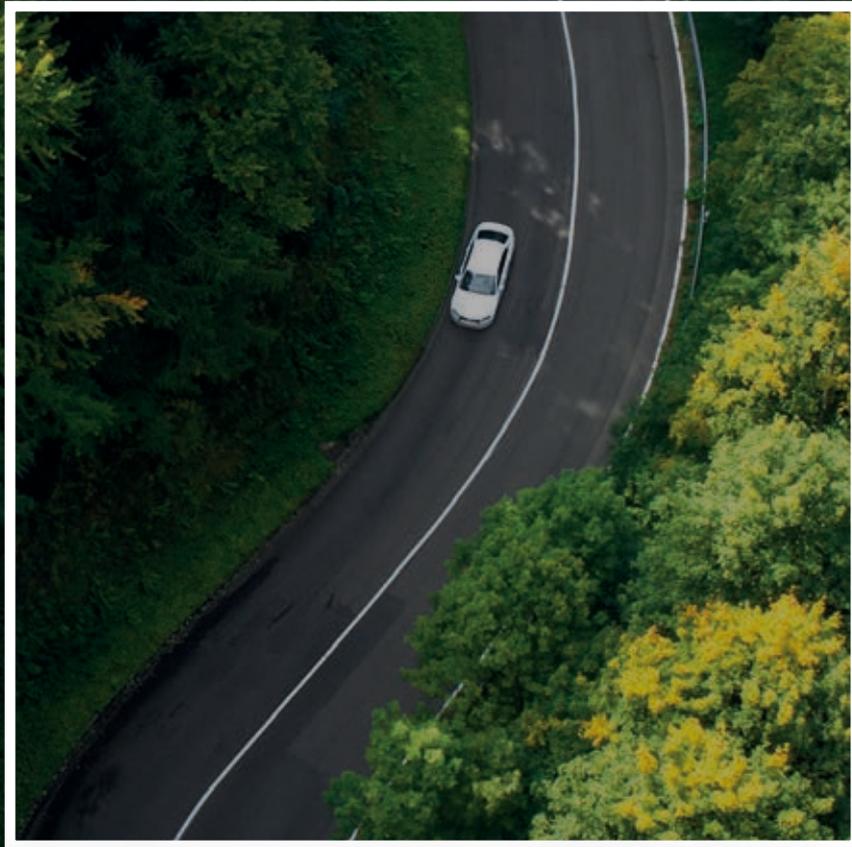


AUTOMOTIVE



Mobility doesn't stop. Neither do we.



## Contents

<b>4</b>	<b>Our mobility</b>
<b>6</b>	<b>Our offering</b>
<b>10</b>	<b>Interior Applications</b>
<b>14</b>	Front part
<b>16</b>	Side part
<b>18</b>	Seating part
<b>20</b>	Back part
<b>24</b>	<b>Exterior Applications</b>
<b>28</b>	Front and back part
<b>32</b>	Side part
<b>34</b>	Upper part
<b>38</b>	<b>EV Traction &amp; Energy Management</b>
<b>48</b>	<b>Chassis &amp; Under the Hood</b>
<b>52</b>	Chassis
<b>54</b>	Thermal management
<b>56</b>	Powertrain - engine system
<b>58</b>	Fuel system
<b>60</b>	EE system
<b>64</b>	<b>Our brands</b>

## We're already navigating. Together, in the future.

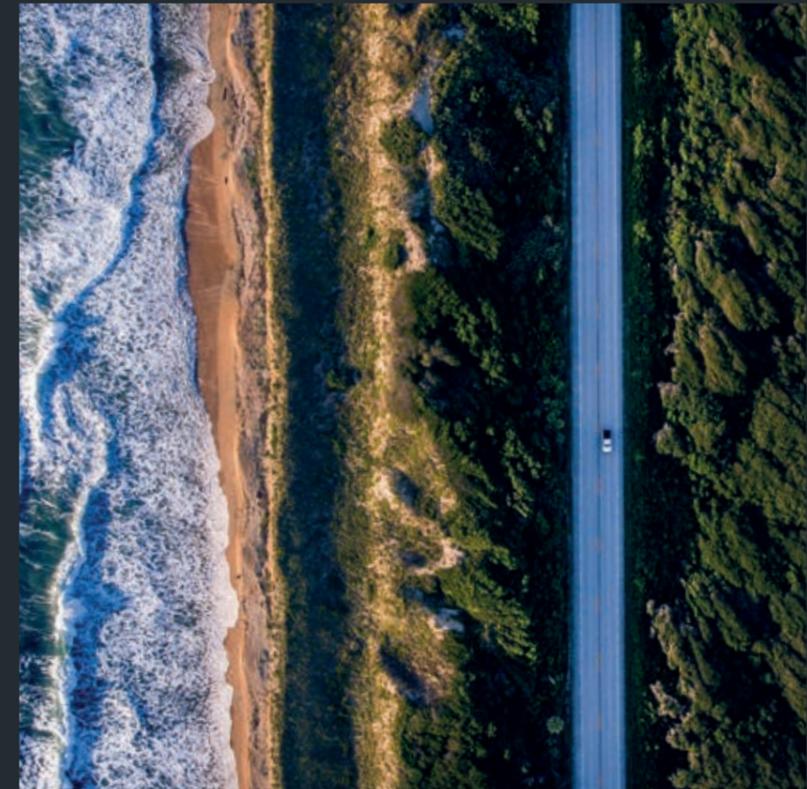
**The future of mobility is evolving rapidly.**

Together with our partners, **we're spearheading research and innovation with the goal of developing effective solutions** for the challenges we face today and in the future, such as **cutting emissions, transitioning to a more electric and sustainable mobility and reducing vehicles' weight.**

## Performance, safety, comfort and sustainability.

These distinctive elements make **RadiciGroup** one of the **automotive sector's benchmark companies**, with a **global presence.**

Our offering is complete and wide-ranging. **It spans engineering polymers for high-performance components, synthetic fibres, and nonwovens for fabric coverings**, with a particular focus on vehicle safety. **We make high-performance, versatile products** that are efficient and sustainable.



## One partner, infinite applications.

At RadiciGroup we've always been focused on our customers' requirements – it's why we develop cutting-edge solutions aligned to an evolving market. Today, this focus is clear in **our wide range of engineering polymers, synthetic fibres and nonwovens, which are used in many different car components.**

### **Tailored engineering polymers for every segment.**

Ideal for making components that must be chemically, mechanically and heat resistant, as well as light, they are an excellent substitute for metals. They can also be used for aesthetic applications where colour and UV resistance are key properties. Their versatility lends itself to continuous innovation, essential in pushing the boundaries of electric mobility and autonomous driving. This is an area in which RadiciGroup is developing new materials with specific qualities – such as flame-retardant and electrical insulation properties – to ensure passenger safety.

### **Synthetic fibres for interiors.**

Synthetic fibres in the form of yarn or staple fibre make possible the many textile products that are key to embellishing and enhancing cars. Our materials ensure high performance levels in areas such as abrasion resistance and durability. They have also been designed to meet the strictest standards of colour fastness, repeatability and consistency, with bespoke solutions developed in collaboration with our customers. They can be used to create many products, including seats, floor mats and coverings, and reflect our focus on sustainability and the circular economy.

### **Nonwovens for soundproofing, covering and filtration systems.**

Ideal for exterior car covers, systems for soundproofing interiors and filtering air and liquids; created with innovative materials, they can incorporate additives to ensure specific types of performance.

Did you know that  
the care typical of  
“Made in Italy” textiles is  
a byword for quality in  
the automotive sector?

Tailor-made solutions  
to suit your needs.

In the same way that a tailor creates a perfect bespoke suit, at RadiciGroup we are a leader in creating **textile solutions**.

**Complete vertical integration** and dedicated **customer support** staff mean that we can directly oversee all stages of production.

We can guarantee **tailor-made** colours, performance and durability, even for small batches – and all with strict **quality control measures**.

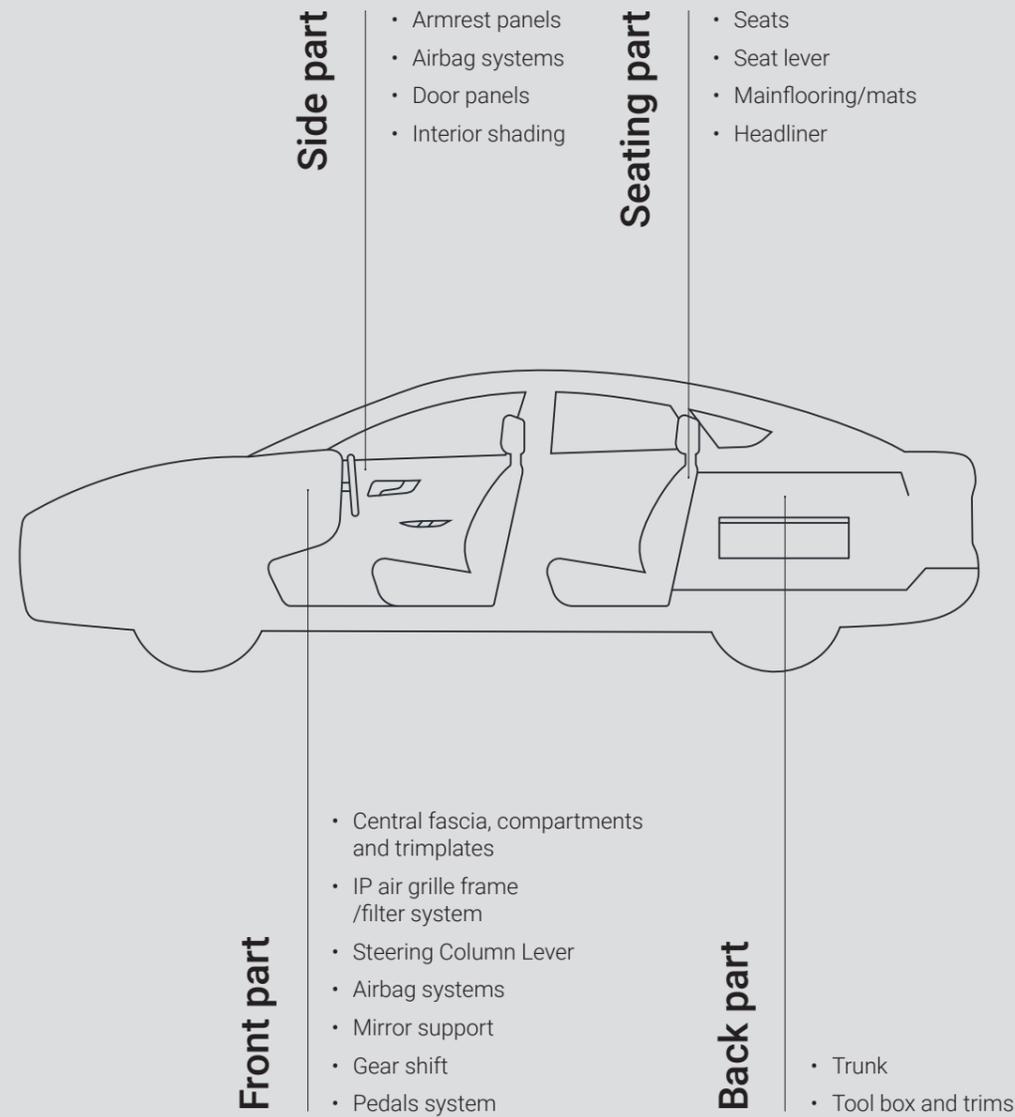
## Interior Applications



**Vehicle interiors have to be safe and comfortable, but customers also want good looks and unique style.**

RadiciGroup knows what's needed to design and create an interior that ticks all the boxes in terms of the performance required by automotive sector standards – and is also ready to embrace the challenges that customers and new mobility are posing to designers and manufacturers.

