

Within the meaning of Section 26 of Law No. 90/1998 of the Law Index concerning construction products, in the wording of later amendments.

Business Product Name Liquid Rubber

Product Type

Manufacturer Lafarge North America
Lafarge Asphalt Engineering
16-2283 Argentia Rd.
Mississauga, Ontario L5N 5Z2
Canada

Place of Manufacture Lafarge Asphalt Engineering
Division of Lafarge Materials & Construction Inc.
16-2283 Argentia Rd.
Mississauga, Ontario L5N 5Z2
Canada

Type and Use of
the Construction Product Liquid Rubber is used for hydro-insulation and
protection of surfaces, foundations and basement
walls, and in spaces between construction panels

on concrete and porous concrete foundations.

Technical Certificate Valid

From August 22, 2004

To June 22, 2009

Studio 9 Ltd.

Mr. Peter Batthyany

Zelinárska 2

821 08 Bratislava

In Bratislava, on July 1, 2004

Our Reference No.: ORA/2040/HR/04

Re: Certificate of internal control / registration of application

Within the meaning of Section 7, Paragraph 1, Item b) and Section 21 of Law No. 90/1998 of the Law Index concerning construction materials, in the wording of later amendments, we have registered your application for a certificate of internal control of the following product

LIQUID RUBBER

Manufacturer

Lafarge North America

16-2283 Argentia Rd.

Mississauga, Ontario L5N 5Z2

Canada

Manufacturer

Lafarge Asphalt Engineering

Your application has been registered under No. 104/04/0113/0401 since July 1, 2004.

TSÚS, Tatranská Štrba branch, P.O. Box 10, 059 41 Tatranská Štrba, will draft the internal control agreement and it will also carry out the internal control within the meaning of valid directives. Further information may be obtained from Vladimír Kriššák, Eng. (telephone 052 4781451, email: krissak@ta.tsus.ak).

Please note that the registration of your application does not confirm its completeness.

The branch will contact you with possible requests for further information.

(Stamp)

Daša Kozáková, Eng. (Signed)

Head, Department of Agreements

[illegible line]

Studená 3

826 34 Bratislava 29

Organization Identification No. 31821987

-2-

Cc: TSÚS, T. Štrba branch

Studio 9 Ltd.

Zelinárska 2

821 08 Bratislava

In Bratislava, on June 23, 2004

Our Reference No.: ÚTO/0188/04

Re: Technical Certificate TO-04/0041

Having completed the technical evaluation of a construction product, which was initiated by your request registered under No. O04/04/0188/0401, we are forwarding the technical certificate (see attached) for the following construction product:

LIQUID RUBBER

Manufactured by

Lafarge North America

Lafarge Asphalt Engineering

16-2283 Argentia Rd.

Mississauga, Ontario L5N 5Z2

Canada

(Stamp)

Technical and Control Institute of Construction

Studená 3

826 34 Bratislava 29

(illegible)

Sincerely,

(Stamp)

Jan Slašťan, Eng., CSc. (Signed)

Head, Certificate Division OM 04

Director, TSÚS

Attachment: As specified

Cc: TSÚS, Tatranská Štrba branch

TSÚS – ÚTO

I. GENERAL CONDITIONS

1. This technical certificate was issued by Certificate Division OM 04 of the Technical and Control Institute of Construction, based on an authorization issued by the Ministry of Construction and Regional Development of the Slovak Republic on April 30, 2004, within the meaning of following directives:
 - Sections 4 and 26 of Law No. 90/1998 of the Law Index, concerning construction products, within the meaning of later amendments.
 - Directive No. 158/2004 of the Law Index, issued by the Ministry of Construction and Regional Development of the Slovak Republic, which describes groups of construction products with specified systems of proofs and agreements, and details regarding adherence to the agreements.
2. The manufacturer is obliged to inform the control institute immediately of any changes to the conditions under which the technical certificate was issued.
3. The manufacturer is responsible for adherence of the product with this technical certificate and for its suitability to be used as intended in construction.
4. Reproduction of this technical certificate including its distribution using electronic media must occur in its entirety. With a written approval from the Certificate

Division, a part of the certificate may be reproduced providing the copy is marked as “incomplete”. Text and pictures in advertising materials may not contradict the technical certificate.

