

Automotive Recycling Your car's afterlife

A Look at the Automotive Recycling Industry



The Road to ReinCARnation



A Vital US Industry: Auto Recycling

For more than 75 years, automotive recyclers have been providing employment, consumer service and environmental conservation worldwide.¹ In the United States, the automotive recycling industry is a vital, market-driven industry. In fact, automotive recycling is the 16th largest industry in the United States, estimated to be a \$25 billion per year industry.² There are approximately 7,000 vehicle-recycling operations around the country.³ Recycling autos provides enough steel to produce almost 13 million new automobiles, while generating jobs for 46,000 people.⁴

The Automotive Recycling Industry

The automobile is the most recycled consumer product in the world today.⁵ In fact, 95 percent of retired autos are processed for recycling each year.⁶ Thanks to advances in technology, everything from floor mats and instrument panels to upholstery, aluminum and steel can be recycled for use in a new automobile or another consumer product. Nationwide, about 26 automobiles are recycled every minute, according to the American Iron and Steel Institute.



\$25
BILLION

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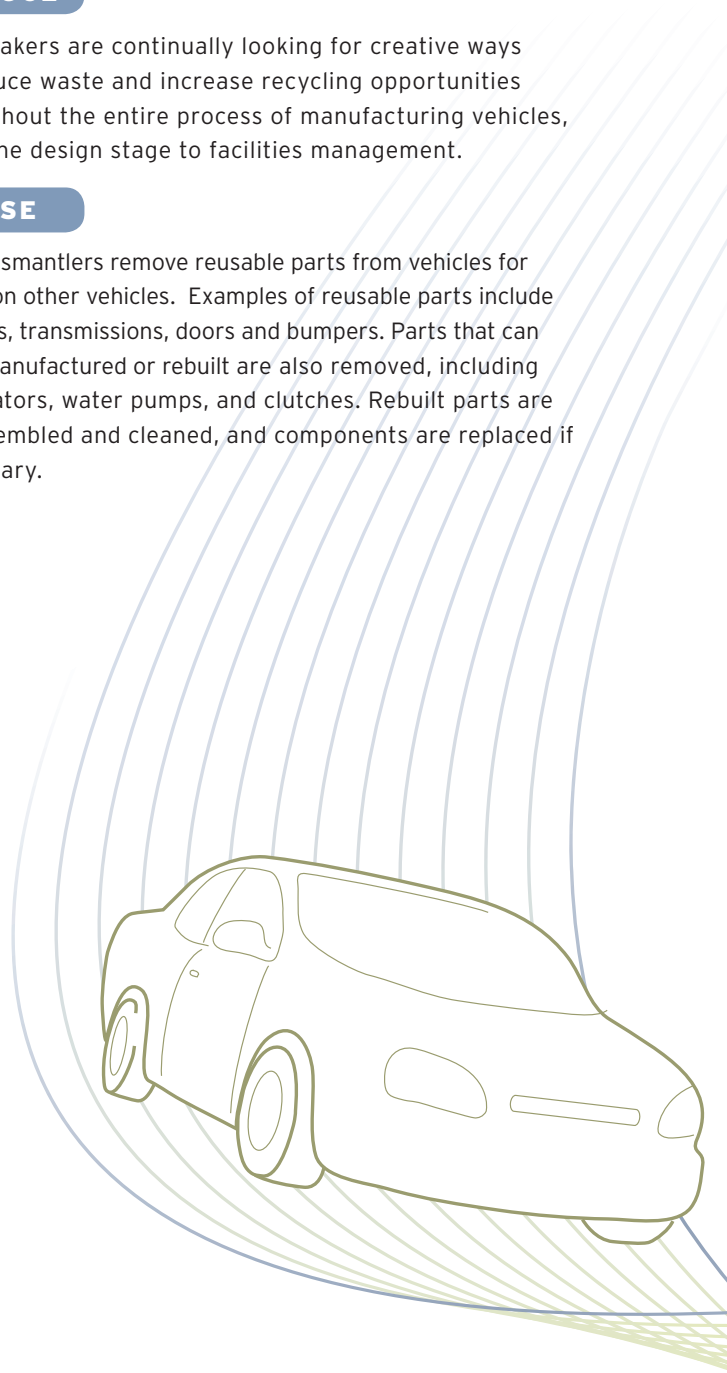
ReinCARnation: Reduce, Reuse & Recycle

REDUCE

Automakers are continually looking for creative ways to reduce waste and increase recycling opportunities throughout the entire process of manufacturing vehicles, from the design stage to facilities management.

