

Study 2: attenuation and wearing comfort

Aim of the study

Comparative study on the sound attenuation and wearing comfort of 4 different types of custom moulded earplugs.

Date

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Investigator

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Summary

Four types of custom moulded earplugs of Dutch origin were investigated: VARIPHONE®, ELCEA ML01, ELCEA L01, and IRENUM SK-LD24.

The sound attenuation was measured for eleven subjects as a function of frequency. The method of measurement was in accordance with ISO 4869-1981 using 1/3 octave bands of noise. For each type the mean sound attenuation and the standard deviation are given as a function of frequency. Based on the mean sound attenuation over all frequencies it is concluded:

1. The VARIPHONE® offers the highest sound attenuation, respectively followed by the ELCEA ML01, ELCEA L01 and Irenum SK-LD24.
 2. Analysis of variance showed that the differences in attenuation between the VARIPHONE® and the other 3 types are significant at the 5% level, while there are no significant differences within the latter group.
 3. The results of a questionnaire on wearing comfort showed no significant differences among the VARIPHONE®, Irenum SK-LD24, and ELCEA ML01, whereas the concha model (ELCEA L01) scored significantly lower (5% level).
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