

Вклад угледобывающих предприятий в пылегазовое загрязнение окружающей среды.

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Now the study of trends in environmental pollution associated with emissions of microparticles from technogenic sources during the extraction of mineral raw materials and fuel from the lithosphere is of considerable interest. The data analysis shows that there has been a significant increase in the volume of mineral extraction over the past decades. A similar process is typical for the microparticles emission from mining enterprises and open-pit coal mining enterprises in particular. This follows from the assessments of microparticle emissions from open-pit coal mining. The assessment dynamics of microparticle emissions from coal mining in the world for the period from 2010 to 2019 shows that emissions increased by about 12% compared to 2010 – this corresponds to the growth of global open-pit coal production. The obtained assessments of microparticle emissions from open-pit coal mining in the world are very close to the mass of emissions from motor transport and exceed the emissions of aviation and marine fleet, and they should also be taken into account when analyzing the total aerosol balance of the atmosphere in the technogenic sources section.

Using the example of Russian largest coal-mining Kuznetsk basin, assessments of microparticle emissions from open-pit mines were obtained based on data on dust release during explosive operations and the total volume of processed rock mass. The annual consumption of explosives used for overburden operations and coal crushing is continuously growing, as is coal mining. Judging by the trend in the use of explosives and the growth of production in open-pit mines, we can expect that the absolute value of the mass of microparticle emissions will continue to grow. For Russia in general assessments of microparticle emissions from coal mining in 2019 increased by about 36.5% compared to 2010. Comparison of assessments of microparticle emissions from open-pit coal mining and data on anthropogenic black coal emissions in Russia shows that the mass of microparticle emissions from coal mining exceeds the mass of emissions from each of the considered black carbon sources. Microparticles of coal released into the atmosphere during the development of open-pit mines are characterized by a high carbon content comparable to its content in the particles of black carbon formed as a result of the various fuels combustion, so they can also have a noticeable effect on the radiation balance of the atmosphere in the regions of their production.