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ADVANCED SOFTWARE FOR MINE VENTILATION NETWORKS SOLVING

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Abstract

Worldwide, consumption of raw materials and especially coal is increasing. For underground coal mining there are necessary mine networks reaching higher and higher depths. Associated to mine networks, mine ventilation networks exist having vital role in ensuring optimal microclimate conditions. Presently, every field of industry is using the computers at every production stage. Mining or mineral industry is not an exception. Today, due the great extent of the underground networks and the amount of data involved, we are using computers in solving problems of planning and design, engineering and control of mine atmospheric environment. The solving of a complex ventilation network of a mine cannot be done manually, and usage of a specialized software and advanced IT equipment is a must. One of the most advanced specialized software is VENTSIM Visual Advanced, developed in Australia. The software has been used by the authors for modeling and solving of two complex ventilation networks related to Lupeni and Uricani Mines. The concrete result consists in the accurate solving of natural repartition of the air flows at the branch level, based on automatic calculation of their lengths. Another important advantage offered by the application consists in 3-D solid visualization, allowing user to obtain any technical detail, from any angle.

Key words: 3D modeling, mining aeration, mining ventilation, specialized software, VENTSIM Visual Advanced

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