

# Continuous Improvement of Responsible Care Activities

We are putting effort into Responsible Care (RC) activities designed to secure environment, health, and safety (EHS) performance on voluntary basis throughout the entire process, from the development of chemical substances to manufacture, distribution, use, final consumption and disposal/recycling, and provide communication with society through the announcement of their results.

## RC Management

### System

To achieve our RC mid-term plan (2016-2021), we have established RC management system based on ISO14001\*, and we carry out targets management and continuous improvements based on PDCA (Plan, Do, Check, Act).

\* International standard for environmental management system. All of our plants have acquired ISO 14001 third party certification.



### RC Audits

RC audits are activities for checking RC activities at each plant, laboratory and affiliate. They are carried out by Environment, Safety & Quality Assurance Department in accordance with the RC audit guidelines. In these audits, the auditors check whether RC activities, as well as internal audits and patrols, are carried out appropriately and the PDCA cycle is implemented steadily, and compliance about EHS at each location. Environment, Safety & Quality Assurance Department clarifies visible or potential problems related to EHS and promotes improvements in response after clarifying the problems, if any.

In FY2020, total of 22 RC audits were conducted for our plants, research laboratories and affiliates.

RC Management  
[https://www.nissanchem.co.jp/eng/csr\\_info/responsible\\_care/management.html](https://www.nissanchem.co.jp/eng/csr_info/responsible_care/management.html)

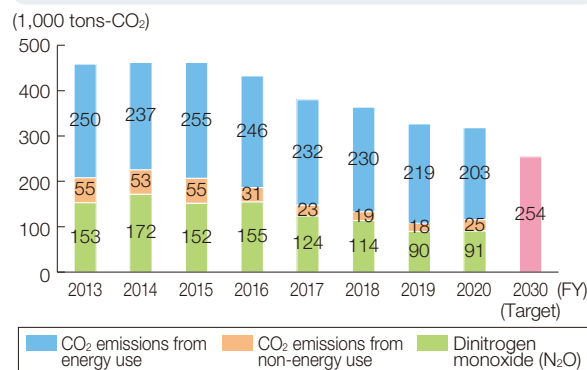


## Mitigation of Climate Change and Environmental Conservation

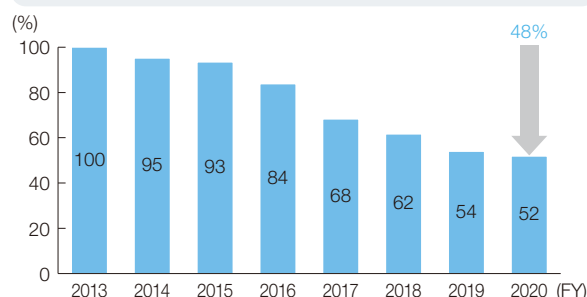
### Efforts for Reducing Greenhouse Gas (GHG) Emissions

Our Group actively works to protect the environment, including taking efforts to reduce GHG emissions, and contributes to realization of a decarbonized society through the provision of environmental-friendly products and services. Based on our long-term target of reducing GHG emissions by 30% from FY2018 level by FY2030, we will continue our efforts to mitigate climate change which include energy savings, fuel conversion, and dinitrogen monoxide reduction. The GHG emission rate calculated as a ratio of emissions and sales (emissions/sales) was 52% of the FY2013 level.

#### GHG emissions



#### Index of the GHG emission rate (FY2013 as a base of 100)



Mitigation of Climate Change  
[https://www.nissanchem.co.jp/eng/csr\\_info/responsible\\_care/environment/reduction.html](https://www.nissanchem.co.jp/eng/csr_info/responsible_care/environment/reduction.html)  
 Reduction of Industrial Waste and Pollutant Emissions  
[https://www.nissanchem.co.jp/eng/csr\\_info/responsible\\_care/environment/management.html](https://www.nissanchem.co.jp/eng/csr_info/responsible_care/environment/management.html)  
 Water Resources Conservation  
[https://www.nissanchem.co.jp/eng/csr\\_info/responsible\\_care/environment/effective.html](https://www.nissanchem.co.jp/eng/csr_info/responsible_care/environment/effective.html)  
 Biodiversity Conservation  
[https://www.nissanchem.co.jp/eng/csr\\_info/responsible\\_care/conservation.html](https://www.nissanchem.co.jp/eng/csr_info/responsible_care/conservation.html)