# Interior Applications



## Why choose RadiciGroup's offering for Interiors?

### A premium sensory experience.

Refined textures and unbeatable colour matching, UV and scratch resistance – just some of the qualities guaranteed by our know-how and wide range of additivation and processes.

### Quality without limits.

We guarantee product quality over time, in terms of consistency, durability and performance. We ensure that our formulations are repeatable globally over time, including for small batches.

### A sustainable offering.

We can provide sustainable products and processes for many interior components.

They include intrinsic colourations without dyeing, finishing or painting stages, and materials featuring recycled or bio-based components. Together we can go a long way.

# Front part

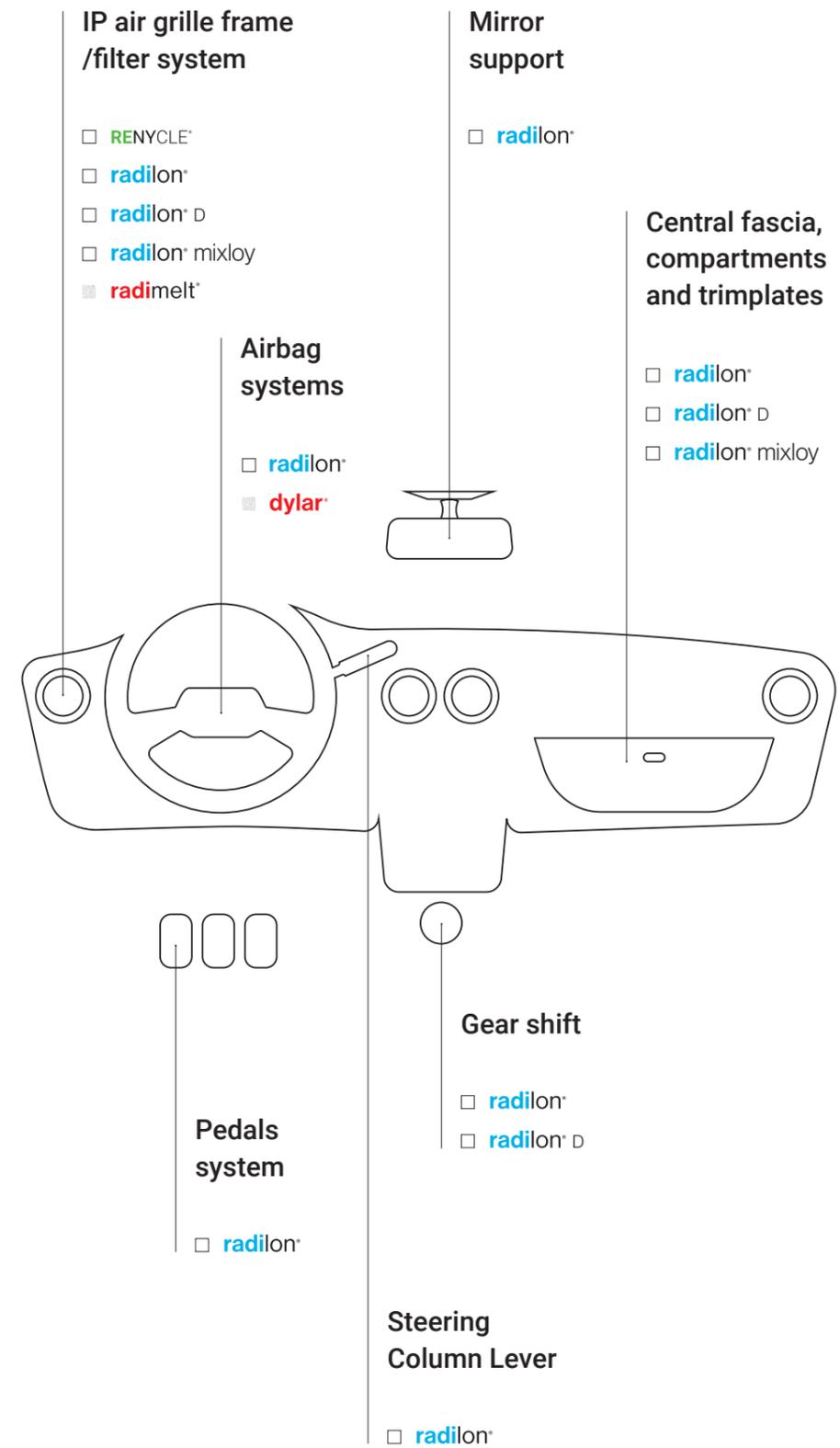
## First impressions count.

Our materials result in excellent surfaces thanks to:

**Materials that are easy to work with**, allowing to perfectly follow the shapes required by any design.

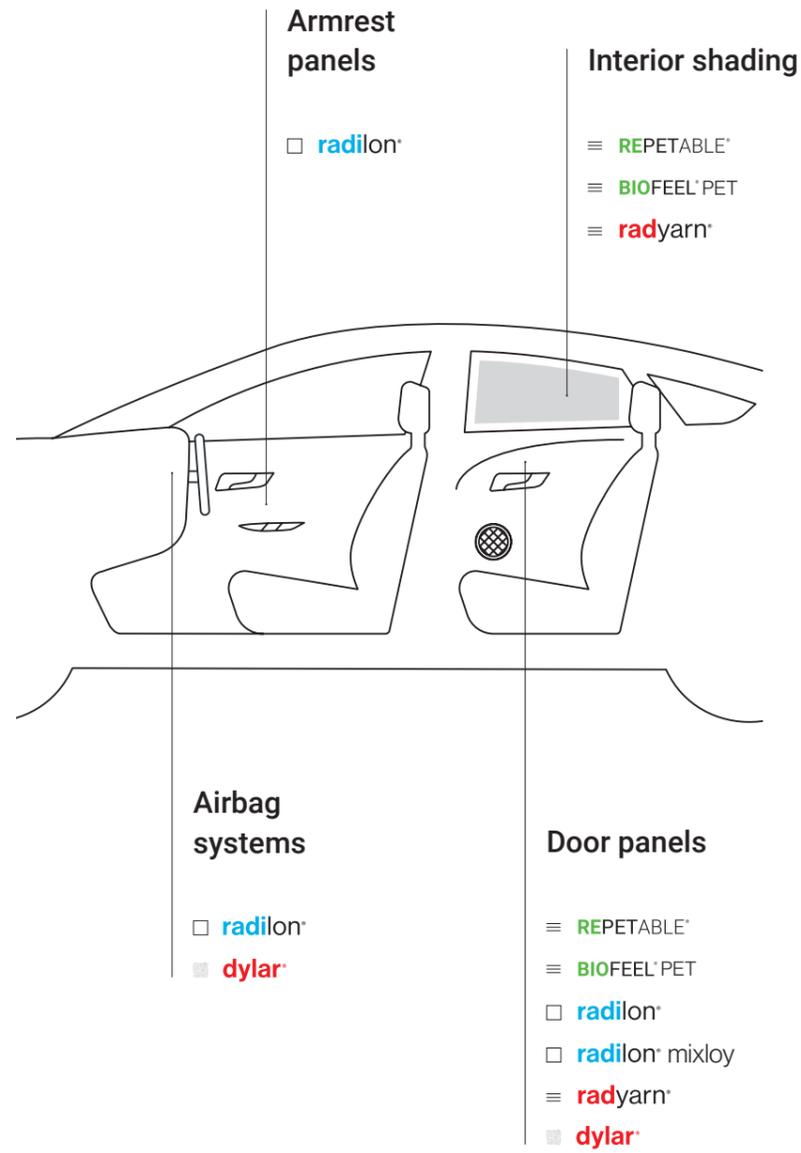
**Gloss effect** for entire surfaces or small details to give a "mirror" effect.

**Solution-dyed colours**, avoiding intensive painting processes to ensure sustainable solutions.



- Engineering polymers
- ≡ Yarns and fibres
- Nonwovens
- ◇ Staple fibre

# Side part



- Engineering polymers
- ≡ Yarns and fibres
- Nonwovens
- ◇ Staple fibre

## Health and safety, by your side.

The best engineering polymers guarantee **passenger health and safety** through:

