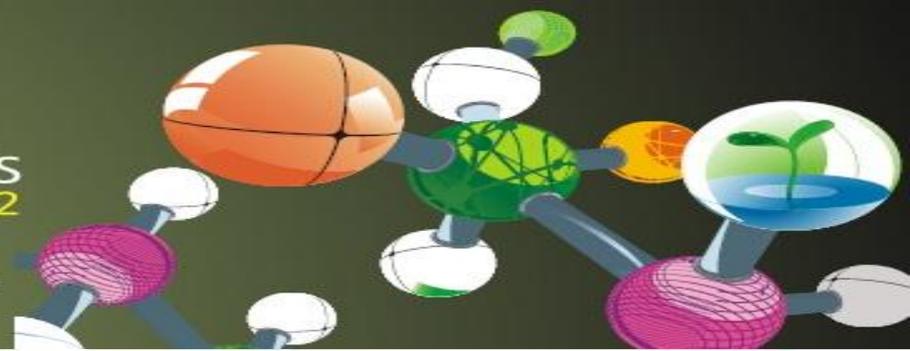


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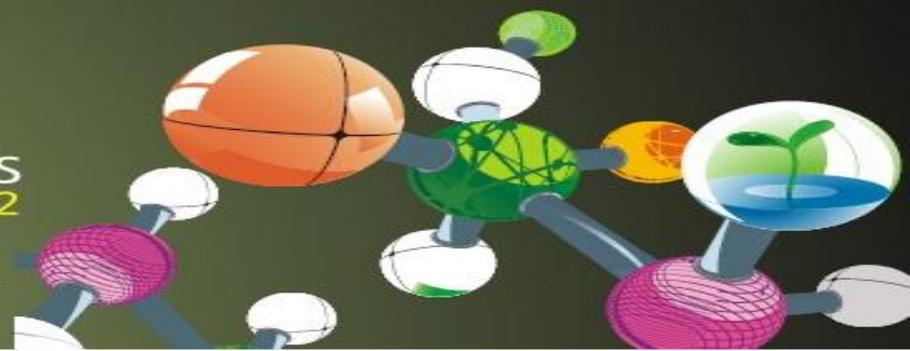
# PROTECTION OF CONCRETE STRUCTURES WITH ANTICARBONATION COATING



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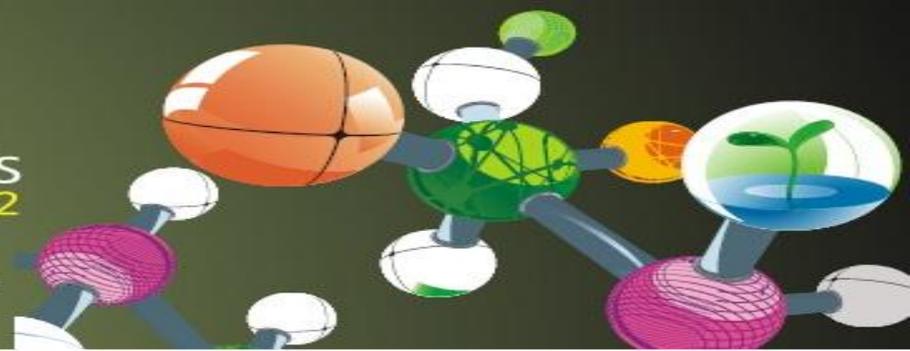


# PROPERTIES OF ANTICARBONATION COATING

## PROVIDES RESISTANCE TO WEATHERING

The coating has excellent adhesion to the substrate and cures to form a flexible film that allows the surface to breathe and acts as carbon dioxide barrier thus protecting the concrete in aggressive weather conditions.





# PROPERTIES OF ANTICARBONATION COATING



## EXCELLENT CARBONATION BARRIER

The micro-porous structure of the coating acts as a barrier to the entrance of Chlorides and Carbon Dioxide and other acid gases, at the same time allowing the passage of water-vapour from the substrate thus allowing the substrate to breathe.



