



The Vinyl Advantage  
in Transportation Interiors

## introduction

The transportation industry chooses vinyl fabrics to upholster its products' interiors because no other material meets its key demands: cost effectiveness, durability, cleanability and comfort. Modern vinyl does all that without sacrificing safety and adherence to the Federal Motor Vehicle Safety Standards (FMVSS) and Federal Aviation Requirements (FAR).<sup>1</sup> In some applications, critical issues include fire resistance, smoke generation, toxicity, noise reduction, weight and style.

Manufacturers and owners alike want the same thing – high quality interior products that require minimal care. Style, design and color are important as well, especially in conversion vans, personal watercraft, boats, RVs and airplanes, where owners want the look and feel of luxury.

When it comes to “dressing” the inside of a vehicle, manufacturers look for materials that will meet industry specifications at a low cost and are durable enough to withstand the wear and tear of everyday use. Especially in applications such as school buses, the material must be “childproof” – that is, exceptionally strong – without sacrificing comfort and still meeting all of the safety and strict fire standards required for pupil transit.

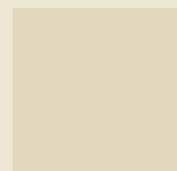
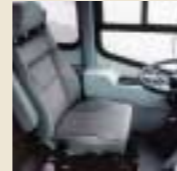
On the other hand, the primary concern of owners is easy maintenance – especially tear resistance and ease of cleaning. They demand materials that will stand the test of time and meet the challenges of frequent and rigorous use.

Vinyl is one of the few materials on the market today that actually exceeds the high standards of both manufacturers and owners while providing top-of-the-line value.

A man-made polymer, vinyl is the third largest volume plastic in the world and has been proven safe with years of scientific data reinforcing its performance. Used in applications ranging from upholstery and wallcoverings to pipe and siding, it is suitable for a wide range of products and is manufactured with the needs of the end-use in mind. Unlike most plastics, vinyl compounds can be formulated for specific product characteristics such as flexibility, resistance to abrasion, long-term usage and flame resistance.

Some vinyl products are manufactured to provide a barrier to stains as well as resist mildew and mold build-up. Vinyl also can be manufactured to be weather resistant, for both indoor and outdoor uses. And it can be laminated to cushioning foam for applications where ergonomics are important, such as seating in construction and agricultural vehicles.

The versatility and dependability of vinyl make it the most appropriate and cost-effective choice for interior trim cover materials including instrument panels, seat covers, headrests, armrests, dashboard skins and door panels in most transportation uses.



## why vinyl?

**Simply stated, vinyl meets or exceeds the performance demands of transportation vehicle manufacturers and owners.**

**It's durable, easy to clean and stain resistant.** Vinyl withstands everyday wear and tear, resisting the scrapes, rips, abrasions and stains that often damage other interior finishes. In addition, regular cleaning with soap and water is all that is needed to maintain vinyl's good looks – even after years of heavy use. Special cleaners are not required to keep the surface looking good as new. Soap and water do just fine.

Cleanability, durability and stain resistance are especially critical to mass transit operators. Responsible for transporting millions of commuters, train, airplane and bus operators are constantly chal-

lenged to maintain a clean, aesthetically pleasing environment on a tight budget. These high traffic areas experience considerable wear and tear from commuters who leave behind trash or don't think twice about the coffee they spilled. Vinyl's performance helps mass transit operators keep their seats, armrests, tables and walls from showing wear. A quick wipe down with soap and water and the cabin is ready for the next round of commuters.

Recreational vehicles and boats offer consumers many luxuries. As a “home away from home,” an RV or yacht is put to the test when it comes to stain resistance. As meals are prepared and consumed, the interior surface areas are exposed to grease, dirt, liquids and many other stain-producing elements – not to mention the mud tracked in from the fishing hole or sand from the beach. When equipped with vinyl and vinyl composites instead of other fabrics or leather, clean-up time is minimized and the RV or boat looks good as new when vacationers return home.

