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PRODUCT CATALOGUE

POLYPROPYLENE COMPOUNDS

DISCLAIMER

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CERTIFICATES

MOL PETROCHEMICALS



SLOVNAFT



AURORA KUNSTSTOFFE



 **MOLGROUP**
CHEMICALS

www.molgroupchemicals.com

 **AURORA**
Kunststoffe GmbH
MEMBER OF MOL GROUP





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MOL's Petrochemicals Complex
in Tiszaújváros, Hungary

ABOUT MOL GROUP

The Hungarian MOL Petrochemicals Co. Ltd. and Slovak SLOVNAFT, a.s. are integrated parts of the Downstream Division within MOL Group, which is the biggest chemical complex in the Central and Eastern Europe region producing ethylene and propylene from naphtha and gas oil and processing them into low, medium and high-density polyethylene and polypropylene through the application of up-to-date technologies.

MOL Group considers petrochemicals as an important strategic field. We can highly lean on the refinery integration benefits in the MOL Downstream Division; the secured feedstock supply, the robust financial background and strong position in the regional markets, together with the high-quality products of the optimized production capacities.

Our prime objective is maintaining our petrochemical leadership in the Central and Eastern European polymer market by taking advantage of the synergies provided by the ownership structure and making the names of MOL Petrochemicals and SLOVNAFT the symbol of stable and reliable quality via exploiting optimized refinery and petrochemical production processes in accordance with the group's philosophy "from crude oil to plastics".

WE ARE CLOSE TO THE CUSTOMERS

In our core strategy, **customer care** is one of the most important elements. We believe that **trust, reliability** and **cooperation** can create advanced solutions. Therefore, besides product quality, ordering process and delivery solutions, we were recognized as outstanding in sales representation and communication according to a 2019 customer satisfaction survey. MOL group has sales and technical offices throughout Europe; in Austria, Germany, Italy, Poland, Romania, and Ukraine keeping us close to our customers.

OUR BUSINESSES



- GRINDING CENTER
- COMPOUNDING CENTER
- PETROCHEMICAL PLANT
- REFINERY
- OIL PIPELINE
- SALES OFFICE

OUR STRATEGY

Based on MOL Group's 2030+ Strategy, our business will be transformed into a more efficient, sustainable, chemicals-focused leading industry player in the next decade and until 2050 we aim to become a net zero emitter. As part of these ambitions, we are shaping our value chain by expanding it towards specialties to be a full solution provider and exploiting the opportunities arising from the surging demand not just for polymers but also compounds mainly in automotive, home appliances, electronics and furniture industry in Central and Eastern Europe and Western Europe.

As a first step towards our goal to be a leading PP compounder in CEE by 2030, **MOL Group acquired Aurora Kunststoffe GmbH in October 2019**. Aurora is a German compounder supplying mainly the automotive segment with mainly post-industrial recyclate based PA, PP, ABS/PC, ASA and other compounds all over Europe. The company has **2 grinding centers in Germany and a combined grinding and compounding site with 5 state-of-the-art extrusion lines totalling 15 kt yearly extrusion capacity**.

Together with Aurora, MOL Group now has the technology and the knowledge from modifying the polymer matrix structure to doing the scaling up process of a developed compound in-house, even for smaller batches. Our main goal is to provide flexibility when it comes to tailor-made solutions and development for market requirements.

SUSTAINABILITY IN COMPOUNDING

Circular economy is also high on the agenda in MOL Group's 2030+ Strategy. On the way of moving toward sustainability, we are continuously developing not only post-industrial, but also post-consumer recyclate based polyolefins and compounds, reacting to future needs for sustainable requirements on the market.

Therefore we have a strategic cooperation with the German recycling company APK since 2018 and in 2020 another agreement was signed with Meraxis. The Swiss trading group will supply MOL Group with high-quality post-consumer recyclate for the PP compound recyclate blends.



