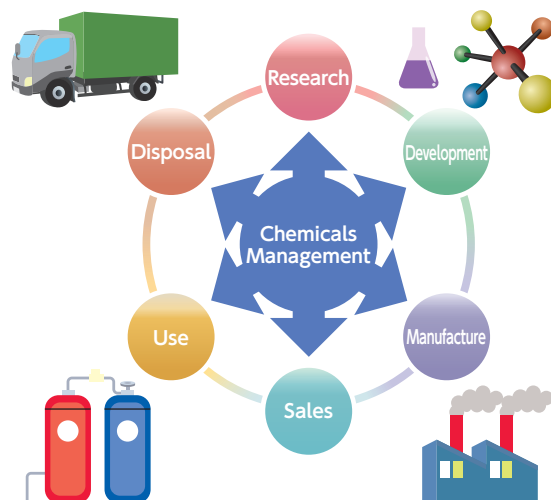


# Chemicals and Product Safety

## Chemicals Management

To achieve the “2020 targets”<sup>\*1</sup> on which agreement was reached at the “World Summit on Sustainable Development (WSSD)” in 2002, the “Strategic Approach to International Chemicals Management (SAICM)” for promoting risk reduction based on scientific risk assessment, collection and provision of information, and other measures were adopted at the “International Conference on Chemicals Management (ICCM)” in 2006. At Nissan Chemical, we strive to minimize the negative impact of chemical products on people’s health and the environment during their lifecycle in line with the domestic SAICM implementation plan.

\*1 “... aiming to achieve, by 2020, that chemicals are used and produced in ways that lead to the minimization of significant adverse effects on human health and the environment ...”



## Risk Assessment in Product Lifecycle

We perform a risk assessment (prior assessment) of each step in handling chemical products, such as the research and development, manufacture, sales and revision. The assessment of risks to human health and the environment in the value chain is based on data performed by the Biological Research Laboratories, either on its own or by outsourcing, safety test data obtained from results of searching external databases such as literature, and checking things such as data on physicochemical properties and work environment conditions. Based on the results of risk assessment, we avoid using chemicals of concern and study safe alternatives. These results are reported to top management and made known to all the relevant people in the company. The results are also made known to people in the value chain by means such as technology transfer documents and safety data sheets (SDS).

For our GPS / JIPS activities, which are promoted by ICCA and JCIA, we conduct risk assessments of our chemical products and provide an overview of appropriate management based on the risks and safety information in the GPS Safety Summary. This information is disclosed and made available to the public. We also participate in LRI, an international initiative promoted by JCIA that seeks to provide long-term support for research on the impact of chemicals on human health and the environment. The activities we engage in aim to advance research on the assessment of risks to human health and the environment.

Main Categories for Risk Assessment	
1 Compliance with laws, regulations, and agreements	6 Logistics safety and stability
2 Chemical material safety, impact on human health and the environment	7 Reduction of disposal amount
3 Occupational safety and health for workers	8 Quality assurance
4 Safety of facilities and for operations	9 Environmental and safety aspects for commissioning, purchasing, and sales
5 Product safety and environmental impact	

Prior risk assessment results (Number of cases)

Stage	Department responsible for assessment	FY2014	FY2015	FY2016
Research and development	Laboratories	31	18	19
Industrialization test	Plants (technical)	2	12	19
Manufacture	Plants (manufacture)	96	116	110
Total		129	146	148



## Considerations for Animal Testing

Assessments made using laboratory animals are essential for the research and development of agrochemicals, pharmaceuticals, medical materials and chemical materials that are beneficial for society. Biological Research Laboratories has established Animal Testing Guideline of Nissan Chemical in accordance with the Three Rs principles of animal welfare (Replacement with alternative methods, Reduction in the use of laboratory animals and Refinement of methods for reducing pain) and laws and regulations such as the “Act on Welfare and Management of Animals”. In accordance with these guidelines, the Institutional Animal Care and Use Committee examines whether to conduct animal testing, both ethically and scientifically, and checks how the tests are performed to ensure that animal testing is conducted appropriately and that proper consideration is given to animal welfare.

Due to these initiatives, the Biological Research Laboratories has obtained third-party certification of its laboratory animal facilities from Japan Health Sciences Foundation.

### TOPICS

#### Third-Party Certification of Laboratory Animal Facilities

Biological Research Laboratories takes specific measures in the consideration of animal welfare. It judges whether to conduct animal testing based on preliminary surveys conducted by multiple judges and in consideration of the level of pain inflicted on laboratory animals. It also takes measures for reducing pain reflecting consideration of the humane endpoints of the animals being tested. It also checks how the tests are performed in its efforts to ensure the morality of animal testing and improve the reliability of its scientific knowledge. As a result of these initiatives, in December 2016 the Biological Research Laboratories obtained certification stating that it conducts animal testing appropriately in accordance with the guidelines of the Ministry of Health, Labour and Welfare. The certification was obtained from the Japan Health Sciences Foundation, which conducts third-party validation of voluntary management systems of animal testing.



#### Introduction of a New Alternative to Skin Sensitization Tests

Recent years have been seen growing concern about animal protection, and the development of alternative test methods that do not use laboratory animals has been actively promoted. The amino acid derivative reactivity assay (ADRA) is a new alternative to skin sensitization tests that was developed by Fujifilm Corporation. Validation tests of this method are being conducted to have it included in the OECD Test Guidelines, with the support of LRI of JCIA. We participate in this test to support the research. We have also completed the introduction of technologies for this test method, ahead of other companies, to the Safety Research Department of the Biological Research Laboratories.

