



Environmental Technology and Environmental Solutions

Environmental Education Business

Distance Education on Lead-free Soldering*

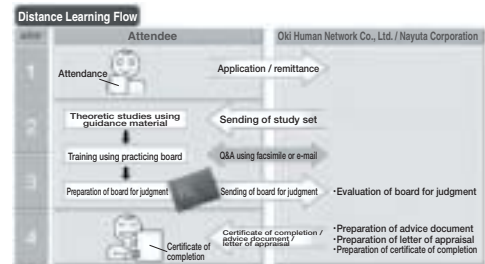
In December 2003, the OKI group set up the "Oki Soldering School" at Oki Human Network Co., Ltd. as one of its environmental solutions. Lead-free soldering requires special skills since it uses solder with a high melting temperature, and if the soldering iron is too hot, the component will break. Up to now, employees of more than 100 companies attended the training. To respond to a demand for low-cost training courses at remote locations, we set up a new course using distance education.

This significantly expanded the scope of workers inside and outside of the OKI group able to attend the training, contributing to the production of eco-friendly products.

The first-in-the-industry distance training allows attendees to set their own pace in acquiring the skills for lead-free soldering to respond to the RoHS directive. The program offers three courses: ① surface mounting (attaching components to the surface of a board), ② insertion mounting (inserting components with lead wires into the board to attach them), and ③ a general course including both course ① and course ②.

The attendees use their own soldering irons and other tools to learn the skills using practicing boards and components and following the instructions of the textbook, which contains plenty of photographs. If they have questions, they contact their instructor by facsimile or e-mail. If the board for examination is sent back within three months, Oki Human Network evaluates and assesses this board and issues a document with advice as well as a letter of appraisal and a letter of completion.

The guidance and judgment of skills in this program is performed by instructors who also make the judgments for the micro soldering qualifications of The Japan Welding Engineering Society (JWES). Attendees are informed whether they have reached a level where they can acquire the JWES micro soldering qualification of an Advanced Operator.



*) Lead-free soldering:
performing soldering using lead-free solder, which does not contain the hazardous chemical substance lead.

Environmental System Business

Environmental Equipment / Analysis and Measurement

Oki Engineering Co., Ltd. provides equipment to treat exhaust gas of semiconductor manufacturing, equipment for the treatment, collection and re-use of waste water and other equipment for the optimal treatment of gases and liquids that are unique to manufacturing processes, operation and management services starting from the construction of plant systems, and also various types of analysis, measurement and consulting including water quality, soil and atmospheric research.



Equipment for producing super-pure water used in semiconductor manufacturing



Equipment for the treatment and recycling of waste water at a semiconductor manufacturing site

Environmental Consulting Business

Support for the Acquisition of ISO14001 Certification

Taking advantage of our experiences obtained in the company-wide consolidated ISO14001 certification of the OKI group, we support companies that want to acquire ISO14001 certification for the first time.

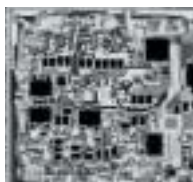
Material Analysis

For material analysis, we have rich experience in using high-precision analysis equipment. Using X-ray fluorescence spectrometers together with high-precision analysis equipment, we respond to a wide range of analysis requests from inside and outside of the company. Because we combine precision analysis with simple analysis, we are able to offer analysis results of a high level at low cost.

● Example for RoHS analysis (EDX mapping analysis example)



Total image



X-ray image



Lead distribution image

Support for Green Procurement Surveys and Survey Services

To reduce the six substances subject to the RoHS Directive in a product, green procurement surveys are required to grasp the chemical substances contained in the procured components and materials.



Homepage of COINServ-Net

This is where we offer services to assist in green procurement surveys or to conduct green procurement surveys on behalf of our customers.

Using our COINServ-Net, we also provide information on various components to members.

Testing and Evaluating the Reliability of Lead-free Soldering

We conduct reliability tests and evaluations for printed circuit boards using lead-free solder. Based on JIS and other standards, we perform mechanical strength tests, soldering suitability tests, environmental tests and heat resistance evaluations. We also create evaluation boards tailored to the requests of our customers and can provide comprehensive services consisting of tests, analysis and evaluation.



Tensile strength measurement of QFP package terminals