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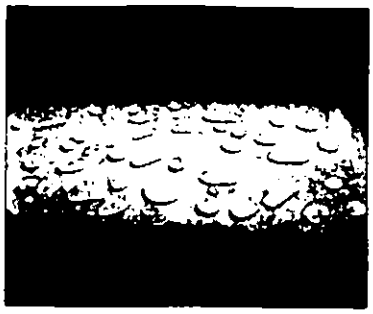
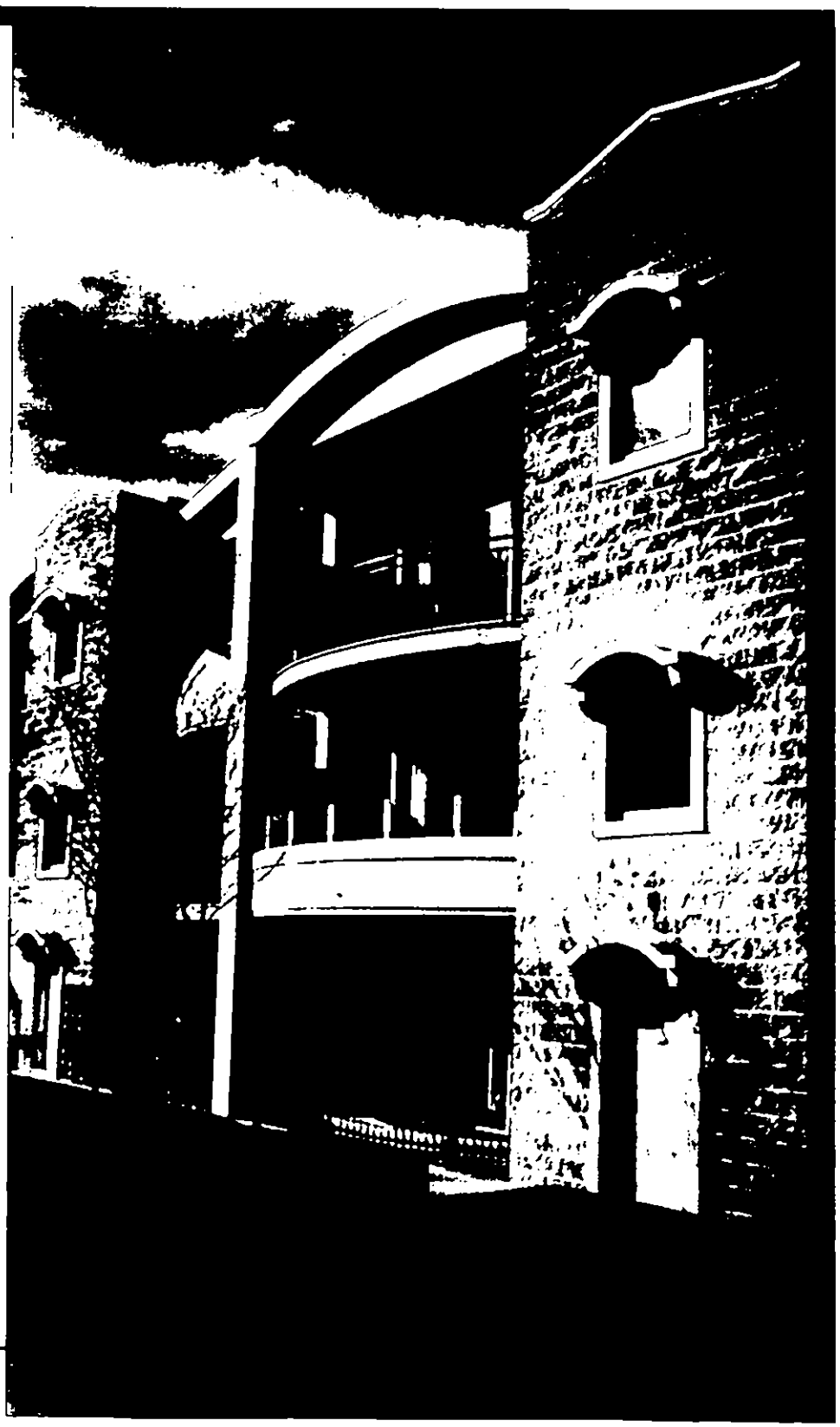


Tech-Dry® Masonry

...choose durable concrete masonry with natural stone appearance created using pre-sealing technology.



Tech-Dry®

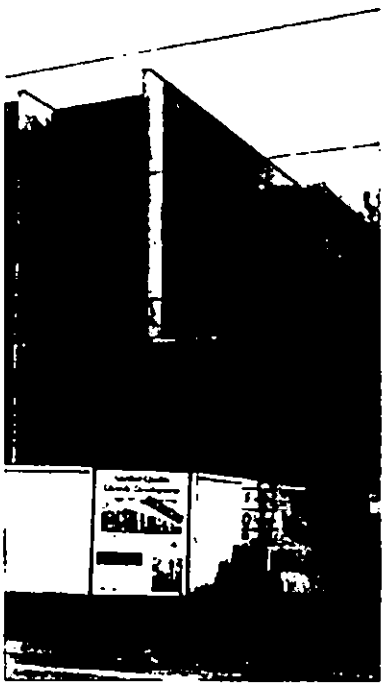
62

PRE-SEALING TECHNOLOGY

Concrete masonry with pre-sealing technology is manufactured with Tech-Dry innovative silicone water repellent admixtures. These admixtures significantly reduce water absorption, and hence reduce the possibility of efflorescence, mould or mildew staining. The scientific breakthrough of pre-sealing technology means that the silicone water repellent admixture incorporated during manufacture of the concrete product stays as an integral part of the concrete for its entire life.

△ Concrete blocks & bricks

Tech-Dry® Masonry



▲ Retaining walls & paving
▶ Precast concrete panels
◀ Rammed earth buildings

APPLICATIONS

Pre-sealing technology is suitable for most concrete masonry including concrete blocks/bricks, pavers and pre-cast concrete products, which are widely used in architectural structures, family homes, retaining walls, paving and commercial buildings.