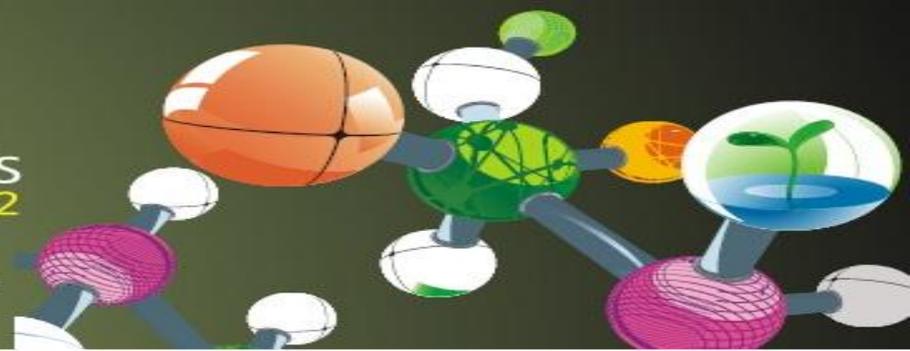


# PROPERTIES OF ANTICARBONATION COATING

## WATERPROOFING PROPERTIES

Allows the walls to breathe still remaining waterproof. This coating allows water and vapor to transfer from inside the concrete to outside the concrete without any crack or failure in the coating. At the same time it does not allow water or vapor to penetrate the concrete structure.





## PROPERTIES OF ANTICARBONATION COATING



### DYNAMIC CRACK-BRIDGING PROPERTIES.

The elastomeric nature of this coating ensures good crack bridging properties, in case of structural movement.



## PROPERTIES OF ANTICARBONATION COATING



Excellent bonding and long lasting

Excellent bonding of this coating to the surface ensures long lasting adhesion. A bright, clean, transformed exterior always adds value and durability to the structure





# PROPERTIES OF ANTICARBONATION COATING

## FLEXIBLE & DURABLE

Unlike paint this type of coating is flexible so there is no cracking, flaking or peeling. Due to its excellent flexibility it gives high durability.



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AVAILABLE IN VARIOUS UV STABLE COLOURS



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# TYPES OF ANTICARBONATION COATINGS

- **WATER BASED ANTICARBONATION COATING**
- **SOLVENT BASED ANTICARBONATION COATING**
- **CLEAR ANTICARBONATION COATING**



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# WATERBASED ANTICARBONATION COATING



SMOOTH FINISH  
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# WATERBASED ANTICARBONATION COATING



TEXTURED FINISH  
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# SOLVENT BASED ANTICARBONATION COATING



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# SOLVENT BASED ANTICARBONATION COATING

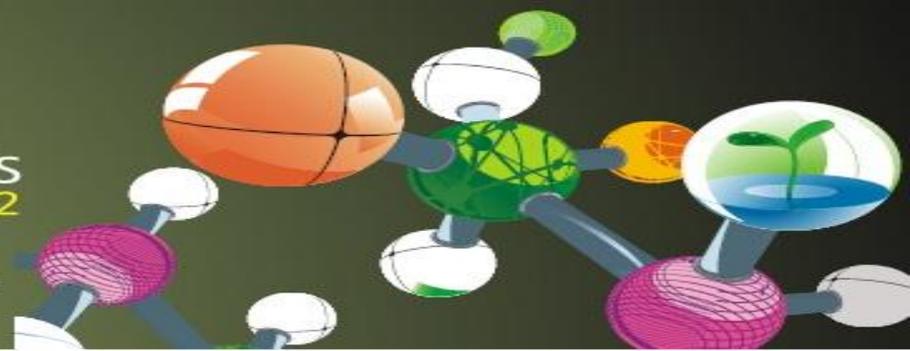


**TEXTURED FINISH  
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# CLEAR ANTICARBONATION COATING

It is designed to penetrate deeply into high quality reinforced concrete so as to afford optimum protection against absorption of water and pollutants as well as freeze / thaw cycles.





## WHERE ANTICARBONATION COATING CAN BE USED

- Where new and existing concrete and masonry structures require protection from Water, Carbon Dioxide, Sulphur Dioxide, Oxides of Nitrogen, Chlorides, Sulphates and UV radiation.
- Flyovers, Elevated Expressways, Railway Bridges, Metro Rails, Commercial and Industrial buildings, Bridges, Subways, parking , High rise flats, etc.



