



Environmental Conservation Activities

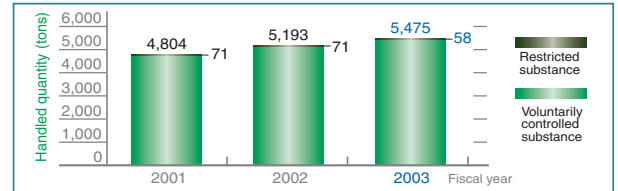
Control and Reduction of Chemical Substances Used at Production Plants

One of the environmental impacts of production activities is the emission of chemical substances. Although chemical substances are indispensable for production activities, they can have a grave effect on the environment if they are not controlled in an adequate way. The Oki group is well aware of this effect and therefore working to control and reduce chemical substances.

Control of Chemical Substances

Among the chemical substances used at production plants, we identify those with a serious effect on the environment and control them by classifying them into three types: prohibited substances (95 substances), restricted substances (92 substances) and voluntarily controlled substances (389 substances). The quantity of chemical substances handled in fiscal 2003 slightly increased by 5.4% compared to fiscal 2002 due to increases in production, but the quantity of restricted substances could be reduced by 18.3%.

Transition in the Quantities of Chemical Substances Handled



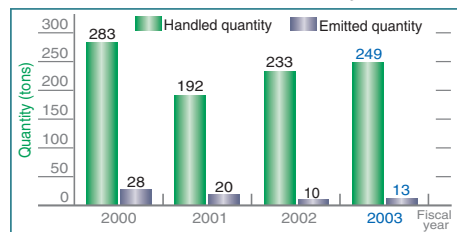
Efforts for the PRTR System

The PRTR (Pollutant Release and Transfer Register) system is one of the methods to track the emission of substances with a serious effect on the environment. A law concerning the implementation of PRTR was enforced in July 1999, and reporting became mandatory in April 2002. Ahead of the law, the Oki group started efforts for the PRTR system in fiscal 1997, following the "PRTR Guidelines" issued by four organizations in the electric equipment and electronics field. The quantities of substances subject to PRTR handled and emitted in fiscal 2003 increased due to an increase in production mainly in the semiconductor production plants. We will go on to work for the reduction in the future.

PRTR Results of Fiscal 2003 (Major Production Sites of the Oki Group in Japan)

| Chemical Substance | Handled quantity | Emitted quantity | | | | Transferred quantity | |
|--|------------------|------------------|--------------|---------------------------|--------------|----------------------------------|---|
| | | Air | Public water | Soil of operational sites | Sub-total | Transferred to the sewage system | Brought outside of the operational site |
| Hydrogen fluoride and its water-soluble salt | 161.10 | 0.02 | 0.17 | 0.00 | 0.19 | 0.00 | 0.00 |
| 2-aminoethanol | 23.97 | 4.17 | 0.00 | 0.00 | 4.17 | 0.00 | 18.99 |
| Xylene | 22.44 | 4.27 | 0.00 | 0.00 | 4.27 | 0.00 | 17.35 |
| Nickel compounds | 10.69 | 0.00 | 0.06 | 0.00 | 0.06 | 0.00 | 1.73 |
| Boron and its compounds | 6.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.20 |
| Lead and its compounds | 5.82 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Toluene | 5.37 | 4.46 | 0.00 | 0.00 | 4.46 | 0.00 | 0.72 |
| Pyrocatechol | 4.15 | 0.03 | 0.00 | 0.00 | 0.03 | 0.00 | 0.15 |
| 1,1-dichloro-1-fluoroethane | 3.49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Formaldehyde | 3.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Acetic acid 2-ethoxyethyl | 1.25 | 0.22 | 0.00 | 0.00 | 0.22 | 0.00 | 0.98 |
| Copper water-soluble salt (excluding complex salt) | 1.15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| Total | 249.27 | 13.17 | 0.23 | 0.00 | 13.40 | 0.00 | 40.14 |

Transition of Quantities of Substances Subject to PRTR



Efforts for the Reduction of Chemical Substances at Semiconductor Production Plants

When newly employing a chemical substance, we evaluate its effect with respect to safety, disaster prevention and the environment. We have built a mechanism where substances that do not pass the standards of employment cannot be purchased. We further built a system to understand how much of the chemical substances put into the manufacturing process are ultimately emitted in waste gas, waste water, or waste material. Based on these data, we work to reduce their use through improvements of the manufacturing process, to change to substitutes with a lower environmental impact, or to eliminate their use completely. Until fiscal 2002, we also built a mass production system for lead-free soldering.

Efforts for the Reduction of Chemical Substances at Printed Circuit Board Production Plants

Oki Printed Circuits Co., Ltd., a group company designing and developing electronic circuit boards, is working for a complete employment of solder-free boards and lead-free boards. In fiscal 2003, they reduced the use of chemical substances contained in the fluids for chemical copper treatment and for B/O treatment^{*1}. In the future, they will continue their activities to reduce the used quantities through improvements of the production process and other measures.

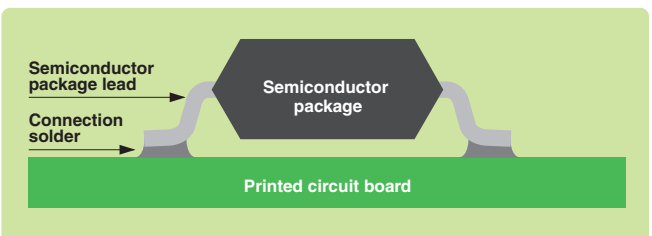
*1) B/O Treatment: B/O is short for Black Oxide. A treatment of roughening a copper surface by creating a layer of copper oxide.

Efforts for Lead-free Solder at Board Assembly Plants

In fiscal 2003, we installed new flow soldering equipment and reflow furnaces with component temperature control, which were developed together with Furukawa Electric Co., Ltd. This completed the development of lead-free solder manufacturing technology. Manufacturing lines at our production sites, including major group companies, built mass production systems for lead-free soldering and achieved the complete elimination of lead from connection solders used at the production plants. For fiscal 2004, we will aim to expand this to overseas group companies.



Lead-free soldering equipment (Example from Fiscal 2001)



Sectional view of a printed wiring board