MADRID

inter.noise 2019

June 16 - 19

NOISE CONTROL FOR A BETTER ENVIRONMENT

The effect of acoustic model input parameters of conveyor belt on the calculation results accuracy.

Bartłomiej Stępień [1]
AGH University of Science and Technology, Department of Mechanics and Vibroacoustics,
al. A. Mickiewicza 30, 30-059 Krakow, Poland.

Tadeusz Wszołek[2]
AGH University of Science and Technology, Department of Mechanics and Vibroacoustics,
al. A. Mickiewicza 30, 30-059 Krakow, Poland.

Dominik Mleczko[3]
AGH University of Science and Technology, Department of Mechanics and Vibroacoustics,
al. A. Mickiewicza 30, 30-059 Krakow, Poland.

Jerzy Wiciak[4]
AGH University of Science and Technology, Department of Mechanics and Vibroacoustics,
al. A. Mickiewicza 30, 30-059 Krakow, Poland.

ABSTRACT

Acoustic models of industrial plants are built using various types of elementary sources, whereas input data are obtained from measurements. In the case of small sources, there are generally no problems in determining sound power level or modelling. However, in the case of very large objects the difficulties appear at every stage of modelling. The basic problems include determining sound power level of a large size source, building an acoustic model of such source using elementary sources, as well as the calibration of the model to measurement data.

The acoustic models of conveyor belt built in SoundPlan software using various types of elementary sources are presented in this paper. The influence of particular sources types as well as their acoustic parameters on the accuracy of modelling the

---

[1]Bartlomiej.Stepien@agh.edu.pl

[2]Tadeusz.Wszolek@agh.edu.pl

[3]Dominik.Mleczko@agh.edu.pl

[4]Jerzy.Wiciak@agh.edu.pl

noise distribution emitted by the conveyor belt was determined. The results of model calculations were compared with the measurement results at selected points located around the modelled object. Based on the performed analysis, the most effective acoustic model of the conveyor belt in terms of minimizing the absolute error of the modelling results was indicated. The sources of the greatest uncertainty of modelling results were also indicated.

ACKNOWLEDGEMENTS