

The hearing status of employees exposed to noise generated by ultrasonic welding devices

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ABSTRACT

The aim of the study was to assess the effect of ultrasonic noise (10-40 kHz) and audible noise on welder operators' hearing status and to compare the results with the results obtained in group of workers exposed exclusively to audible noise. In the group of 90 operators of ultrasonic welding devices the hearing examinations were performed, using pure tone audiometry at frequencies from 0.5-16 kHz and otoacoustic emission tests (DPOAE, TEOAE). The results of hearing tests were compared with the results in the reference group of workers exposed exclusively to audible noise. Hearing thresholds at a frequency of 0.5-6 kHz are comparable in both groups, and at frequencies of 9-14 kHz the thresholds are higher in the welder operators group. Amplitudes of otoacoustic emission are comparable in the lower frequency ranges of the test frequency bands, and in the upper ranges the amplitudes are greater in the reference group. These differences in hearing may result from differences in spectral composition of noise.