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# Eco-friendly Anti-carbonation coating

FAIRCOAT INSULTECH



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# Eco-friendly Anti-carbonation coating



Provides Protective Thermal barrier that can enhance building climatic conditions and reduce utility costs.

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Temperature  
reduction from  
8% to over 20%  
alongwith  
Protection  
against wind  
and rain.



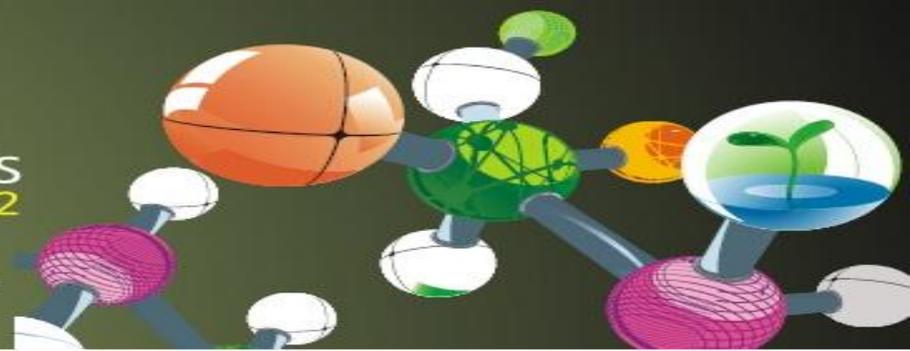
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Tested and  
approved by  
various  
laboratories  
across the world



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## Technology Center, UK

**Certificate of Test** Page 1 of 3

**Title:** Determination of Carbon Dioxide Diffusion Coefficient of Faircoat Anticarbonation Coating

**Certificate of Test Number:** 14621

**Client's Name & Address:**  
Synthomer Ltd  
Central Road  
Ternhillfields  
Harlow  
Essex  
CM20 2BH

**Our Ref:** NS007MV056  
**TC Job No:** 3PK7 - 1.376.05  
**Your Ref:** PD 450020403  
**Date:** 20 September 2011  
**Date sample(s) received:** 03 June 2011  
**Sample(s) received from:** Synthomer Ltd  
**Sample No:** 146204

**Tested by:** B. Morgan  
B. Morgan (position: Technologist)

**Authorized by:** S.R. Mason  
S.R. Mason (position: Manager)

**Technology Centre**  
Sheepcot Farm, Leighton Buzzard, Bedfordshire, LU7 4QJ  
**Tel No:** 01525 859000 **Fax No:** 01525 859001  
Prepared Office: Internal **Prepared No:** 010008 (issue)



TECHNOLOGY CENTRE  
Certificate of Test No. 14621 Page 2 of 3

**1. INTRODUCTION**  
This certificate of test describes the carbon dioxide diffusion testing carried out at the request of Synthomer Ltd on 23 September 2011 at Technology Centre (TC), Leighton Buzzard.

The test was carried out in accordance with In-House Test Procedure TP90005/13059 Issue 1, which is in general accordance with EN 1062-6:2002.

**2. SAMPLE DESCRIPTION**  
Technology Centre received one tin of Faircoat Anticarbonation Coating (TC Ref 146204). The coating was given a unique TC sample number for reference purposes only.

**3. TEST PROCEDURE**

**3.1 Coating Application**  
The coating system was brush applied to four unglazed ceramic tiles approximately 100x70mm using a weighing procedure to achieve the coverage rate required. Two coats of Faircoat Anticarbonation Coating was applied at a rate of 11 g/m<sup>2</sup> and allowed to air dry for 4 hours between coats. After discussion with the client, a third coat of Faircoat Anticarbonation Coating was applied at 130g/m<sup>2</sup> and allowed to dry. After further discussion, a fourth coat of Faircoat Anticarbonation Coating was applied at 180 g/m<sup>2</sup> to achieve the DFT of 200µm required. Each coat was applied at 90° to the previous.

The coated sample was allowed to cure for 2-3 days in the laboratory and then conditioned at 23±2°C and 50±5% relative humidity for a minimum period of four weeks prior to testing.

