

Control and Reduction of Environmentally Hazardous Substances

Controlling and reducing chemical substances in products

There are currently more than 100,000 distinct chemical substances in use worldwide, and regulations governing their use and emissions are being strengthened globally on the back of concern over their impact on the environment when discharged into soil or water. We manufacture products in accordance with a basic policy of minimizing the use of harmful chemical substances throughout each product's lifecycle. In particular, we have taken advantage of the implementation of European Union ELV directives*1 in 2000 to move ahead with efforts to eliminate use of the four targeted substances of lead, mercury, cadmium and hexavalent chromium by 2008 (excluding exemptions*2).

*1 ELV (End-of-Life Vehicles) directives: A series of regulations concerning used automobiles that entered into force in the European Union in October 2000. In principle, the regulations will be phased in to prohibit the use of harmful chemical substances in vehicle materials and components put on the market after July 2003.
 *2 Cases in which substitute materials or methods capable of securing the same performance are not available are exempted.

Response of DENSO and industry to laws and regulations

Year	98	99	00	01	02	03	04	05	06	07	08
Europe			EU-ELV directives enacted in each country	Review exemption	Enacted	Prohibited, in principle, the use of hexavalent chromium, lead, cadmium and mercury (with some exemptions)	★ Enforced in July			REACH started	
Japan	In lieu of legislation, set up voluntary industry targets	Japan Automobile Manufacturers Association			End-of-Life Vehicle Recycling Law	Enacted in July	★ Enforced in January				
DENSO			Set up voluntary targets				Reviewed voluntary targets				

(1) Fiscal 2008 results

Lead has been used in bearings and free-cutting aluminum to improve abrasion resistance and machinability. In the context of developing substitute technologies, we have reduced the use of lead or switched over from lead to bismuth. We have also developed technologies for eliminating the use of solder lead, which had been widely used in bonding electronic substrates and other components, in flagship products. We are currently progressively applying these technologies to our operations. In addition, we are encouraging overseas Group manufacturing companies to develop the same type of environmental evaluation systems for products used domestically, and we have completed these measures at 33 of 43 targeted bases. We plan to complete measures at the remaining 10 bases by the end of fiscal 2009.

(2) REACH* Regulations

The REACH Regulations for chemical substances were enacted in Europe in June 2007 and entered into force in June 2008 (pre-registration). As a means of minimizing the environmental risk associated with chemical substances, the regulations seek to ensure thorough adherence to producer responsibility and precautionary principles by requiring companies to evaluate the safety of more than 100,000 chemical substances distributed inside the European Union (EU), and to register the resulting information with the European Chemicals Agency.

* REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals.

Coordination with related industries

To comply with the REACH Regulations, close coordination among companies in the automotive industry and industry in general is essential. DENSO Corporation is cooperating with the Japan Automobile Manufacturers Association and the Japan Chemical Industry Association through the Japan Auto Parts Industries Association to inform all companies in the supply chain for components and materials of the necessity of pre-registration and registration. These companies are also being requested to thoroughly implement associated procedures. Internally, the Company launched a REACH Project under the aegis of the Environment Committee, and has compiled a list of approximately 3,000 targeted items (substances and formulations) for pre-registration and registration that are handled by production facilities and Group companies in the EU. In addition, the Company has developed and distributed a *REACH Compliance Manual* designed to ensure the ability of production facilities and Group companies to comply with the REACH Regulations, and the Company plans to complete all pre-registration procedures by the deadline of December 1, 2008.



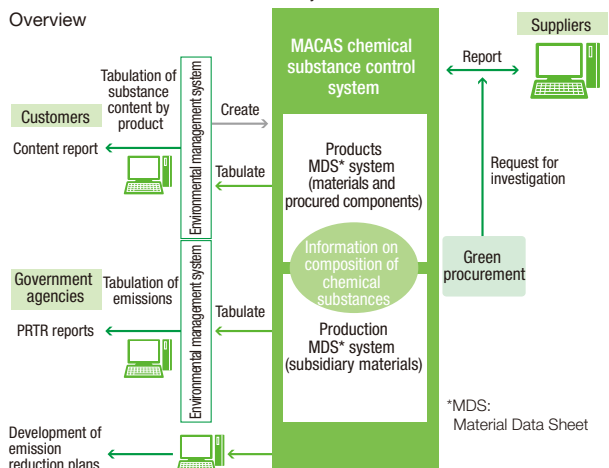
REACH Compliance Manual

Controlling and reducing chemical substances during production

We classify chemical substances used at factories into "prohibited," "targeted for reduction" and "controlled" categories. Substances targeted for reduction are weighted according to the extent of their environmental impact, usage and emissions, and chemical substances with a significant environmental impact are given priority in reduction efforts. More specifically, since fiscal 2002 we have sought to implement unified control of all chemical substances used in product materials, procured components and production processes by means of the Material Chemical Assessment

Chemical substance control system

MACAS: Material Chemical Assessment System



*MDS: Material Data Sheet

System (MACAS), a proprietary chemical substance control system. Also, we continue to develop alternative technologies and reduce usage and emissions of chemical substances on an ongoing basis.