**High mechanical performance**, needed to resist stresses of all kinds.

**Low substance emissions in interiors**, as in our materials for use in dashboards and doors with low VOC emissions.

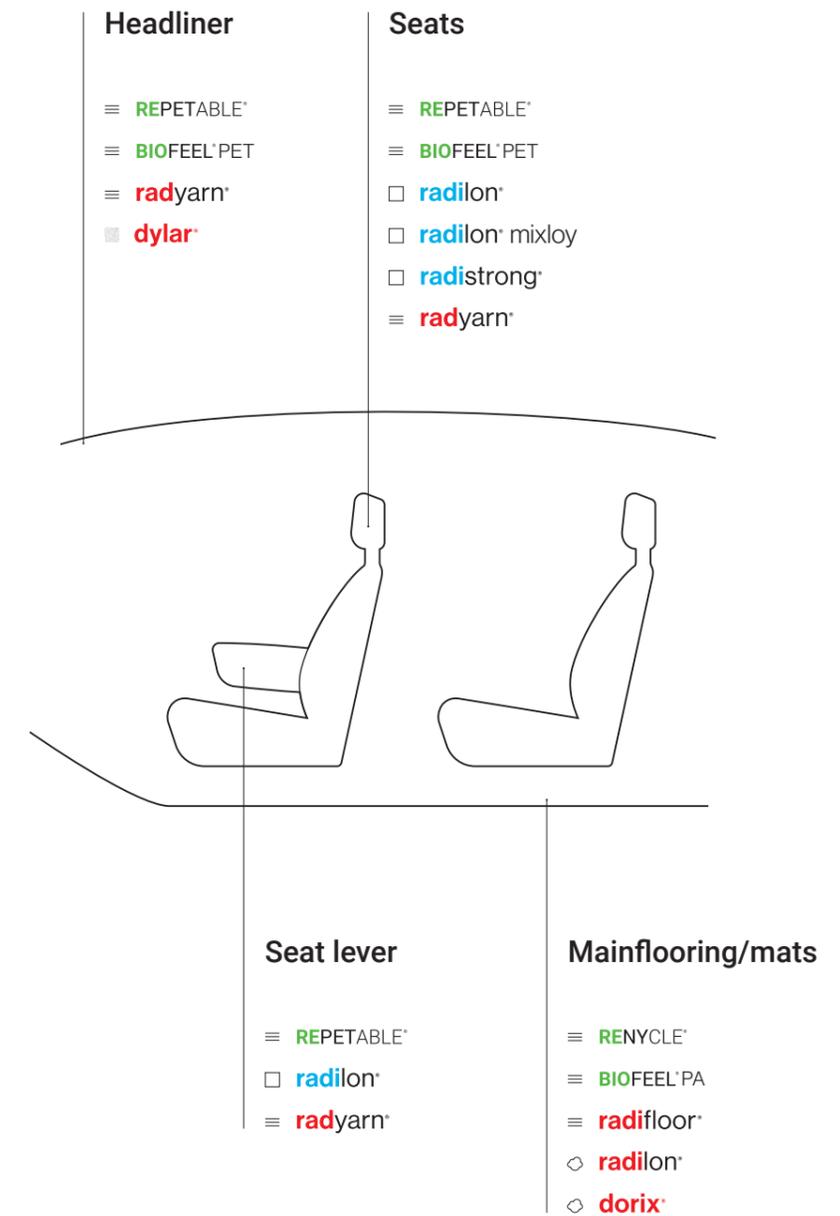
# Seating part

Solid, sustainable and unique colours.

Our dedicated division develops exact colour matching for shades of yarns and engineering polymers with:

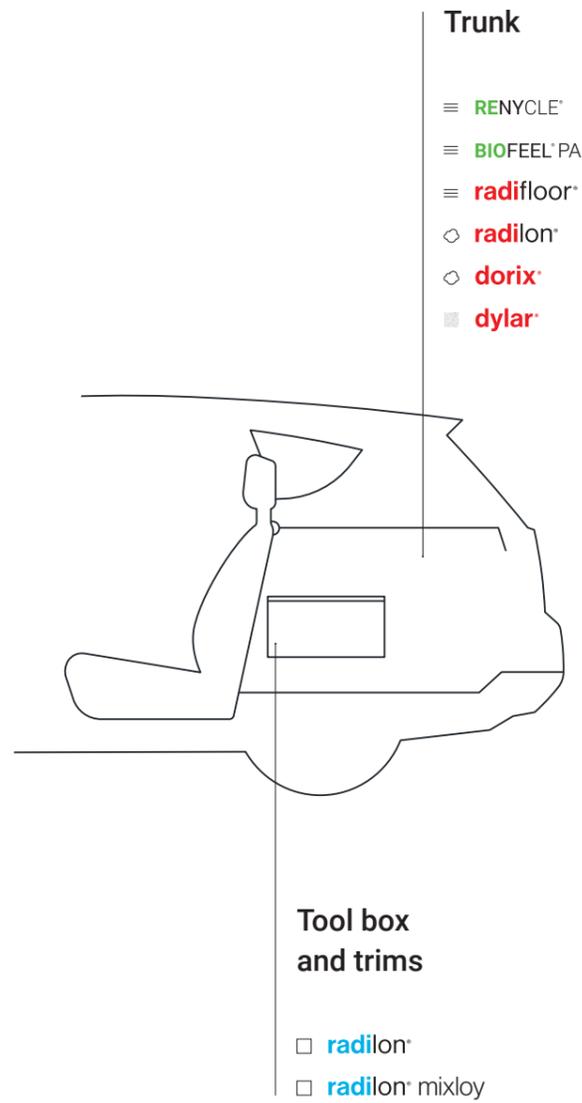
**Expertise, know-how and dedicated colour matching tools** for individual customisation.

**Guaranteed sustainability, thanks to our solution-dyeing process** which cuts out traditional dyeing and finishing.



- Engineering polymers
- ≡ Yarns and fibres
- Nonwovens
- ◇ Staple fibre

## Back part



- Engineering polymers
- ≡ Yarns and fibres
- Nonwovens
- ◇ Staple fibre



## Excellent resistance, at every use.

Due to their specific characteristics, our products are designed to be used for a long time:

**UV and abrasion resistance**, for looks and performance that last.

**Quality guarantee**, even on small batches.

**Consistent dyeing results**, to meet the highest standards in the sector.

**Solution-dyeing**, to make intrinsically coloured and sustainable material.

Did you know that substituting metal components for engineering polymers lowers CO<sub>2</sub> emissions?

We put heavy effort into making vehicles lighter.

For years, we've been analysing and developing materials that can substitute many metal components in vehicles with the goal of lowering fuel consumption.

Using polymeric materials makes **cars lighter** and **lowers fuel consumption**, which in turn reduces **CO<sub>2</sub> emissions**.

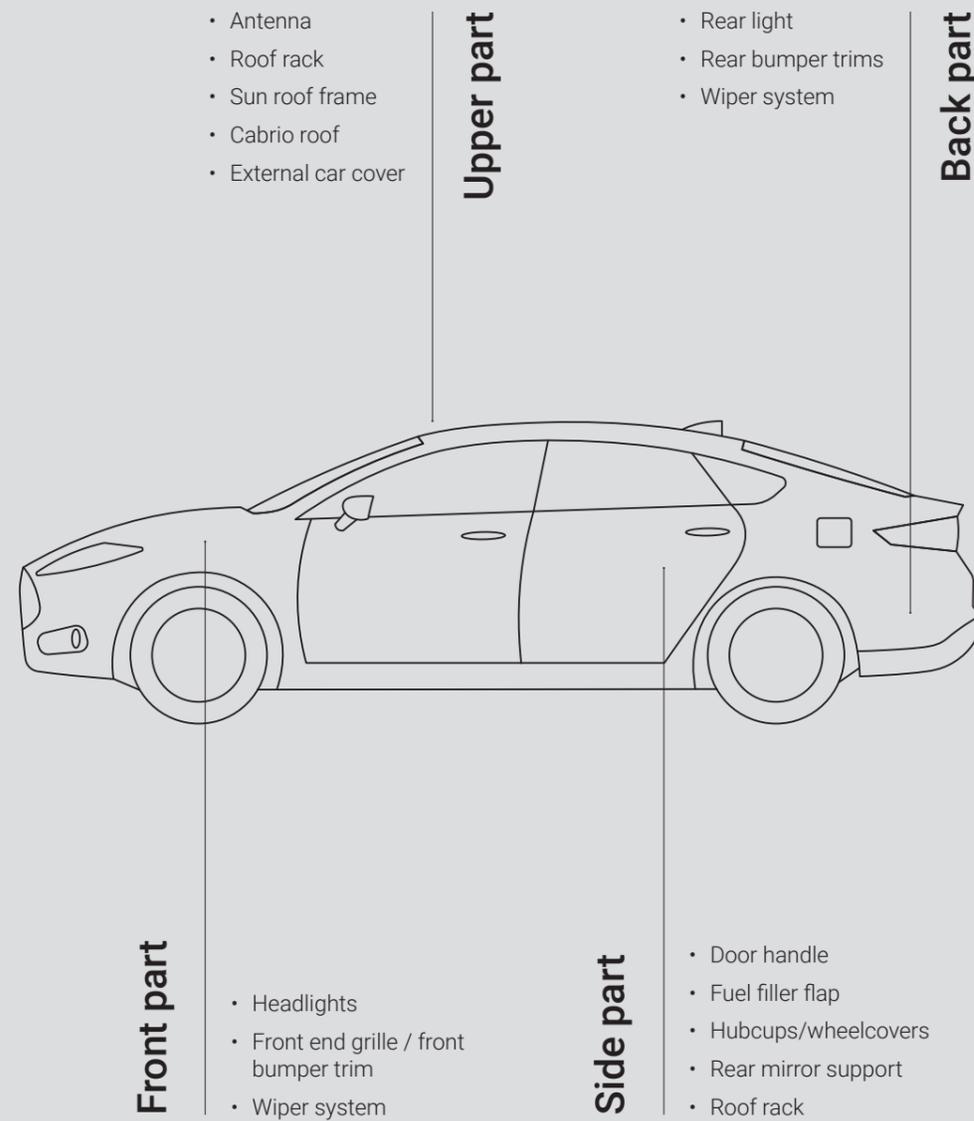
## Exterior Applications



**What's the first thing that attracts customers when they buy a car? Looks.**

That's why at RadiciGroup we offer a wide range of modern and durable solutions that satisfy both design and functionality requirements.

# Exterior Applications



## Why choose RadiciGroup's offering for Exteriors?

### Premium aesthetics.

Surface finishes, resistance to UV rays and atmospheric elements, long-lasting colour fastness and customisable shades: just some of the qualities that help make a vehicle's exterior aesthetics elegant and unique.

### Performance without limits.

Our extensive experience and specific expertise means that our materials guarantee consistent mechanical properties in a range of conditions, as well as being easy to work with.

### A sustainable offering.

We offer a wide range of sustainable products for vehicle exteriors. Whether it's products from recycling such as **Renycle®**, **Repetable®** and **Responsibile®**, or those deriving from renewable sources like **Biofeel®**, we guarantee excellent performance for the environment too.