5. The technical certificate may not be transferred to other manufacturers, to representatives of manufacturers or to other places of manufacture, as stated on page 1.
6. The technical certificate is issued in the Slovak language. Translations into other languages have to be marked “Translation” on the title page.
7. The technical certificate may be cancelled only by the Certificate Division that had issued it.
8. The Certificate Division will cancel this technical certificate should any reason for cancellation arise (in compliance with Section 26b of Law No. 90/1998 of the Law Index, in the wording of later amendments).

3.3 Labeling with a label of proof and identification of the product

The manufacturer will label the product with a label of C_{SK} adherence (in compliance with Section 8 of Law 90/1998 of the Law Index, in the wording of later amendments and Attachment 3 of directive No. 158/2004 of the Law Index of the Ministry of Construction and Regional Development of the Slovak Republic, which sets the groups of construction products with specified systems of proofs of adherence and the details regarding the use of proofs of adherence.

The label of adherence below, together with additional information will be placed on each package of the product.

C_{SK} ^{IXX}

LIQUID RUBBER

LAFARGE NORTH AMERICA

Lafarge Asphalt Engineering

16-2283 Argentia Rd.

Mississauga, Ontario, L5N 5Z2

Canada

XX

TO – 04/0041

To be used for hydro-insulation and protection of surfaces, basement walls and in spaces between construction panels on concrete and porous concrete foundations.

Release of harmful elements into the environment	yyy
Water-tightness	yyy
Adherence to foundation	yyy
Factor of diffuse resistance μ	yyy
Chemical resistance	yyy
Extensibility	yyy
Radon Gas Permeability	yyy
Index of flame spreading	yyy

4. Preconditions, under which the suitability of a product for the intended use in construction is favourably evaluated.

4.1 Manufacture

The Liquid Rubber product is manufactured in compliance with submitted technical documentation contained in Attachments 1 and 2. The deployed manufacturing processes ensure that the product characteristics correspond with this technical certificate.

4.2 Transport and storage of the product

The guidelines for transport, storage and packaging of the product are stated in worksheets with safety data and in technical documentation of the product.

Basic conditions and restrictions:

The products must be transported and stored at temperatures between 5°C and 25°C in such manner that they are not mechanically damaged and that they do not deteriorate in a dry environment. They contain water and therefore they have to be protected from frost and stored at suitable facilities protected from the direct influence of sunrays.

4.3 Use of the product

4.3.1 Manufacturer's recommendation of projects

The manufacturer does not provide any recommendation of projects.

4.3.2 Manufacturer's recommendation of product application

The product is applied to a prepared foundation with a roller or a brush, but most frequently by spraying in one or several layers. It may be not applied in temperatures under 15°C, in rainy weather or on frozen or wet surfaces. It is recommended to apply the product in thin layers and each applied layer needs to harden before another one may be applied. The time of hardening may vary depending on temperature and relative humidity. The manufacturer recommends using personal protection tools when working with the product.

4.4.3 Manufacturer's recommendation of product maintenance

The manufacturer does not provide any recommendation for maintenance.

4.3.4 Manufacturer's responsibility to provide information

The manufacturer is responsible to provide information stated on the title page and in Specific conditions in sections 1, 2, 4.2 and 4.3 of this technical certificate to all individuals to whom the information is relevant. This information may be provided in the form of copies of the aforementioned sections of the technical certificate. These copies are marked as "incomplete copies" (in compliance with Section 4 of the General Conditions); however, a written approval of the Certificate Division is not required in such cases. The manufacturer is responsible that all information on the product packaging is legible (in compliance with Section 3.3) and instructions for product application are provided.