AURORA KUNSTSTOFFE GMBH

SUSTAINABLE PLASTIC COMPOUNDS PRODUCER
AND COMPOUNDING CENTRE FOR MOL GROUP

AURORA
Kunststoffe GmbH
MEMBER OF MOL GROUP



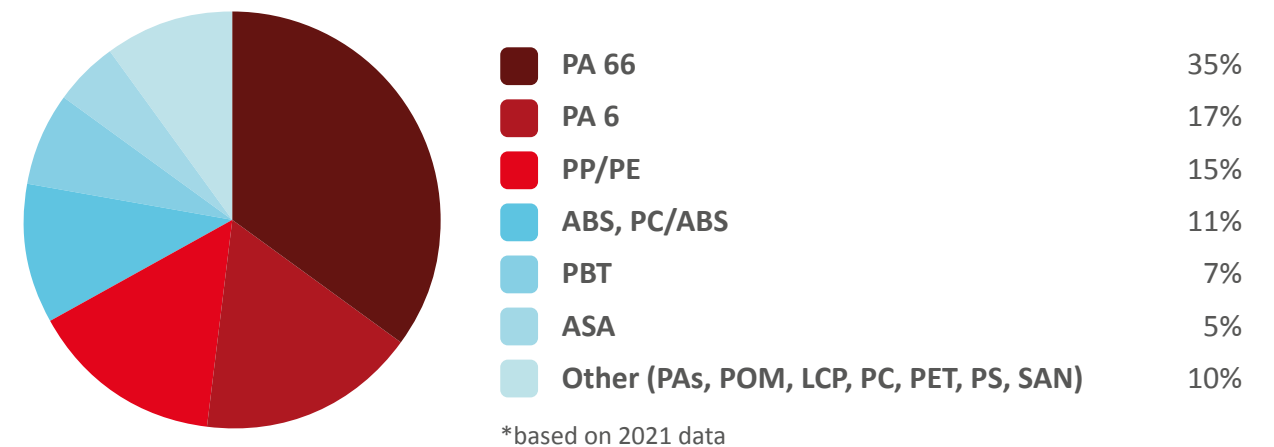
KEY FACTS

- Founded in **2009**
- Member of **MOL Group** since October 2019
- Three **highly efficient production** sites in Germany with about 100 employees
- Focus on the **automotive, construction and electrical industries and household applications** (supplying mainly European markets, but also worldwide)
- **Resource saving and environmentally friendly recycling** with significant potential for reductions in CO₂ and product quality on par with market reference products

300+
customers

15 KT YEARLY
compounding capacity

APPLICATION SPECIFIC PRODUCT PORTFOLIO* ACCORDING TO OUR CUSTOMER REQUIREMENTS



AURORA'S CLOSED LOOP RECYCLING PROCESS



- 1 A **lean logistics concept** to ensure the desired quality and quantities in the supply chain and to support suppliers' waste management activities
- 2 **High-quality, pre-sorted, post-industrial plastic waste** from over 300 suppliers as raw material basis for supply security over the entire production cycle
- 3 **Application specific product portfolio** according to customer / OEM requirements with verified quality at virgin material level
- 4 Technical expertise gained from many years of processing engineering plastics, supported by **new, state-of-the-art production and testing facilities**

PP COMPOUNDS

GENERAL INFORMATION

The product portfolio of MOL Group includes homopolymer and copolymer-based PP compound grades with fillers like glass fibers and mineral fillers.

These reinforcements embedded in PP compounds give better properties like higher mechanical toughness, better stiffness and heat resistance, also are more aesthetically pleasing as we can also add OEM's matching-color masters. These plastic materials are developed in accordance with market demands and industry standards of automotive, home appliances, electronics, and furniture segments.

THREE PILLARS OF OUR PRODUCT PORTFOLIO

To become a full-service provider and offer our customers tailor-made solutions, we organize our PP compound portfolio on three pillars:



100% VIRGIN PP-BASED COMPOUNDS

based on MOL Group's high-quality polypropylene resins produced at our two petrochemical sites in **Tiszaújváros (Hungary)** and **in Bratislava (Slovakia)**. Our extensive base PP portfolio provides us with the required flexibility to meet customer needs.



PP COMPOUNDS WITH RECYCLED POLYMER CONTENT

based on MOL Group polymer matrix and post-consumer or post-industrial recycle. As there is an increased urgency towards our OEMs and Tier-1 customers and partners to **reduce their overall CO₂ impact, we are helping to reach their sustainability goals**, without any compromise in quality or performance. Our strategic partnership with Swiss trading Group Meraxis also strengthens this pillar, by providing high-quality recycle feedstock for us.



100% RECYCLATE-BASED PP COMPOUNDS

thanks to the closed-loop recycling model of Aurora Kunststoffe, we can provide fully sustainable PP compounds helping our customers' transition to circular economy, in an efficient and agile way. MOL Group's decade-long polymer know-how combined with Aurora's compounding expertise and our partners' sourcing competence enables us to provide the best technical solutions and customer experience in the entire compounding value chain.

MOL Group's PP material solutions help facilitate the light-weighting trend in automotive industry, and combined with post-industrial or post-consumer recycle, our products could be an ideal choice for sustainable and efficient substitution of conventional materials.