# Front and back part

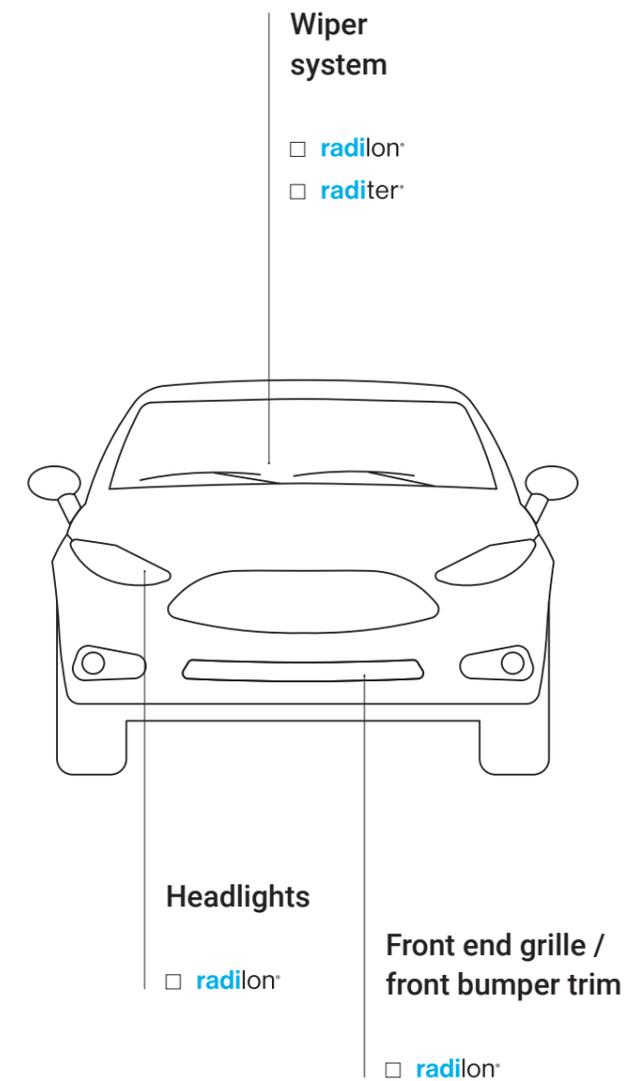
Appearances aren't deceptive.

Our materials result in first-class, dependable aesthetics due to:

**Resistance to UV rays and atmospheric elements** for optimum preservation of looks and performance.

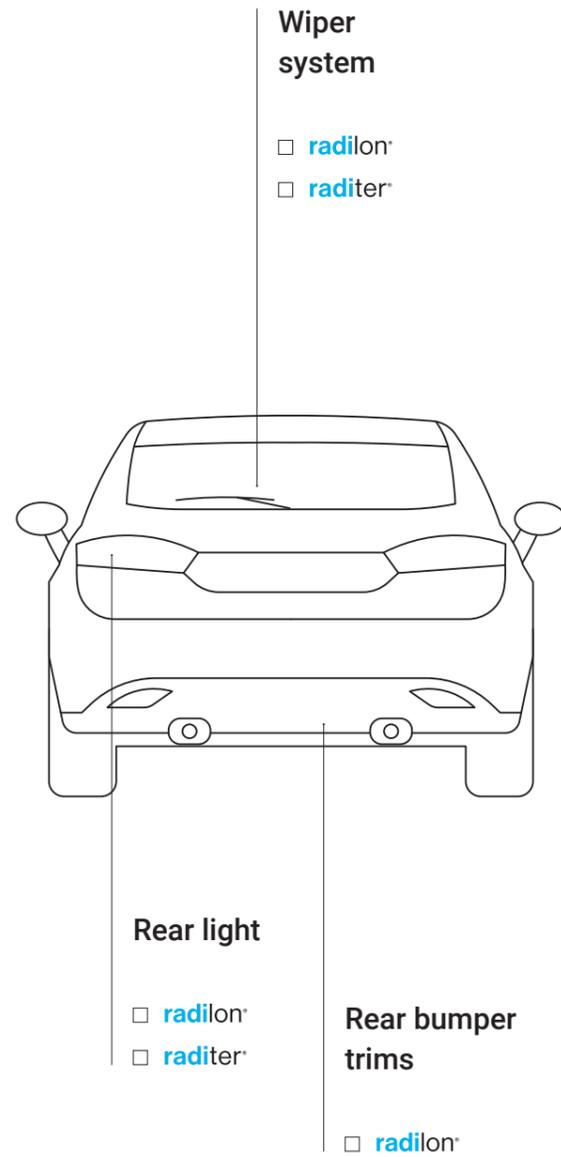
**Metal plating**, i.e. suitability for surface treatment to create chrome and painted components.

**First-class aesthetics** combined with **high levels of mechanical performance** to guarantee the functionality of such structural components as mirror supports, roof bars and door handles.



- Engineering polymers
- ≡ Yarns and fibres
- Nonwovens
- ◇ Staple fibre

# Front and back part



Engineering polymers

Yarns and fibres

Nonwovens

Staple fibre



## Side part

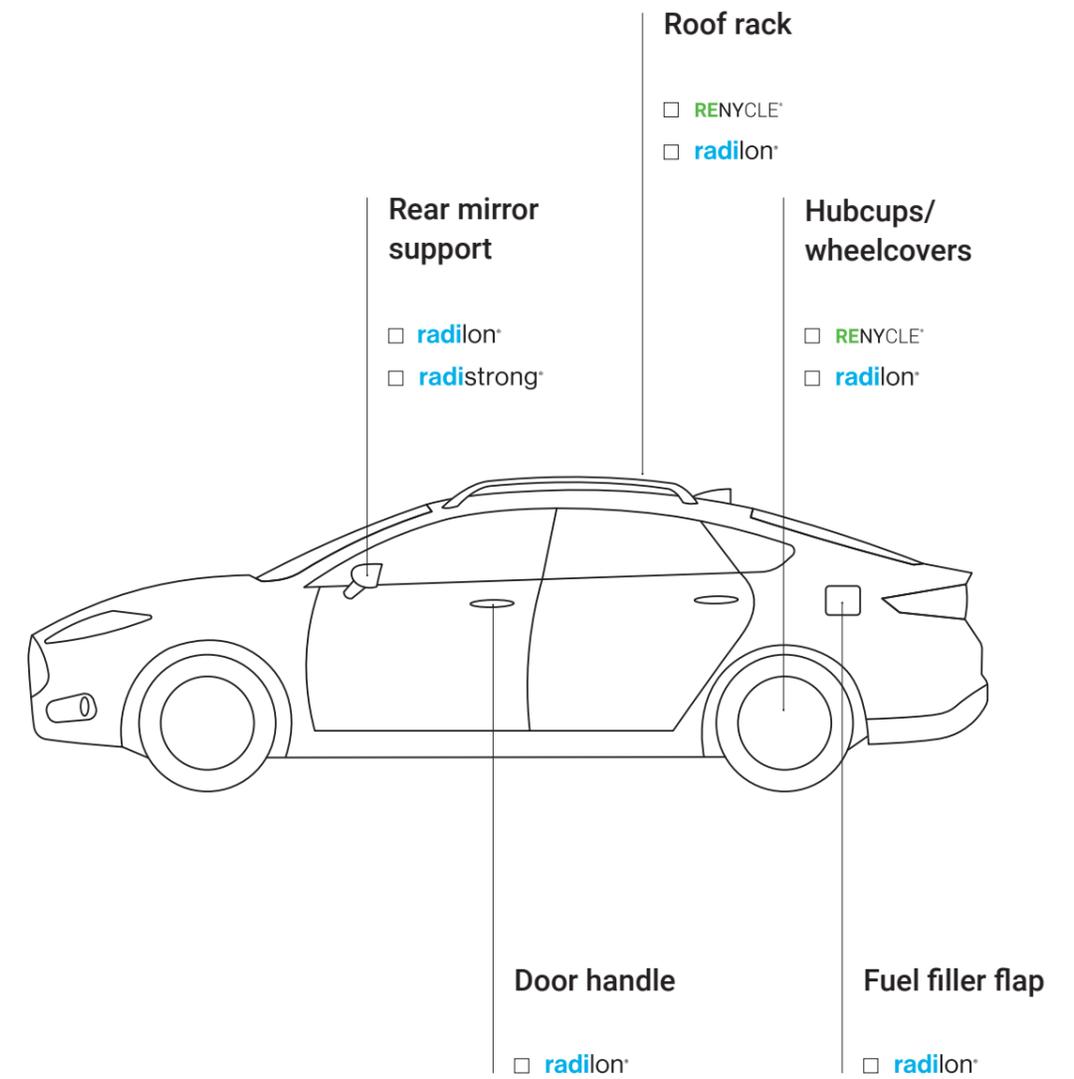
Quality and reliability,  
by your side.

The side part on cars must offer **protection** and **good aesthetic performance**. Our solutions guarantee:

**Excellent dimensional stability and consistent mechanical resistance** which is long-lasting, effective in variable temperatures and can withstand stresses caused by different road surfaces.

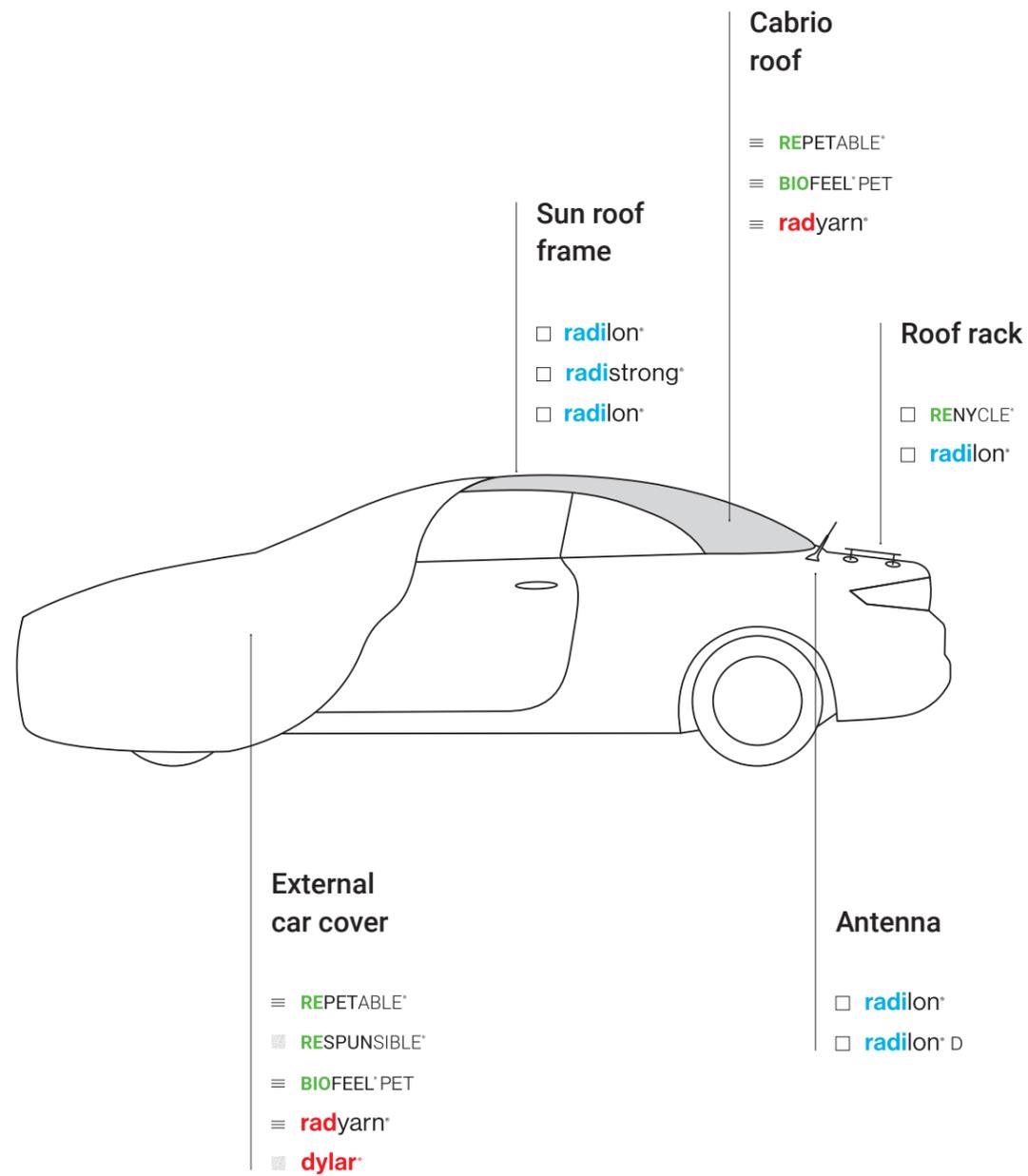
**That even the largest aesthetic parts are easy to work with**, perfectly adapting to the shapes required by any design.