Pre-sealing technology is also suitable for stabilised earth or rammed earth building materials containing cement. This technology adds significant value to environmentally-friendly earth buildings.

PRODUCTS

BLOCK EMULSION - silicone admixture for dry-pressed concrete masonry including blocks, bricks, pavers.

TECH-DRYAD SUPER - silicone admixture for wet-cast concrete including pre-cast concrete, fibre cement board and dry-pressed concrete masonry.

PLASTICURE - silicone admixture for stabilised earth or rammed earth building materials containing cement.

MORTAR ADDITIVE - water repellent admixture for mortar for laying concrete masonry made with Tech-Dry pre-sealing technology or as a general water resistant admixture for mortars or renders.

For further details call:

(61) (3) 9699 8202

Tech-Dry©

BUILDING PROTECTION SYSTEMS PTY. LTD.
177-179 Coventry St, South Melbourne, Victoria, 3025, AUSTRALIA Tel: 61-3-9699 8202 Fax: 61-3-9696 3362
Email: info@techdry.com.au Web: www.techdry.com.au

Tech-Dry®

TECH-DRY BUILDING PROTECTION SYSTEMS PTY. LTD.
ABN 62 922 836 289
177-179 Coventry Street,
South Melbourne, Victoria, 3205, Australia
Telephone: 61 3 9699 8202 (all hours)
Facsimile: 61 3 9696 3362
Website: www.techdry.com.au
E-mail: info@techdry.com.au

PRODUCT INFORMATION

BLOCK EMULSION (CONCENTRATE)

Manufacturer's code: RPBEC **Updated:** 01/01/2009

Product Name: BLOCK EMULSION (CONCENTRATE)

Description: BLOCK EMULSION (CONCENTRATE) is an innovative admixture for pressed concrete. When BLOCK EMULSION (CONCENTRATE) is incorporated into pressed concrete products, the permeability to water and the occurrence of unsightly efflorescence is virtually eliminated. The use of BLOCK EMULSION (CONCENTRATE) enhances the intrinsic quality of pressed concrete products by reducing the damage caused by weathering-related water uptake and efflorescence.

Recommended Uses: BLOCK EMULSION (CONCENTRATE) is designed to be a water-repellent admixture during the manufacture of pressed concrete products including load-bearing blocks, decorative blocks, coloured blocks and blocks for retaining walls and basements. It may also be added into concrete pavers or other pressed concrete masonry or similar procedures. However, it is not recommended to be used in aerated concrete masonry or wet-mix concrete product. Some of the features of BLOCK EMULSION (CONCENTRATE) pressed concrete include:

- Reduces water absorption and efflorescence by over 80%.
- Product remains permanently bonded to the substrate and cannot be washed out.
- Does not leave an oily residue on the masonry substrate.
- Easy to use in any existing processes.
- The degree of water resistance can be varied by changing the rate of addition.
- Water-based technology with no hazardous material emitted during use.

As masonry materials vary, it is always recommended that a test must be carried out prior to application to find out the suitability of this product for the purpose.

Use Instructions:

1. Dosage

The rate of addition depends on the specific mix design and the level of water repellency required. The usual dosage rate is about 0.5 litre of BLOCK EMULSION (CONCENTRATE) per tonne (1000kg) of dry mix ingredients.

2. Addition

BLOCK EMULSION (CONCENTRATE) is designed to be added as part of the gauging water during the mixing process.

If a typical mix has 1000kg of dry ingredients, the procedure to incorporate 0.5 litre of BLOCK EMULSION (CONCENTRATE) into this 1000kg of dry mix would be as follows:

1) Thoroughly mix all the concrete dry ingredients (1000kg) in a batch mixer.
2) Stir or mix BLOCK EMULSION (CONCENTRATE) before use.
3) Measure out 0.5 litre of BLOCK EMULSION (CONCENTRATE) and dilute it with 5 litres of clean water.
4) Spray this diluted emulsion into the dry mix while blending.
5) Blend the mix thoroughly while adding clean water to attain the desired consistency. The mix can now be processed as usual.

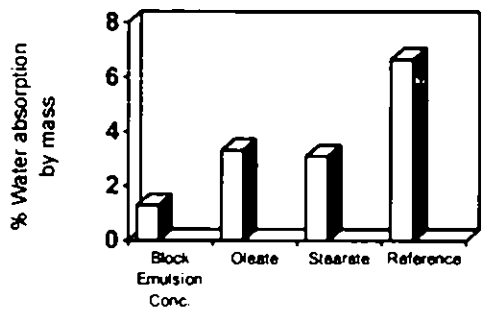
If your process is substantially different to that described above, please do not hesitate to contact the manufacturer for assistance.

Performance tests

1. Reduction in Water Absorption

The pressed concrete substrate used for testing contains 18% cement and 82% graded sand and aggregates with BLOCK EMULSION (CONCENTRATE) at a dosage rate of 0.5 lt/tonne. Commercial oleat and stearate water repellent admixtures were used as comparisons. The test substrates were initially covered with plastic for 24 hours in ambient conditions for obtaining initial strength followed by 28 days curing at ambient conditions before testing. Sponge capillary water absorption was conducted. The test results are shown in Figure 1. The performance of BLOCK EMULSION (CONCENTRATE) is far superior to that of the reference and is much better than those of the substrates with oleate and stearate.

Figure 1. Reduction in Water Absorption



2. Controlling Efflorescence

The efflorescence test is conducted by laying the above test substrates on a wet sponge placed in a solution containing 10% sodium sulfate. The top surface of the substrate was visually monitored for occurrence of efflorescence for 7 days. Table 1 indicates that efflorescence of the substrate treated with BLOCK EMULSION was found to be virtually eliminated during the test period.

