«Сейфуллин оқулары – 16: Жаңа формациядағы жастар ғылыми – Қазақстанның болашағы» атты халықаралық ғылыми-теориялық конференциясының материалдары = Материалы Международной научно-теоретической конференции «Сейфуллинские чтения – 16: Молодежная наука новой формации – будущее Казахстана». - 2020. - Т.I, Ч.2 - С.285-286

ON THE ISSUE OF TECHNOLOGY FOR NEW HEAT AND WATERPOOFING COATINGS BASED COMPOSITONS CONTAINING MICROSPHERES FOR PIPES AND HEATING PLANT

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One of the main tasks of the industry - a comprehensive energy efficiency and economical use of energy-intensive products. Savings can be achieved by improving the thermal efficiency used coating. In this connection, as one of the most revolutionary solutions coating can be regarded that when the thickness of 2-3 mm provide the same insulating effect, as a layer of mineral wool 50 mm thick.

In Kazakhstan, the theory and practice of getting thermal insulation coatings using glass, ceramic, carbon microspheres have not been developed. The results obtained by the research can be used to produce coatings of main oil and gas pipelines, hot water supply utilities, heating installations in the construction industry [1-4].

The proposed technology of new materials should ensure the development of new technologies of a number of heat, hydro, sound-insulating materials with high corrosion resistance and improved strength, adhesion properties to most industries, meet the needs of industries in the knowledge-intensive high-tech competitive products, which corresponds to the innovation policy of Kazakhstan.

The novelty of the proposed technology is:

- obtaining new coatings for pipelines and thermal installations with increased heat and waterproofing indicators containing microspheres;
- the identification of mechanisms of formation of the structure of new materials;
- control of thermophysical characteristics of new materials during design and production.

Development of scientific and technical basis for production of composite materials using silicate microspheres enable will provide an opportunity to develop heat-saving technologies demanded by many sectors of the economy, the development of more fuel-efficient piping systems and heating plants.

The paper introduces the research on identifying the modulus of viscosity in order to determine the capacity of microfiller to spread evenly in the process of forming the structure properties. Modulus of viscosity is one of the main dynamic characteristics of the formation conditions and the capacity of loose finely divided materials to influence on forming the coating. Research shows that the smaller the size of hollow ash microsphere particles, the more even range of viscosity modulus identified by the humidity of microsphere. Obtained results demonstrate the

highest modulus of viscosity that have hollow aluminum and silica microspheres with the humidity from 40 to 50% [5-6].

References

1. Samorokov V and Zelinskaya 2015 Composite materials based on aluminosilicate microspheres in engineering DOI: 10.14489/hb.2015.01.pp.003-006
2. Microspheres of aluminosilicate (ash microspheres) 2013 Retrieved from http://www.microspheres.ru (in Russian)
3. Varlamova L, Averchenko A, Semchikov U 2008 Effect of aluminosilicate microspheres to the physico-mechanical and rheological properties of rigid polyurethane foams Journal of Applied Chemistry vol 81 (Sankt-Peterburg: Journal of Applied Chemistry) pp 502-507
4. Atyaksheva A 2002 Research and development of non-combustible ash gravel on the basis of ash and slag mixture, which is removed hydraulically. Candidate's thesis. Almaty. p 108 (Kazakhstan)
5. Studying physico-mechanical properties of cement pastes in presences of blend polymer as chemical admixtures. International journal of Basic and Applied science / E.S.M Negim, G.Yeligbayeva, R.Niyazbekova,R. Rakhmetullayeva, A.Mamutova,R. Iskakov,M. Sakhy, G.Mun // UAE: International Journal of Basic and Applied Sciences.- 2015.-4 (3).- pp 297-302
6. Study on the properties of materials based on cements with microspheres / R.Niyazbekova,S.Nukeshev, G.Bekturganova,L.Shansharova // USA: Current science.-2017.- vol. 112, no. 5.- pp.1228-1238

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