All-Terrain Vehicles (ATVs) need to be equipped to take a beating. From construction to forestry to recreational use, these vehicles must withstand wear and tear from their owners as well as from weather and natural elements such as rocks, branches and micro-organisms. Vinyl's ability to resist abrasions and stains makes it a superior choice for ATV manufacturers. In addition, ATV seats are manufactured using vacuum forming, thereby allowing the seats to be built without seams. This one-piece construction greatly reduces the chance of water reaching the foam cushion. After a trek through the woods or a day on the construction site, the interior of an ATV requires only a quick cleaning to be ready for its next adventure.

**It's adaptable and versatile.** The use of additives and multiple manufacturing techniques allow engineers to customize the characteristics of the end product. From fire resistance to mold and mildew resistance to the amount of cushioning desired, vinyl can be adapted for most applications.

When specifying materials for commercial and personal watercraft, ATVs, golf carts and snowmobiles, manufacturers must consider potential for mildew and mold growth as well as passenger comfort. Vinyl's adaptability makes it an excellent choice for outdoor applications. It can be formulated with antimicrobial additives to resist microorganism growth and can be adhered to foam to provide cushioning to soften the ride.

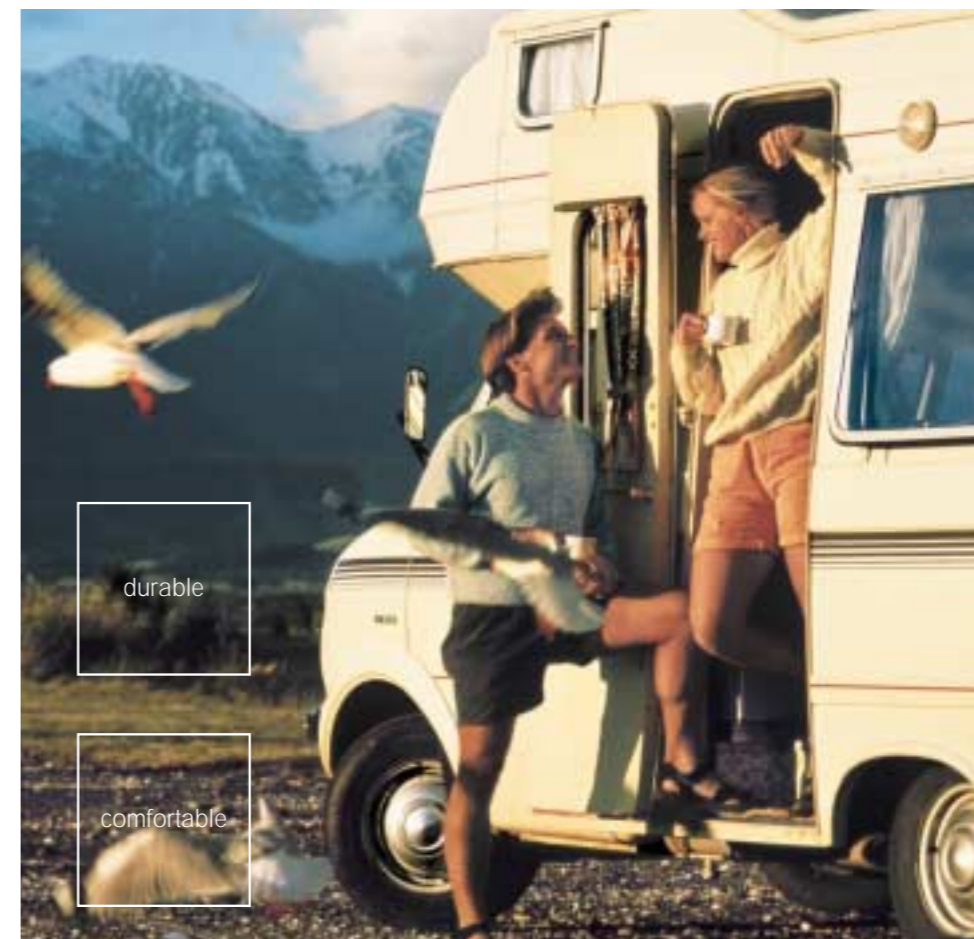
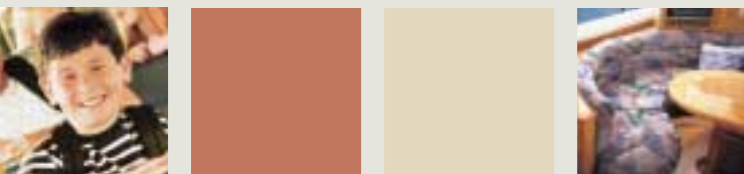