In Bratislava, on June 22, 2004

(Stamp)

Technical and Control Institute of Construction

TSÚS

OM 04

Bratislava

Ján Slašťan, Eng., CSc. (signed)

Head, Certificate Division OM 04

Director, TSÚS

List of attachments:

Attachment 1 List of referenced and related laws, directives, technical norms and
guidelines

Attachment 2 List of referenced and related documents used in drafting of the technical
certificate

The technical certificate was drafted, based on request No. O04/04/0188/0401, by

Jaroslav Koreň, Eng, Csc., of TSÚS, Tatranská Štrba branch.

Prepared by Barbora Barovská, Eng., on behalf of the Certificate Division

Attachment 1

List of referenced and related laws, directives, technical norms and guidelines

Law No. 272/1994 of the Law Index, of the National Assembly of the Slovak Republic, about the protection of human health, in the wording of later amendments.

Law No. 514/2001 of the Law Index, of the National Assembly of the Slovak Republic, which modifies and amends Law No. 272/1994 of the Law Index, of the National Assembly of the Slovak Republic, about the protection of human health, in the wording of later amendments.

Law No. 163/2001 of the Law Index, concerning chemical substances and chemical products.

Directive No. 515/2001 of the Law Index, of the Ministry of Health, concerning the details and contents of the safety precautions sheet.

Guideline No. 46/2002 of the government of the Slovak Republic, concerning protection of health at work.

State Technical Norm 64 0242-1990	Plastics. Methods for determination of chemical resistance.
State Technical Norm EN ISO 527-3:1998	Plastics. Determination of tensile characteristics, part 3. Test conditions for foils and boards (64 0605).
State Technical Norm EN ISO 4624:2004	Paints. Tear-off test of adherence (67 3077)
State Technical Norm 73 0863:1991	Fire-technical characteristics of materials. Determination of fire spreading along the surface of construction materials.
State Technical Norm 73 1210:1996	Watertight concrete and durable concrete with specific qualities. Design, manufacture and quality control.
State Technical Norm 73 1132:1999	Test of permeability of radon gas vapours through surface treatment of constructions
State Technical Norm 73 2580:1981	Test of permeability of water vapours through surface treatment of constructions.

Technical Sheet No. 10/02

Liquid Rubber, Lafarge North America,
Lafarge Asphalt Engineering, 16-2283
Argentia Rd., Mississauga, Ontario, L5N
5Z2, Canada, October 22, 2002.

Attachment 2

List of referenced and related documents used in drafting of the technical certificate

- [1] Safety information sheet for the Liquid Rubber product, issued by Lafarge North America, Lafarge Asphalt Engineering, 16-2283 Argentinia Rd., Mississauga, Ontario, Canada, L5N 5Z2, May 16, 2003.
- [2] Protocol of test No. 80040101 was drafted by TSÚS, Prešov branch, May 12, 2004 (an index of surface flame spreading).
- [3] Protocol of test No. 80040108 was drafted by TSÚS, Prešov branch, May 24, 2004 (water-tightness against pressurized water).
- [4] Protocol of test No. 145/2004 was drafted by TSÚS, Tatranská Štrba branch, June 8, 2004 (an index of surface flame spreading).

Documents (originals and copies) are archived at TSÚS, Tatranská Štrba branch.

II Specific Conditions

1. Definitions of the product and its use

1.1 Product description

Liquid Rubber is a dual component paint that is manufactured from asphalt emulsion with a modified rubber and a chemical agent. After application and hardening, it creates a monolithic seamless membrane.

1.2 Purpose and method of use

The product is used for hydro-insulation and protection of surfaces, foundations and basement walls, and in spaces between construction panels on concrete and porous concrete foundations.

The product is applied onto a prepared foundation with a roller or a brush, but most frequently by spraying in one or several layers. It may not be applied at temperatures under 15°C, in rainy weather or on frozen or wet surfaces.

2. Characteristics of the product and their verification

2.1 Characteristics of the product

2.1.1 The characteristics related to basic requirements of constructions (suitability for intended use in construction)

a) Mechanical resistance and stability of construction

Requirement a) does not apply to the product.

b) Fire safety of construction

Requirement b) does not apply to the product.

c) Hygiene and protection of health and environment

c4 The product does not harm the environment by soiling or by water or soil contamination.