Table 1. Efflorescence Occurrence

Substrates	After 1 day	After 3 days	After 7 days
BLOCK EMULSION CONC.	No efflorescence	No efflorescence	Very limited efflorescence
Reference	100% saturated with the salt solution	-	-

Typical Data:

Appearance:	milky white liquid with mild alcoholic odour
pH value:	7-8
Boiling point:	close to water
Freezing point:	0 °C
Solubility in water:	miscible
Specific Gravity:	ca 0.95 gm/ml
Flash point:	>61 °C
Active content:	50% by weight
Evaporation rate:	slower than butyl acetate
VOC content:	(less than water and exempt solvents) <350g/l

Important Note: As conditions vary, it is recommended that a pilot trial should be carried out prior to using BLOCK EMULSION (CONCENTRATE) to determine the suitability of this product for the purpose.

Handling & Storage: BLOCK EMULSION (CONCENTRATE) is a non-hazardous material. However, good industrial hygiene procedures should be followed when handling it. The product should be stored in closed containers in a cool dry place away from any fire sources. The product has a shelf life of 12 months in a sealed container stored at a temperature below 25°C.

Packaging: BLOCK EMULSION (CONCENTRATE) is available in 200 litre plastic drums or 1,000 litre plastic bulky bins. Other size containers may be available on request.

Disclaimer:

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ECH- RY

BLOCK

ISLAND BLOCK & PAVING

VICTORIA UNIVERSITY

PUBLIC FILE 59

A breakthrough in masonry construction

WORLD LEADER

The TECH-DRY block is ideal for single leaf, parapet, retainer, basement walls and anywhere a water tight wall is required.

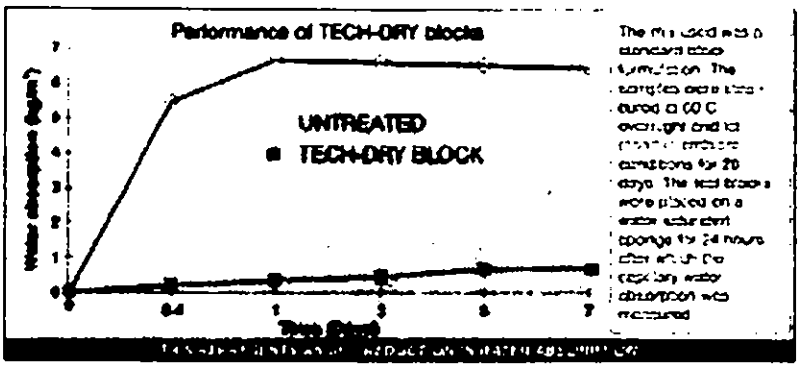
A breakthrough in manufacturing technology means that the water repellency is an integral part of the entire TECH-DRY block and not just a surface effect as with surface sealers. The active waterproofing material is blended throughout the entire block and will not break down or wash out over time

A mortar additive is supplied to create water repellent mortar joints to establish a totally water repellent wall.

The TECH-DRY blocks may be painted over and rendered finishes may be applied.

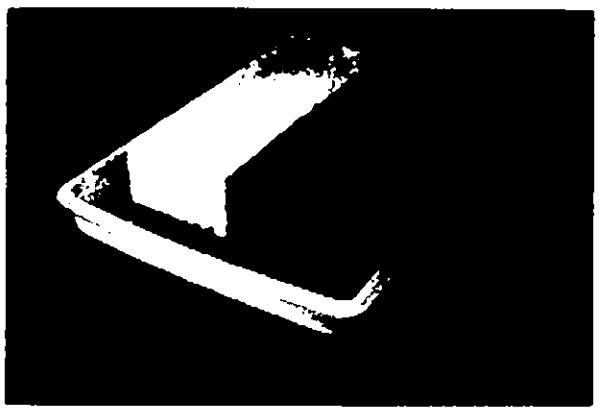
The advantages of the TECH-DRY block can be summarised as:

1. No water permeation through the block.
2. Dramatic reduction in efflorescence.
3. Resistance to biological growth as the block remains dry (mould and moss etc.).
4. Higher 28 day compression strength.
5. Higher 28 day flexural strength.
6. Colour retention.
7. Properties close to natural stone can be produced.
8. The TECH-DRY block exhibits high resistance to salts as water containing salt cannot enter.
9. Half the cost of liquid sealers.
10. Eliminates rising damp, therefore eliminating problems with applied finishes delaminating at lower ground level.
11. easier to wash down as dirt and grime does not penetrate into the block.



TECH-DRY pavers are also available and provide the same advantages as summarised above.

These blocks were placed in water for 24 hours, removed and broken in half.



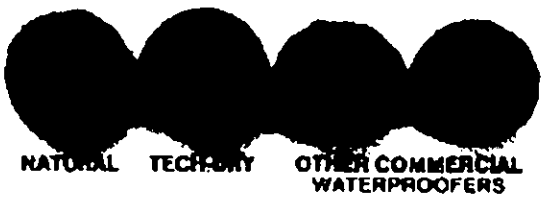
YOU CAN SEE THE DIFFERENCE

SOME OF THE EFFECTS OF RISING DAMP

SALT CRYSTALLISATION TEST

BEFORE

AFTER



Test blocks were submerged in solution for 4 hours then removed and put into an oven at 70 C, taken out the following day, cooled down then re-submerged. This process was repeated 30 times. The photos above show end results

TECH-DRY Blocks meet the requirements of the Building Code of Australia and A-S 3700 Masonry Code

CSIRO

Improving the Built Environment

APPROVED

Report on Tech-Dry Waterproof Block Wall System to ASTM E514-90 'Standard Test Method for Water Penetration and Leakage Through Masonry'

September 1997 by B.L. Schafer and B. Budgen

AUSTRALIAN BUILDING SYSTEMS APPRAISAL COUNCIL LTD

Conclusion

Walls built with this system could be considered as waterproof against wind driven rain if they are free of cracking. It would be considered prudent to include weep holes to drain any water which may drain down the hollow cores of the block walls.