**3.2 Determination of Carbon Dioxide Diffusion Resistance**  
One coated tile (TC Ref 146204 D) was sealed in a circular steel rig such that the coated and uncoated faces were exposed. Carbon dioxide (15% in nitrogen) at a known pressure and flow rate was passed over the coated face of the plate and helium gas was passed over the opposite face at the same pressure and flow rate. The helium gas stream was continuously monitored by gas chromatography to analyse for carbon dioxide. Equilibrium conditions were achieved after approximately 24 hours and the steady state flux of carbon dioxide was then calculated from the percentage of carbon dioxide in the helium stream and the flow rate of this gas.

The diffusion coefficient for carbon dioxide (Dco<sub>2</sub>) is calculated using Fick's Law of Diffusion and Crank's equation.

TECHNOLOGY CENTRE  
Certificate of Test No. 14621 Page 3 of 3

**4. TEST RESULTS**

**CARBON DIOXIDE DIFFUSION RESISTANCE**

Coating Name	Synthomer Ltd Faircoat Anticarbonation Coating
TC Specimen No.	146204 D
Dco <sub>2</sub> (cm/s)	1.05 x10 <sup>-17</sup>
γ-value	1.42 x10 <sup>7</sup>
R (m)	285
Solers	71
Mean DFT (µm)	200
Date of Test	23-Sep-11

**Notes:**

- So value, R (equivalent air layer thickness), and S<sub>c</sub> (equivalent thickness of concrete), are dependent on the film thickness and are calculated here for the dry film thickness (DFT) present on the test specimen.
- Dco<sub>2</sub> and the diffusion resistance coefficient (γ-value) are calculated using the mean DFT measured on a spare unused specimen.
- Dco<sub>2</sub> for an uncoated plate is 1.0 x 10<sup>-17</sup> cm<sup>2</sup>/s.
- So is calculated assuming an average grade concrete where the γ-value has been estimated as 600.
- The Klopfer criterion for effective anti-carbonation coating is R and should be greater than 50 metres.
- EN 1092-6 Classification C, for Carbon Dioxide Permeability requires the So value (R) to be greater than 50 metres.

END OF CERTIFICATE



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## Indian Institute of Technology, Mumbai

**IIT Bombay**  
Prof. A. S. Khanna  
(Fellow IASCE, Fellow ASM, Fellow AAI)

Tel: (+91-22) 25767881 (O)  
Fax: (+91-22) 25723480, 25728975  
E-mail: khanna@iitb.ac.in  
Chairman: ISPC India  
President: Humboldt Academy of Bombay

To, M/s FAIR MATE  
111, Orbit Industries Estate,  
1<sup>st</sup> floor, Opp. Tangent Furniture Mall,  
Chincholi Bunder, Off Link Road Malad (W)  
Mumbai-400064.

22 November 2010

Ref.: Your letter dated Sep. 24, 2010

Our Job No.: IN/ASK-36/10-11

Dear Sir,  
Subject: Testing of Anti Carbonation Paint of Fairmate Chemical Pvt. Ltd.

Find hereby the results of the FAIRCOAT paint sample submitted to us.

S.No.	Test	Standard Used	Result
1.	Specific Gravity	IS: 345	1.39
2.	Solid Contents	IS: 345	72.60%
3.	UV Resistance 300hrs	ASTM G 53	No colour change was observed
4.	IR Spectrum	FT-IR	Acrylic Polymer
5.	Adhesion with concrete	ASTM D 4541	1.6 N/mm <sup>2</sup>
6.	Dry Film Thickness	Elcometer	230 µm
7.	Coverage	-	456g/m <sup>2</sup>
8.	Physical Properties Diffusion resistance against Carbon dioxide	DIN 53122 Part 1	155m
9.	Water Vapor Permeability	ASTM D 1653	165.3g/m <sup>2</sup> /days
10.	Water Proofing Characteristics	Gravimetric	52.55%
11.	Re-Covability	-	6h

\* We don't have testing facility of diffusion resistance against water vapour as per DIN 52615.

Test results pertain to sample submitted to us.

*A.S.Khanna*  
A.S.Khanna  
Corrosion Science & Engineering  
111, Orbit Industries Estate,  
Powai, Mumbai - 400 076.