2.1.1.1 Release of harmful substances into the environment

Due to the obligation to protect human health and the environment, when products are introduced to the market they have to adhere to the guidelines of Law No. 163/2001 concerning chemical agents and chemical products, in the wording of later amendments and related directives.

The products must have worksheets with their safety information, in compliance with Law No. 163/2001 about chemical agents and chemical products, in the wording of later amendments and directive of the Ministry of Health of the Slovak Republic No. 515/2001 of the Law Index about the details and contents of safety information sheets.

c6 The product does not harm the environment by moisture in constructions or on internal construction surfaces.

2.1.1.2 Water-tightness

- average seepage at pressure of 0.7 MPa ≤ 20 mm

2.1.1.3 Adherence to foundation (concrete) ≥ 0.5 MPa

2.1.1.4 Diffuse resistance factor ≤ 2000

2.1.1.5 Chemical resistance

(against water, a saturated solution of $\text{Ca}(\text{OH})_2$ and a 10% solution of NaCl, 7-day exposure)

- occurrence of blisters 0 (S0)

- occurrence of cracks 0 (S0)

- change of appearance no change

2.1.1.6 Radon Permeability $\geq 8 \times 10^{12}$ m²/s

2.1.1.7 Stability in tension ≥ 20 N/50 mm

2.1.1.8 Extensibility $\geq 500\%$

d) Safety of construction when the product is used

Requirement d) does not apply to the product.

e) Protection from noise

Requirement e) does not apply to the product.

f) Energy and heat savings

Requirement f) does not apply to the product.

2.1.2 Characteristics related to identification of the product

2.1.2.1 Index of flame spreading ≤ 50 mm/min

2.1.3 Characteristics related to safety of individuals during the course of construction and during regular construction maintenance

When handling the product, it is necessary to adhere to the recommendations outlined in corresponding directives of the government of the Slovak Republic concerning protection of health at work, recommendations outlined in the safety information worksheets and in the technical sheets of individual products; and to the work safety by-laws.

2.2 Method of verification of the characteristics

2.2.1 Release of harmful substances into the environment

The manufacturer will submit the safety information worksheet (1), drafted in compliance with the directive of the Ministry of Health of the Slovak Republic No. 515/2001 of the Law Index.

2.2.2 Water-tightness

Water-tightness is verified by a test documented in [3]. The method used: a test in compliance with the State Technical Norm 73 1210.

2.2.3 Adherence to the foundation (concrete)

Adherence is verified by a test documented in [4]. The method used: a test in compliance with the State Technical Norm ISO 4624.

2.2.4 Diffuse resistance factor

Diffuse resistance factor is verified by a test documented in [4]. The method used: a test in compliance with the State Technical Norm 73 2580.

2.2.5 Chemical resistance

Chemical resistance is verified by a test documented in [4]. The method used: a test in compliance with the State Technical Norm 64 0242.

2.2.6 Radon Gas Permeability

Radon gas permeability is verified by a test documented in [4]. The method used: a test in compliance with the State technical Norm 73 1132

2.2.7 Stability in tension

Stability in tension is verified by a test documented in [4]. The method used: a test in compliance with the State Technical Norm EN ISO 527-3.

2.2.7 Extensibility

Extensibility is verified by a test documented in [4]. The method used: a test in compliance with the State Technical Norm EN ISO 527-3.

2.2.8 Index of flame spreading

The index of flame spreading is verified by a test documented in [2]. The method used: a test in compliance with the State Technical Norm 73 0863.

