DETERMINATION OF THE GRANULARITY CONTENT OF SWOLLING VERMICULITE

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ABSTRACT
In this article, we will study the granularity of expanded vermiculite, a lightweight filler used for ultra-lightweight concrete, and analyze the results of the research.

The construction of modern buildings cannot be imagined without covering materials, i.e., materials such as multiscale vermiculite plates, cement perlite plates, plasterboard sheets or these. Despite the fact that swollening vermiculite is environmentally friendly, resistant and durable, one drawback is its high water demand. Due to the small number of types of lightweight, environmentally friendly coating materials in the local building materials market, the growth of their production and use Sura remains low for the time being. It includes tasks such as high-quality production of traditional building materials on a scientific basis, adaptation of the technologies for their creation to the requirements of the time, development of inexpensive, economical, high-quality objects and technologies, obtaining new materials, creating their cost-effective technologies, perfecting the methods of repair and reconstruction of buildings and structures, and the effective use.

Swollen vermiculite is a raw material that is extracted from local mountain deposits and prepared as a result of heat treatment for it. The swollen vermiculite appears as a worm-like garmoshka, light yellow to golden brown, 0-10 mm long, 3-6 mm wide and 0.3-0.5 mm thick.

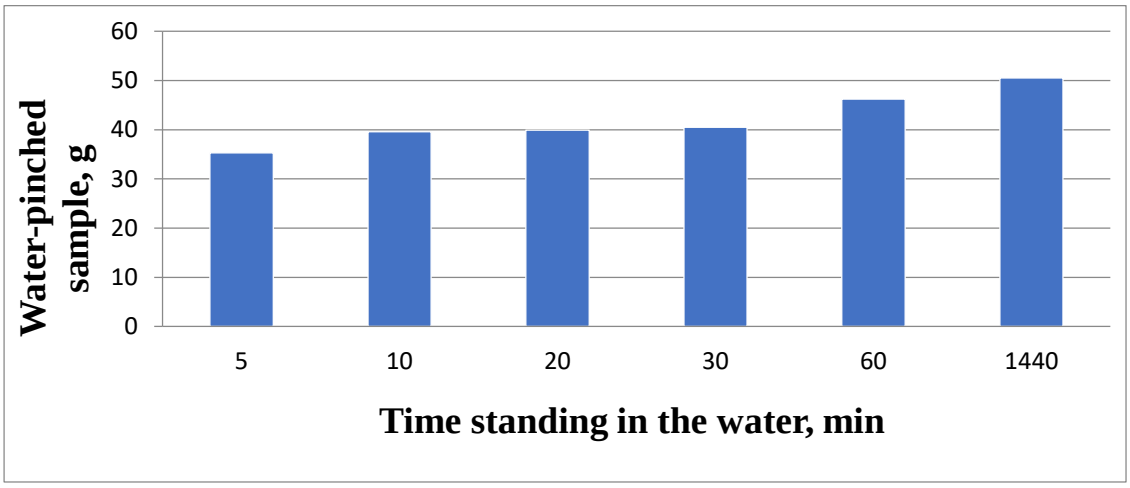
For research work that met the requirements of GOST 12865-67, we used a multivitamin vermiculite produced at MAXIVER LLC. Dimensions up to 0-10 mm and density: 100 kg/m^3 we use raw material.

When determining the granular composition of the multicooker vermiculite, small fillers-0,314; 0,625;1,25; 2,5; 5 mm is found through sieves.

The Sift begins with a large-sized sieve. The remaining filler residue on each sieve is pulled to a precision of 1 g. If the size of the sample taken differs by 2% from the sum of the

residues left in the sieve, the sieving is repeated.

With the help of the results of the granular composition, it is possible to determine the senescence modulus of the multicooker vermiculite.



When determining the granular content of multitasking vermiculite, we take a sample of 1000 gr of multitasking vermiculite and pass it through the control sieves and identify some residues left in the sieves, followed by a full residue:

Multifocal vermiculite fragility

Table 1.

№	Control sieve holes size, mm	Some residue on the control sieves, by mass %
1	5	10
2	2,5	17
3	1,25	15,8
4	0,625	33
5	0,314	9,5
6	saw	6

Figure 1. Determination of the granularity of multitasking vermiculite

When mounting reinforced vermiculite concrete structures, the scale of Labor is reduced, as well as the possibility of producing internal window door blocks, electrical conductors, panels in the plant itself. Reinforced vermiculite has good heat-technical performance compared to concrete ceramzite, which makes it possible to build relatively light walls. Replacing conventional materials with reinforced vermiculite concrete in certain structures allows you to reduce the weight of the building by 1.3-1.5 times. The equivalent thickness of the wall is 5-7 times lower than that of a brick 1 m^2 barrier made of reinforced vermiculite concrete under heat transfer conditions, 2-3 times lower than that of keramzibeton; the value of a wall 1 m^2 will be cheaper than the above.

In conclusion, due to the high sanitary-hygienic and economical use of energy resources in construction, environmental requirements, the standards for thermal conductivity of materials for the construction of walls have increased. Keeping the micro-climate in the room stable, isolating from hot-cold, noise is becoming one of the pressing problems of modern construction.

The production and application of heat-insulating multilayer vermiculite concrete has a number of advantages over traditional building materials:

The mass of the building decreases;
Heavy work in construction shrinks;
The thermal resistance of the structure increases;
Saws well;
Bio impact resistant;
It has an isolating indicator above heat and sound;
Refractory;
Well treated with cement mixture;
Easy to pierce a hole in a hand drill;
Holds the nail well.

Reinforced vermiculite concrete has a large porous structure, providing good air exchange in the room and high thermal technical performance, which allows you to reduce energy consumption for heating, ventilation of the building. Additional external heat and sound insulation materials do not need to be applied.

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