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# SUSTAINABLE TECHNOLOGY OF WOOD CHARCOAL DIFFUSER FOR INDOOR ACOUSTICAL QUALITY

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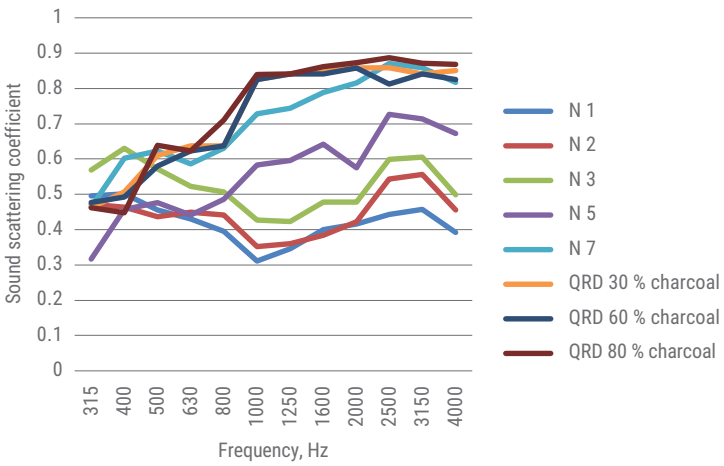
***Abstract*** – Wood charcoal is sustainable, renewable, environmentally friendly material using which the acoustic device may be produced. Charcoal made of wood waste materials allows to improve indoor acoustical quality. The current article aims to investigate sound scattering coefficients of quadratic residue diffusers with the covering of oak (*Quercus robur*) wood charcoal elements. The sound scattering coefficient is calculated due to the reverberation time measurement in the reverberation chamber. The calculation results of the scattering coefficient show the growth of scattering in the frequencies – the highest value reached 0.88 (diffuser N7 with charcoal). The effectiveness of diffusers to diffuse sound waves increases as the number of wells grows. The diffuser with 80 % charcoal elements showed a higher scattering coefficient comparing to the diffuser without charcoal elements.

***Keywords – Diffuser; renewable materials; sound scattering coefficient; wood waste; wood charcoal***




Sound scattering coefficient of diffusers with covering of oak charcoal elements.