

LOGIC INSULATION

Logic Water &
Logic Ex

Data Examination and Informing



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LOGIC INSULATION

About 45 years ago

I wanted to produce a product that prevents absorption and clogging of the pores on building materials caused by rainwater and other waters.

The water that already has entered the wall, after the 'sealing' process, must get out of the wall without any problem. Firstly 'old hand' laughed and they asked me if I wanted to produce a smart self thinking sealing that could self-close the pores when it rains, and can re-open the pores in the sunny days.

Two years later, our first waterproofing product, which has leaves the porous open and removes water, had been put on the market. Today, open-pored, waterproof facade protection is accepted fairly normal and usual for many. However, there are still a lot of people who call themselves specialists but are using waterproofing due to the still clogged pores which are harmful to the structure due.

Today, construction experts are still amazed at how the pores are kept open when a good waterproofing product is used. I'm dealing with this situation in the lecturers, trainings or exposition where we offer our porous water support products for insulating gas concrete grounds. It is not believable for many that when waterproofing is applied to a gas concrete with a thickness of 6 cm it has water tightness. Even if there is a water pipe of 15 cm high on it, to can be insufflate from between without any problem.

This astounding event is clearly shown in the picture on the last page.

The great advantages of the surface or areal closure process which based on this event, can only be understood in progress of time, often in first use in such as;

- when a wet and mouldy house becomes liveable again
- when 25% or 30% energy saving is achieved with an invisible precaution to the house that is included in the scope of protection.
- when the basement wall gets insulated from the inside and reaches it's naturel heat insulation.

I have explained this and many different options in detail in our brochure. Please get the information from our external service adviser about these advantages and options, and of course, ask them to present the water pipe and see the result.

I will bet that you will be very surprised.

Hans-Jürgen Krein
Manager of Research and Development

LOGIC INSULATION

Test Report No.: 04-10-220008225

Instructing

Logic Chemie B.V. Kastanjelaan 157a,
4621HL Bergen op zoom, Netherlands

Instruction date 06.07.2010

Issue date of the sample 06.07.2010

Instruction

Water absorption test of treated and untreated porous concrete-test piece.

Type of the experiment **Number of experiment** 2 pieces

Logic Ex was applied

1 porous concrete-test piece **Signal** MPA NRW 10/205

Logic Ex was not applied

1 porous concrete-test piece

Explanation of test, basic conditions

Testing of the water absorption of the porous concrete-test piece, which is delivered.

Test results based on the subject to sample/test mentioned above. Test results must not published and reproduced without approval of the MPA NRW and without changing the form and content. A Test Report is presented as shortened, can only be done with the approval of the MPA NRW2.

This Test Report has 2 pages.

P04-04-10-220008225

1 Sampling

2 porous concrete-test piece was delivered in order to test on 06.07.2010 by the authorized person who gave instruction to MPA NRW Dortmund. Logic Ex was applied to a sample and also not applied to a sample.

2 Results of the Test

The samples were weighed when it arrived at MPA NRW and become dry in a drying cupboard at 70° C until the mass was dissolved. Dissolving of the mass means that the weight of the sample does not decrease by more than 1% within the 24 hours by storage at 70 °C.

Then it was observed how much water was absorbed by the treated sample (with Logic Ex) and how much water the untreated sample has absorbed.

The results are shown in the table below:

2.1 Water absorption

Table 1:

Sample	3 mins	7 mins	20 mins	24 mins
Logic Ex was applied	0,5 ml	0,5 ml	0,5 ml	1,2 ml
was not applied	4 ml	5 ml	—	—

3 Summary

Comparing the test values in Table 1, it can be concluded that the sample on which Logic Ex was applied clearly absorbed less water than in the sample where Logic Ex was not applied.

On behalf of
Dortmund, 23.08.2010
Eng. Tayyar Uysal
Department Chief
(signature)

Test Report No. 220008225

Instructing

Logic Chemie B.V. Kastanjelaan 157a,
4621HL Bergen op zoom, Netherlands

Instructions date

06.07.2010

Issue date of the sample

06.07.2010

Instruction

Water absorption test of treated and untreated porous concrete-test piece.

Type of the experiment

Logic Water was applied

1 porous concrete-test piece

Number of experiment 2 pieces

Signal

MPA NRW 10/205

Logic Water was not applied

1 porous concrete-test piece

Explanation of test, basic conditions

Testing the water absorption of the porous concrete-test piece, which is delivered.

