Journal of Acoustical Engineering Society of Iran, Vol. 4, No. 1, 2016

The effect of apex angle on acoustic absorption coefficient in perforated sheet with pyramidal geometry

A. Khavanin[*1], M. Sadeghi Malvajerdi[1], R. Mirzaei[2], A. Safary[3]

1. Department of Occupational Health and Safety, Faculty of Medical Sciences, Tarbiat Modares Univ.
2. Department of Occupational Health Engineering, School of Public Health, Zahedan Univ. of Medical Sciences
3. Department of Occupational Health, School of Public Health, Qazvin Univ. of Medical Sciences

Abstract

Almost, in all industries, acoustic noise is one of the harmful physical agents for human. In order to control noise, different methods are applied and acoustic absorption is one of the passive methods. For sound absorption wide range of absorbers are used. In recent year, perforated sheets are considered for sound absorption in industries and constructions. Usually perforated sheet are used with one of porous or fibrous materials, like rock fibers. Effective parameters on a flat perforated sheet are as follows; thickness, hole diameter, perforation ratio, and clearance of perforated plat from the solid back plate. In pyramidal perforated sheet a new parameter is defined, apex angle. Aim of this study was evaluation of apex angle effect on acoustic absorption coefficient. The first step of this study was construction of pyramidal geometry. Then, acoustic absorption coefficient measurments were carried out for apex angles of 24, 29, and 36 degree without any absorbing material.

Keywords: Pyramidal perforated sheet, Acoustic absorption coefficient, Apex angle.

pp. 21-28 (In Persian)

[*] Corresponding author E-mail: khavanin@modares.ac.ir

[DOR: 20.1001.1.23455748.1395.4.1.3.0]