
Subject: interesting damping material

Posted by [moray james](#) on Mon, 14 Aug 2006 04:20:41 GMT

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interesting damping material Post #1 Just finished spending a day experimenting with box cavity damping. The speakers in question are ATC SCM10's which are factory damped with long fiber wool. This is a small cavity sealed box with an impressive 5.5 inch bass/mid driver that has a very long linear excursion. A friend of mine attended the Hi Fi Show in Germany this spring and had an invite to spend the night at a private showing of the new KEF Reference loudspeaker. One of the cool things about the KEF is that it is internally damped with activated charcoal. This is a neat idea as activated charcoal is very porous. KEF claim to have reached a virtually theoretical cavity volume increase of 28 out of 30 % using the charcoal. This got me thinking. Charcoal is messy and expensive. Perlite is a heat expanded form of rock used in the gardening business usually white but comes in various colours. Perlite is basically rock heated up like popcorn or Rice Crispy's and ends up like small kernels of porous soft rock which is soft enough that you can crush it to powder with your fingers. Perlite is more porous than activated charcoal and is clean and cheap to buy. I replaced all the internal wool damping with the perlite in the ATC SCM10's. This resulted in a significant improvement across the band with especially improved midrange and more extended bass. You do need to take some precautions however. Perlite must be sifted first to extract all the fine powder as you only want pieces the size of rice crispy's and larger. Further you need to insure that the perlite is kept out of the driver/s. This done I would have to say that this is by far the best damping material that I have ever used. This is I think as a result of the fact that perlite is so very porous and has high resistivity to passage of air and also in that it has tremendous frictional dissipation due to the particles vibrating against one another. Bug screen and fiber batting like polyester or acrylic will keep the perlite where you want it and permit free air flow about the back side of the driver. For ported boxes you would want to keep a fair size area (should think a minimum of a 1/2 cu. ft.) around the reflex vent free of any damping material to insure correct vent resonance. There you have it cheap and SOTA damping material that works like a charm. For those who cannot readily get their hands on perlite or who disbelieve a good second choice would be rice crispy's (don't laugh) but they will cost more than perlite however if you are not fussy you can at least eat the rice crispy's after. You can expect the perlite to be more effective than the rice crispy's as it is far more porous in structure. **BE FOREWARNED** you must properly prepare for using perlite to insure that it only goes where you want it to. This is a real gem of a damping material especially for ultra small cabinet speakers and I should think the absolute bomb for TL's. I am sure that some will laugh till they hurt but do give it a try and for those too busy laughing well that's your loss. Very best regards Moray James.