3. Proof of compliance and labeling of the product with a label of proof

3.1 The procedure of proof of compliance

In compliance with Attachment 1 to directive No. 158/2004 of the Ministry of Construction and Regional Development of the Slovak Republic, the product is classified as group 0401. Compliance will be verified as outlined in Section 7, Paragraph 1, item b) of Law No. 90/1998 of the Law Index, in the wording of

later amendments, and the proof of compliance will be accompanied by a certificate of internal control (system 2+), from which the following tasks and responsibilities ensue:

a) Manufacturer's responsibilities

- To apply an internal control system;
- To carry out planned tests;
- To carry out computer tests;
- To publish a statement of compliance.

b) Responsibilities of authorized individuals during certification of internal control:

- To carry out computerized inspection of how the manufacturer's internal control system is applied;
- To issue the certificate of internal control;
- To carry out preliminary inspections of how the manufacturer's internal control system is applied.

3.2 Activities ensuing from the responsibilities of the manufacturer and from the responsibilities of authorized individuals

3.2.1 Manufacturer's activities

3.2.1.1 Manufacturer's internal control

The manufacturer is obliged to carry out internal control in compliance with Section 8a of Law No. 90/1998 of the Law Index concerning construction products, in the wording of later amendments.

3.2.1.2 Range and frequency of planned tests

The range and frequency of planned tests are summarized in Table 1.

Table 1

Characteristics	Test frequency	Test method/directive
Adherence to foundation	Each batch	EN ISO 4624
Stability in tension	Each batch	EN ISO 527-2
Extensibility	Each batch	EN ISO 527-2

3.2.1.3 Computerized tests

Computerized tests are carried out in compliance with Section 9, Paragraphs 2 and 3 of Law No. 90/1998 of the Law Index, in the wording of later amendments; samples are collected in compliance with Section 10.

The characteristics stated in Table 2 are tested in initial tests.

Each declared value has to be accompanied by a single test evaluation.

Table 2

Characteristics	Basic requirement	No. of measurements per evaluation	Test method/directive	Criterion for determination of compliance	Tester
Release of harmful substances into the environment	c4		Control of safety information	Directive of Ministry of Health of the Slovak Republic No. 515/2001 of the Law Index	AO
Water-tightness – average seepage at 0.7 MPa pressure	c8	1	State Technical Norm 73 1210	≤ 20 mm	AO
Adherence to foundation (concrete)	c6	1	State Technical Norm EN ISO 4624	≥ 0.5 MPa	AO
Diffuse resistance factor	c6	1	State Technical Norm 73 2580	≤ 2000	AO
Chemical resistance (against water, saturated solution of	c6	1	State Technical Norm 64 0242		AO

Ca(OH) ² and 10% solution of NaCl (7 day exposure; occurrence of blisters, occurrence of cracks, change of appearance				0(S0) 0(S0) no changes	
Radon Gas Permeability	c6	1	State Technical Norm 73 1132	$\geq 8 \times 10^{12} \text{ m}^2/\text{s}$	AO
Stability in tension	c6	1	State Technical Norm EN ISO 527-3		AO
Extensibility	c6	1	State Technical Norm EN ISO 527-3	$\geq 500 \%$	AO
Index of flame spreading		1	State Technical Norm 73 0883	$\leq 50 \text{ mm/min}$	AO

Results of computerized tests carried out for the purpose of this technical certificate are acceptable for proof of compliance. Should changes occur in production (compared to status quo at the time when the technical certificate was issued), the computerized tests have to be repeated.

3.2.2 Activities of authorized individuals during certification of internal control

3.2.2.1 Initial inspections of the application of the manufacturer's internal control system

Initial inspections are carried out in compliance with Section 11 of Law 90/1998 of the Law Index, in the wording of later amendments. The authorized individual has to make sure that the schedule of tests, internal control, staff and machinery of the manufacturer maintain permanent characteristics of the product in compliance with the statement in part 2.1 of this technical certificate.

3.2.2.2 Preliminary inspection of the application of the manufacturer's internal control system.

Preliminary inspections are carried out in compliance with Section 12 of Law No. 90/1998 of the Law Index, in the wording of later amendments, with a 12-month frequency. The authorized individual ensures adherence to the schedule of internal controls, manufacturing process and tests.

Should the authorized individual find any shortcomings, further action taken has to comply with Section 12, Paragraphs 6 and 7 of Law No. 90/1998, in the wording of later amendments.