REUSE

Auto dismantlers remove reusable parts from vehicles for reuse on other vehicles. Examples of reusable parts include engines, transmissions, doors and bumpers. Parts that can be remanufactured or rebuilt are also removed, including alternators, water pumps, and clutches. Rebuilt parts are disassembled and cleaned, and components are replaced if necessary.

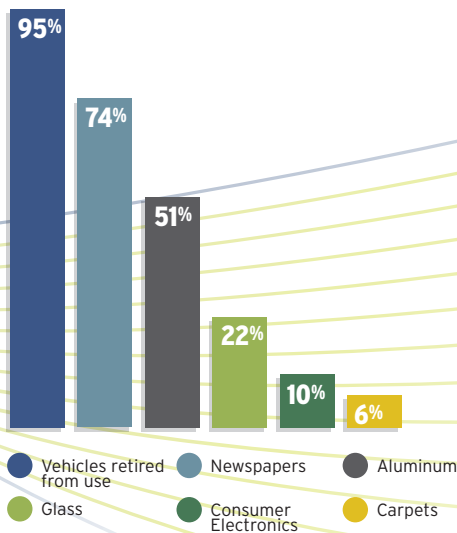


RECYCLE

Once dismantled, the vehicle is compacted and then sent through a shredder where fragments are sorted magnetically into ferrous and non-ferrous materials. Ferrous materials are metal such as steel and iron. Examples of non-ferrous metals include aluminum, magnesium, copper, brass and zinc. The removed metal, roughly 75 percent of a vehicle, is then mixed with new metal before returning to manufacturers for reuse. According to the American Iron and Steel Institute (AISI), in 2004 over 14.5 million tons of steel was recycled and reused from end-of-life vehicles. The metal removed is reused for such things as a new vehicle's chassis and engine. Last year, enough steel from old cars was recycled to produce 48 million steel utility poles, one third of the utility poles in the U.S.⁷ Volkswagen (VW) has developed the VW-Scion process, which treats automotive shredder residue, that up to now has been land filled, in a way that maximizes the recovery of valuable materials used for renewed production processes.

Auto dismantlers also remove recyclable fluids and materials from the vehicles. Recyclable fluids comprise engine oil, coolant, refrigerant and gasoline. Recyclable materials are typically batteries, catalytic converters, tires and plastics. These materials are recycled into a variety of new consumer products. Recycling plastics from an end-of-life vehicle is a growing part of the recycling industry. Salvaged plastic bumpers become new bumper reinforcements in the recycling process for Ford Motor Company. Toyota has recovered and recycled bumpers into new bumpers for new cars. Mazda collects damaged bumpers at the point at which they are replaced with new ones, and reuses the bumpers in the production of component parts for cars.

Autos are the most recycled consumer product in the world today. This chart reflects the recycling rate of other commonly used products and materials.⁸



Recycling

How recycled products become new products

Through the recycling process, old autos are recycled into new autos, old consumer products are recycled into components of new autos, and parts of old autos are recycled into new consumer products.

Old autos are recycled into new autos. At least 84 percent of a car's material content is recycled.⁹ Just two examples of recycled products are carpets and tires. Used carpet can become air cleaner assemblies and engine fan modules. Manufacturers safely build new tires with 10 percent recycled tire rubber material. Recycled tires also become brake pedals or floor mats. DaimlerChrysler transforms recycled tires into radiator side air baffles and splash shields in the Jeep Wrangler. General Motors also transforms recycled tires into radiator side air baffles. In terms of weight, 10 percent of all plastic parts used in the MINI Cooper by BMW Group are made up of recycled materials.