Corrosion Science & Engineering  
Dept. of Mat. Engrg. & Materials Science, Indian Institute of Technology Bombay Powai, Mumbai - 400076, India

**IIT Bombay**  
Prof. A. S. Khanna  
(Fellow IASCE, Fellow ASM, Fellow AAI)

Tel: (+91-22) 25767881 (O)  
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E-mail: khanna@iitb.ac.in  
Chairman: ISPC India  
President: Humboldt Academy of Bombay

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Corrosion Science & Engineering  
Dept. of Mat. Engrg. & Materials Science, Indian Institute of Technology Bombay Powai, Mumbai - 400076, India



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## Indian Institute of Chemical Technology, Hyderabad

FROM : DECON FAX CENTRE      FAX NO. : 0091 40 27847149      Oct. 15 2010 11:06AM P1

**INDIAN INSTITUTE OF CHEMICAL TECHNOLOGY**  
 (COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH)  
 UPPAL ROAD, TARNAKA, HYDERABAD - 500 007  
 TELEPHONE NO. +91 40 2719 3452  
 FAX NOS. +91 40 2719 3156, 2716 0367  
 e-mail : [iaicet@iict.res.in](mailto:iaicet@iict.res.in)

**Dr. M. Unnikrishnan**  
 Scientist "O" & Head  
 Analytical Chemistry Division

Date : October 13, 2010  
 Ref : ACD/N-ISO/FAIRMATE/01

Mr. Mukund Kadu  
 Manager - Projects  
 M/s. Fairmate Chemicals Pvt. Ltd.,  
 8/1, "Sai Sudha" Arunoday Society  
 Alkapuri  
**VAIDODARA - 390 007.**  
 Fax No. +91 0 265 233 8733

Sub : Testing of Anticarbonation Protective Coating - Results

**REPORT**

SAMPLE DETAILS - BATCH NO. 10850933 - Colour : Light Grey

Sl. No.	Characteristic	Result
1	Specific Gravity	1.40
2	Solids Content (% /Mass)	70.9
3	Dry Film Thickness (after 2 coats) (in Microns)	220
4	Coverage (after 2 coats) (in gm / m <sup>2</sup> )	424
5	Re-coatability (in hrs)	07

Analysis has been carried out as per IRC : SP : 80 - 2008 Table 6.0

Analysed by: *[Signature]*  
 Scientist-in-Charge

*[Signature]*  
 DIRECTOR

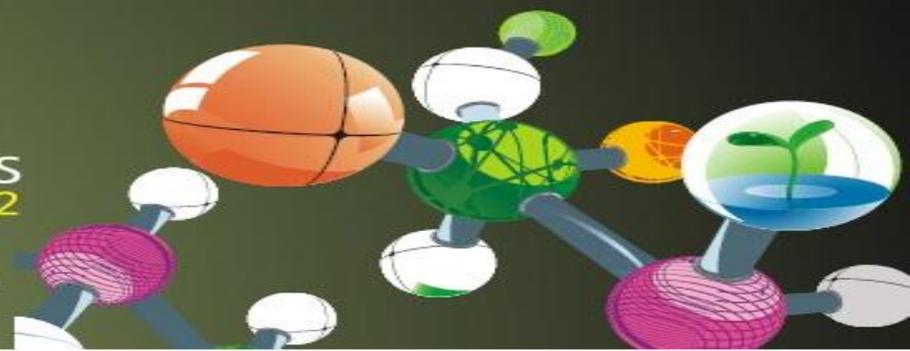
1. This Certificate refers to the sample(s) examined only.  
 2. These Results should not be used for commercial purposes (advertisement)



