TESTING CENTRE

UralstroiTest

Accreditation Certificate No. POCC RU 0001.21CA04

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APPROVED

Head of UralstroiTest Testing Centre

_____ A.I. Shestakov

December 17, 2013

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Specimen products proof test report No. 1941

of December 17, 2013

Basis for carrying out of testing / Agreement *No. 1477 of 28.10.2013*

Product description*: Radiation-exposed concrete test cylinders with a height of 150 mm and a diameter of 150 mm (quantity – 6 pcs., supplied by the customer); radiation-exposed test cylinders made of concrete with Penetron Admix sealant (equaling to 1% of the cement mass) with a self-healing effect with a height of 150 mm and a diameter of 150 mm (quantity – 6 pcs., supplied by the customer). Test cylinders were exposed to gamma-radiation (^{60}Co. radionuclide) under standard conditions within the period from 12.04.2013 to 07.10.2013 at the branch of the Federal State-owned Unitary Enterprise "Karpov Institute of Physical Chemistry" with the use of KCB-500 radiation plant. The absorbed dose is 1000±10% mrad.*

Test cylinders are produced from class B22.5 concrete.

Actual materials consumption per 1m^3 of concrete: PTs-500D0 (ПЦ-500Д0) portland cement (manufactured by ZAO Neviyansk cement plant) – 462,5 kg, sand after crushed stone screening (Monetary Shchebenochny zavod) – 525 kg, crushed stone with a fraction size of 5 – 20 mm (Monetary Shchebenochny zavod) – 1275 kg, water – 237,5 kg (as per customer's information).

Test cylinders with the admixture are made of concrete with the same composition plus Penetron Admix sealant amounting to 4,6 kg (amount of cement is 457,9 kg).

Customer: *ZAO "Group of companies "Penetron-Russia", 1, Zhukovsky Square, Yekaterinburg, 620076, Russia.*

Date of specimen acquisition: *October 28, 2013. Date of Sampling report – October 21, 2013. Laboratory No. K-229/13.*

Testing procedure: *GOST 12730.5-84.*

Date of specimen testing: *October 30 - November 17, 2013.*

Test conditions*: Tests were performed under standard climatic conditions – at an air temperature of 20±2 °C and a relative humidity over 55%.*

The following equipment was used for watertightness testing:

- *UVF 6/04 (УВФ 6/04) unit No. 165. Range of measurement is within 0 – 2,0 MPa.*
- *UVB MG4.01 (УВБ МГ4.01) unit No. 93. Range of measurement is within 0 – 2,0 MPa.*

Accuracy of measurements does not exceed ± 2%. Water pressure is 0,2 – 0,6 MPa. Holding time at stage is 16 hours.

Testing results: *Results of testing are given on page 2. Total number of pages is 2.*

Report No. 1941 of 17.12.2013

Results of concrete test cylinders testing for water tightness:

Specimen	Radiation-exposed concrete			Radiation-exposed concrete with Penetron Admix sealant		
Specimen No. Item No.	Maximum water pressure, at which no leakage was detected through the specimen, MPa	Water tightness class of a separate specimen	Water tightness class of a set of specimens	Maximum water pressure, at which no leakage was detected through the specimen, MPa	Water tightness class of a separate specimen	Water tightness class of a set of specimens
1	0,2	W0	W0	0,6	W4	W4
2	0,4	W2		0,6	W4	
3	0,4	W2		0,4	W2	
4	0,2	W0		0,6	W4	
5	0,6	W4		0,6	W4	
6	0,4	W2		0,6	W4	

Conclusion: After gamma-radiation with a dose of 1000 water tightness class of a set of specimens with Penetron Admix sealant is 2 levels higher.

Note: Testing results refer to tested specimens only. Full or partial reproduction of the report requires the permission of UralstroiTest Testing Centre head.

Specialist responsible for testing: _____ E.N. Vlasova

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