Limbah industri fast fashion sebagai material absorben bunyiyang berkelanjutan = Fast fashion waste as alternative sound absorbent material

Ayu Jayanti, author

Abstrak

Kenyamanan pendengaran seringkali dilupakan oleh sebagian besar orang padahal, paparan suara bising yang berlebihan dalam jangka waktu tertentu dapat menyebabkan beberapa permasalahan seperti stres, menurunnya produktifitas kerja, dan gangguan pendengaran. Salah satu material yang memiliki kualitas absorbsi yang baik seperti rockwool nyatanya, terbuat dari material nonrenewable serta membutuhkan energi besar dalam proses pembuatannya. Penelitian ini bertujuan untuk mengeksplorasi material absorben alternatif yang terbuat dari limbah fast fashion kain perca. Limbah ini dipilih karena ketersediaanya yang melimpah dan memiliki karakteristik yang sama dengan material absorben pada umumnya. Eksperimen dilakukan dengan menghitung nilai Noise Reduction Coefficient NRC dari material sampel. Tujuan dari penelitian ini adalah untuk mengetahui apakah limbah fast fashion memiliki potensi yang baik sebagai material absorben. Sampel limbah yang diujikan adalah polyester, hyget, scuba, fleece, dan rayon. Hasil dari penelitian menunjukan bahwa nilai NRC rockwool adalah 69% sedangkan material sampel lainya yang tertinggi adalah rayon yang dipotong memanjang sebesar 65%. Meskipun nilai sampel masih berada di bawah rockwool pengunaan kembali limbah fast fashion dapat memberikan added value terhadap limbah fast fashion.

.....The fast fashion industry produces overabundant fabric-based waste, yet the same fabrics also possess a basic characteristic of a noise absorbent material. Generally speaking, noise absorbent material usually used to achieve a state of acoustical comfort. Unfortunately, most commercial absorbents were made from a non biodegradable material with high embodied energy, values that stranded far from the concept of sustainability. This paper tries to explore the potential of converting the fabric-based waste produced from the fast fashion industry into noise absorbent materials. Experimental research methods applied in this research by exploring five types of synthetic-based fabric commonly used in the fast fashion industry, namely: Polyester, Fleece, Hyget, Rayon, and Scuba. Two models of cut, stripes cutting, and small square cutting also applied to the fabrics/samples used in this research. The Noise Reduction Coefficient NRC value was examined to the samples using a custom made acrylic box attached to two Sound Level Meters (SLM) on their opposite sides/chambers. The result shows that samples from rayon with stripes cutting achieved the highest yet still slightly under stone woods NRC value, which is 65% compared to 69%. This research highlights the possible relation of fabrics mechanical properties such as fabric structure, stiffness and material that may lead to the creation of more porous spaces that support better noise entrapment capability. Although further studies are still needed, the slight difference in noise reduction value between these research samples with conventional noise absorbent material such as stone wool demonstrates that fast fashion fabric waste may have the potential to be an alternative noise absorbent material.<i/>