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## Test Report from Germany

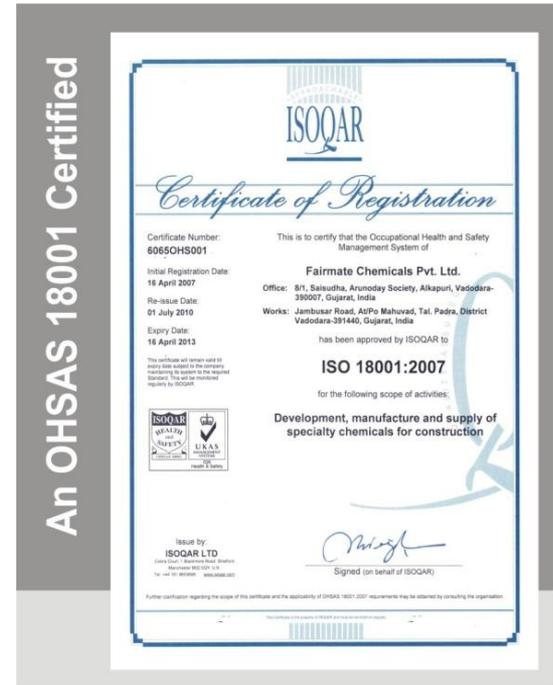
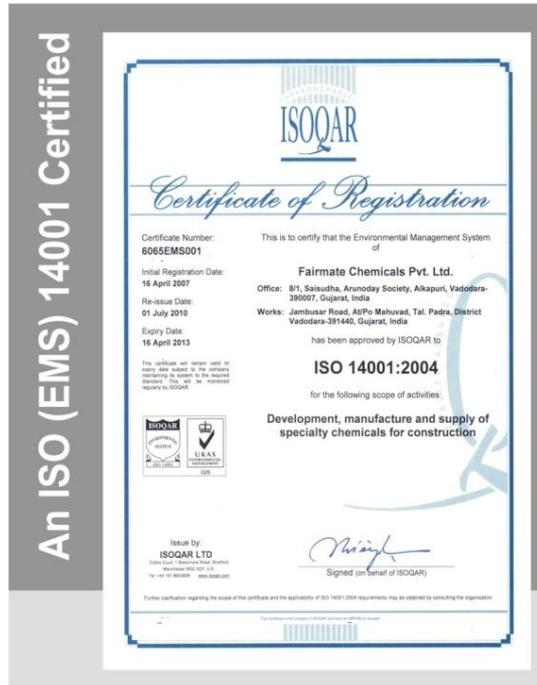
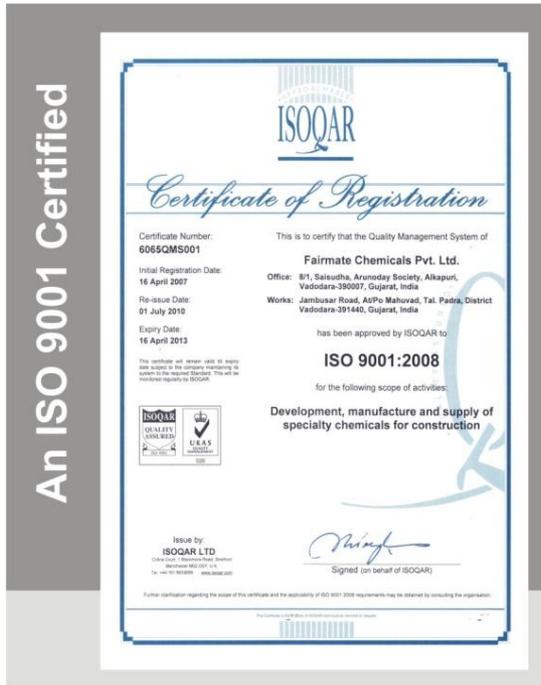
Dist.-Ing. Stefan Pätz Dipl.-Phys. Annette Bockler Fachlaboratorium für Permeationsprüfung Zimm. 10, 63225, H. Wehrhahn, Germany Tel: +49(0)170(2)16 Fax: +49(0)170(2)13				order number: PL020005 page 1 of 1	
<b>Determination of the carbon dioxide transmission rate</b>					
Customer:		Fairmate Chemicals Pvt. Ltd. Ground B-1 'Sai Sadha' Aranyashy Society Alkapuri Vadodara - 390 007 Gujarat India			
Order date:		11.5.2009 by Mr. Gerhard Niggemann			
Test temperature:		23.0 °C			
rel. humidity:		0 % r.h.			
Concentration of the test gas:		10.0 Vol %			
Test method:		EN 1062-6, method B (carrier gas method)			
Sample preparation:		Cantilever film			
Product tested	thickness	Carbon dioxide transmission rate	Carbon dioxide diffusion resistance factor $\mu$	Diffusion equivalent air layer thickness $s_{e,CO_2}$	
	$\mu m$	$g/(m^2 \cdot d)$	-	m	
Faircoat	281	0.143	6192000	1740	
	252	0.156	6320000	1590	
Date: 25 June 2009		Tested by:			