Old consumer products are recycled into components of new autos. For instance, milk jugs are recycled into auto trim while carpet becomes sound-deadening material, and spent battery casings become splash shields. General Motors and DaimlerChrysler use recycled fabric from the textile industry for floor insulation in new SUVs. Ford Motor Company has used grille reinforcements, window frames, engine covers and trunk carpets manufactured from more than 50 million plastic soda bottles in its vehicles. Mitsubishi Motors is expanding the recycling of beverage bottles and other materials like used clothing to make engine oil level gauges and dashboard panel sound-absorbing materials.



Old autos are recycled into new consumer products.

In particular, metals such as steel or copper are melted down and reused for new consumer products, building construction, or for use in a new vehicle. For example, consumer batteries used in flashlights or cameras are often made from melted metal from an old auto.





Auto Recycling Saves Resources

Each year, approximately 95 percent of vehicles retired from use are processed for recycling.¹⁰ The recycling of these vehicles saves an estimated 85 million barrels of oil that would have been used in the manufacturing of new or replacement parts.¹¹

Alliance member companies are committed to recycling during the production of automobiles and also to producing vehicles as efficiently as possible to cut down on energy costs. Examples include:

DaimlerChrysler Corporation requires vendors to use returnable containers for materials shipped to its plants. The company also works with suppliers to increase the recycled content of the products it purchases, and DaimlerChrysler recycles over 186,500 tons of cardboard, paper, plastic, aluminum, wood and steel a year. General Motors returned more than 8 tons of old or obsolete paint to vendors for recycling. Virtually 99 percent of all scrap steel generated by Toyota plants is now recycled. In addition, many waste materials, like plastic wrap, paint solvents, used oil, packaging materials and cardboard are recycled.

To help promote environmental conservation worldwide, automakers are committed to discovering new and innovative ways to continue the recycling and reuse of automobiles. In many ways, automakers are driving innovation.

Footnotes

¹ Automotive Recyclers Association, www.a-r-a.org

² Automotive Industry Trends, March 2004 <http://auto.ihs.com/newsletters/auto-mar04-auto-recycling.jsp> According to the Auto Recyclers Association, the industry is estimated to be a \$25 billion a year industry.

³ About Automotive Recycling. Automotive Recyclers Association of New York. 2000. www.arany.com/AboutAutomotiveRecycling.htm

⁴ Automotive Recyclers Association, www.a-r-a.org

⁵ Steel Recycling Institute, www.recycle-steel.org

⁶ 2005 Ward's Motor Vehicle Facts & Figures, p. 56/ US Department of Energy.

⁷ The American Iron and Steel Institute <http://www.steel.org/facts/recycling.htm>

⁸ The automobile recycling data originates from 2005 Ward's Motor Vehicle Facts & Figures, p. 56/ US Department of Energy.

The glass containers recycling data originates from the Glass Packaging Institute, <http://www.gpi.org/recycling>

The newspaper data originates from The American Forest and Paper Association, "Recovered Paper Statistical Highlight 2005 Edition," page 11, http://stats.paperrecycles.org/2005_Stat_Highlights.pdf

The aluminum recycling data originates from The Aluminum Association, Inc., <http://www.aluminum.org>

The consumer electronics recycling data originates from US Fed News, 7/26/2005, "Senator Thune addresses oversight hearing on electronics waste".

The consumer carpet recycling data originates from Carpet America Recovery Effort, Annual Report 2004, www.carpetrecovery.org

⁹ 2005 Ward's Motor Vehicle Facts & Figures, p. 56/ US Department of Energy.

¹⁰ 2005 Ward's Motor Vehicle Facts & Figures, p. 56

¹¹ Automotive Industry Trends, March 2004 <http://auto.ihs.com/newsletters/auto-mar04-auto-recycling.jsp>

The Alliance of Automobile Manufacturers is a trade association including BMW Group, DaimlerChrysler, Ford Motor Company, General Motors, Mazda, Mitsubishi Motors, Porsche, Toyota and Volkswagen. Automakers invest billions of dollars in research and development every year, more than any other industry.

To learn more about automotive recycling, visit www.autoalliance.org

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