**No-compromise aesthetics**, thanks to **ease of painting** for precise, rapid and customised colouring.



- Engineering polymers
- Yarns and fibres
- Nonwovens
- Staple fibre

# Upper part



- ☐ Engineering polymers
- ≡ Yarns and fibres
- Nonwovens
- ◇ Staple fibre

## Performance and sustainability above all.

Thanks to our ongoing dedication to research and innovation, we can offer a wide range of **sustainable solutions** with unique qualities, including:

Products from **recycling**, like **Renycle**<sup>®</sup>, **Repetable**<sup>®</sup> and **Responsible**<sup>®</sup>, excellent for **resistance, versatility** and **reliability**.

**Radilon**<sup>®</sup> **D** engineering polymers from renewable sources, which guarantee a **high-class gloss effect** and **excellent dimensional stability** and UV resistance.

Did you know that an increasing number of engineering polymer components can be made sustainably?

Sustainability drives us.

From post-industrial and post-consumer recycled materials and those from renewable sources through to **energy-saving** and **component-lightening** strategies, together we can build a **truly sustainable process** from start to finish.

## Ev Traction & Energy Management

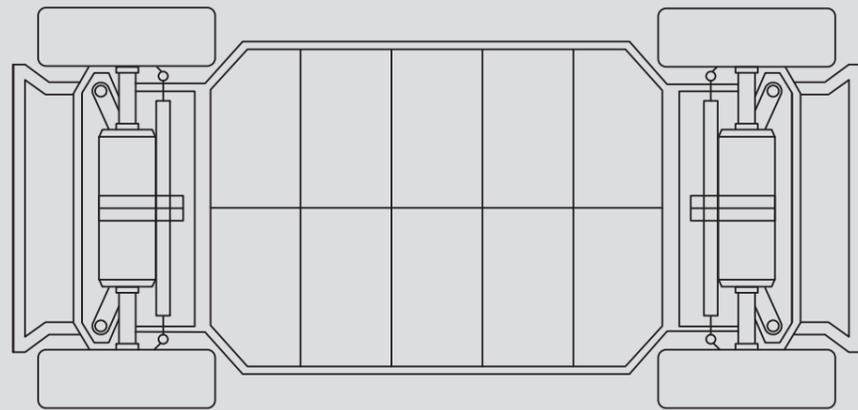


### **Electrified by new challenges. Since we began.**

We use our expertise to develop innovative and high-performance solutions.

Whether it's materials for battery systems or for recharging infrastructure, every day we work hard to make journeys safer, more efficient and more sustainable.

## EV Traction & Energy Management



### EV Traction & Energy Management

- Battery carrier
- Battery cover
- Battery thermal management cooling pipe
- Busbar support
- Cell end plate
- Cell frames
- Cell management controller housing
- Cell module cover
- Cell separators
- E-motor connectors
- EV connectors, HV connectors
- Inverter/converter components
- On-board connecting plugs
- Power control units (IGBTs)
- Oil transmission filter
- Electric and non-electric cable protection yarns

## Why choose RadiciGroup's electric mobility offering?

### Unique flexibility.

Our wide range of special polyamides ensures maximum versatility to meet any requirement or customisation request.

### Advanced performance.

Our experience in engineering polymers and textiles means we can offer **advanced solutions** that meet all the demands of new technologies.

### Future ready.

We also boast a substantial product portfolio for the electric mobility sector. We work closely with our partners to develop materials that can **meet the new performance requirements of the most prestigious brands.**

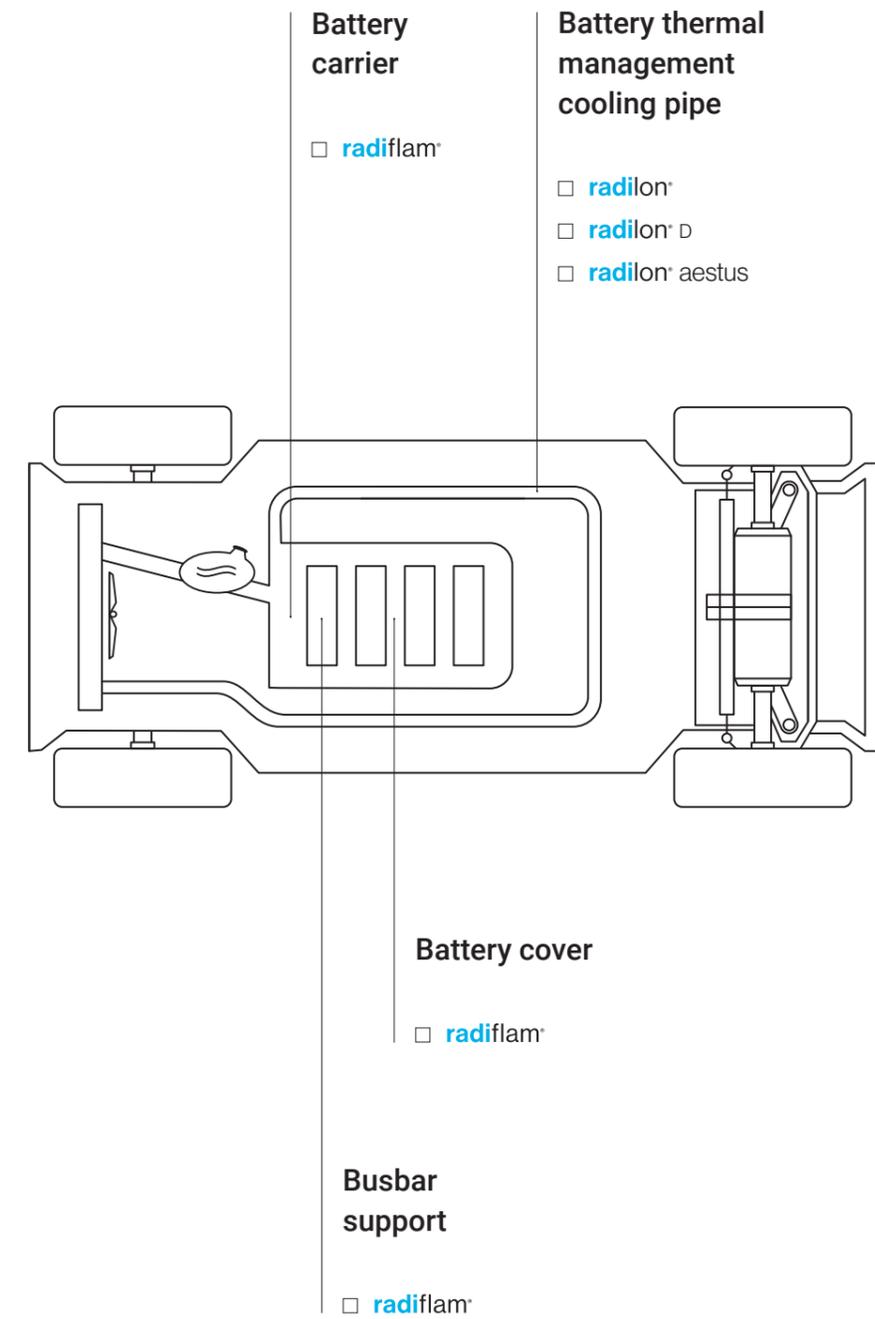
# EV Traction & Energy Management

Innovation in the electric mobility sector is fast paced.

Our long-standing experience in the electrical/electronics sector means we can offer:

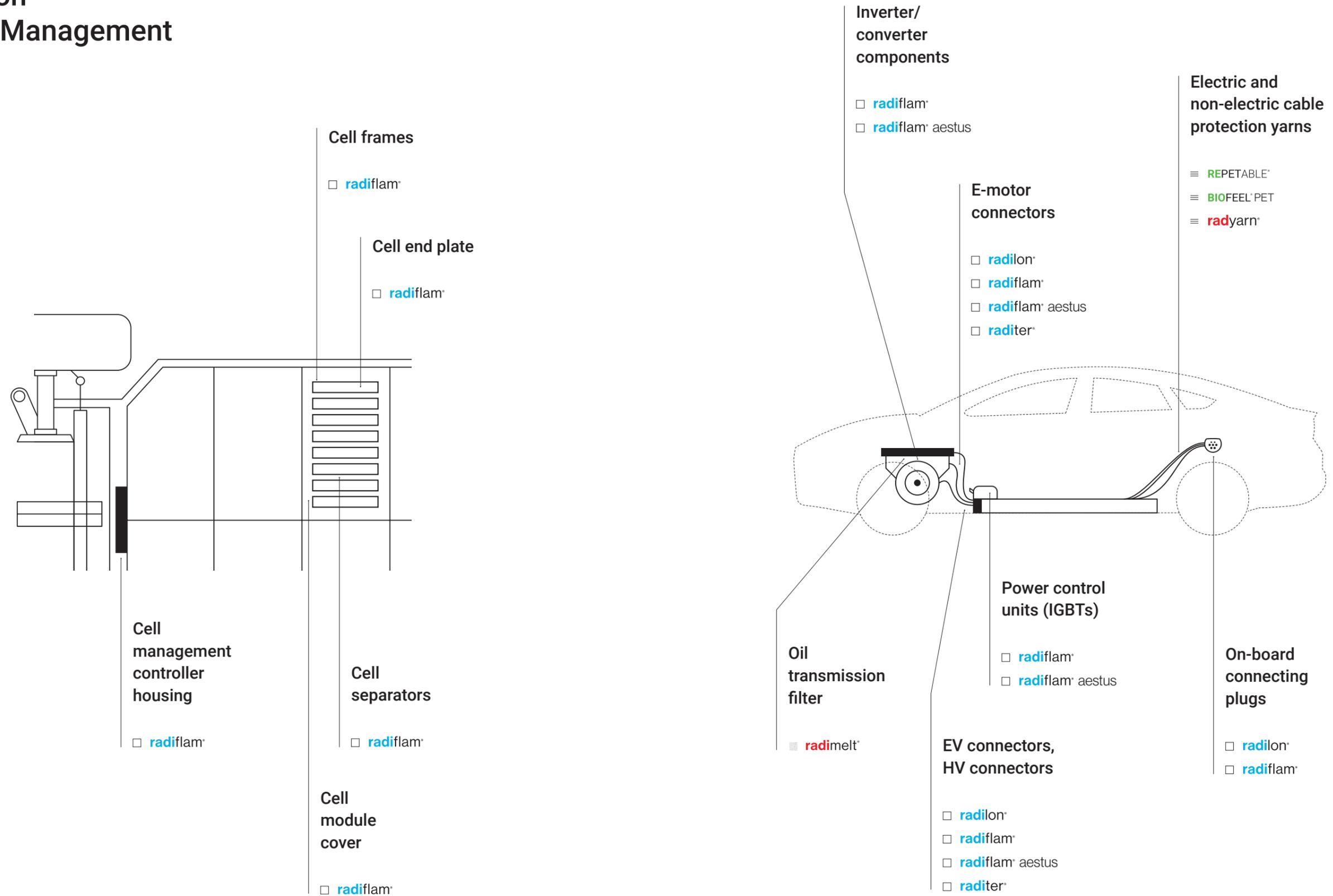
**The performance** required by these technologies: **flame retardant with UL-certified products, chemical and mechanical resistance and electrical insulation.**