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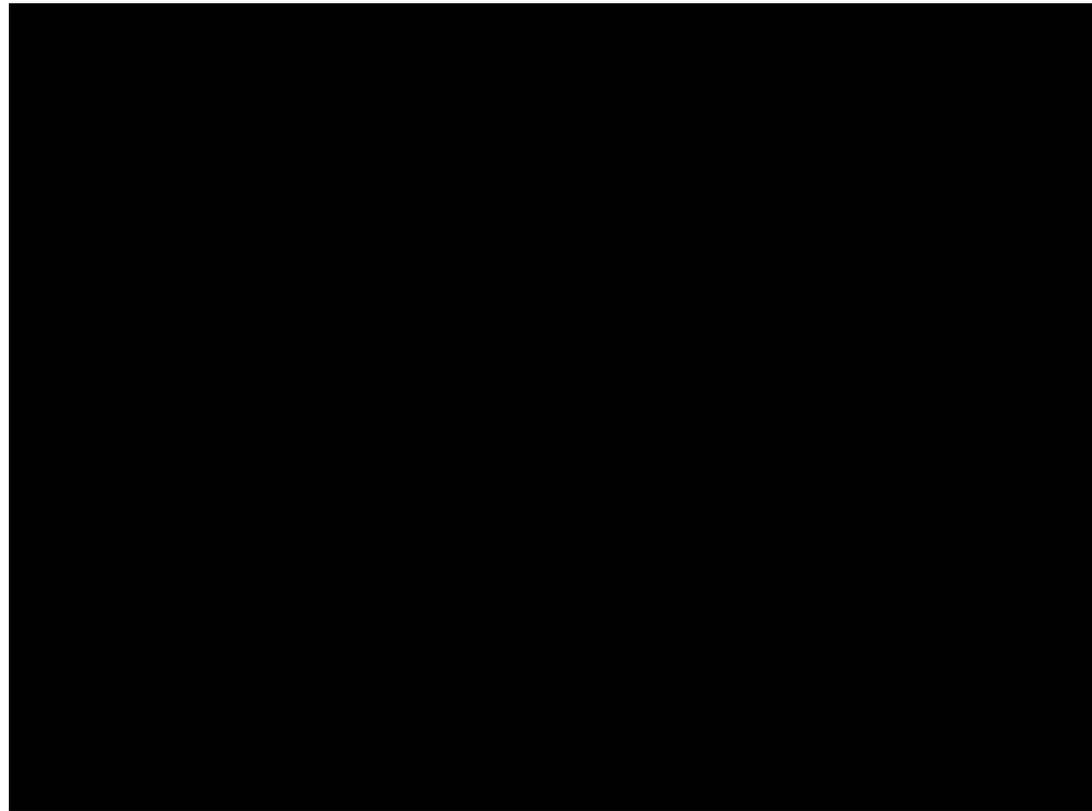
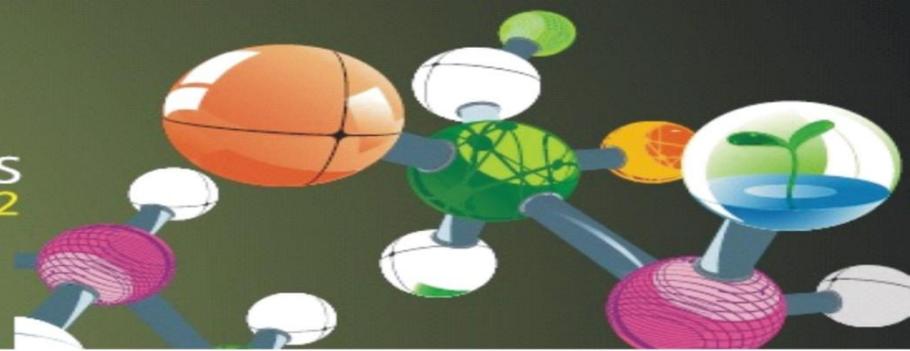


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