Test results based on the subject to sample/test mentioned above. Test results must not be published and reproduced without approval of the MPA NRW and without changing the form and content. A Test Report is presented as shortened, can only be done with the approval of the MPA NRW.

This Test Report has 3 pages.

P02-02-10-220008225

Test Report No: 02-10-220008225 Date: 22.07.2010

Page 3/2

1 Sampling

2 porous concrete-test piece were delivered in order to test on 06.07.2010 by the authorized person who gave instruction to MPA NRW Dortmund. Logic Water was applied to a sample and also not applied to a sample. .

2 Results of the Test

The samples were weighed when they arrived at MPA NRW and become dry in a drying cupboard at 70° C until the mass was dissolved. Dissolving of the mass means that the weight of the sample does not decrease by more than 1% within the 24 hours by storage at 70 °C.

Also, 5 ml of water was applied to the samples with the test tube by instruction of producer. Then it was observed how much of water was absorbed by the treated sample (with Logic Water) and how much water the untreated sample has absorbed.

The results are shown in the table below:

2.1 Water absorption

Table 1:

Sample	drying	1 mins	5 mins	20 mins	30 mins	24 hours
was applied as g	1979,7	2093,0	2227,7	2313,0	2343,0	2831,7
Logic Water was applied as g	1996,1	1998,0	1998,2	1998,5	2000,0	2008,3
Was not applied % W	0.0	5.7	12.5	16.8	18.4	43.0
Logic Water was applied	0.0	0.1	0.1	0.1	0.2	0.6

LOGIC INSULATION

3 Summary

Comparing the test values in Table 1, it can be concluded that the samples With Logic Water was applied clearly absorbed less water than the samples Where Logic Water was not applied.

On behalf of
Dortmund, 22.07.2010
Eng. Tayyar Uysal
Department Chief
(signature)

Unfaltering-Explanation

Logic Water

Logic Ex

The function and effect of Logic Water and Logic Ex

Water and Ex-types are insulating materials that prevent porous building materials (walls, etc.) from absorbing water. The water will be removed when the product is applied to the walls. (hydrophobe)

Due to the wetness of the treated walls in many applications, hydrophobic products must have exceptional properties in order to ensure the infiltration and spread of the material to under these conditions.

When a different liquid (product) is needful to be put in a building material, which is filled with water, it is necessary to pressurize for discharging the liquid (water) contained therein. This required pressure can be obtained with instruments. Natural laws offer us a second option as capillary press. Due to the fact Logic Water or Logic Ex that don't mix with water and has a much lower surface tension in water, this needed capillary pressure occurs during the product application to the pores of the building materials. This situation causes Logic Water or Logic Ex to penetrate into the existing water and this water to be pressed into other pores until it dries.

When Logic Water or Logic Ex reaches the pore wall, a thin waterproof plastic layer is formed. This special plastic layer has a waterproof that prevents other waters from entering.

Which solvents should be used?

There are thousands of organic solvents, many of them are harmless, some of them are damaging, some of them are harmful to humans and the environment.

We chose Paraffin, one of the most harmless products. There are many types of paraffin from liquid to solid. (Most of the candles are made of paraffin.) Unfortunately, Paraffins do not have very good solvent properties. For this reason, we did a long search until we found an effective substance (Plastic) that could be dissolved in liquid paraffin oil.

Paraffin oils are harmless and have versatile usage. Paraffin oils are also found in some laxative medicines. When paraffin is used it creates a slippery effect for the intestines due to its direct separation. It is also used as a solvent in cosmetic products like sun protection cream.

Experts and persons interested in ecology have found several ecological and toxicological details of the solvent used:

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Analysis

Paraffin:	100%
Aromatic substances:	<0.001%
Benzol:	0%
Odor:	odorless

Toxicology

LD50 Rat, peroral > 19000 mg/Kg
LD50 Rat, by inhalative > 2500 mg/Kg
Whitefish > 1000 mg/Kg
Daphnia magna > 1000 mg/Kg

* For this reason no further research has been done.

Skin irritation	No
Eye irritation	No
Mucosa irritation	No
Sensitization	No

Biological Reduction BSB20 ,20 °C Th OD 65-60

The information given above is based on the solvent product. Logic Water or Logic Ex have strong hydrophobic effect. Pay attention while using the product.

