

Management of Chemical Substances and Environmental Risks

The Nissha Group in Japan is working to understand and minimize the environmental risks its business activities have on the local community, and is developing a system that can promptly deal with problems when they arise. We publish Sustainability Reports and similar to help our stakeholders understand how Nissha is working to protect the environment, and do our best to make public the status of our voluntary chemical substance management and environmental risk information.

Avoiding environmental risk (preventing environmental accidents or pollution)

The Nissha Group in Japan realizes that pollution from chemical substances is a serious environmental risk, and works to avoid it. To prevent environmental accidents from happening during storage of chemical substances, or transportation within a work site, we lay out management procedures that consider the scale and frequency of accidents, and take countermeasures. In addition, we have set emergency response procedures and carry out training on an ongoing basis to minimize the effects in event of a leak, and revise and improve our methods as required.

Examples of responses

- **Emergency cutoff devices**

Sites for deliveries of liquid chemicals via tanker truck or waste liquid collection are constructed so that they can be blocked off to prevent any substances from escaping outside the site if a leak occurs.

- **Leak response training**

We establish countermeasure procedures to prevent pollution from spreading in the event of a leak at sites for deliveries of substances or waste liquid collection, hold regular training, and revise the procedures.



Drill for liquid chemicals leakage from tanker truck

Processing of industrial waste both domestically and overseas is contracted to industrial waste collection and transportation companies and industrial waste processing companies that have legal permission. Once a year, we send people to observe the contractor and the final disposal location to confirm that the waste is being disposed of properly. In addition, we carry out surveys to understand risks such as soil pollution concomitant with changes to soil character when constructing Nissha factories or other facilities, and take the appropriate measures.

Note that in the fiscal year ended December 2018, we had no serious environmental accidents or violations of environmental laws or regulations, and paid no fines or penalties.

Responses to local complaints and environment communication

In addition to minimizing environmental risks and prompt responses when they do happen, we feel that communication with local residents is very important.

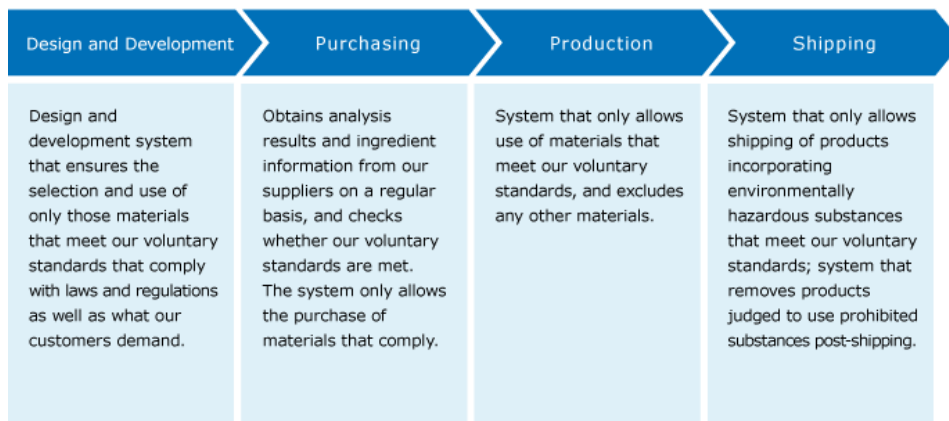
In the fiscal year ended December 2018, we have no environment-related complaints such as loud noises at our core factories in Japan. When we do receive a complaint, we set out procedures to quickly come up with a way to resolve the issue and a way to prevent it from recurring, as a way to deal with it appropriately.

In addition, we work on communication with the community to ensure locals understand that we are actively engaged in protecting the environment. This communication includes holding classes on the environment in local elementary schools and preschools.

Management of chemical substances

The Nissha Group in Japan is working to ensure the safety of its products and to provide products with low global environmental impacts in order to construct a sustainable society. In addition to laws, regulations, and standards such as the RoHS Directive and the REACH Regulations, we set our own voluntary standards to satisfy the environmentally hazardous substance standards of all our customers and manage the environmentally hazardous substances we use in our products.

System to ensure compatibility with our voluntary standards



Management of Environmental Pollutants

The Nissha Group in Japan is constructing a database of chemical substances used in its business sites, and building a system to allow us to understand and manage how these substances are used at each site. We use this system even for the calculation of emission and transfer amounts which the Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof (PRTR Act) requires reporting on. In the fiscal year ended December 2018, substances which were transferred or emitted in excess of one tonne were ethylbenzene, xylene, 1,2,4-trimethylbenzene, toluene, and n-hexane.

We also take great care with management when it comes to handling chemical substances. In addition to displaying GHS labels on containers to warn people, we carry out measures to prevent environmental pollution such as installing spillover containers to ensure safety if the

main container develops a leak, and ensure that all related personnel are familiar with these measures.

Contents of our voluntary standards and list of target substances (extract)

Contents of standards	Groups of substances in the Nissha Control List for Chemical Substances in Purchased Products (extract)
Usage-prohibited substance	<p>Asbestos fibres Dioxins Ozone depleting substances Fluorinated greenhouse gases Bisphenol-A (with usage conditions) Substances prohibited from being manufactured (Manufacture-prohibited substance) Specific amine (with regulations on impurity content) Azo-dyes which do not form specific amine (with regulations on impurity content concentration) Arsenic and its compounds (with usage conditions)</p>
Deliberate usage-prohibited substance	<p>The Restriction of the use of certain Hazardous Substances in electrical and electronic equipment REACH SVHC (Substances of Very High Concern) and Candidate List Substance Nickel and its compounds (with usage conditions) Polychlorinated biphenyls (PCBs) Specific phthalates Specific benzotriazol Dimethylfumarate (DMF) Perfluorooctane sulfonates (PFOS) Perfluorooctanoate (PFOA) Natural rubber Class 1 Specific Chemical Substances of Law Concerning the Examination and Regulation of Manufacture, etc. of Chemical Substances</p>
Regulated substance	<p>Global Automotive Declarable Substance List Conflict minerals The Proposition 65 Children's Safe Product Act (RCW 70.240.030) The Reporting List of Chemicals of High Concern to Children (CHCC)</p>

Examples of regulated substances that apply to purchased products (Nissha product raw materials, chemicals used in the production process for materials, etc.)

