

White Paper

SENSES WORKING OVERTIME: USING SIGHT, SMELL, TOUCH AND SOUND TO ENHANCE AUTOMOTIVE AND OTHER MOBILITY-RELATED INTERIORS

"First impressions count." "New-car smell." "Like sitting in your favorite armchair." "Soft-touch materials ooze quality." "The look, feel and smell of leather shouts "luxury." "A rugged, hard-wearing interior." "Bright, cheerful colors." We have all heard these kinds of comments about the interior of a car, plane, train, bus, tram or boat. When it comes to our mobility choices, as in so many other areas in life, we often talk rationally - claiming to choose car A over car B because of its fuel economy or safety, for example - but scratch the surface and you quickly find that we are really driven by our senses of sight, smell, touch and sound. It's always been this way. The difference today is that our senses are set to become even more important in defining our user experience and user preferences. After all, when you share a ride instead of owning your own car, every time you use one it becomes a first impression.

Automotive and other industries are stimulating each other

Product and service brands in industries and sectors ranging from apparel to food & beverage, home interior, home decoration, hotel & catering, beauty and beyond, are increasingly turning to the senses to make their products stand out. They know that smell, taste, sound, feel, texture, visual image and packaging combine in the brain to create indelible impressions and enhance experiences.

Optimising them can create a "wow" reaction and make a product or service memorable, buzz-worthy and stand out at the point of purchase. Involving more of our senses can also heighten our post-purchase satisfaction.



The definition of mobility is changing

The same applies to the automotive industry. When every car is more or less reliable, you have to find other ways to stand out from your competitors. Leveraging our senses is one way, and it ties in with the other disruptive trends that are set to sweep the mobility industry. These include the transformation from selling cars to selling mobility and mobility services, the rise of autonomous vehicles and the consequent reinvention of the car as a home away from home (or an office on wheels), the rise of ride sharing instead of ride ownership, increasingly urban mobile lifestyles and more environmentally conscious and better-informed consumers.

The experience of mobility is changing

In turn, these trends will have a knock-on effect on interior spaces, the primary effect being that the interior space as a whole – how it can be used, the quality of materials, the design concepts and so on – will become a key. Cars will evolve from a cockpit for the driver, with occasionally a few passengers along for the ride, to living and office spaces – possibly shared with strangers. As this happens, the demand for premium surface finishes and lighter interiors – both things we are already seeing – will rise further. Material sustainability will also grow in importance, as will smart connectivity, personalisation and in-vehicle air quality, hygiene and cleanliness.

Moving to trend-based, sensory-driven R&D

As an expert in car interior surface materials, Stahl will have a major role to play in realising, shaping and enabling the good trends and reducing the impact of the negative ones. Stahl's approach is to explore the car interior through our senses – sight, smell, touch and sound – to add value. Drivers include durability, hygiene and stay-clean surfaces, sustainable and lightweight materials, smart surfaces, noise reduction and air quality. These in turn are, or will be, reflected in solutions for seats to keep them looking attractive, solutions that enhance air quality in terms of appealing smells and no VOCs, in literally feel-good solutions for seats, instrument panels, steering wheels and other interior surfaces, and solutions that prevent seats squeaking or rattling.

The influence of the senses on material innovations in the automotive industry is increasing. Car manufacturers and OEMs find themselves having to pay extra attention to the characteristics of different car materials, the location of the materials in the car and the coatings used on different car materials.





Sense of sight: keep that beautiful interior looking beautiful

J.D. Power, a world-wide market research and consulting firm, conducted a global research among car owners in 2014. Their research shows that car seat issues are a major annoyance for car owners. Problems with the covering material are the biggest pain point (Issues reported twice as often as other annoyances), with squeaks and rattles coming second. Uncomfortable seats come in at number three. And it's notable that premium and non-premium brands perform similarly, although the worst brand shows four times as many problems as the best over the three years the J.D. Powers surveys cover.

Specifically, J.D. Power's Vehicle Dependability Study found that car owners hate the fact that their seat materials scuff and soil easily. And this annoyance is growing as car interior designers pale materials to create a sense of luxury. And the number one issue within the number one issue? It's the transfer of blue dye to light-coloured seats. In other words, customers worry that their jeans and other denim clothes will discolour their light-coloured seats and make them look old and ugly. The bad news for auto designers is that these annoyances are likely to increase as cars increasingly become an extension of our home and workplace. We're going to need surface materials that stay looking great, for longer, and in the face of even tougher assaults than they endure now. For instance, when people share a ride rather than own their own, will they look after it as well?

Stahl Stay Clean[™]

Recognising this, Stahl created Stahl Stay CleanTM. This finishing technology for both leather and synthetic surfaces adds properties to the surface that hinder the pick-up and migration of stains and dyes into the substrate. Upshot: seats and other surfaces stay cleaner, longer. So, it doesn't matter so much if you spill your coffee while on a conference call during an autonomous drive to your next meeting. Or if your new jeans get wet and start leaching dye. Stahl Stay CleanTM also passes the stick-slip test.