FILLER TYPES

MINERAL FILLED PP COMPOUNDS

Talc is the most popular filler, which brings improvement in the stiffness, creep behaviour, and specially the dimensional stability and heat resistance to the polymer.

By lowering talc content in for example interior trims, light-weighting is achieved in cars which contributes to fuel efficiency and thus to a low-carbon world.

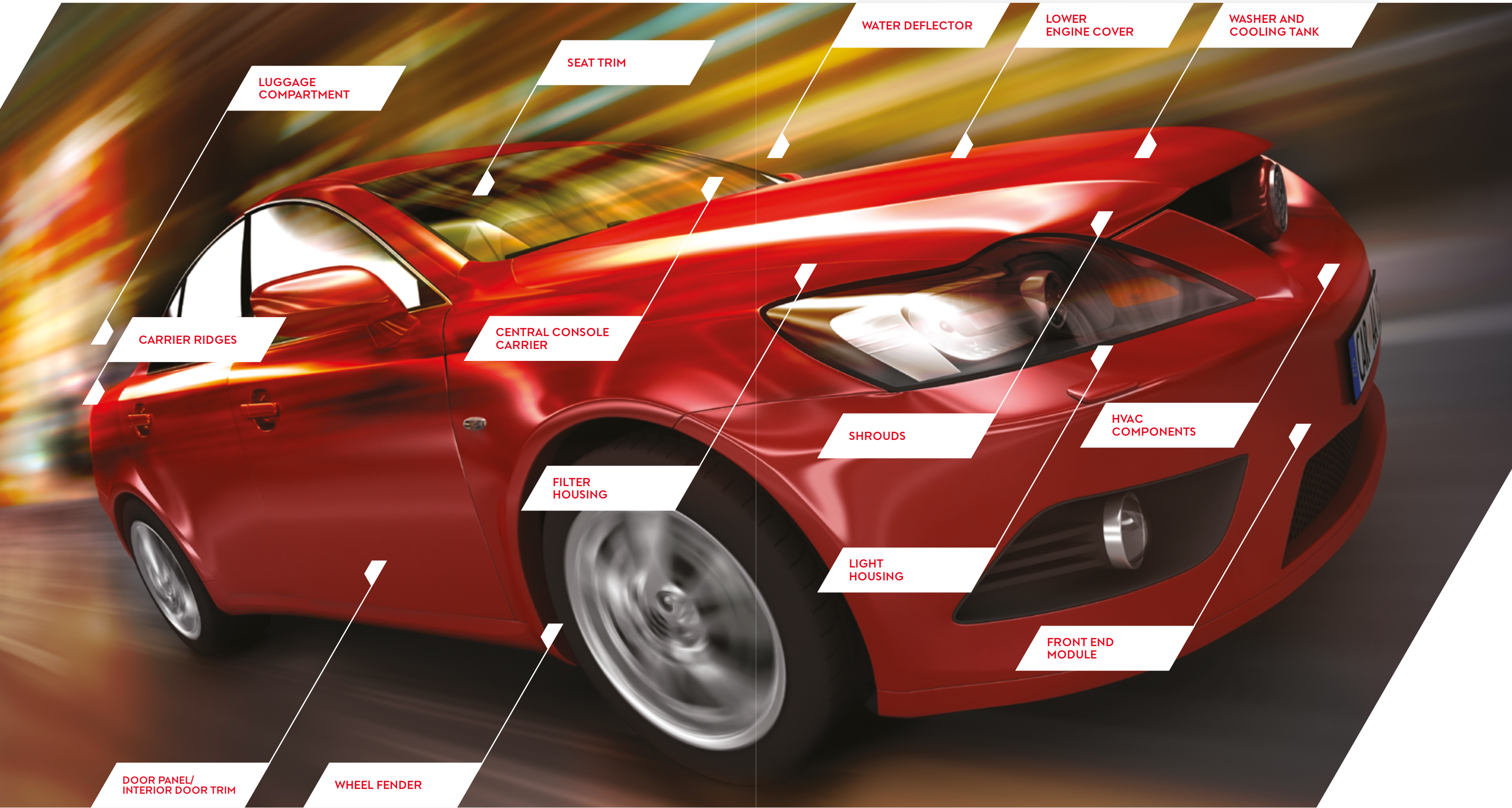
GLASS FILLED PP COMPOUNDS

Glass fillers could increase the toughness, creep strength and stiffness of the component, when added to our polypropylene (homopolymer or copolymer), to reinforce the plastic matrix.

