An intercomponent heat transfer in a gravitational flow movements of particles in an inclined chute

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ABSTRACT

To ensure the complete localization of dust emissions, arising from the formation the overpressure in shelters, when heated conveyor overload materials is usually performed through suction of air from two shelters - from the upper (the upper shelter of the drive drum conveyor) and the lower (the lower shelter is place of loading the conveyor.)

The main problem when designing of aspiration systems such congestions is to determine the required flow of air, sucked out of the shelters.

We have developed a scientifically based method [1,2] which allows us not only to determine the required flow of air, removed from the shelter, but also to choose the rational allocation schemes of aspirating pipes, which is especially important in the cascade arrangement of equipment (feeder - rumble - crusher - conveyor), which covers are linked.

The solution of this problem have been achieved in the use of the correct model of dual-velocity continuum "particulate matter - the air", which allowed at a modern level to estimate the dynamic interaction of the flow of air particles under overload of bulk material, as a free running particle jets, and as it moves through a closed overload troughs.

The existence of combinations of these regimes is characterized by almost all industrial overload nodes.

Intercomponent heat transfer modifies the picture of air movement in these nodes, which we have been examined in the gravitational movement of the particle flux in an inclined chute.

The developed procedures of calculation of performance aspiration systems have proliferated in Russia and abroad in the mining and metallurgical industries.

REFERENCES

[1] I.N. Logachev and K.I. Logachev, *Industrial Air Quality And Ventilation: Controlling Dust Emissions*, 1th Edition, CRC Press, 2014.

[2] O.D. Neykov and I.N. Logachev, *Aspiration in the production of powder materials*. Moscow: Metallurgy, 1973.