Sense of smell: one scent doesn't suit all

Smell and the quality of the air in your car – which are related but not the same thing – are another hot topic among car buyers and owners. For instance, J.D. Power's 2017 IQS study on China revealed that the dissatisfaction felt by Chinese car buyers what they perceive to be the bad smell of new cars continues to grow, and that it has a direct influence on people's purchasing decisions. The difficulty here is that what one person perceives as a pleasant smell, someone else may not. For example, in Europe, leather is perceived as having a pleasant smell, but in China people prefer their cars to smell 'neutral.' To overcome this, Stahl works with so-called 'calibrated noses': a group of people selected for their ability to distinguish different smells very precisely. There are calibrated noses at every manufacturing site.

Stahl EVO®

The other air issue besides smell is air quality – specifically, the emission of interior materials, also called Volatile Organic Compounds or VOCs. Stahl has different low-VOC and VOC-free solutions.

Our Stahl EVO® range offers alternative coatings and finishes that reduce volatile components and are therefore optimized for odour and emissions.

Sense of touch: love at first contact

Touching a car seat is one of the most personal experiences a car buyer will have. The feel of leather or a textile influences the mindset of the buyer. Soft, textured fabrics, for example, automatically make you want to relax and not go anywhere.

PolyMatte®

The J.D. Power Vehicle Dependability Study shows that the feel of the materials used is one of the most important aspects in overall car appeal. To meet this need, our partially bio-based PolyMatte® finish range, not only looks good, it feels good too. This smooth matte finishing technology is based partially on rapeseed oil rather than crude oil intermediates and makes car interiors feel warm and pleasant to touch. It forms a smooth, matte surface structure during the film forming and drying stage, which means fillers are not needed, while its polyurethane nature gives a luxurious feel to parts like the steering wheel and seats.

Stahl



Sense of sound: no creaks, no squeaks, no rattles

As cars have become quieter and quieter – and with the first signs of a clear move to even quieter electric vehicles – reducing interior noise is becoming increasingly important. That odd squeak that was once only irritating at low speeds is fast becoming annoying at all speeds. The rattle of some obscure component every time you hit a bump starts to drive you nuts when you hear it all the time and every time. It's no surprise then that 'squeaking car interior' came in as the second most annoying new car ownership issue in J.D. Powers' research. As cars get quieter, and rattles and squeaks get disproportionally louder, so it becomes more and more important to eliminate them.

Stahl Stay Silent®

Stahl Stay Silent[®] is the answer. This industry-first anti-squeak coating solution offers long-lasting protection against irritating noises in the cabin. Powered by our PolyMatte[®] polyurethane dispersion technology, Stahl Stay Silent[®] reduces the surface roughness of your materials on a microscopic level, minimising friction and the creaks, squeaks, and rattles that result from materials interlocking.

What makes this coating truly groundbreaking, however, is the long-lasting protection it offers. Stahl Stay Silent[®] delivers excellent noise-suppression performance even over a 100,000 km vehicle life cycle – that's a lot of time to focus on your work, your thoughts, or the peace of the open road. With the wide range of benefits offered by the PolyMatte[®] range and the capability for two-component coating using crosslinkers, Stahl Stay Silent offers symphonic comfort with uncompromised performance.

Stahl Stay Clean[™] and PolyMatte®

Our Stahl Stay Clean[™] coating technology not only protects a surface by hindering the pick-up and migration of stains and dyes into the substrate, it also does double duty as a squeak and rattle killer. Just like PolyMatte[®] that forms the ideal starting point to prevent squeak and rattle thanks to its combination of flexibility and resistance. And unlike most matting agents, PolyMatte[®] doesn't weaken the coating so it stays stronger for longer.





Sense of responsibility: feeling good about doing good

Although not a sense, feeling good about our choices from an ecological and sustainable perspective is already a factor in car design, and it's one that is only going to grow. There is increasing recognition that we as consumers and manufacturers must do all we can to reduce our impact on the environment. By changing the chemicals we use in our production processes and product formulae, Stahl can reduce emissions both during production and over the whole lifecycle of a vehicle.

Bio-based innovation with NuVera®

Consumers increasingly expect sustainable products – and this is no different in the automotive industry. As such, there's a growing drive for the mobility segment to reduce its environmental impact – particularly by using bio- and/or recycled-based raw materials. NuVera® renewable-carbon polyurethanes help contribute to these goals, thanks to their bio-based content. Many NuVera® products are derived from plant-based biomass – typically vegetable oils or sugars – and this bio-based carbon content is tested and certified using the ASTM 6866 carbon isotope method. What's more, NuVera® products also comply with the strictest regulatory standards. In this way, they help automotive interior manufacturers to increase their use of renewable materials.



Senses meet sensible

As our concept of mobility shifts and ownership gives way to sharing, so too will our expectations of what a vehicle interior should offer and how it should perform. Stahl is positioned to play a leading role in meeting the needs of future mobility users with smart surfaces, more appealing and versatile interiors, more dirt-resistant finishes, more durable finishes and more sustainable choices. It's going to be a great ride.

Contact information

Do you have questions about this topic? Please contact us: https://www.stahl.com/global-contacts

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