

主 論 文 要 旨

2011年 3月 30日

Practical Study and Development of Ground Vibration Reduction Method by Using Scrap Tire

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主論文要旨

The amount of occurrence of a scrap tire is 100,000,000 tons in the weight of the rubber for several years by the continuance. Through 90% is mostly recycled, an influence on global warming by CO₂ that about 50% is thermal recycling. Recently, a ground vibration caused by construction works, plant machineries, such traffics as railways and highways sometimes gives some troubles in nearby buildings and residents in houses as one of important environmental problems.

In this study, the ground vibration reduction method by using scrap tire has been developed. The effect of the ground vibration reduction has been examined in several cases, which are the comparison experiments at the different scrap tire size, such experiments that changed the hardness by using fresh concrete of the ground vibration reduction materials, and the experiments that given an anchoring effect. In the case of the comparison experiments at the different scrap tire size, a general tire size confirms the grater reduction effects than large tire size. In the experiment that changed the hardness by using fresh concrete of the vibration reduction materials, that did not confirm that ground reduction effects, so another type ground vibration reduction materials keeping the hardness was developed by using hi-pressed scrap tires, and it was confirmed the vibration reduction value was over 10dB and its effect lasts at a long distance. The experiment with anchoring effect was examined around 10Hz by using the vibration acceleration machine, and the great reduction effect that was over 10dB was obtained. As the results, it was confirmed that this ground vibration reduction method has the effectiveness to reduce the environmental ground vibration, and usage as the great material recycle of the scrap tire.