

3M**VHB™ Tapes**

Does trailer design impact horse stress?

Sound and Vibration Study - Executive Summary

A common concern among horse owners is the stress their animals endure every time they transport their animals. Equine experts have found that vibration and noise inside a trailer can cause significant stress and fatigue to horses. This stress and discomfort leads to long recovery times before an animal is ready for a show, race or other event.

According to Dr. Nancy Loving, DVM, Boulder, Colorado, "Any time you have excessive road noise or vibration in a horse trailer, I think the horse experiences some stress -- and that can lead to fatigue, both muscular and mental. In many cases, it has been speculated that a trailer ride is comparable to a horse walking the same distance he was driven, due to the muscular work of balancing against movement and vibrations of the trailer."

Dr. Brady Bergin, Oregon State University, Lebanon, Oregon, echoed that concern, saying, "Stress and fatigue during transport does exist and needs to be considered more frequently. Stress and fatigue leads to "Shipping Fever", colic, other health concerns and poor performance."

But researchers from 3M, working with engineers from several major trailer manufactures have come up with an intriguing solution.

Following positive comments from horse trailer owners, 3M commissioned an independent, scientific study to measure the actual noise and vibration reductions possible when trailers are built with 3M™ VHB™ Tapes.

3M hired Skip Hartman, an acoustics and vibration expert from MachineryWatch.com, to do a comparison - testing a horse trailer made with VHB

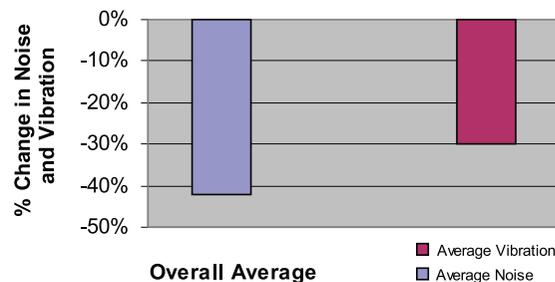


tape against a similar style trailer made with conventional mechanical fasteners. The objective of the study was to measure two things - noise and vibration. To get an accurate reading on noise and vibration, they hung several microphones and vibration sensors in identical positions in both trailers.

The results were clear. The trailer made with VHB was up to 41% quieter at highway speeds than the trailer using traditional fastening technology. There was also a significant reduction in vibration in the trailer built with VHB tape - again, measured in this test at up to 30%.

According to Dr. Loving, "Reduction of noise or vibrations should benefit horses in transit. Anything we can do to make our animals more comfortable while traveling is a step in the right direction."

Overall Average (OA) Noise and Vibration Reductions for Highway Conditions



Source: Sound and Vibration Report, Skip Hartman 11/01/2005

For further information about 3M™ VHB™ Tapes, call 877-366-2746 or visit: www.3M.com/specialtyvehicle