Barry L Schafer Project Leader Appriasals

B Budgen

TESTIMONIALS

ROGER HARDIE

"I'm very impressed with Tech Dry Blocks. You wouldn't find a more cost effective way of building than this.

Builders have been waiting for a product like this for years. No more water logged walls or expensive sealers."

k. moore and associates

Tech-Dry Block.

Benefits from an Engineers Viewpoint.

Single Leaf Construction:- Previously needed painting or coating with waterproofing material, all susceptible to breakdown and requiring re-application within 5 - 10 years on average

Retaining Walls:- Traditionally required coating with bituminous paint plus protection of the coating.

Basement Walls:- Often difficult to waterproof, especially where excavations are adjacent to existing footings

Blocks which is inherently waterproof in its own right will obviate traditional means of waterproofing, reduce the number of trades involved, generally simplify construction and reduce the worry of ensuring watertightness in the longer term.

K.R. MOORE
M. Eng.Sc., B.E., MIE Aust., C.P. Eng.

MORTAR ADDITIVE TEST RESULTS

PREPARATION METHOD: The sand and cement was dry blended until homogeneous. The gauging liquid was added until the desired consistency for laying was obtained. The wet mortar was cast in PVC rings of dimensions 75m Dia. x 300mm deep. The discs were de-moulded after hardening overnight and left cure at 20°C/50% R.H. for 28 days. All samples were cast in triplicate

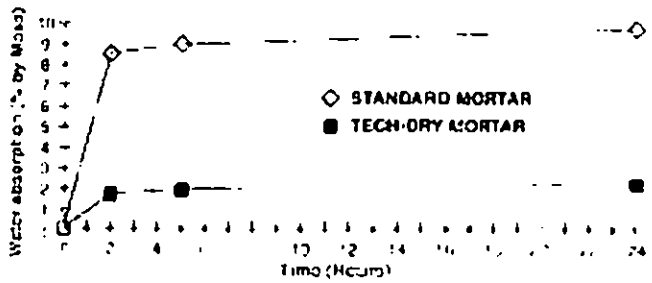
Sample Composition: The table shows the composition of the mortar samples.

SAMPLE	CEMENT (gm)	SAND (gm)	GAUGING LIQUID (gm)
Reference	300.0	990.0	195.0
Samples 1,2 and 3	300.0	990.0	191.4

TEST METHOD: After curing, the discs were oven dried at 70°C overnight, cooled and weighed. All discs were placed on a water saturated polyurethane sponge in a water bath according to DIN52617. The mass of the discs was measured at 2, 5 and 24 hours.

RESULTS: The capillary water absorption versus time is presented in the graph.

The results show that the inclusion of TECH DRY Mortar Additive reduces the capillary water absorption of the mortar from 9.9% to 2.1% by mass. This represents an overall reduction of water absorption of 79%.



SPECIFICATIONS

The following specifications must be followed for the TECH-DRY Wall System.

CONSTRUCTION NOTES

- All the TECH-DRY Blocks must be layed with TECH-DRY Mortar Additive to the correct dosage levels and in accordance with A.S. 3700 SAA Masonry Code.
- Walls must include weep holes to drain any water which may come down the hollow cores of the blocks.
- Ensure control and articulation joints are designed to prevent water penetration.
- Partial reinforcement and core filling must be used in single skin walls to control wall cracking. Technical information is available on request.
- Wall construction must be supervised by the appointed builder.
- Ensure that the bedding joints are completely full and free of any voids.
- Ensure that the perpends are butted on each side with a void in the middle. The mortar joints should be well ruled to provide a tight sealed joint.

TECH-DRY MORTAR

1. Mix a minimum of 2 litres of TECH-DRY Mortar Additive to 20 litres of clean water - use this as the gauging water.
2. Cement ratio MUST be 1 to 3 using a fatty brickies sand mixed to the required consistency.
3. DO NOT add lime to the mix. DO NOT use plasticiser.

ESTIMATING DATA

20 litres of additive with 200 litres or 44 gallons of water will lay the following:

800 Bricks
600 10.01 Blocks
550 15.01 Blocks
500 20.01 Blocks
400 30.01 Blocks

WATERPROOF RETAINING WALL SPECIFICATION

1. Use TECH-DRY Waterproof Blocks with TECH-DRY Mortar Additive mixed to the manufacturers recommendation
2. Add Xypex C-2000 Admixture to the concrete 25MPA core fill dosed at 3kg per cubic metre - cost $4.80 per m2 of wall area.
3. For protection against movement at the floor/wall joint use Kuniseal bentonite based flexible water stop.
4. Wall must be backfilled with free draining material plus agpipe drain below floor level.
5. The TECH-DRY Block Wall must be layed with a cleanout block for the first course and free of any mortar droppings prior to concrete core filling.

Advantages over Membranes:

- Cost Efficient
- Quicker to Build
- No Messy Membranes Required
- Lasts the Lifetime of the Structure

BASF

The Chemical Company

RHEOPEL® PLUS

Water-Repellent and Efflorescence Control Admixture

Description

Rheopel Plus multi-purpose admixture is used in a variety of water-repellent and efflorescence control applications. This unique formula is based on a novel chemistry that is different from that of every conventional water-repellent admixture in the concrete industry.

With its flexible dosage range, Rheopel Plus admixture enables increased production rates of visually appealing manufactured concrete products and precast concrete products that have superior water repellency and secondary efflorescence control properties, increased strength performance, and improved color vibrancy. Rheopel Plus admixture also exhibits excellent wind-driven rain resistance and has achieved the highest rating per ASTM E 514.