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Isolate a wall means the preventing of more water into the wall. Otherwise, the wall does not get dry. It should be dried by evaporation of the water after the isolation process. This evaporation and drying process has to be a slow progress. The speed is based on the environmental conditions. The law of nature rules must be taken in consideration in order to understand this drying process, speed and interfere.

The water in the wall, which makes the wall wet, goes into the air by evaporating. Evaporation of water in the wall is based on how dry the air is. Because of water vapour the air is constantly been absorbed and is getting wet and so the evaporation of water in the wall also slows down. In other words, the drying of the wall slows down according to the increasing amount of humidity. Some data which have a relation to this are presented below:

A wall that is one square meter wet, saturated and has a thickness of 50 cm contains approximately 300-100 litres of water. One cubic meter of air takes only 9.5 grams water at the temperature of +10°C and about 17.5 grams water at the temperature of +20°C.

Relative humidity concept has to be known by everyone. But what is the relative humidity?

If 1 m³ of air contains only 4.75 grams of water at a temperature of + 10 ° C, then the air is only 50% saturated and in this case the air can contain twice as much water (9.5 grams) as this amount. Here we take a 50% relative humidity for example.

17.5 g * 8.75 = %50 grams of water in the temperature of + 20° C and with a relative humidity of 50%. As it is seen here, hot weather can get more water in than cold air. When the relative humidity of the air is up to 80%, the water evaporation occurs in a perceptible amount on a wet wall.

Example:

A wet wall in the basement is reaching an air temperature of + 10 °C and a relative humidity of 50%. So this air contains 4.75 grams of water. The wet wall is almost the same as the air outside , + 10 ° C. An air with a relative humidity rate of 80% contains 7.6 grams of water. If one square meter of wall contains 145 liters / Kilogram of water and the basement has 5 m² of wetted wall space, approximately 250,000 m³ of air is needed for the drying process here. This means that moist air must be replaced by strong ventilation and that you have to be patient while the wall is drying. If we assume that basement floor is 15 m² and 2 m height, the amount of air here is around 30 m³. Time required to complete the drying process: 2 air changes per each hour
 $173 = 48/30/250000$ days (Approx.)

One more example:

In a day where there is suffocating air, the basement reaches + 20 ° C temperature and a relative humidity rate of 80%. This weather currently contains 14 grams of water. This air gets cool to +10 ° C on a wet and cold wall. However, air can contain only 9.5 grams of water at relative humidity rate of 100%. This means that the air humidity is concentrated on the wall. The wall is sweating in here. Concentrated water flows down the wall. In the meanwhile, the wall seems to leak water again. These given examples show that wet walls dry faster in winter than in summer. For this reason, just use cold air! Ventilation with hot air only delays the drying process!

If you can ventilate the basement very comfortably, the walls will dry very quickly. If you want to speed up the drying process of wet walls, you can use a cooler. These instruments will separate the water from the air and allows the relative humidity to be reduced.

Safety Information Form (EG 2006/1907)

LOGIC INSULATION

Logic Water, Logic Ex

Document -No
Specification:

Date of Process: 30.05.2010

Print Date: 30.05.2010

VA-No

Page: 2/1

1. Substance/Product and Company Name

Information of the Product

Commercial Title

Logic Water, Logic Ex

Manufacturer / Distributor

Logic Chemie Kastanjelaan 157a
4621HL Bergen op Zoom Netherlands

For emergencies:

Poisoning cases and Embryonal Toxicology
Counseling Center, Berlin 19240 030

Product Usage:

Hydrophobic Construction Insulation

2. Potential Dangers

Danger Identification : Xn, It that missing into the trachea is harmful to health.

The warning of danger to people and the environment specific:

In cases of missing into the trachea and in
continuing disgorgement, there are risks of
inflammation in your lungs. This is explosive
steam / air mixture may occur during spraying.

Risks: 65 it that missing into the trachea is harmful to health.

3. Information about Combination / Parts

Chemical properties

Synthetic Resin Solvent, Solvent %93

(Product)

The definition of substance

CAS-Number

EINECS-Number

a) Paraffined Hydrocarbon

5-58-90622

6-460-292

b) Polymer Active substance

do not be used

do not be used

4. Emergency measures

Emergency measures	Remove clothing and shoes that are wet.
Eye contact	Wash with plenty of water – if necessary consult a doctor.
In contact with skin	Wash with soap and water – it does not irritate your skin.
In case of inhalation	When the aerosol is inhaled, remove victim to get fresh air. Medical treatment should be applied when complaints continue.
Trachea	Do not disgorge – Contact your doctor.

