Dow Automotive

Top to Bottom. *Front* to Back. *Side* to Side.

INTERIORS

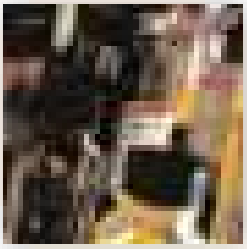
Concept... to Completion with Dow Automotive

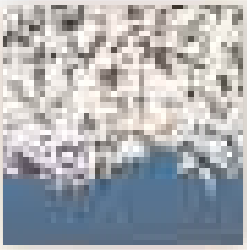
At Dow Automotive, we have a long history of working directly with automotive designers and engineers to develop solutions for every aspect of the vehicle. Top to bottom. Front to back. And side to side.

We've spent nearly 100 years in the transportation industry as part of The Dow Chemical Company. With the addition of Essex Specialty Products, Inc. and its business affiliates, including Gurit-Essex AG and its business groups, Dow Automotive has the industry knowledge and the global reach to impact all vehicle segments in the automotive market.

And for interior applications, Dow Automotive is the only resource for both polypropylene and ABS materials, research, technology and expertise. Whether you're trying to improve impact performance and safety, interior harmony and durability, or acoustical management, Dow Automotive will support your design from a product-neutral perspective, offering the best solution for each application.

Dow Automotive's broad knowledge in predictive analysis, engineering, testing and part design, coupled with expertise in injection molding, raw materials science and product development, helps us take safety, durability and interior aesthetic ideas from concept to completion.





Materials...Engineered for Interiors

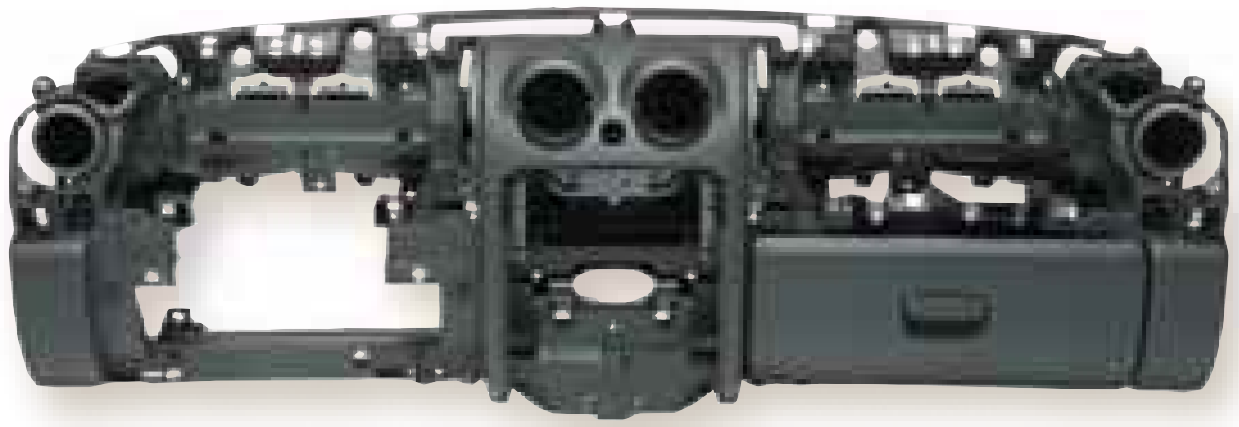
Dow Automotive has provided the broadest product portfolio for plastic applications in the automotive industry for a number of years. We are the only supplier to offer both polypropylene and ABS solutions, which gives you, our customers, complete confidence and flexibility in design and materials selection.

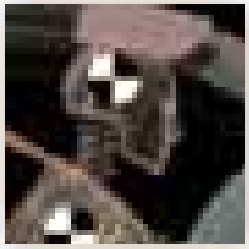
Now, with the integration of Essex and Gurit-Essex, we have added nearly 40 years of experience in the formulation, production and distribution of superior adhesives, sealants, structural and acoustical products and systems.

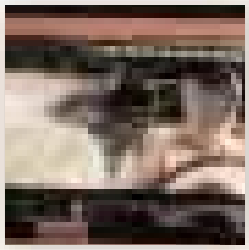
We continue to advance our materials and expertise to address issues that are specific to the needs of interior applications for Tier One and OEM customers. We are constantly developing new materials to maximize a wide range of processing technologies. And our unsurpassed R & D capabilities will help you address design challenges while simultaneously achieving the processing and performance advantages you seek, including:

Materials

- Superior impact performance and energy management that meet or exceed current FMVSS 201 and other globally mandated impact legislation standards
- Expanded opportunities to create interior harmony with better fit and finish, improved scratch and mar resistance and dimensional stability
- Multiple materials and systems designed to provide acoustical advantages and vibration management for a quiet, comfortable passenger environment