Our glass fiber-filled PP compounds are ideal for various under-the-hood applications like front-end modules or cooling tanks, and for interior applications.

APPLICATIONS

Our existing products can be used in many application areas of a car, providing further advantages to end users. **Currently our portfolio mainly aims at automotive applications**, however developments are ongoing for home appliance, electronics, and furniture segments as well.



TYPICAL PROPERTIES OF MOL PP COMPOUNDS



Grade name	Filler	Melt Mass - Flow Rate (MFR) 230°C/2.16 kg	Density	Modulus of Elasticity in Tension	Tensile Stress at Yield	Tensile strain at Break	Flexular Modulus	Notched Charpy Impact at 23 °C	HDT 0.45 MPa	Typical application
Unit		g/10 min.	kg/m³	MPa	MPa	%	MPa	kJ/m²	°C	
Test method		ISO 1133	ISO 1183	ISO 527-1,2	ISO 527-1,2	ISO 527-1,2	ISO 178	ISO 179-1eA	ISO 75-2/B	
REMOLN 50-ICUF00-3 H TST	Unfilled 50% PIR PP	4	900	1300	22	>100	1250	5	77	Extrusion profile
REMOLN 50-CCUF00-803 TST	Unfilled 50% PCR PP	35	900	1250	22	28	1200	6	-	Injection moulding applications
REMOLN 50-IHGF22-701 TST	22% Glass Fiber	17	1090	5400	68	3.2	5500	7	154	Injection moulding applications
REMOLN 40-IHGF32-601 TST	32% Glass Fiber	12	1180	7500	85	3	7500	8	155	Front end carrier
REMOLN 50-IHGF32-701 TST	32% Glass Fiber	16	1180	7600	86	3	7800	9	156	Injection moulding applications
REMOLN 30-IHGF42-501 TST	42% Glass Fiber	7	1270	9300	95	3	9300	10	155	Carrier parts, fan shrouds
REMOLN 30-ICMT12-601 TST	12% Mineral - Talc	10	970	1200	18	-	1150	NB	77	Exterior parts/ Bumper
REMOLN 50-ICMT12-501 TST	12% Mineral - Talc	11	990	1300	18	90	1350	13.5	80	Injection moulding applications
REMOLN 27-IHMT20-701 TST	20% Mineral - Talc	17	1060	3200	22	7	3200	3	127	HVAC components
REMOLN 50-IHMT20-501 TST	20% Mineral - Talc	21	1090	2400	29	4.5	2700	2.3	110	Injection moulding applications
PRIMOEN HGF10-001 H TST	10% Glass Fiber	0.4	970	2800	45	7	3000	9	145	Under the hood applications, Cooling tanks and water reservoirs
PRIMOEN HGF22-701 TST	22% Glass Fiber	20	1040	5000	65	3.5	5100	12	150	Furniture parts
PRIMOEN HGF32-501 TST	32% Glass Fiber	7	1150	7500	87	3	8000	9	155	Front end carrier/ Grill
PRIMOEN HGF30-301F TST	30% Glass Fiber	4.5	1340	9800	88	2	9850	8	-	Battery cases, electrical parts with flame retardency (V-0)
PRIMOEN HGF42-501 TST	42% Glass Fiber	8	1240	9500	98	2.5	9550	9	160	Carrier parts, fan shrouds
PRIMOEN CMT06-701 TST	6% Mineral - Talc	15	930	1500	21	-	1500	43	98	Low density interior parts
PRIMOEN CMT12-701 TST	12% Mineral - Talc	17	970	1400	19	-	1450	NB	95	Exterior parts/ Bumper
PRIMOEN CMT16-701 TST	16% Mineral - Talc	17	1000	1500	18	-	1700	32	95	Interior housings
PRIMOEN HMT 20-501 TST	20% Mineral - Talc	8	1100	2700	34	20	3100	4	125	Housings, HVAC components, heaters
PRIMOEN HMT 20-201 TST	20% Mineral - Talc	1.8	1050	2750	34	30	3000	4	120	Extrusion Profile
PRIMOEN CMT30-501 TST	30% Mineral - Talc	8	1130	2300	20	-	2400	20	110	Interior parts

AUTOMOTIVE EXTERIOR PARTS

Door and trunk trim, fenders other exterior trim parts



AUTOMOTIVE INTERIOR PARTS

Interior pillars, side shields for central consoles and/or seats other interior trim parts



AUTOMOTIVE UNDER-THE-HOOD APPLICATIONS

Front-end carriers, fans, shrouds, cooling tanks, reservoirs, heaters

