

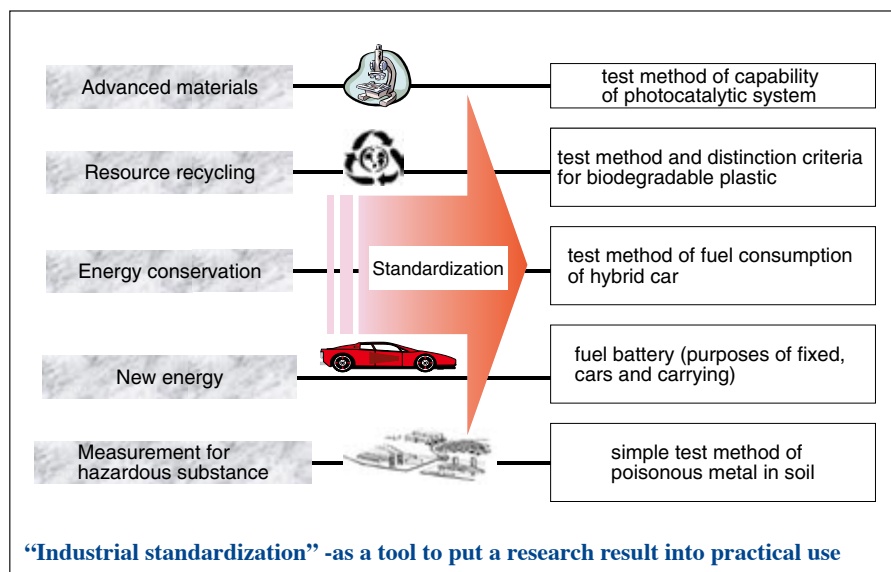
Work on the establishment of industrial and international standards

The ISO and IEC have published international guidelines for the inclusion of environmental aspects in product standards (ISO Guide 64 and IEC Guide 109). In Europe individual nations are now developing their own domestic guidelines for each industrial sector designed in accordance with these guidelines. European standards organizations are also taking a systematic approach to the establishment of product standards with relation to the three principles of reducing, reusing, and recycling. It is important for Japan to put more efforts in setting up standards systematically to increase the demand for recycled products, products designed with reduce, reuse, and recycling in mind, and environment-conscious products. Setting up standards is also important to provide accurate product evaluations and information in order to encourage active participation of consumers such as by purchasing environment-conscious products. Japan is currently working on devising environmental-conscious standards based on the *Action Program for Promoting Formulation of Environmental JIS Standards* published in April 2002 by the Japan Industrial Standards Committee. AIST is engaging actively in the standardization activity of environmental measurement technology which has high research potential. To be more precise, AIST is trying to promote the

standardization for the safety assessments of chemicals concerned to be harmful to human health or to the environment and also for the measurement methods of the greenhouse gases dealing with the issue of global warming.

Several AIST researchers are also serving as chairs of the working group assigned

with the task of preparing drafts of the initial ISO and IEC international standards recommendations or as coordinators involved in work where Japan is serving as the coordinating country for the establishment of standards. They are also providing positive contributions in order to set up the international standards.



Nonylphenol analysis methods as an example of international standardization

With respect to nonylphenol, a material which is used as a basic material in the chemical industry at the rate of 50,000 tons per year, it has been noted that the accuracy of the exhaustive extraction method currently used is insufficient because nonylphenol consists of a mixture of large numbers of isomers. Because nonylphenol has also been found to affect living organisms and has been designated as a Class 1 chemical substance under the *Law Concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management*, there is an urgent need to obtain the data needed for submitting reports in accordance with the Pollutant Release and Transfer Register (PRTR) system. Since there would always be a possibility that the reliability of the analysis data used to manage the emission volumes reported by businesses could be called into question, there is a growing need for an standard method of analysis which would guarantee high levels of accuracy in the measurement of the

quantities of individual substances found in these emissions. There is accordingly an urgent need to develop a highly reliable method for performing detailed analyses of different isomers so that accurate risk assessments may be performed on toxic ingredients.

In recognition of these factors, we are now working to develop advanced nonylphenol separation and measuring procedures, working to identify around 20 different isomers and impurities, and working to develop procedures for measuring environmental residues and performing component analyses using relative sensitivity coefficients, and we are also performing the research needed to make revisions to JIS standards (i.e., JIS K 0450-20-10) and provide recommendations to the ISO. Discussions are now underway at the ISO concerning the TC 147/SC 2 standard in the DIS18857-1 committee, and the problems of analyzing nonylphenol as a mixture have been noted by the committee, and it is hoped that by having Japan propose a solu-

tion it would be possible to create a new ISO testing method under Japanese leadership.

Now work on the development of advanced methods of separation and measurement is almost completed, and verification testing using environmental samples collected from watersheds from all over the country has been completed. Work is now underway on identifying the chemical structure of the ten types of isomers which have been isolated using analysis instruments which include a high-speed liquid chromatograph, a sample gas chromatograph, and a magnetic nuclear resonance machine.

In work on the creation of international standards, we have been working together in cooperation with the coordinators for the ISO TC147-SC2 standard, and at the ISO TC147 general assembly held in Britain in October 2003 we presented our proposal for a new standard analysis method which was adopted as a resolution by the SC2/WG17 working group on phenols under an agreement where it was stated that the partici-

pants welcomed the new proposal from Japan. In regard to the detailed data including the content of the technical proposal, we are now studying the question of the format in which the proposal ought to be presented in accordance with the comments we have received from the committee.

We plan to present a formal proposal as a new work item at the 2005 general assembly. Some unexpected developments include the fact that as a result of discussions held with related government ministries and agencies, companies, and other organizations concerning the requests made

at the general assembly in Britain is that it has now become possible to hold the 2005 TC147 general assembly in Japan and the fact that we have received praise from the TC147 committee, and we have thus been successful in gaining recognition for Japan's contributions to the ISO.

Information on AIST research activities Databases, software, and web pages

Research Information Database

RIO-DB

<http://www.aist.go.jp/RIODB/riohomee.html>

RIO-DB is a multimedia one concerning various research information, which are developed and accumulated as AIST R&D projects. Many items are published as RIO-DB (See table below).

Database for research publications

RRPDB

http://www.aist.go.jp/aist_e/database/rrpdb/index.html

RRPDB (DataBase for Research Result Presentations) is a database, which covers various research publications of AIST. It contains published articles, oral presentations, books, databases, software, measurement standards, geosciences, events and press releases.

Database of intellectual properties (in Japanese)

IDEA

<http://www.aist.go.jp/aist-idea/>

IDEA (database of Information on DEvelopment of technology in AIST) provides the information of Japanese patents and utility models maintained by AIST.

Software and databases available on the web pages of individual research units

AIST offers the public access to our research activities through the Internet. All research units have the English web pages. On some web pages, you can download software or use databases.

Table : Examples of the databases in RIO-DB concerning environment and energy research

C1-Catalyst Database	It consists of a reaction data about the catalytic synthesis of ethylene glycol, ethanol and acetic acid from C1 compounds (CO, methanol).
Fluorine Compounds Database	It provides the various data (physical properties, toxicity, NMR and IR spectra, etc.) for about 800 fluorine compounds.
Energy Technology Database	It has numerous technological data concerning energy supply, energy transportation and energy demand.