Applications

Recommended for use in:

- Architectural block
- Single-wythe masonry construction
- Paving stones
- Segmental retaining wall units
- Concrete roof tile
- Precast /prestressed concrete

Features

- Unique formulation
- Part of block producer water-repellency certification program
- Contains components that enhance color and reduce efflorescence potential
- Provides improved material flow and extrusion characteristics

Benefits

- Superior water repellency versus conventional water-repellent admixtures
- Significantly reduces secondary efflorescence (improves primary efflorescence control)
- Improves color vibrancy and pigment efficiency
- Increases compressive and flexural strengths
- Increases production rate
- Adds visual appeal

Guidelines for Use

Dosage: Use Rheopel Plus admixture at a dosage in the range of 1–5 fl oz/cwt (65-325 mL/100 kg) of cementitious material depending on the desired benefits.

- Efflorescense Control: Typically 1-5 fl oz/cwt (65-325 mL/100 kg) of cementitious material.
- Water Repellency: Typically 2-5 fl oz/cwt (130-325 mL/100 kg) of cementitious material. Optimum water-repellency dosage rates are determined through mix evaluation and testing procedures.

Please consult with your local BASF Construction Chemicals representative if dosages outside of the listed ranges are being considered.

To further improve the color efficiency and strength performance, the addition of a Rheomix® high-performance plasticizing admixture is recommended.

Mixing: For maximum efficiency, add Rheopel Plus admixture after wetting of aggregates and cement, and after at least 75% of the final mix water has been added. Allow at least 90 seconds of additional mix time after Rheopel Plus admixture has been dispensed.

Product Notes

Design and Construction Considerations: Design and construction details must observe all applicable design codes, incorporating the recommendations of NCMA TEK 10-1A: Crack Control in Concrete Masonry Walls; TEK 19-1: Water Repellents for Concrete Masonry Walls; TEK 19-2A: Design for Dry-Single-Wythe Concrete Masonry Walls; TEK 19-4A: Flashing Strategies for Concrete Masonry Walls; TEK 19-5A: Flashing Details for Concrete Masonry Walls.

Note: Rheopel Mortar Admixture must be used in the masonry mortar in order to produce a moisture penetration-resistant wall system. Failure to do so will result in compromised water repellency of the masonry structure. Consult your local BASF Construction Chemicals representative for applicable design details and specifications.

Master Builders

Product Data: RHEOPEL PLUS

Rheopel Plus admixture will not compensate for flaws in building design, materials, mix proportions, improper production procedures or improper construction methods. BASF Construction Chemicals is not responsible for inappropriate use of Rheopel Plus admixture.

Proper block manufacturing methods, proper masonry mortar proportioning and mixing and proper use of Rheopel Plus admixture must be followed. Raked joints should not be permitted for water-repellent admixture system masonry projects. Remove excess mortar promptly and clean any residue using procedures recommended in NCMA TEK 8-2: Removal of Stains from Concrete Masonry.

Storage and Handling

Storage Temperature: Rheopel Plus admixture must be protected from hot and freezing temperatures. Rheopel Plus admixture must be stored at a material temperature between 40 °F (4 °C) and 105 °F (40 °C). Rheopel Plus admixture is not useable after it freezes.

Shelf Life: Rheopel Plus admixture has a minimum shelf life of 6 months. Depending on storage conditions, the shelf life may be greater than stated. Please contact your local BASF Construction Chemicals representative regarding suitability for use and dosage recommendations if the shelf life of Rheopel Plus admixture has been exceeded.

Packaging

Rheopel Plus admixture is available in 55 gal (208 L) drums and 275 gal (1040 L) totes.

Related Documents

Material Safety Data Sheets: Rheopel Plus admixture.

Packaging

For additional information on Rheopel Plus admixture, consult your local BASF Construction Chemicals representative.

The Admixture Systems business of BASF Construction Chemicals is a leading provider of innovative additives for specialty concrete used in the ready mix, precast, manufactured concrete products, underground construction and paving markets throughout the NAFTA region. The Company's respected Master Builders brand products are used to improve the placing, pumping, finishing, appearance and performance characteristics of concrete.

BASF Construction Chemicals, LLC
Admixture Systems
www.masterbuilders.com
United States 23700 Chagrin Boulevard, Cleveland, Ohio 44122-5544 □ Tel: 800 628-9990 □ Fax: 216 839-8821
Canada 1800 Clark Boulevard, Brampton, Ontario L6T 4M7 □ Tel: 800 387-5862 □ Fax: 905 792-0651

Master Builders

A3-1-2

PUBLIC FILE S3

Material Safety Data Sheet

BASF

The Chemical Company

RHEOPEL® PLUS

Version 1.12 02/23/2007

1. PRODUCT AND COMPANY INFORMATION

Company	:	**BASF Admixtures, Inc.** 23700 Chagrin Blvd BEACHWOOD, OH 44122
Telephone	:	216-839-7500
Emergency telephone number	:	(800) 424-9300 (703) 527-3887 (Outside Continental US)
Product name	:	RHEOPEL® PLUS
MSDS ID No.	:	10197
TSCA Inventory	:	All components of this product are included, or are exempt from inclusion, in the EPA Toxic Substances Control Act (TSCA) Chemical Substance Inventory.
Canadian DSL	:	All components of this product are included, or are exempt from inclusion, in the Canadian Domestic Substance List (DSL).
Product Use Description	:	Admixture

2. HAZARDOUS INGREDIENTS

Chemical	CAS No.	TLV	STEL	PEL	CEIL	Weight %
ETHANOL	64-17-5	1,000 ppm	N.E.	1,000 ppm	N.E.	0.10 - 1.00 %
OCTYLTRIETHOXYSILANE	2943-75-1	N.E.	N.E.	N.E.	N.E.	30.00 - 60.00 %

3. HAZARDS IDENTIFICATION

	HEALTH	FLAMMABILITY	PHYSICAL HAZARD
HMIS® Rating	2*	1	0

WHMIS Class : D2A

Primary Routes of Entry :
Skin contact
Eye contact
Inhalation
Skin absorbtion

Effects of Overexposure

Inhalation : Can cause slight irritation. Effects of excessive exposures may include dizziness headache

Skin : May cause moderate irritation. Prolonged skin contact may defat the skin and produce dermatitis.

