



**Initiatives in the Development and Design Stage**

**Enhanced Recyclable Vehicle Design**

**FY2002 Goals**

- Incorporate the concept of design for recycling (DFR) into vehicles to be launched in FY2005, in response to a vehicle recovery target rate of 95% by 2015
- Improve dismantlability and switchover to easy-to-recycle materials in consideration of future recycling and recovery technologies

**The Prior Assessment System in Recycling**

Toyota applied its Prior Assessment System to 11 vehicle series launched in FY2002 that were either new or underwent complete redesign. Prior assessment of evaluation items, including long useful life and resistance to corrosion, was done at the development and design stage to confirm the degree of recyclable vehicle design.

**Material Selection with Consideration to Recycling**

TSOP<sup>1</sup> is used in the interior and exterior parts of new models or those that underwent complete redesign in 11 vehicle series. The number of vehicle series that use RSPP (recycled sound-proofing products) was expanded by 7 for a cumulative total of 20 vehicle series.

Toyota is also expanding the use of kenaf, a natural material. In FY2002, its use was initiated in the base material of the door trim of the WISH. Further, Toyota Eco-Plastic, developed entirely by Toyota, began to be used in the spare tire covers of the new Raum.

**1. TSOP (Toyota Super Olefin Polymer):**

A thermoplastic polymer developed by Toyota that has excellent recoverability compared to conventional polypropylene and does not deteriorate even after repeated recycling

See pp. 40 and 48 - 51 for details on Toyota Eco-Plastic

**Reduction in the Use of PVC Resin**

Toyota is actively engaged in reducing the volume of PVC resin used. As a result, its usage in the new Raum has been reduced to 1/4 or less than that in the previous model.

Toyota has also developed a halogen-free wire harness<sup>2</sup> that was first adopted in the Alphard launched in May 2002.

**2. Halogen-free wire harness:**

A wire harness (electrical wiring network) that does not use PVC resin or bromide-based fire retardant in the shield

**Reduction of Substances of Environmental Concern**

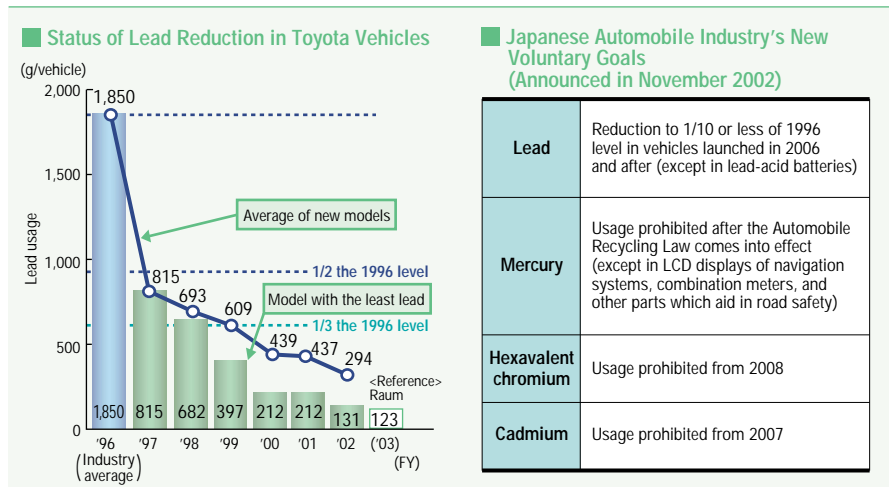
**FY2002 Goal**

- Reduce lead usage in new models to 1/3 or less of the 1996 level by the end of 2005

\*A voluntary goal of the Japanese automobile industry (JAMA ELV Recycling Initiative)

**Reduction of Lead Usage**

Toyota achieved ahead of schedule the Japanese automobile industry's voluntary goal of "reducing lead usage in models to 1/3 or less of the 1996 level by the end of 2005" in all 11 vehicle series of new models or those that underwent complete redesign in FY2002. Of the 11, further efforts towards reduction were made in three vehicle series to achieve the industry's new voluntary goal announced in November 2002, of reducing usage to 1/10 or less.



**Use of Materials with Consideration to Recycling in the New Raum**

- RSPP (Recycled Sound-Proofing Products)
- Recycled PP (Polypropylene)
- Toyota Eco-Plastic
- Polyethylene-styrene composite
- Toyota Super Olefin Polymer (TSOP)
- Thermo Plastic Olefin (TPO)