## Safety and Disaster Prevention

We carry out risk assessment, process risk predictions, and facility risk predictions by prior assessment for manufacture with the aim of ensuring safety, achieving stable operations, and improving our process safety capability. In FY2020, a fire broke out at the Toyama Plant and a leakage accident occurred at the Nagoya Plant. A fire occurred at the warehouse of the Toyama Plant due to a non-standardized chlorine detergent that was to be disposed of which led to a temporary release of chlorine-based gas. Although no chlorine-based gas was detected outside the plant premises, elementary and junior high schools near the plant experienced delays in the day. We deeply apologize for the inconvenience caused by the accident. At the Nagoya Plant, a leak of fuming sulfuric acid, thought to be caused by wear and corrosion of pipes, occurred and sulfur trioxide gas was generated. Gas detectors indicated that there was no impact on the surrounding area outside the plant premises and nothing serious occurred. We are taking thorough measures to prevent such fires and leaks from happening again at all our sites. Our plants, laboratories, and affiliates carry out various drills and training sessions such as earthquake fire prevention drill every year, and are designed to make us ready to respond to emergencies or accidents in a speedy and reliable manner.



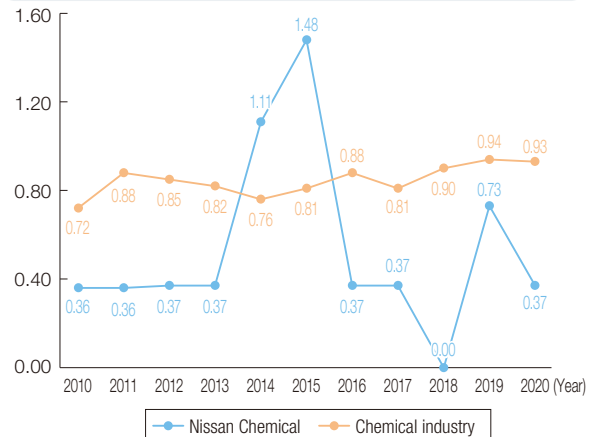
Disaster drills (Toyama Plant)

## Promotion of Occupational Safety and Health

Through our RC management system, we prevent occupational accidents, promote the good health of staff, and build a comfortable workplace environment in our efforts to improve the level of safety and health at each business location. In addition, we carry out various drills and training sessions annually with the aim of ensuring safety, achieving stable operations, and improving our process safety capability to make us ready to respond to emergencies or accidents in a reliable manner.

In 2020, there was one accident requiring staff to take time off from work and seven cases of accidents not requiring staff to take time off from work. There was a reduction in the number of accidents requiring staff to take time off from work compared to the previous year. We will continue aiming to achieve zero accident by

### Lost-time injury frequency rate\*



\* Number of deaths and injuries due to occupational accidents per million actual working hours

promoting risk assessment, prior-work risk predictions, risk predictions training, HHK<sup>1</sup>, 5S<sup>2</sup>, and appropriate wearing of protective equipment and by raising awareness of safety through the safety meeting and the occupational safety newspapers.

<sup>1</sup> HHK stands for Hiyari-Hatto (near miss incident) and Kigakari (alarming). It means the discovery of near-miss incidents that are not linked directly to serious injuries or accidents but could have resulted in such injuries or accidents.

<sup>2</sup> 5S stands for Seiri, Seiton, Seisou, Seiketsu, Shitsuke. These words mean "Sort" "Set" "Shine" "Standardize" "Sustain" respectively.

Promotion of Safety and Disaster Prevention, and Occupational Safety and Health  
[https://www.nissanchem.co.jp/eng/csr\\_info/responsible\\_care/safety.html](https://www.nissanchem.co.jp/eng/csr_info/responsible_care/safety.html)

## Management of Chemical Substances and Products Safety

### Risk Assessment in Products Lifecycle

We perform a risk assessment (prior assessment) of each step in handling chemical products, such as the R&D, manufacture and sales. The assessment of risks to human health and the environment is based on data obtained by the Biological Research Laboratories, either on its own or by outsourcing, raw material SDS (safety data sheets), safety test data obtained from literature and external databases, physicochemical properties, and work environment conditions. These results are reported 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.

In addition, we also participate in Long-Range Research Initiative, an international initiative promoted by Japan Chemical Industry Association (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.

Management of Chemical Substances  
[https://www.nissanchem.co.jp/eng/csr\\_info/responsible\\_care/chemical.html](https://www.nissanchem.co.jp/eng/csr_info/responsible_care/chemical.html)