**High colour stability for orange materials**, a key safety requirement for identifying high-voltage components.



- Engineering polymers
- ≡ Yarns and fibres
- Nonwovens
- ◇ Staple fibre

# EV Traction & Energy Management



- Engineering polymers
- Yarns and fibres
- Nonwovens
- Staple fibre

Did you know that  
engineering polymers  
are key for chassis  
performance?

Special performance  
requires special polymers.

Weight reduction, soundproofing, greater resistance to mechanical and chemical stresses, or interior vibration reduction – whatever you want to achieve, equipping the chassis with engineering polymer components guarantees the **highest standards of performance and comfort.**

## Chassis & Under the Hood



**The chassis: everything under the body.  
You may not see it, but it's a key part of any car.**

Whether it's the engine (beauty) cover or important structural reinforcements, we work side by side with suppliers and car manufacturers to develop customised solutions and lighter structures that make driving safer and more comfortable.

# Chassis & Under the Hood

## Chassis

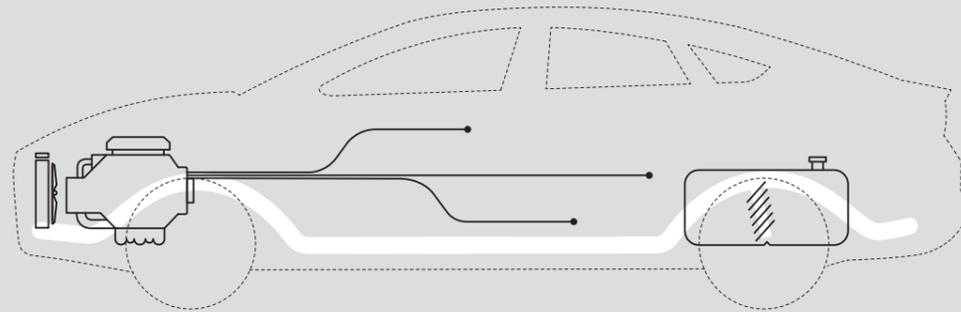
- Body in white insert
- Engine mounts
- Engine stabiliser
- Front end
- Gearbox support
- Suspension system components

## Thermal management

- Cooling pipes
- Fan
- Shroud
- Inlet/outlet pipes
- Intercooler terminals
- Radiator end tank
- Thermostat housing

## Powertrain engine system

- Air intake manifold
- Air resonator
- Engine beauty cover
- Throttle body
- Valve cover
- Oil filter
- Turbo air duct
- Under-the-hood soundproofing



## Fuel system

- Fuel filler pipe
- Fuel line
- Fuel line connectors
- Fuel vapour lines
- Fuel vapour valves
- Fuel rail, Injector, Fuel charcoal canister
- AD Blue system
- Fuel filter

## EE system

- Sensor housing
- Alternator cover
- Cable channel
- Fuse box
- Electric window system
- Electric and non-electric cable protection yarns

## Why choose the RadiciGroup Chassis and Under the Hood offering?

### Unique flexibility.

Thanks to a wide range of materials and unlimited customisation, we can guarantee high levels of flexibility to meet any specific functional requirement.

### Unbeatable performance.

When it comes to chemical, thermal, mechanical and electrical performance, our products are 100% dependable.

### Ever-present, constant support.

We guarantee the highest support levels through product and process design with complete characterisation of materials. This is due to our technical assistance and CAE (Computer-Aided Engineering) services which offer:

- **Support in choosing** the most suitable **materials** for the performance required.
- **Virtual process and product simulations** of polymeric materials (injection moulding) to optimise the mould design and process parameters.
- **Virtual structural simulations** to establish the mechanical limits of the components.

# Chassis

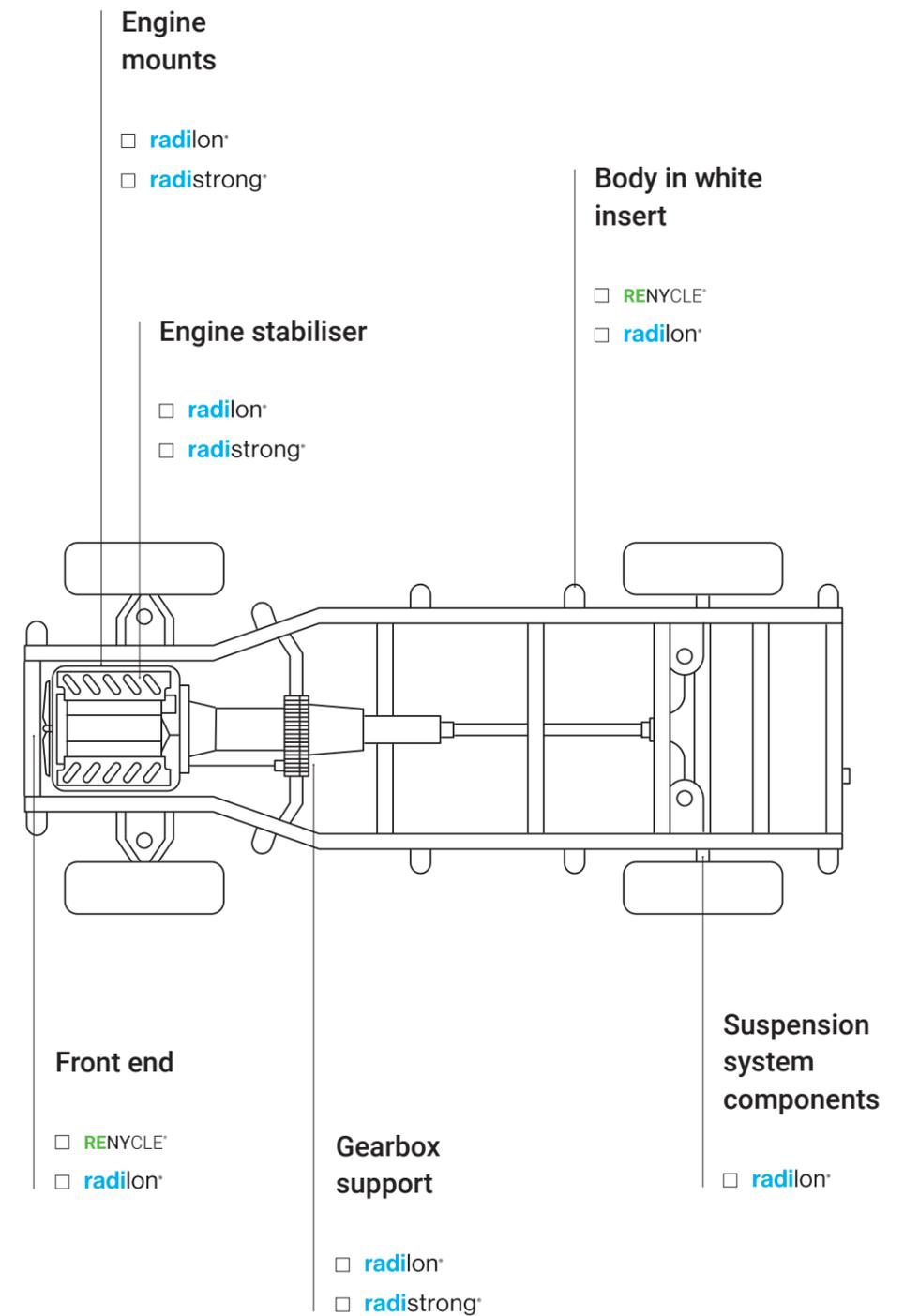
We reinforce the frame of every vehicle.

The chassis supports the vehicle, and choosing RadiciGroup to make the components connected or fixed to it really can make all the difference. Each of our partners or customers can:

Access an extensive catalogue of resistant, reliable and safe materials. These qualities are prerequisites for every product we design and make for the chassis and the elements integrated into it.

