

HEAT RESISTANT CONCRETE OF SiC AND CENOSPHERE ADDITIVES

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Abstract: The research shows the mixture of silicon carbide (SiC), cement Gorkal 70 and silica fume powder (ratio: 40.5%, 52.4%, 7.1%). Cement Gorkal 70 is also heat resistant up to 1700 °C as SiC. For the better mixing quality, the grinding mill - vertical disintegrator DSL-175 are used. There are 4 types of mixture depending on cenosphere (waterproof aluminosilicate spheres) ingredient: 40%, 50%, 60% and 80% of volume, as well as superplasticizer and water. Cenospheres lowers the weight and compression strength of concrete mixture but at the same time increases the density of material. Compression strength tests for the specimen's size 3x3x3 cm show higher compression stress where cenospheres are less. The aim of the research was to examine SiC and cenosphere collaboration using refractory cement for the further experiments about the maximum possible light-weight material durability in high temperatures.

Key words: SiC, cenospheres, compression strength, heat resistant