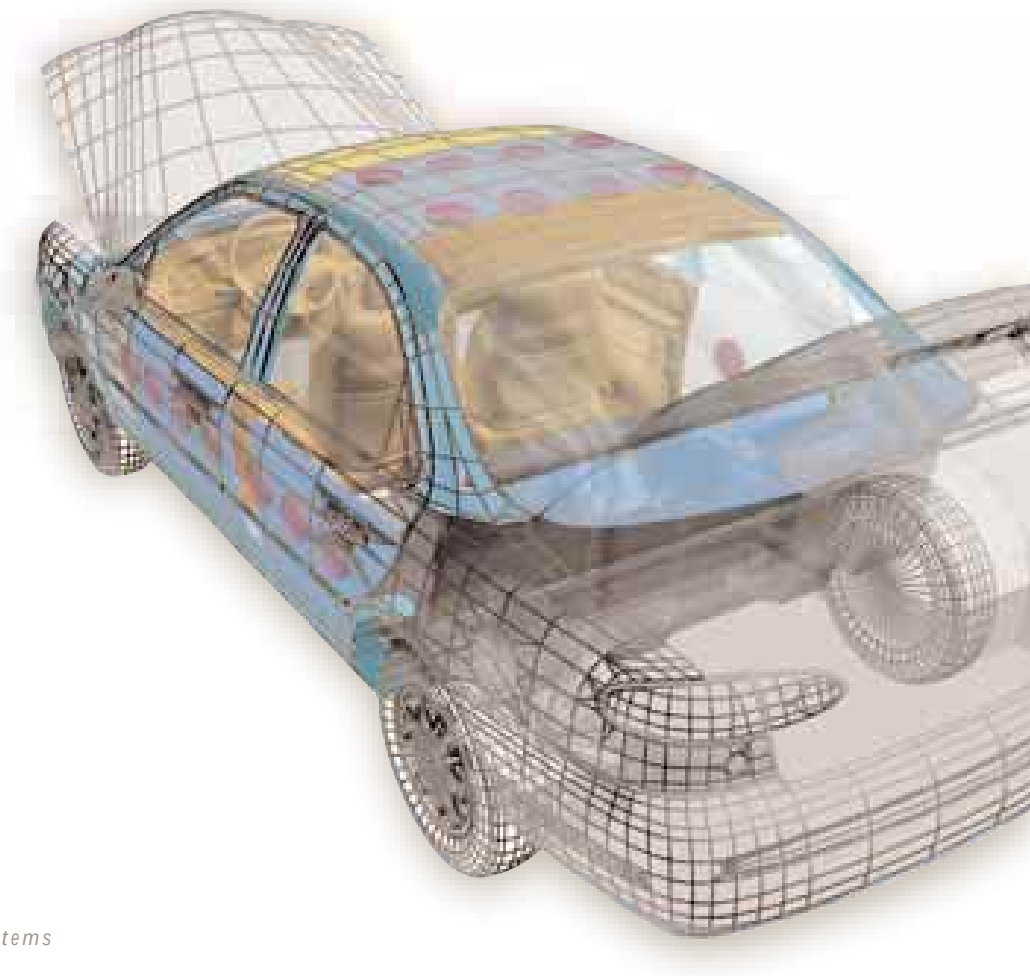


Impact performance and safety

The interior of the vehicle is of utmost importance when it comes to issues of impact performance and safety. At Dow Automotive, we're experienced in managing the challenges associated with meeting the requirements of FMVSS 201 and other globally mandated impact legislation while simultaneously addressing issues of weight and cost, interior harmony and durability.

Dow Automotive develops innovative products to help improve structural strength and energy management capabilities without adding additional weight or decreasing manufacturing efficiencies. For example, our reinforcing composites can improve impact resistance while offering flexural strength and improved vibration and distortion resistance. Structural foams help improve energy management capabilities while absorbing sound, and the unique honeycomb structure of our polypropylene foams helps manage energy absorption in front and side impact applications. And our trademark specialty resins provide top performance in tough applications like interior trim, instrument panels, retainers and knee bolsters, while withstanding extreme temperature variations.

Advantages



Interior applications

Instrument Panels

Door Panels

Trim

Lighting Covers

Consoles

Package Trays/Storage Compartments

Overhead Systems

Safety/Structural Enhancement Systems

Seating Systems

Adhesive Film Systems

Acoustical and Thermal Management Systems

Interior durability and harmony

From the floorpan area to the headliner, and from the instrument panel to the package shelf, interior applications undergo more wear and tear than many other areas of the vehicle. Durability is key to ensuring owner satisfaction and safety. In addition, aesthetic qualities can dramatically affect the customer's perception of the value of a vehicle.