Vinyl's versatility surpasses that of most materials when it comes to design and style. It can be manufactured in virtually any thickness, texture, or pattern and in a nearly limitless array of colors. It can be formulated to be soft to the touch, providing a leather-like feel, lightweight and with excellent color and grain retention. It can be made to look like other materials, such as wood, without the maintenance requirements.

From conversion vans to over-the-road truck cabs, vinyl can provide the stylish, updated look consumers want while saving them time and money when it comes to maintaining the interior.

**It's fire resistant.** Vinyl can be manufactured to be self-extinguishing and provide a fire barrier preventing highly flammable cushioning materials from igniting. It can be engineered to meet most state, local and federal fire resistance regulations, resulting in increased consumer safety.

**It's got lasting value.** Vinyl offers a high quality, attractive product at an affordable price. When compared to materials such as leather or fabrics, vinyl is not only typically lower in initial cost, but it's also lower in lifecycle cost because it does not have to be replaced as often and is easier to maintain. The end result is a product that provides lasting value.

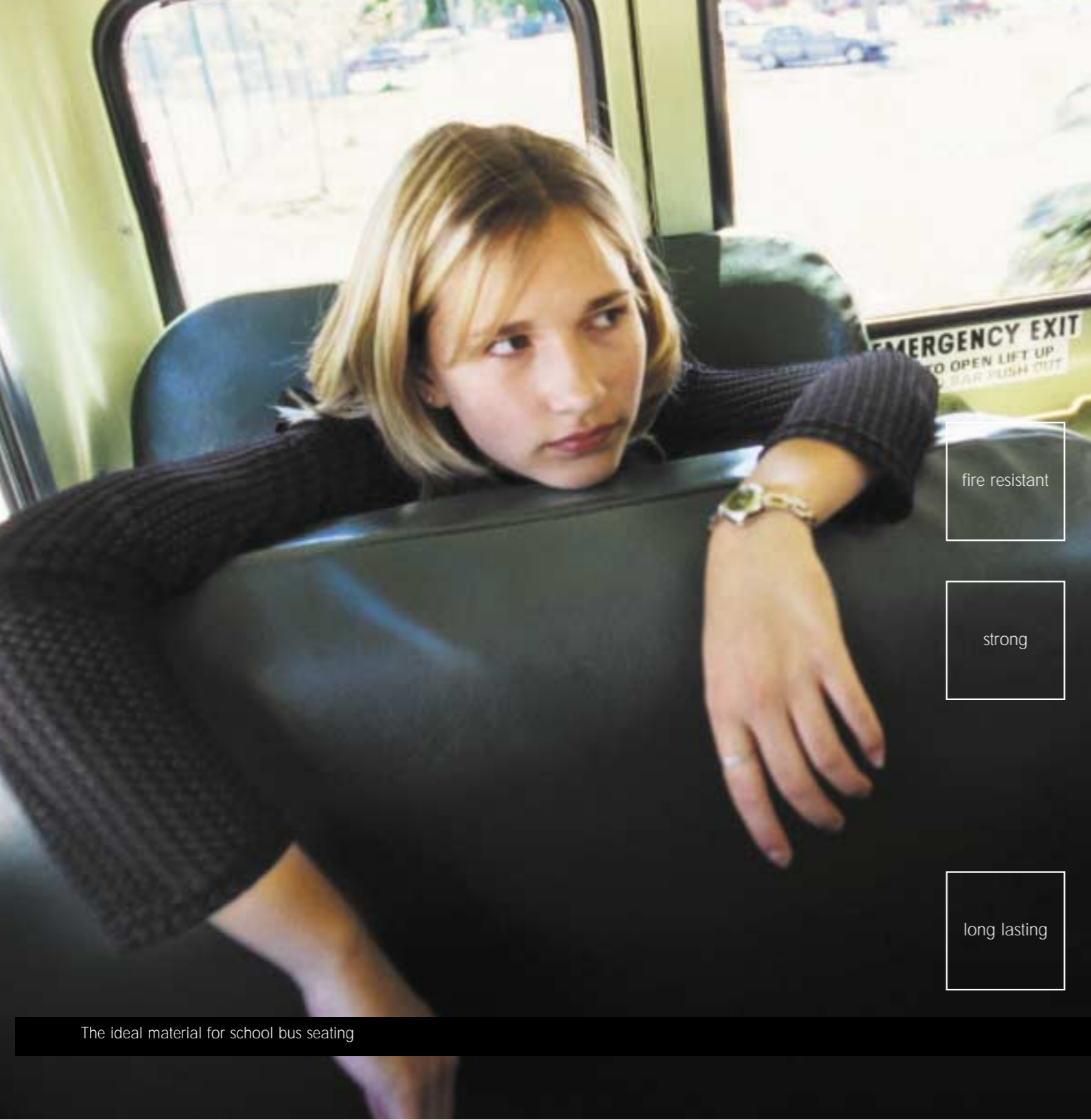


durable

comfortable

A fashionable alternative for RV interiors

easy to clean



fire resistant

strong

long lasting

The ideal material for school bus seating



## excellent performance

**Vinyl's environmental performance is outstanding. It is energy- and resource-efficient to manufacture and a low consumer of non-renewable resources.**

- The use of additives to enhance vinyl's functionality and durability has been discussed extensively in the scientific community and evidence confirms that these additives do not pose a health risk to the end user. In fact, because vinyl is so easily cleaned, it actually can make it easier to keep an environment bacteria-free and free of common allergens such as dust and pet hair. Vinyl has been used safely for more than 40 years.
