



ELV Recycling Activity

As a manufacturer specializing in automobile parts, we consider ourselves responsible for actively working on the development of recycling technologies in order to appropriately respond to the EU Directive on ELV*1 and the Automobile Recycling Law, which came into effect in Japan in January 2005.

Our ELV recycling activities are conducted using a three-pronged approach based on the lifecycle of a vehicle; (1) “Recycling Design” in the design phase, (2) “Recycling during Processing” in the production phase, and (3) “Recycling ELV parts” in the disposal phase. An additional feature of these activities is ensuring that established in-process recycling technologies are reflected in ELV parts recycling. With these approaches in mind, we divided automobiles into two groups, those already on the market and new

models. We are developing resin and rubber products (1) which comply with the “EU’s ELV Directives” specifying a 95% effective vehicle recycling rate (by 2015) for reducing ASR*2, and (2) which can be used in the development of vehicles with environmentally harmful substances but which comply with safety standards regarding reduced use of environmentally harmful substances. We are particularly focused on perfecting the design of built-in parts for use in new models to improve their recycling potential by taking into account the vehicle type approval requirement (95% recyclability of vehicles) of the EU’s ELV Directives.

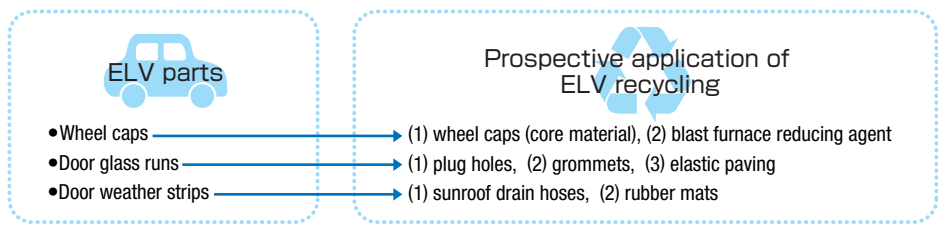
*1 ELV: End of Life Vehicle

*2 Automobile Shredder Residue: Residue remaining after shredding ELVs and sorting metal scraps

■ Recycling of automobile parts for cars already on sale

To test ELV recycling technologies and consider their prospective application, taking the EU’s ELV Directive and the domestic Automobile Recycling Law into account.

Cases of prospective application of ELV recycling



■ Engineering developments for ELV Recycling

Important items	Measures	Cases of efforts
1. Product designing for high recyclability	<ul style="list-style-type: none"> • Change to easy-to-recycle materials and structures • Designing of easier-to-scrap products 	No inserted metals, paint-free, complete use of olefin, development of post-PVC materials, non-chlorine rubber materials and development of one touch clip curtain airbags, etc.
2. Development of new recycling technologies	<ul style="list-style-type: none"> • New reclaim treatment technology • Separating technology of complex materials 	Use of ethylene propylene diene (EPDM) recycled rubber (continuous extrusion desulfurization methods), recycling of three-layer instrument panel epidermis (hydrocyclone), Recycling vulcanized fluorocarbon rubber, etc.
3. Loading vehicles with recycled materials	<ul style="list-style-type: none"> • Development of usage of recycled materials • ELV parts recycling technology 	Recycling of discards of ground fabric for airbags (engine covers, nylon piles, fender liners), recycled polyethylene terephthalate (PET) noise-absorbing materials, recycled PET engine covers
4. Reduction of substances with environmental impacts	<ul style="list-style-type: none"> • Compliance with laws, voluntary reductions 	<ul style="list-style-type: none"> • Reduction of lead compounds, PVC, hexavalent chromium, and environmental endocrine disrupters, etc. • Interior parts with less VOC*, etc. • Reducing toluene and xylene (water borne paint and adhesive agents)

*VOC: Volatile Organic Compounds