Eyes : Can cause slight irritation.

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The Chemical Company

RHEOPEL® PLUS

Version 1.12 02/23/2007

Ingestion : Can cause slight irritation.

Chronic exposure : On exposure to water or humid air, ethanol is formed. Chronic overexposure to ethanol by inhalation may injure the liver. Chronic skin absorption of ethanol may be harmful.

Carcinogenicity

	ACGIH	IARC	NTP	OSHA
ETHANOL	Not classifiable as a human carcinogen.	Inadequate data.		N.E.
OCTYLTRIETHOXYSILANE	N.E.	N.E.	N.E.	N.E.

4. FIRST AID MEASURES

Eye contact : Flush eyes with water, lifting upper and lower lids occasionally for 15 minutes. Seek medical attention.

Skin contact : Remove contaminated clothing. Wash thoroughly with soap and water. If irritation persists seek medical attention. Wash contaminated clothing before reuse.

Ingestion : Do not induce vomiting without medical advice. If conscious, drink plenty of water. If a person feels unwell or symptoms of skin irritation appear, consult a physician. If a person vomits, place him/her in the recovery position. Never give anything by mouth to an unconscious person.

Inhalation : Remove victim from exposure. If difficulty with breathing, administer oxygen. If breathing has stopped administer artificial respiration, preferably mouth-to-mouth. Seek immediate medical attention.

5. FIRE-FIGHTING MEASURES

Flash point : 212 °F (100 °C)

Autoignition temperature : no data available

Lower explosion limit : no data available

Upper explosion limit : no data available

Suitable extinguishing media : carbon dioxide (CO_2)
dry chemical
water fog

Fire and Explosion Hazards : Containers can build up pressure if exposed to heat (fire). Cool closed containers exposed to fire with water spray.

Special Fire-fighting Procedures : As in any fire, wear pressure demand self-contained breathing apparatus (NIOSH approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Methods for cleaning up : Wear appropriate protective equipment (refer to section 8). Take action to eliminate source of leak; prevent from entry into open streams or sewers; contain spill by diking; vacuum up liquid or use absorbent media; remove to storage for disposal and rinse

residual stain with water.

7. HANDLING AND STORAGE

Handling	:	Keep out of reach of children. Product evolves flammable ethyl alcohol on exposure to water or humid air. Provide ventilation during use to control ethanol within exposure guidelines or use respiratory protection. For personal protection see section 8.
Storage	:	Keep tightly closed.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Eye protection	:	Wear as appropriate: safety glasses with side-shields goggles face-shield
Hand protection	:	Wear as appropriate: impervious gloves
Body Protection	:	Wear as appropriate: impervious clothing preventive skin protection
Respiratory protection	:	In case of insufficient ventilation wear suitable respiratory equipment. When workers are facing concentrations above the exposure limit they must use NIOSH approved respirators.
Hygienic Practices	:	Avoid contact with skin, eyes and clothing. Ensure adequate ventilation, especially in confined areas. Wash hands before breaks and at the end of workday. When using, do not eat, drink or smoke. Handle in accordance with good industrial hygiene and safety practice.
Engineering Controls	:	Local exhaust ventilation can be necessary to control any air contaminants to within their TLVs during the use of this product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Color	:	off-white
Physical State	:	liquid
Odor	:	mild alcoholic
pH	:	7 - 8
Odor Threshold	:	no data available
Vapor Pressure	:	no data available
Vapor Density	:	Heavier than air
Boiling point/range	:	208.00 °F (97.78 °C)

Freeze Point	:	<32 °F (0 °C)
Water solubility	:	completely soluble
Specific Gravity	:	0.99
Viscosity	:	no data available
Evaporation rate	:	Slower than Butyl acetate
Partition coefficient (n-octanol/water)	:	no data available
VOC Concentration as applied (less water and exempt solvents)	:	< 350 g/l

10. STABILITY AND REACTIVITY

Stability	:	Stable under recommended storage conditions.
Conditions to avoid	:	Prolonged exposure to high temperatures
Materials to avoid	:	oxidizing agents
Hazardous decomposition products	:	Thermal decomposition can lead to release of irritating gases and vapours. Oxides of carbon. nitrogen oxides (NOx) formaldehyde silicon dioxide
Hazardous polymerization	:	Will not occur under normal conditions.

11. TOXICOLOGICAL INFORMATION

Acute inhalation toxicity

Product	Type	Value	Species	Exposure time
	LC50	no data available		
Component				
ETHANOL	LC50	no data available		
OCTYLTRIETHOXYSILANE	LC50	no data available		

Acute oral toxicity

	Type	Value	Species

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The Chemical Company

RHEOPEL® PLUS

Version 1.12 02/23/2007

Product	LD50 (Oral)	no data available	
Component			
ETHANOL	LD50 (Oral)	7,060 mg/kg	rat
OCTYLTRIETHOXYSILANE	LD50 (Oral)	no data available	

Acute dermal toxicity

	Type	Value	Species
Product	LD50 (Dermal)	no data available	
Component			
ETHANOL	LD50 (Dermal)	no data available	
OCTYLTRIETHOXYSILANE	LD50 (Dermal)	no data available	

12. ECOLOGICAL INFORMATION

Ecotoxicological Information : There is no data available for this product.

13. DISPOSAL CONSIDERATIONS

Recommendations: Use excess product in an alternate beneficial application. Handle disposal of waste material in manner which complies with local, state, province and federal regulation.

14. TRANSPORT INFORMATION

DOT	: Proper shipping name	Not regulated
IATA	: Proper shipping name	Not regulated

15. REGULATORY INFORMATION

SARA 311/312 (RTK)
This product has been reviewed according to the EPA 'Hazard Categories' promulgated under Sections 311 and 312 of the Superfund Amendments and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

IMMEDIATE (ACUTE) HEALTH HAZARD

SARA 313
This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

Weight %	CAS No.	Chemical Name

This product contains no chemicals subject to the SARA 313 supplier notification requirements.