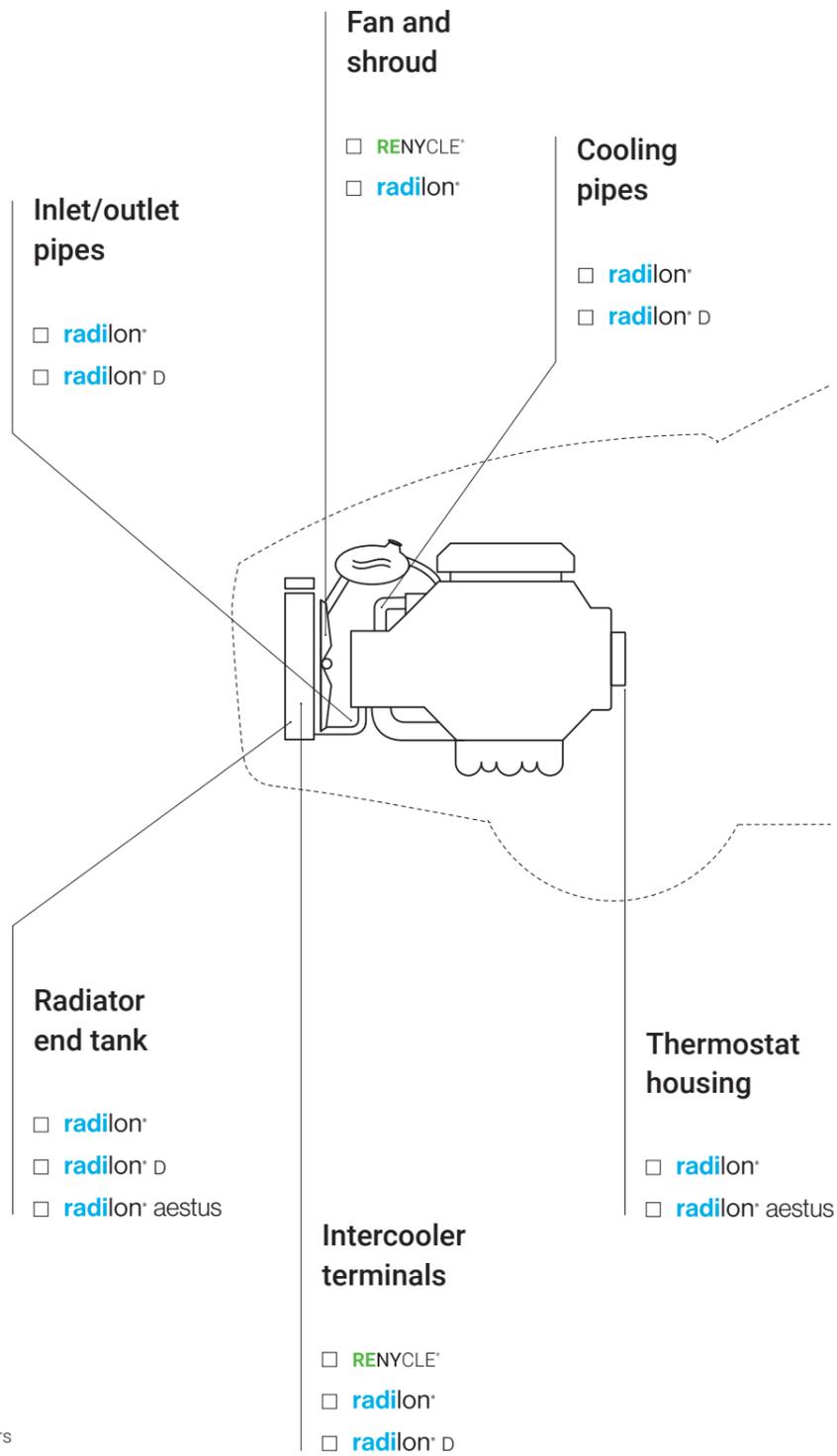
Make components which maintain their form and performance even over time, over distance and in response to stresses.

Work with us on substituting metals with engineering polymers to reduce vehicle weight and lower emissions without compromising performance.



- Engineering polymers
- Yarns and fibres
- Nonwovens
- Staple fibre

# Thermal management



- ☐ Engineering polymers
- ≡ Yarns and fibres
- Nonwovens
- ◇ Staple fibre

A question of temperatures and mechanical stresses.

To help customers choose the most suitable materials for use in cooling systems, **we have developed solutions that meet specific functional requirements. Some examples?**

**Sustainable products**, such as **Renycle**<sup>®</sup>, a recycled polyamide **which offers high mechanical performance and great versatility and resistance**, or our **engineering polymers from renewable sources** **which absorb less moisture and are more resistant to hydrolysis.**

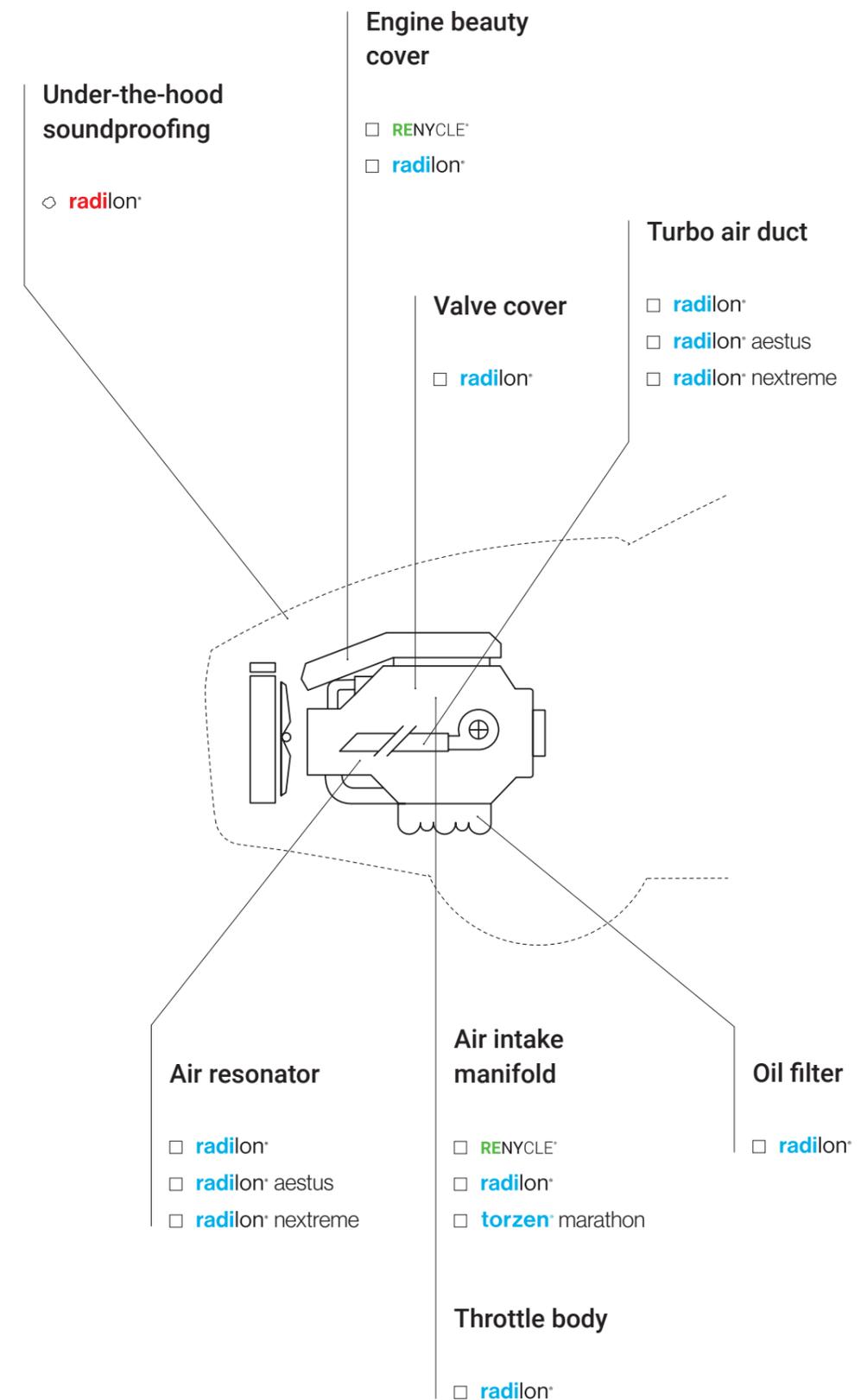
# Powertrain engine system

Engine. Action. Performance.

Thanks to **the experience we've gained over many years**, we can **offer products developed specifically to guarantee the integrity of components** in the engine compartment.

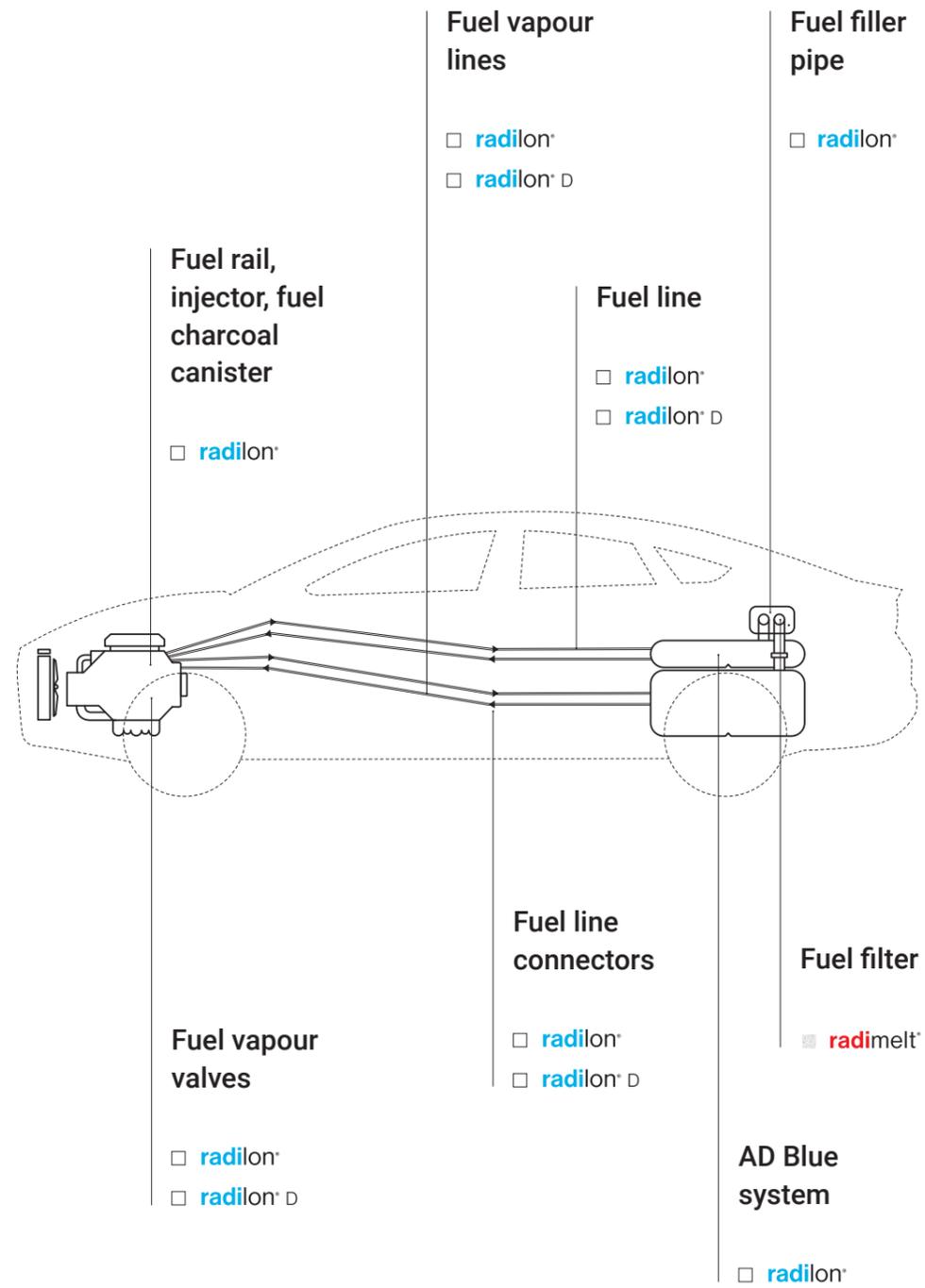
Excellent performance as for:

- **Thermal-mechanic characteristics**, to ensure the functioning of components exposed to stresses over time.
- **Aesthetics**, for the engine (beauty) cover.
- **Sustainability**, due to materials from recycling and renewable sources.



