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IMPROVING THE SORBTION PROPERTIES OF SALT UNDERWAY

Annotation: *High humidity in the structures under the influence of salts leads to the erosion of the wall material, especially from the outer surface*

Keywords: *moderate humidity, decomposition of wall material, chlorine salts, structural solution of the wall*

Many production facilities of the chemical industry can be included in the range of buildings with normal or dry temperature and humidity regime. This is confirmed by scientific research conducted by research and design institutes on the temperature and humidity of the air in potassium plants.

But in many cases the walls of such buildings are covered with damp marks and salts. This in turn indicates that the moisture condition of the walls is not good.

Analysis of samples taken from raw brick walls showed that in some buildings, the average humidity was 5% higher than normal by the end of the moisture accumulation period, and the local maximum humidity was 7% higher. In the hot season of the year, the walls did not have time to be built.

High humidity in the structures under the influence of salts leads to the erosion of the wall material, especially from the outer surface.

The main reason for this is that the outer surface is exposed to rapidly changing temperatures, and the salt dust accumulated in the outside air is more than the indoor air dust.

The degree of salinity, the structural solution of the wall and other factors affect the wetting process and the distribution of moisture along the thickness of the covering structures.

If the structural solution of the wall is chosen correctly, then the main effect on the moisture state of the wall is the salt solution in the thickness of the coating. This is because the salt solutions that settle in the pores of the wall material differ from water in their physicochemical conditions.

The presence of chlorine salts in the wall thickness increases the moisture absorption (hygroscopicity) of the material (absorption of moisture in the air).

Moisture absorption (sorption) of building materials is determined by the nature of the binding of moisture to the surface of pores and capillaries.

The amount of sorption moisture under the influence of salts depends not only on the temperature-humidity condition of the environment and the nature of the material being wetted, but also on the physicochemical properties of the salts and the number of pores in the material.

The capillary condensation (condensation) in the fine pores of the salted material begins with the relative humidity of the air.

The increase in the sorption properties of salted building materials is directly proportional to the moisture absorption of the affected salts.

The presence of salts in the composition of building materials not only affects the sorption properties, but also reduces its long-term durability. The process of exploitation of the surrounding structures in the form of salts can be improved by reducing the number of salts. To do this, it is necessary to reduce the sorption properties of the liquid solution and condensate containing salts on the surface of the structures, as well as the structural material. This task can be achieved by volumetric hydrophobization of the heating layer, which forms the basis of the

wrapping structure. Polyphenylethoxyloxane (FES) and crystalline sodium ethyl siliconate (ESNK) were obtained as gyrophobic additives to the heating layer of lightweight concrete. The study of sorption properties of wall structures under the influence of sodium chloride salts was carried out in the following building materials: heavy concrete, expanded clay concrete, expanded clay concrete with FES, expanded clay with ZSNK. The study of sorption properties was carried out in cubes with a rib height of 3 cm. In the preparation of the cubes, the diameter of the filler fraction was made smaller. Additives to the expanded clay concrete composition were FES-2 (ESNK-01) relative to the weight of cement. The prepared samples were dried after 3 months at a temperature of -105 0C until their weight remained. The soaking of sodium chloride in them was 0.5 and 0.1 times more saturated and insoluble than saturated solution. The results obtained show that sodium chloride increases the sorption moisture in building materials. The more salt in the pores of the building materials, the greater the sorption. In materials containing ESNK and FES additives, sorption moisture is reduced regardless of salinity. The reduction of sorption moisture as a result of the addition of additives serves to improve the thermal properties of the wrapping structures and increase their durability.

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