 mm in diameter and 75 mm in length			
Application procedure	One part of "Zycosil" diluted with 10 parts of water. Substrates were dipped in "Zycosil" for 2 - 3 minutes			
24 hours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

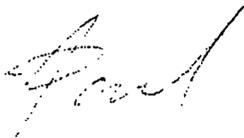
Shirley Lim Suidi  
Assistant Engineer  
Construction Material Testing Dept.  
Construction Technology Division

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*Photograph 1 : One representative box of "Zycosil" as received.*





**SETSCO SERVICES PTE LTD**

**SETSCO**

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Singapore 608925  
Tel : (65) 6566 7777  
Fax: (65) 6566 7718  
Website: www.setsco.com  
Business Reg. No. 196900269D

**Your Ref :**

**Our Ref : CT-6621/SL**

**Date : 01-Oct-07**

**TEST REPORT**

(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)

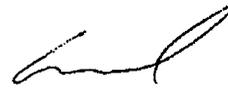
**Description of Samples :** Six boxes of "Zycosil" were received on 13-Aug-07.  
(Refer to *Photograph 1* attached.)

**Results :**

**Table 1: Non Volatile Content**

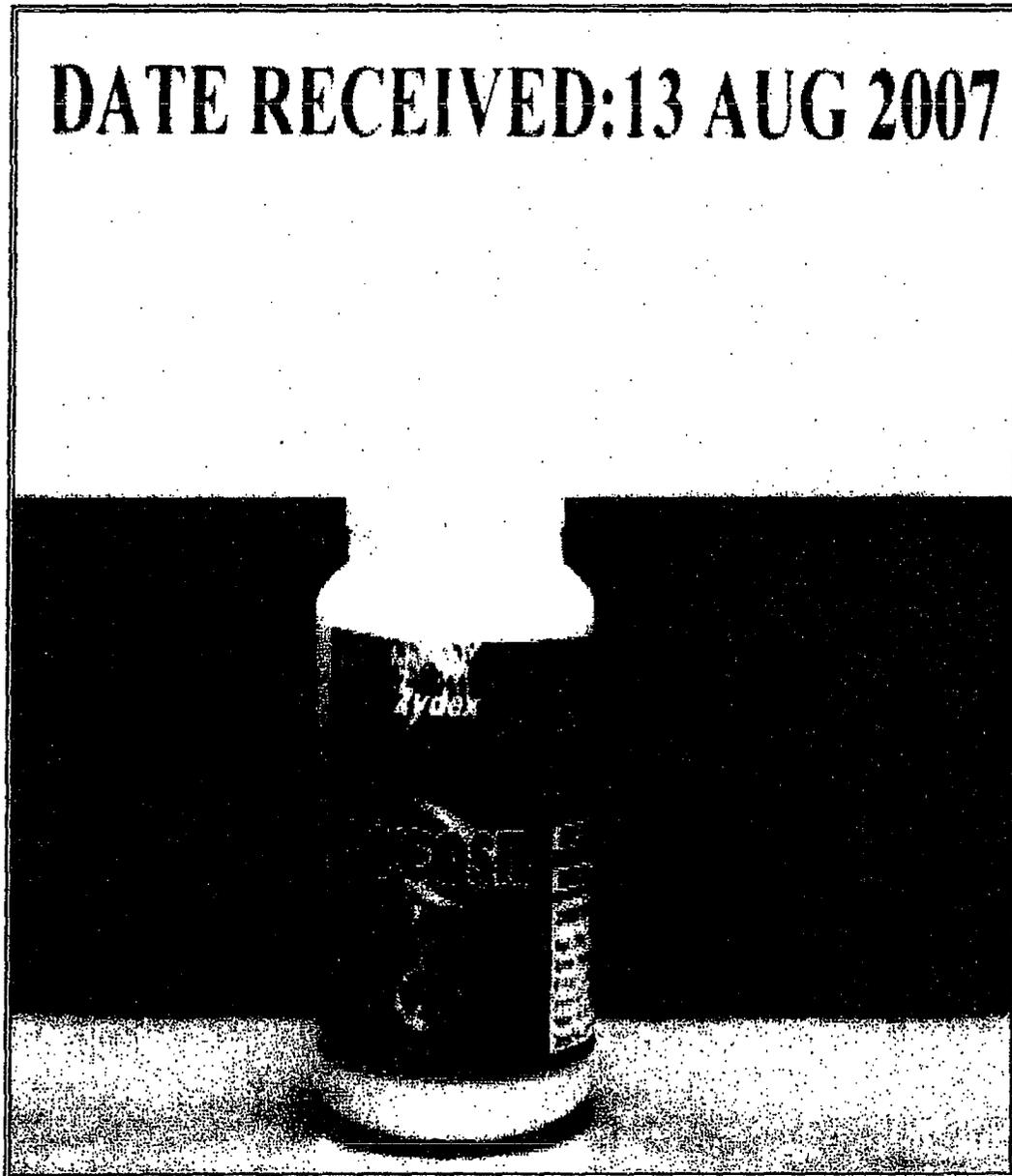
Sample Reference	Zycosil		
	S1	S2	S3
Specimen Reference			
Date of Test	14-Sep-2007		
Non Volatile Content, N <sub>s</sub> (%)	4.3	4.4	4.3
Average Non Volatile Content, N <sub>s</sub> (%)	4.3		
Non Volatile Content (round to whole number) (%)	4		

  
**Ramanathan Sathammai**  
Testing Officer

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

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*Photograph 1 : One representative bottle of "Zycosil" as received.*

*[Handwritten signature]*

*[Handwritten signature]*



**SETSCO SERVICES PTE LTD**

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Singapore 608925  
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Website: www.setsco.com  
Business Reg. No. 196900269D

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			
Specimen Reference	Control (Untreated)	S1	S2	S3
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**  
Testing Officer

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

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# VALUE ENGINEERING CHECK SHEET

## TYPE OF WORK

(Check one that applies)

- Bridge/Structure/Footings
- Drainage Structures (RCP, RCB, CMP's, ect.)
- TCP/MOT
- Paving (PCCP, ect.)
- Grading/MSE Walls
- Signal/Lighting/ITS
- Misc. \_\_\_\_\_

## SUMMARY OF PROPOSAL

(If needed, condense summary to a couple of lines)

CHANGE STRUCTURAL COATING ON MIAMI BRIDGE OVER  
MISSOURI RIVER FROM URETHANE-BASED TO ZYCOFIL  
FOR STAINING AND CHLORIDE INFILTRATION PROTECTION.

## SCANNING OF DOCUMENT

If the proposal is large, please mark or make note, which pages need to be scanned into the database. If there are special instructions, make note of them here.