- Engineering polymers
- ≡ Yarns and fibres
- Nonwovens
- ◊ Staple fibre

# Fuel system



- Engineering polymers
- ≡ Yarns and fibres
- Nonwovens
- ◇ Staple fibre

## Maximum resistance and reliability.

Our offering features safe and reliable products that guarantee **the highest performance levels in every situation and always comply with current standards.**

How? Our **products:**

- Feature a long **molecular chain**, particularly suitable for extrusion processes with **high dimensional stability.**
- Are **chemically compatible with urea**, to avoid releasing substances that could contaminate **the AdBlue fluid used in SCR catalytic converters** for diesel vehicles.

# EE system

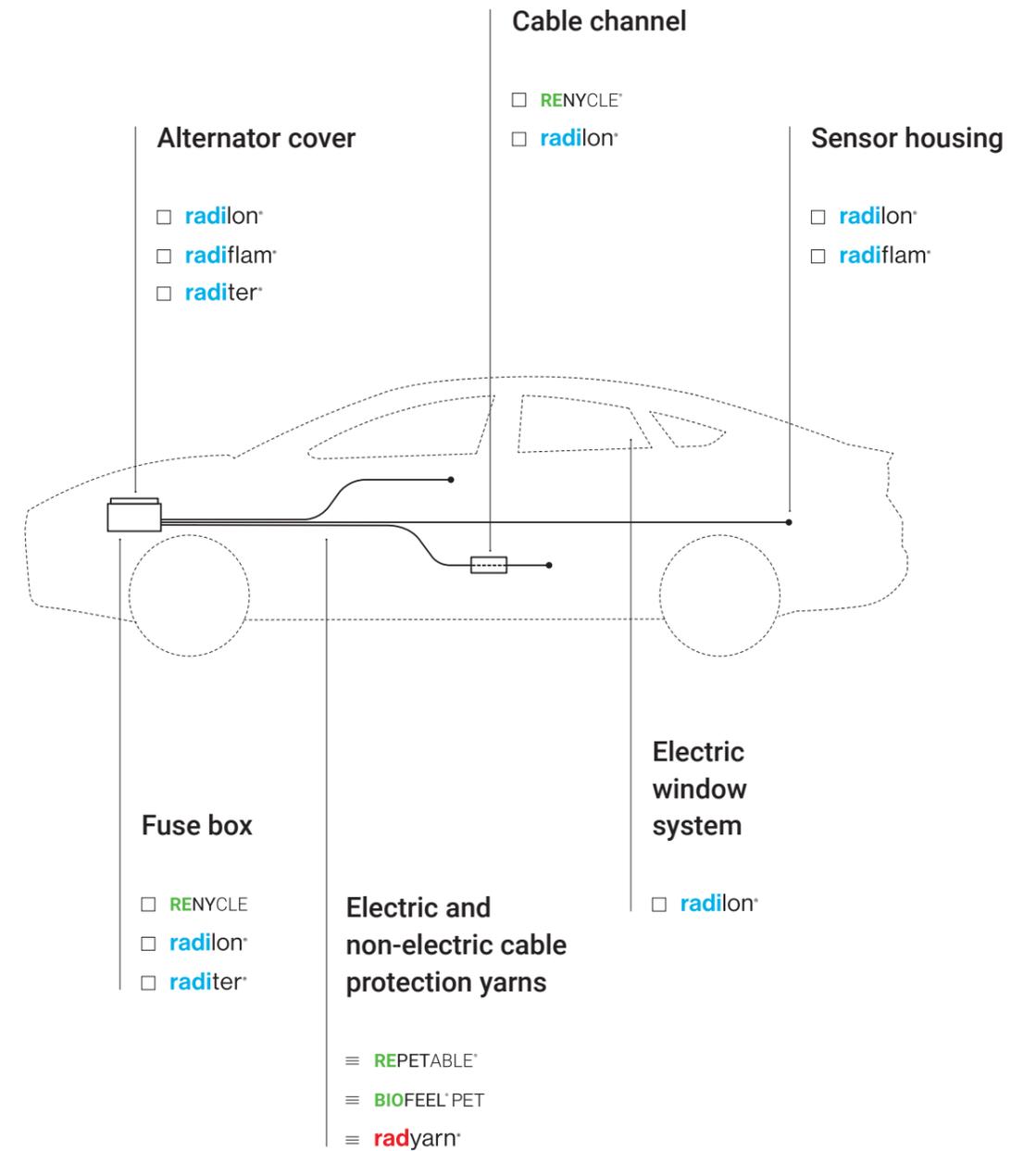
Safe, high-performance, sustainable.

As the importance of on-board electronics grows day by day, so does the importance of creating components that are **highly recognisable** and **well shielded from the outside**. We make this possible with:

**A complete range of flame-retardant products, from engineering polymers to solution-dyed polyester yarns**, available in both virgin and recycled material, or in material from renewable sources.

**Specific formulation services for laser marking and colour matching**, component recognition and **laser welding** for electrical and electronic connectors.

Materials that are **easy to work with** and **highly fluid** for extremely efficient moulding processes.



- Engineering polymers
- Yarns and fibres
- Nonwovens
- Staple fibre

Did you know that  
solution-dyeing  
materials means  
saving water?

We produce your colour of  
choice while saving water.

Our solution-dyed offering is the perfect choice for design interiors, ensuring **water is used more consciously and carefully**. And thanks to our dedicated colour matching divisions, we offer a high-quality customisation service.

## Our brands

### Sustainable products

**RENYCLE\*** Polymers, technopolymers, yarns and staple fibre obtained from the recycling of polyamide, with excellent performance and a reduced environmental footprint.

**REPETABLE\*** Polymer and continuous polyester yarn derived from flakes from post-consumer recycling (transparent PET bottles). It can boast considerable versatility in the solution-dyed, bacteriostatic and UV-stabilised versions.

**RESPUNSIBLE\*** Spunbond nonwovens made from recycled polypropylene, endowed with excellent chemical characteristics along with versatility, resistance and durability. Available in a wide range of colours, additives and technical properties.

**BIOFEEL\*** PA Range of bio-based polyamide polymers, yarns and staple fibres, whose origin is entirely or mainly from renewable sources. They feature high strength, dimensional stability, dyeability and comfort.

**BIOFEEL\*** PET Range of polyester bio-based yarns, whose origin is mainly from renewable sources. Available in different titles and combinations and textured, solution dyed and yarn dyed.

### Advanced Textile Solutions

**radifloor\*** Polyamide 6 and 6.6 BCF yarn for carpeting, available in raw white and solution-dyed colours and in twisted, thermoset and frieze.

**radilon\*** PA6 and PA66 textile yarn and staple fibre with excellent resistance, breathability and dyeability. Available in raw white and solution-dyed in a huge range of colours.

**dorix\*** Polyamide 6 staple fibre available in raw white and solution-dyed versions in a range of custom colours.

**rad yarn\*** Raw white and solution or yarn-dyed polyester, available in additivated grades (flame retardant, bacteriostatic and UV protection) and in microfibre, supermicrofibre and bicomponent fibre (PA/PET).

**dylar\*** High-performance nonwoven spunbond available in 12 to 150 g/sqm, with a wide choice of colours, additives and technical properties.

**radimelt\*** Continuous filament nonwoven fabric (from 1 to 5 microns in diameter) with excellent filtering capability for particles of microscopic size, such as viruses, which also ensures breathability and protection.

### High Performance Polymers

**radilon\*** Polyamide engineering polymers (PA6, PA66, copolymers, PA610, PA612, PPA and other specialty PAs for high temperature resistant applications) for injection moulding, extrusion and blow moulding.

**radilon\*** D Long molecule chain polyamide, partly organic in origin, developed for injection moulding and extrusion. It guarantees excellent dimensional stability and excellent hydrolysis and chemical resistance.

**radilon\* mixloy** Range of products combining different remarkable properties. The brand encompasses blends featuring enhanced properties and performance that cannot be achieved with individual polymers alone. Among the blends offered by RadiciGroup High Performance Polymers is a wide variety of PA/ABS grades. The aim is to offer a broad choice of alternatives to meet specific performance needs.

**radilon\* aestus** Compounds based on Polyphthalamide (PPA). High Performance PPA compounds, featuring exceptional thermal and chemical resistance, as well as dimensional stability and low sensibility to moisture absorption. PPA exhibits excellent stiffness, strength and resistance to creep, fatigue and hydrolysis.

**radilon\* nextreme** Polyamide engineering polymers (PA6, PA66 and specialty PAs\*) for high-temperature uses. Ideal for applications which require high thermal resistance.

**radistrong\*** Specialty PA66 engineering polymers. The main distinguishing features are high mechanical properties, better property retention with moisture absorption and an excellent surface appearance. Suitable for injection moulding of high mechanical resistance parts.

**radiflam\*** Polyamide and polyester flame-retardant engineering polymers. They include a complete range of halogen and red phosphorous-free products.

**radiflam\* aestus** Flame retardant polyamides based on PPA.

**raditer\*** Polyester (PBT and PBT compounds) engineering polymers for injection moulding.

**torzen\* marathon** PA66 compounds, including improved heat-resistance specialties.

Passion, vision  
and collaboration  
will always drive  
everything we do.

We've come a long way  
together. And we can go  
even further.

Driven by the same vision and passion for increasingly sustainable performance and innovation, together we can go far. **Because the future of mobility is evolving rapidly. And so are we.**

# RadiciGroup. Inside your world.

RadiciGroup is one of the world's leading producers of a wide range of chemical intermediates, polyamide polymers, high performance engineering polymers and advanced textile solutions, including nylon yarn, polyester yarn, yarn made from recovered and bio-source materials, nonwovens and personal protective equipment for the healthcare field. These products are the result of the Group's outstanding chemical expertise and vertically integrated polyamide production chain and have been developed for use in a variety of industrial sectors, such as: automotive, electrical and electronics, household appliances, consumer and industrial goods, apparel, furnishings, construction, sports. The basis of the Group's strategy is a strong focus on innovation, quality, customer satisfaction and social and environmental sustainability.



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