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Design of an Acoustic System for Small-Scale Power Plants

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Abstract : Usually, noise generated by industrial units, is a pollution and disturbs people and causes problems for human health and sometimes these units will be closed because they cannot eliminate this pollution. Small-scale power plants usually are built close to residential areas, and noise generated by these power plants is an important factor in choosing their location and their design. Materials used to reduce noise are studied by measuring their absorption and reflection index numerically and experimentally. We can use MIKI model (Yasushi Miki, 1990) to simulate absorption index by using software like Ansys or Soundflow and compare calculation results with experimental simulation data. We consider high frequency sounds of power plant engines octave band diagram because dB value of high frequency noise is more noticeable for human ears. To prove this, in this study we first will study calculating octave band of engines exhausts and then we will study acoustic behavior of materials that we will use in high frequencies and this will give us our optimum noise reduction plan.

Keywords : acoustic materials, eliminating engine noise, octave level diagram, power plant noise
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