CERCLA
CERCLA section 103(a) specifically requires the person in charge of a vessel or facility to report immediately to the National Response Center (NRC) a release of a hazardous substance whose amount equals or exceeds the assigned RQ. The following hazardous substances are contained in this product.

RQ	CAS No.	Chemical Name
100 lbs	64-17-5	ETHANOL

No CERCLA chemicals exist in this product above reportable concentrations.

TSCA Section 12(b) Export Notification
This product contains the following chemical substances subject to the reporting requirements of TSCA 12(b) if exported from the United States:

CAS No.	Chemical Name

There are no TSCA 12(b) Chemicals in this product.

California Proposition 65
The chemical(s) noted below and contained in this product, are known to the state of California to cause cancer, birth defects or other reproductive harm. Unless otherwise specified in Section 2 of this MSDS, these chemicals are present at < 0.1%:

CAS No.	Chemical Name
64-17-5	ETHANOL
75-07-0	ACETALDEHYDE

16. OTHER INFORMATION

Legend : N.E. - Not Established
TLV - Threshold Limit Value
STEL - Short Term Exposure Limit
PEL - Permissible Exposure Limit
CEIL - Ceiling

Prepared By : Environment, Health and Safety Department

This information is furnished without warranty, representation, or license of any kind, except that this information is accurate to the best of the manufacturer's knowledge, or is obtained from sources believed by the manufacturer to be accurate and is not intended to be all inclusive. No warranty is expressed or implied regarding the accuracy of this information or the results to be obtained from its use thereof. The manufacturer assumes no responsibility for injuries proximately caused by use of the Material if reasonable safety procedures are not followed as stipulated in this Data Sheet. Additionally, the manufacturer assumes no responsibility for injuries proximately caused by abnormal use of the Material even if reasonable safety procedures are followed. Buyer assumes the risk in its use of the Material.

End of MSDS.

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PRODUCT INFORMATION

BLOCK EMULSION (CONCENTRATE)

Manufacturer's code: RPBEC **Updated:** 01/06/2009

Product Name: BLOCK EMULSION (CONCENTRATE)

Description: BLOCK EMULSION (CONCENTRATE) is an innovative admixture for concrete especially for pressed concrete product. When BLOCK EMULSION is incorporated into concrete products, the permeability to water and the occurrence of unsightly efflorescence is virtually eliminated. The use of BLOCK EMULSION enhances the intrinsic quality of pressed concrete products by reducing the damage caused by weathering-related water uptake and efflorescence. The product may also help to improve production rate and visually appealing of the finished products particularly for coloured concrete. It may also help to increase concrete strength and provides excellent resistance against wind-driven rain or water penetration under pressure.

Recommended Uses: BLOCK EMULSION (CONCENTRATE) is designed to be a water-repellent admixture during the manufacture of pressed concrete products including load-bearing blocks, decorative blocks, coloured blocks and blocks for retaining walls and basements. It may also be added into concrete pavers or other pressed concrete masonry or similar procedures. However, it is not recommended to be used in aerated concrete masonry or wet-mix concrete product. Some of the features of BLOCK EMULSION (CONCENTRATE) pressed concrete include:

- Reduces water absorption and efflorescence by over 80%.
- Product remains permanently bonded to substrate and cannot be washed out.
- Does not leave an oily residue on the masonry substrate.
- Easy to use in any existing processes.
- The degree of water resistance can be varied by changing the rate of addition.
- Water-based technology with no hazardous material emitted during use.

As masonry materials vary, it is always recommended that a test must be carried out prior to application to find out the suitability of this product for the purpose.

Use Instructions:

1. Dosage

The rate of addition depends on the specific mix design and the level of water repellency required. The usual dosage rate is about 0.5 litre of BLOCK EMULSION (CONCENTRATE) per tonne (1000kg) of dry mix ingredients.

2. Addition

BLOCK EMULSION (CONCENTRATE) is designed to be added as part of the gauging water during the mixing process.

If a typical mix has 1000kg of dry ingredients, the procedure to incorporate 0.5 litre of BLOCK EMULSION (CONCENTRATE) into this 1000kg of dry mix would be as follows:

1) Thoroughly mix all the concrete dry ingredients (1000kg) in a batch mixer.
2) Stir or mix BLOCK EMULSION (CONCENTRATE) before use.
3) Measure out 0.5 litre of BLOCK EMULSION (CONCENTRATE) and dilute it with 5 litres of clean water.
4) Spray this diluted emulsion into the dry mix while blending.
5) Blend the mix thoroughly while adding clean water to attain the desired consistency. The mix can now be processed as usual.

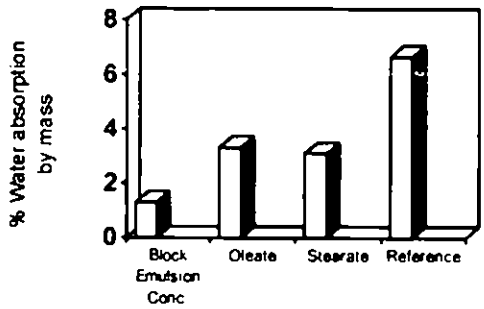
If your process is substantially different to that described above, please do not hesitate to contact the manufacturer for assistance.

Performance tests

1. Reduction in Water Absorption

The pressed concrete substrate used for testing contains 18% cement and 82% graded sand and aggregates with BLOCK EMULSION (CONCENTRATE) at a dosage rate of 0.5 lt/tonne. Commercial oleat and stearate water repellent admixtures were used as comparisons. The test substrates were initially covered with plastic for 24 hours in ambient conditions for obtaining initial strength followed by 28 days curing at ambient conditions before testing. Sponge capillary water absorption was conducted. The test results are shown in Figure 1. The performance of BLOCK EMULSION (CONCENTRATE) is far superior to that of the reference and is much better than those of the substrates with oleate and stearate.