- Although flexible vinyl products such as upholstery fabric may have an initial characteristic odor or "new" smell, these odors

dissipate quickly with proper ventilation. Overall, studies have shown that vinyl products do not significantly contribute to long-term indoor air quality problems.

- The vinyl industry has worked closely with many independent organizations including the National Fire Protection Association to study the emissions created in fire situations and consistently has found that accidental fires involving vinyl spread very slowly and produce comparatively little smoke.<sup>2</sup> In fact, even when exposed to an open flame source, vinyl will resist ignition much longer than most materials.
- Vinyl interior products can and are being recycled. In addition, many vinyl interior products are made with recycled-content materials.



## conclusion

Vinyl cover material has numerous benefits, ranging from performance to design to safety to cost. For transportation applications, it is the material of choice.



<sup>1</sup> FMVSS-302 for automobiles and FAR 25.853b for aviation equipment.

<sup>2</sup> "Fire and Polyvinyl Chloride," The Vinyl Institute, 1996.

■ recreational vehicles ■ school buses ■ all-terrain vehicles ■ backhoes ■ ferry boats ■ conversion vans ■ shuttle buses ■ yachts ■ subway cars ■ personal watercraft ■ forklifts ■ snowmobiles ■ passenger trains ■ metro buses ■ over-the-road trucks ■ private planes ■ tractors ■ golf carts ■ corporate jets ■ commercial watercraft ■ ambulances ■ go-carts ■ commercial aircraft ■ construction equipment ■ pleasure craft ■ riding lawn mowers ■ automobiles ■ police cars ■ pick-up trucks



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