

ABSTRACT

In the thesis, the author presents studies and project works, their range, which was connected with developing technical method of limiting the noise level at working places of conveyor belts on mines, which consists of designing the best working place at the technology niche.

The conducted studies included in situ measurements of equivalent sound level A L_{Aeq} in the region of the drive of conveyor belts, graphical draw of the medium value of equivalent sound level A L_{Aeq} on the outline of site and distribution of machines, equipment and installation in the area of the studies and the identification of acoustics situation. In the next stage the technological niches were done on the basis of prepared technological process, as permanent sites of the conveyor belt service places. The technological niches were made of mining excavation output unit by the conveyor belts as one site inlet from straight crossbars. The distribution of the niches was designed and draft at the place which allow full realisation of production tasks taking into consideration the safety, at the same time ensuring the values of equivalent sound level A L_{Aeq} below the hygienic standards – as required and complementary factors. To improve the effectiveness of the studies results, the niches were adapter acoustically by the use of the soundproof 3M™ Thinsulate™ Acoustic Insulation SM600L.

After accomplishing the niches, the measurements of equivalent sound level A L_{Aeq} at the niches were conducted before the acoustic adaptation and after with using the soundproof material. On the basis of the received studies and measurements, the level of noise exposure was designated – the noise was with reference to 8-hour working time $L_{EX,8h}$ and the analysis of the method effectiveness was conducted. The analysis showed the effectiveness of the used solution as a technological method of noise limitation at the conveyor belt working place in mining excavation. Thus the aim of the thesis was reached, which by the designing and doing the niches, as permanent working places of the conveyor belts drives, reduced the noise exposure referring to the current hygienic norms.

The above mentioned method was done on KWK „Bobrek – Piekary” on the mining excavation and was described in the safety regulations.