Thermally Conductive Metal Wool-Silicone Rubber Material Can Be Used as Shock and Vibration Damper

The problem: For certain space-vehicle applications there was a requirement for a thermally conductive, shock- and vibration-absorbing material that would serve as a spacer in equipment mountings, and be capable of withstanding temperatures of 255°F for 24 hours.

The solution: Pads of bronze wool impregnated with a silicone rubber.

How it's done: Commercially available bronze wool is first formed into thin mats, which are then placed between two metal plates that have been spread with an uncured silicone rubber. A pressure of 50,000 pounds per square inch is applied to the units in a hydraulic press for a 24-hour curing period at room temperature. The resultant product is a thin sheet or pad of thermally conductive, shock-absorbing material. While not new in concept, it was found to have a better combination of elasticity, heat resistance, and thermal conductivity than similar commercially available materials.

Note:
Suggested uses for this material include shock and vibration absorbers, pressure-sealing gaskets, and r-f shielding gaskets.

Patent status: NASA encourages commercial use of this innovation. No patent action is contemplated.

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