Figure 1. Reduction in Water Absorption



2. Controlling Efflorescence

The efflorescence test is conducted by laying the above test substrates on a wet sponge placed in a solution containing 10% sodium sulfate. The top surface of the substrate was visually monitored for occurrence of efflorescence for 7 days. Table 1 indicates that efflorescence of the substrate treated with BLOCK EMULSION was found to be virtually eliminated during the test period.

Table 1. Efflorescence Occurrence

Substrates	After 1 day	After 3 days	After 7 days
BLOCK EMULSION CONC.	No efflorescence	No efflorescence	Very limited efflorescence
Reference	100% saturated with the salt solution	-	-

Typical Data:

Appearance:	milky white liquid with mild alcoholic odour
pH value:	7-8
Boiling point:	close to water
Freezing point:	0 °C
Solubility in water:	miscible
Specific Gravity:	ca 0.95 gm/ml
Flash point:	>61 °C
Active content:	50% by weight
Evaporation rate:	slower than butyl acetate
VOC content:	(less than water and exempt solvents) <350g/l

Important Note: As conditions vary, it is recommended that a pilot trial should be carried out prior to using BLOCK EMULSION (CONCENTRATE) to determine the suitability of this product for the purpose.

Handling & Storage: BLOCK EMULSION (CONCENTRATE) is a non-hazardous material. However, good industrial hygiene procedures should be followed when handling it. The product should be stored in closed containers in a cool dry place away from any fire sources. The product has a shelf life of 12 months in a sealed container stored at a temperature below 25°C.

Packaging: BLOCK EMULSION (CONCENTRATE) is available in 200 litre plastic drums or 1,000 litre plastic bulky bins. Other size containers may be available on request.

Disclaimer:

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MATERIAL SAFETY DATA SHEET

BLOCK EMULSION (CONCENTRATE)
Issued: 03/03/2009

Not classified as hazardous according to criteria of Worksafe Australia

Identification

Product name:	BLOCK EMULSION
Other names:	Silane/siloxane emulsion
Manufacturer's code:	RPBE
UN number:	Not allocated
D.G. class:	Not allocated
Subsidiary risk:	Not allocated
Hazchem code:	Not allocated
Poisons schedule no:	Not allocated
Package group:	Not allocated

Use

Silane/siloxane emulsion is water repellent admixture for concrete.

Physical properties

Appearance:	milky white liquid with mild alcoholic odour
Boiling point:	close to water
Freezing point:	0 °C
Solubility in water:	miscible
Specific Gravity:	ca 0.95 gm/ml
Flash point:	>61 °C
Active content:	50% by weight
Evaporation rate:	slower than butyl acetate
VOC content:	(less than water and exempt solvents) <350g/l

Other properties

Autoignition point:	Not allocated
Vapour density (air=1):	Not allocated
pH:	7-8
Viscosity:	Not allocated

Ingredients

Chemical entity	CAS number	Proportion
n-octyltriethoxysilane	2943-75-1	≤50%
Non-hazardous materials	n/a	≤10%
Water & other non-hazardous additives		To 100%

Hazard Health Information

Health Effects: To the best of our knowledge, the adverse health effects of this product as a whole have not been determined. However, normal industrial hygiene measures should be followed when handling chemicals.

Acute:

Swallowed: Harmful if swallowed. It may cause irritation to mouth, throat and stomach.

Eye: Silane/siloxanes may cause eye irritation.

Skin: Silane/siloxanes may be irritating to the skin.

Inhaled: It may cause irritation to the mucous membranes and respiratory tract. Over exposure can result in drowsiness, nausea, vomiting and dizziness. An aerosol mist of the silane and siloxane may cause lung damage if inhaled.

Chronic: Not known.

First Aid:

Swallowed: If swallowed, do not induce vomiting. Give a glass of water. Never give anything by mouth to an unconscious person. Get prompt medical attention.

Eye: Flush eyes with copious amounts of water for at least 15 minutes. Obtain medical attention.

Skin: Remove contaminated clothing and wash skin thoroughly. Wash clothing before reuse. Seek medical advice if effects persist.

Inhaled: Remove affected victim from exposure area to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek prompt medical advice.

First Aid Facilities: Washing facilities are strongly recommended for handling chemicals.

Advice to Doctor: Treat symptomatically.

Precautions For Use

Exposure Standards: There is no data allocated with this product. Ethanol may release from the hydrolysis of the silane, the standard exposure of ethanol is: 1000ppm (TWA)

Engineering Controls: Keep away from sources of ignition. Take precautionary measures against static discharges. Provide sufficient ventilation. Use local exhaust ventilation if need.

Personal Protection: Wear chemical resistant safety glasses or goggles, gloves and protective clothing. Wear approved respiratory protection (AS1716/1715) if there is a risk of exposure to intensive vapour concentrations. Wash hands after handling.

Flammability: This product contains combustible organic liquid. Avoid heat and all ignition sources. Use only in well ventilated areas.

Safe Handling Information

Storage and Transport: Consult AS1940 and relevant state or territory regulations on safe storage and handling. Store under 25°C in a cool and well-ventilated area away from any heat and ignition sources.

Spills and disposal: Wear full protective clothing while attending to spills. Extinguish all ignition sources. Prevent entry into drainage systems, sewers and waterways. Collect with inert absorbent material such as sand or earth. Ensure waste disposal conforms to local waste disposal regulations.

Fire/Explosion Hazard: Shut and remove ignition sources if safe to do so. Use dry powder, sand, and foam and/or carbon dioxide extinguisher. Wear a breathing apparatus and full protective measures while attending to the hazard. Prevent the product from entering drains or waterways. Hazard decomposition products may include carbon oxides, silicone dioxide and traces of formaldehyde.

Other Information

Toxicity data: Not known

Contact Point For further information please contact Tech-Dry tel: 61 3 9699 8202 (all hours).

Important Note