Dow Automotive can help you improve a vehicle's interior aesthetics, durability and harmony while simultaneously meeting objectives for safety, weight and cost. For example, our polycarbonate resins can be modified to enhance special performance requirements including color, ignition resistance, UV stability and improved mold release. Interior pillar trim, door panels and instrument panel (IP) components all benefit from our polypropylene resins, which offer improved handling strength and processability for reliability in fit and finish. And our ABS resins are ideal for components needing molded-in color, toughness and impact resistance.

Acoustical management and vibration control

With vehicle owners desiring a quieter riding experience, the acoustical performance of the cabin is one of the first things noted in most test drives.

Dow Automotive provides interior solutions that address structural, engine and road noise. Low-density foams can be injected into pillars to act as reliable acoustical seals. Sound damping, absorbing and sealing systems help block road noise, while structural adhesives and reinforcing composites can be applied behind interior trim panels, door panels, headliners or on package shelves to dissipate vibrational energy from the sheet metal. As an additional benefit, our reinforcing composites and structural adhesives add to vehicle safety and durability by stiffening the overall vehicle structure. And, injection-molded dashmats, engine covers and noise shields effectively reduce engine noise intrusion.

Interiors Product Matrix

Dow Automotive provides complete integrated solutions supported by a full line of multifunctional materials, products and systems that are specific to advanced interior applications.

Products	*Applications*	*Benefits*
AFFINITY* polyolefin plastomers	• Floor mats, molding/trim	• Thermoplastic and elastic properties offer improved melt strength, flowability, good processability and high shear sensitivity
BETABRACE™ reinforcing composites	• Interior roof panels, door panels, floorpans, package shelves	• Improved flexural strength; distortion, impact and fatigue resistance • Can help eliminate bass boom. No added weight or cost of steel supporting structures
BETADAMP™ acoustical damping systems	• Interior roof and door panels, floorpans	• Constrained layer and sprayable dampers dissipate the vibrational energy of the sheet metal to which it is applied • Optimize cost, weight and acoustical performance
BETAFOAM™ NVH systems	• Injected into vehicle cavities including pillars, rocker panels and roof rails to form reliable acoustical seals and/or manage impact forces in frame structures	• Acoustically seal to prevent noise from resonating through vehicle cavities • Improved body rigidity and crashworthiness • Overall weight reduction, since BETAFOAM may allow for thinner vehicle cavity wall construction
BETAGUARD™ sealants	• Anti-flutter sealants between inner and outer body panels, interior sealer for floorpan area	• Protect passenger compartment from moisture, dirt, dust and fumes • Reduce vibration to help improve vehicle acoustics
BETAMATE™ structural adhesives	• Interior weld joints, bonds structural headliners directly to roof	• Replace welds and mechanical fasteners in joining a variety of similar and dissimilar substrates • Reduce fatigue and failure commonly found around spot welds and fasteners • Seal against environmental conditions that cause corrosion • Reduce vibration by stiffening overall vehicle structure, so acoustics may also be improved

Products	Applications	Benefits
CALIBRE* polycarbonate resins	• Interior lighting covers, IP retainers and trim, defroster grilles, speaker grilles	• Ideal for parts requiring load-bearing capability or energy management • Can be modified to enhance special performance requirements including color, ignition resistance, UV stability and improved mold release
DOW Polyethylene RESiNS*	• Floor mats, blow-molded components	• Outstanding melt strength, stability and flow
DOW PolyPropylene RESiNS*	• Interior pillar trim, door panels, IP components	• Enhanced aesthetic and sound management properties • Improved handling and process-ability, durability and reliability in fit and finish
EcoSorb** sound absorber material	• Behind any interior trim panel, door panel, headliner or on package shelf	• Superior sound absorption performance in the critical middle frequency ranges • Material is clean and completely recyclable
Injection-molded dashmats	• Vehicle interior between engine and passenger compartment	• Cabin-side barriers prevent engine noise from intruding on vehicle interior • Superior sound barrier characteristics
INSPIRE* performance polymers	• IP, door and trim components	• Customized properties are possible for non-covered applications
INTEGRAL* adhesive films	• Interior trim, headliner and carpet bonding applications	• Provide the precise one- or two-sided adhesion required for specific substrate applications
ISONATE* MDI products	• Seamless PSIR door IP, PSIR doors, steering wheels and dunnage parts	• Semi-flexible foams help absorb sound and improve energy management capabilities
MAGNUM* ABS resins	• Interior trim, consoles, door and IPs, mirror housings	• Ideal for components needing molded-in color, toughness, impact resistance and durability
PAPI* polymeric MDI	• IPs, interior trim	• Highly versatile for semi-flexible foam applications • Provides handling benefits such as delayed gel times and fast-rise profiles