5. Fire fighting measures

Suitable solvents	All solvents are suitable, do not use spraying water.
Other hazards of the material, burning products and gases	Occurred Waste products are not dangerous. Carbon monoxide or carbon dioxide can be formed in fires and thermic waste products. Vapours are heavier than air.

6. Precautions for situations, which will be occurred involuntarily in open space.

Private	Keep unprotected persons away, Do not breathe the aerosol
Environmental Protection	
Precautions	Prevent to infiltration into the environment and sewage. Draw the liquid off with materials that draw liquids. Cover large quantities with set and drain the fluid.
Cleaning process	Draw the liquid off with materials that draw liquids (sdiatomite, wood flour, etc.).
Other Information	To annihilation of wastes: Look at Chapter 13

7. Application and Storage

Application:

Information for safe usage	protect from heat and direct sunrays.
Oriented to fire and misfire Informing	Take precautions in consideration of the electrostatic charge

Storage

Store at room temperature. Keep away from food and drinks.

8. Exposition classification and individual protection equipment

Working space limiting values 200 ml/ m3 (ppm) TRGS 900

Individual Protection Equipment

Respiratory Protection Independent from outside air, respiratory protection tool in fires or Aerosol formation.

Hand Protection PVC gloves, neoprene, material thickness of 0.5 mm

Eye Protection Impermeable Protection glasses

Body Protection You always have to wear protective clothing and protective

shoes.

Protection and Hygiene Keep away from food and drinks. Avoid eye contact. Do not breathe vapour/aerosol

9. Physical or chemical properties of the solvent

a. compare.: 2. Combination

View

Condition / Form / Color of the material

fluid, colorless, transparent

Odor

Odorless

Important Security Information

	value / area	unit	Inspection base
Fusion point	< - 40	°C	
Boiling point (1013 hPa)	195 - 175	°C	DIN 751 51
Intensity (20 °C)	0,764	g/ml	
Vapour pressure (20 °C)	~2	hPa	DIN 754 51
Liquidness	ca.1,25	mPas	DIN 562 51
Water solution	<0,1	g/l	
Flash point	62	°C	
Flame point	265	°C	DIN 794 51
Risk of explosion: explosion	there is no risk of explosion due to the high point.		
Explosion limits	Upside 0,6 Down 7	Vol. % (in the hardly spraying) Vol. %	

10. Durability and Reaction

Thermic waste products

waste products are distilled at normal pressure

Hazard waste products

Do not use waste product in storage and application according to conditions

Risks of Reaction

Hazard reactions has been detected.

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11. Informing about toxicology

Acute toxicity by respiration	LD50 Rat > 10000 mg/kg
After respiration	Vapour Concentration is harmful to human health does not occur in evaporation of solvent product from normal room temperature to as far as + 60 ° C.
Dermal exposure	It is not irritating. It dries out frequent and has long-lasting dermal exposure, it causes dermal problems.
Eye contact	OECD TG404 it is not irritating.
Genotoxic	there is no information relating to mutation

12. Ecology Information

Elimination Information

Biological Reduction	BSB20 ,20 °C Th OD 65-60
Water Risk Class WGK 1 (own grade):	Do not drain into the spring water, territorial waters or sewages.

13. Annihilation Informing

Product	Do not be thrown together with household waste. Extinguishment in accordance with the administrative conditions (Empty Polish box)
Waste Key No (EWC)	07 01 12 Without halogens solvent product mixture. Solvent. 20 01 12 Resin residues, solidified (non-solidified)
Packing	Empty the chamber completely and annihilate it with domestic waste.

14. Shipment Informing

Territorial Shipment/ADR/RID and GGSV/GGVE (limit overflow/ domestic)

Class	—
Sea Shipment/IMDG-Kdoy/GGVSee	no
Shipment/Other Information	The material is not dangerous according to the regulation mentioned above.

15. Provisions

Definition of product according to EG-Regulation

Risks	65	Injurious to health: It can cause damage to your lungs in cases of swallowing or ingestion.
Warning	23	Do not breathe aerosol.
	29	Do not pour into the sewage.
	62	Do not make yourself regurgitation in case of swallowing. Get medical advice and show this information sheet.

16. Other Information

3. Risks of raw materials described in Chapter 3

Risks 65 Injurious to health: It can cause damage to your lungs in cases of swallowing or ingestion.