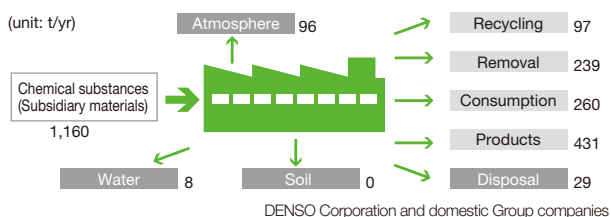
Fiscal 2008 results

We are addressing the use of substances that are PRTR*-listed in Japan by improving processes and transitioning to alternative substances. To this end, we have established the targets of reducing emissions of these 354 substances by 75% at DENSO Corporation and by 65% at domestic Group companies compared with fiscal 1999 levels by fiscal 2011. At the same time, we are reducing the basic unit by 30% at overseas Group companies compared with fiscal 1999 levels by fiscal 2011 in compliance with legal regulations in each country or region. We achieved our targets in fiscal 2008 thanks to progress in initiatives such as introducing water-soluble paint for use on the exteriors of power distribution components.

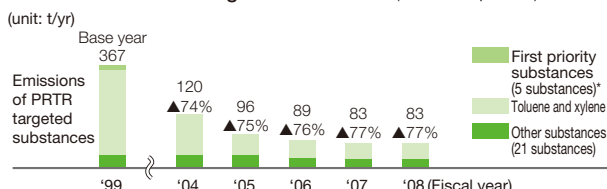
In fiscal 2008, DENSO Corporation posted PRTR-listed substance emissions of 83t (target: 91t), while domestic Group companies posted emissions of 60t (target: 60t). All 42 overseas Group bases finished formulating five-year plans. To comply with amendments to Japan's Air Pollution Control Law announced in 2005 regarding emissions of volatile organic compounds (VOCs), a class of air pollutants, DENSO has revised upwards the goals laid out in the fourth phase of the Environmental Action Plan. The new targets call for emissions to be reduced by 35% compared with fiscal 2001 levels by fiscal 2011 at DENSO Corporation and by 30% at domestic Group companies compared with fiscal 2001 levels by fiscal 2011, as well as for overseas Group companies to implement top-tier measures for their country or region. Thanks to progress on measures such as deploying new equipment for recovering and eliminating VOCs, introducing water-based paint and changing solvent painting methods, DENSO was able to achieve its targets in fiscal 2008. DENSO Corporation posted VOC emissions of 801t (target: 804t or less), while domestic Group companies posted emissions of 405t (target: 433t or less). Meanwhile, overseas Group companies finished formulating five-year plans.

* PRTR: Pollutant Release and Transfer Register

•Emissions of PRTR targeted substances



•Reduction of PRTR targeted substances (DENSO Corporation)



* First priority substances: hexavalent chromium compounds, lead compounds, cyanogen compounds, formaldehyde, tetrachloroethylene

Addressing environmental risk

(1) Soil and groundwater purification

Sharing the concern that soil and groundwater pollution can have an adverse impact on the health of residents of surrounding areas if left unchecked, DENSO Corporation has conducted voluntary surveys of all factories and business sites based on the history of hazardous substance use at each site since the 1980s. The Company compiled a *Soil and Groundwater Pollution Prevention Manual* in 1991 and eliminated use of chlorine-based organic solvents in 1995. The Company has also adopted a basic policy as well as risk management standards for soil and groundwater pollution. In fiscal 2005, DENSO began surveying the history of land use at all business locations of global consolidated companies (including non-production bases), and DENSO completed this effort in fiscal 2007.

This process revealed the presence of organic chlorine substances in excess of environmental limits at four sites in 1998, since which time DENSO has been implementing purification measures. DENSO completed soil purification in fiscal 2002 and is continuing groundwater purification. Measurement results and progress are being reported and explained through local government and community forums.

•Measured value of trichloroethylene

Environmental standard level: 0.03 mg/l or less

Location	Groundwater concentration at site (mg/l)	Current status
Headquarters	Less than 0.002 up to 2.819	Purification in progress
Ikeda Plant	Less than 0.002 up to 1.024	Purification in progress
Anjo Plant	Less than 0.002 up to 1.390	Purification in progress
Nishio Plant	Less than 0.002 up to 0.763	Purification in progress

The substances were detected only at the locations listed above.

(2) Early treatment of PCB waste

The Stockholm Convention classified polychloride biphenyls (PCBs), a group of substances widely used in dielectrical oil and heating media, as persistent organic pollutants, introducing restrictions on manufacture, use and disposal of stored stocks and mandating reductions in emissions. Japan introduced storage and reporting requirements the same year with the enactment of the Law for the Promotion of Environmentally Sound Destruction of PCB Waste. DENSO Corporation had been storing the substances in accordance with relevant laws since 1974 but began disposing of them at a company specializing in the disposal of high-voltage capacitors in 2006. This process had been completed for 125 of a total of 129 units by fiscal 2008.