Products	Applications	Benefits
PULSE* engineering resins	• Interior trim, IPs, retainers, knee bolsters	• Provide top performance in tough applications, from single-piece items to intricate components • Ideal for energy management solutions • Can withstand high and low temperature extremes and rapid, repeated fluctuations
RETAIN* recycled containing resins	• Covered or painted applications for interior trim and IP components, including defroster grilles, consoles, HVAC ducts, door trim, globe box bins, IP topper pads	• Enable performance and aesthetic advantages using eco-friendly products that include 25% post-consumer recycled content
SPECFLEX* flexible polyurethane foam systems	• Interior pillars, armrests, consoles, energy management, headrests, seat cushioning, steering wheels, air bag doors and knee bolsters	• Highly versatile foam provides comfort, energy management, safety durability benefits and sound absorbtion
SPECTRIM* reaction moldable polymers	• Window encapsulation, interior trim components	• Strength, design flexibility, toughness/gravel resistance and excellent painted DOI • Available in different formulations for RIM, SRIM, SRM and low-density RRIM operations
STRANDFOAM* polypropylene foam	• Energy absorbing applications	• Unique honeycomb structure and strand orientation provides superior energy absorption • Bondable, solvent-resistant recyclable and available in a variety of designs and sizes to meet design or packaging requirements
TYRIL* styrene-acrylonitrile resins	• IP lenses	• Clarity, stiffness, processability, chemical and heat resistance
VORANATE* specialty isocyanates	• Molded foam applications	• Flexible foams are suitable for a full range of low- to high-density semi-rigid and rigid foams and structural RIM processing
VORANOL* polyether polyols	• Seat cushioning	• Provide a wide range of properties needed to produce low- to high-density foams for comfort and quiet

*Trademark of The Dow Chemical Company
**Trademark of Cascade Engineering

Delivering...Success

Starting with great ideas and following through with innovative solutions is only part of Dow Automotive's overall offering. It's also the ability to optimize those solutions through utilizing extensive technical capabilities, working cooperatively with our customers, and by using all resources at our disposal to enable us to achieve success—for you, and for us.

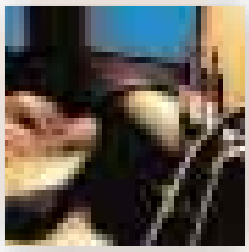
We are happy to work with you at any level—from a simple materials purchase decision to a relationship that leverages our full-service supplier capability. However, Dow Automotive believes that the more things we can take off your hands, the more overall value we can add to your organization.

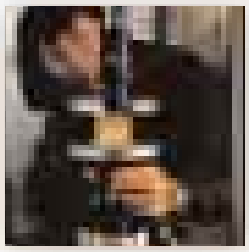
From design through product launch, we can support your interior projects by developing the technology, systems engineering and product support to satisfy current and future vehicle programs. Extensive in-house capabilities for FE predictive analysis (from your downloaded design data or from our own designs), CAE and CAD, as well as other testing and validation technologies, allow us to evaluate the performance of our materials and systems in simulated and actual driving conditions.

Dow Automotive also provides program management and engineering expertise to assist in program implementation. On-site support at your facilities, along with support from our internal functional groups (engineering, quality, manufacturing engineering, cost estimating, purchasing, customer service, etc.), assures you that our products and systems will meet or exceed your design and engineering requirements. In fact, Dow Automotive has the capability to provide turnkey systems. We can:

Success

- Identify a need, challenge or opportunity
- Design, engineer, test and validate a solution
- Specify, optimize or develop a material
- Handle logistics—all the way from raw materials at a tank farm, to containers—and transport to your facility
- Design dispense equipment and manufacturing surroundings relating to process
- Support production startup
- Manage supply chain





Moreover, we can provide consistent, aligned resources to you on a global basis. Through facilities in nearly 40 cities on six continents, Dow Automotive provides R&D, manufacturing, sales and marketing, and field service support worldwide.

From great ideas to materials and systems solutions that ensure our mutual success—Dow Automotive is a good place to start. Challenge us—anytime, anywhere.

We're Dow Automotive. Throughout the vehicle. Throughout the world.

We listen. We deliver.

Dow Automotive

World Headquarters

Dow Automotive

1250 Harmon Road

Auburn Hills, Michigan 48326

USA

Phone: + 1-248-391-6300

Toll free: 1-800-441-4369

Fax: + 1-248-391-6417

E-mail: dowautomotive@dow.com

www.dowautomotive.com

Dow Automotive

Am Kronberger Hang 4

65824 Schwalbach

Germany

Phone: + 49-(0)6196-566-606

Toll free: + 800-3-694-6367†

Fax: + 49-(0)6196-566-432

†Toll free from Austria, Belgium, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, The Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

Dow Automotive is a business unit of The Dow Chemical Company and its subsidiaries.

Form No. 299-00123 2M-HMC/FG2002