We would like to explain about our security conditions of our products. The above information is formed from our knowledge and experience. These information is not linked to the warranty, quality definition or assurance of the product specifications.

Advisor: Mr. Krein, Mr. Balzer, Ms. Cirikka

WARRANTY DEED

Hydrophobic Façade

As the producer of Logic Water or Logic Ex that Hydrophobic Construction Material-Waterproof product, we give a 20 year guarantee for the effectiveness of the product's hydrophobic effect.

If the delivered products lose their hydrophobic effect during the warranty period on the wall or concrete, that amount of Logic Water or Logic Ex required for the above transactions will be provided free of charge by us. Under the condition that these products exit in a good state and have passed the product control. Additional and other expenses are not in the warranty coverage.

It is absolutely not possible that we cover the cost of the foreign companies that are not authorized by us.

The guarantee period will be calculated after the transaction is made. We take a calculation participation of 1 month. Please keep an invoice or photocopy of the invoice of this document and the transaction date can be documented. All warrant for our shipment begins in first day of the full payment remainder amount regard to our invoice request.

The preventing of capillary water absorbing into of the hydrophobic surface is also under the warranty. It is not possible to cover the additional and other expenses under the contract. Wall wetness, caused by building cracks, hydrophobic bruises, voids or other building material cracks and other situation like these that occurred as a result of subsequent mechanical damage, are not in the warranty coverage.

Subsequent interventions lead to the end of the warranty period from the date of transaction. This means when Logic Water or Logic Ex has been applied to surfaces such as plaster or are combined with different products by foreign companies that are not authorized by us.

Oer-Erkenschwick, January 2010

LOGIC INSULATION

- Areal closure (monolayer)
- Perforation for areal closure process
- Injection of Logic Water

Frequently asked questions about Logic Water application

Does it show the same desired effect in hollow stones?

Do not worry. In such cases, thanks to equally distributed features of Logic Water on the wall, the desired blocking process can be done successfully. Here, Logic Water is filling the deepest plaster layer. Logic Water is equally distributed from this plaster layer to injection zones of the walls. (Picture 2 + 1) However, an obstacle layer covering the entire region is guaranteed.

Logic Water was applied to the basement 8 weeks ago. Now the walls are dry, but the corners have still humid zones. What do I have to do?

Wait a little longer. The visible wall zones have a large evaporation area. For the evaporation of water, it first must be transferred to the visible zones of the wall and this will take some time. So a little patience, the rest zones will be also dry.

1 week ago Logic Water-Horizontal closer and Logic Water-Regional closer were applied in my basement. How long is needed to spread Logic Water product and can I use a drying device?

Logic Water requires approximately 3-2 weeks for optimal spreading. Nevertheless, you can place the drying tool after 1 week in the room where the Vertical Closure is applied. You should place the drying device at least 2 weeks later in the rooms that have been applied with Logic Water -Regional Closer.

What should I do on the concrete walls?

It is applied in the same way in the wallings as in the cast concrete walls. Cast concrete is very porous. Logic Water cannot be blocked for this reason. On cast concrete walls (steel concrete) a hole is drilled at a distance of approximately 12.5 cm, but only half of Logic Water is injected. The application of Logic Water -blocking material on concrete is work that requires a lot of process for this reason, but it is used less than the amount which has been applied on the walls. There should be a vertical distance of 12.5 cm in regional closers applied in cast concrete.

I have a wall made of natural rough stone. Does the effect of Logic Water lose its effect for this reason?

No, Logic Water is effective in porous natural stones (except plaster). Nonabsorption of Logic Water in little or no way to natural stones are caused due to cracks originating from capillary water damage. Here, by Logic Water leaking through cracks a barrier layer is formed. In Figure 3, the wall section made of rough stone and the crack part found on the wall are shown.

Is Logic Water applied in different amounts in each hole opened with drill, in different building materials?

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No, the difference is negligible. The amount of Logic Water depends on the wall thickness.

Evidence Test

One of the most important conditions is that air and vapour permeability in the walls where Logic Water or Logic Ex is applied to. In this way we reach healthy air in the living spaces.

In order to be able to carry out this process, the air in the building material pores is required to comply with the insulation conditions.

The thermal insulation of building materials depends on the amount of air contained in the building material. The construction material contains as much air in it as it contains pores. The heat insulation is as bad as if there is water.

	Bubble water column
	Logic Water or Logic Ex applied Gas concrete stone
Air ingress	Room without water and with oxygenic

**We have
everything that
is important for
you!**