

This thesis compares the experimentally determined values of PM₁, PM_{2.5}, respirable fraction and PM₁₀ between the cab drivers and the outdoor walkway of the bucket wheel excavator in the brown coal strip mine Doly Nástup Tušimice between March 16 and March 23, 2015. For the measurement of individual fractions, portable laser nephelometers were used. Superiority of coarse aerosol was confirmed outside from the total measurement time accounted for 82 %. PM₁₀ fraction predominated outside and changed throughout the day depending on the activity carried out by a worker. Regular cleaning by sweeping stretches of dunes had an impact on PM₁₀ concentrations. Fluctuations in the concentration of PM₁ were detected in the driver cab due to smokers stay at this workplace. For these reasons there is a concentration difference between work shifts.

Air temperature and relative humidity were also monitored in both types of work places. The air temperature average values reached over the range recommended for the optimal working environment in the driver cab.

The thesis finds out personal exposure of a bucket-wheel excavator driver which is below the limit for the total concentration. Smaller fractions appears to be a potentially health risk.