1. Usage-prohibited substance: Use, either deliberately or not deliberately, is prohibited. Inclusion of impurities is also prohibited.
2. Deliberate usage-prohibited substance: Deliberate use is prohibited. There are regulations on the inclusion of impurities.
3. Regulated substance: Substance which requires a content report. Substance which has regulations from industrial groups. (Includes prohibited substances.)

Controlling atmospheric emissions

The Nissha Group in Japan carries out voluntary activities to control the emission of volatile organic compounds (VOC), one of the causes of atmospheric pollution. The NII Koka Factory, which emits VOCs, uses a catalytic deodorizer and a direct combustion deodorizer to scrub or reduce VOCs.

We also regularly measure smoke from our boilers to ensure it complies with the various laws, regulations, and regulatory standards.

Surveys of soil and groundwater contamination

We carry out regular surveys and monitoring of groundwater contamination at our production bases in Japan as well as the grounds of our Kyoto Global Headquarters. In particular, we survey contamination status and check safety before construction for the development projects we are carrying out at the Kyoto Global Headquarters.

Prevention of Pollution

We undertake monitoring and measuring activities to prevent pollution. Based on our strict voluntary standards, we conduct periodic testing the level of atmospheric pollutants, wastewater quality, noise, and foul odor.

Nitec Precision and Technologies, Inc. (NPT) Himeji Factory Measurements of Wastewater Quality

Items measured	Regulatory value (Water Pollution Control Act)	Agreement value (Law Concerning Special Measures for Conservation of the Environment of the Seto Inland Sea)	Voluntary standard	Unit	FY ended March 2017		FY ended December 2017		FY ended December 2018	
					Analysis value	Evaluation	Analysis value	Evaluation	Analysis value	Evaluation
Discharged water	5,200	5,000	5,000	m ³	4,969	○	4,976	○	4,934	○
pH	5.8~8.6	5.8~8.6	6.5~8		6.9~7.6	○	6.8~8.0	○	6.9~7.6	○
BOD	120.0	10.0	9.0	mg/L	3.5	○	1.4	○	2.9	○
COD	120.0	10.0	9.0	mg/L	4.8	○	4.6	○	4.6	○
SS	150.0	5.0	4.5	mg/L	0.9	○	3.0	○	3.7	○
n-hexane derived substances	Mineral oil 5 Vegetable oil 30	1.0	0.9	mg/L	0.8	○	0.6	○	0.6	○
Phenol	5.0	0.1	0.08	mg/L	< 0.005	○	< 0.005	○	< 0.005	○
Copper	3.00	0.50	0.40	mg/L	0.05	○	0.03	○	0.04	○
Zinc	2.00	1.50	1.20	mg/L	0.02	○	<0.01	○	< 0.01	○
Soluble iron	10.00	0.15	0.08	mg/L	0.02	○	<0.01	○	< 0.01	○
Soluble manganese	10.000	0.050	0.045	mg/L	0.050	△	0.050	△	0.050	△
Chromium	2.00	0.02	0.02	mg/L	< 0.02	○	< 0.02	○	< 0.02	○
Nitrogen	60.0	10.0	9.0	mg/L	4.2	△	5.4	○	4.8	○
Phosphorus	8.00	1.00	0.45	mg/L	0.02	○	0.14	○	0.05	○

Nitec Precision and Technologies, Inc. (NPT) Kaga Factory
Measurements of Wastewater Quality

Items measured	Regulatory value (Prefecture)	Voluntary standard	Unit	FY ended March 2017				FY ended December 2017				FY ended December 2018			
				Final effluent (Average)		Final effluent (Maximum)		Final effluent (Average)		Final effluent (Maximum)		Final effluent (Average)		Final effluent (Maximum)	
pH	5.8~8.6	6.2~8.2		7.4	○	7.7	○	7.5	○	7.6	○	7.4	○	7.7	○
BOD	160 or less	40 or less	mg/L	7.5	○	27	○	31.5	○	47	-	32.6	○	56	-
COD	160 or less	80 or less	mg/L	9.1	○	26	○	35.4	○	63	○	55.3	○	93	-
SS	200 or less	20 or less	mg/L	2.6	○	4.2	○	15.6	○	26	-	28.2	-	63	-
n-hexane derived substances	30.0	15 or less	mg/L	0.5	○	0.5	○	0.5	○	0.5	○	0.5	○	0.5	○

*Final effluent from Fab 3 and Fab 5 was integrated since FY 2016.

Nitec Precision and Technologies, Inc. (NPT) Tsu Factory
Measurements of Wastewater Quality

Items measured	Regulatory value (Water Pollution Control Act)	Agreement value of Tsu City environmental conservation	Voluntary standard	Unit	FY ended March 2017				FY ended December 2017				FY ended December 2018			
					Jun.		Dec.		Jun.		Dec.		Jun.		Dec.	
pH	5.8~8.6	5.8~8.6	5.8~8.6		-	-	-	-	8.0	○	7.8	○	7.9	○	8.3	○
BOD	120.0	≤20.0	≤20.0	mg/L	-	-	-	-	9.4	○	<5.0	○	<5.0	○	< 5.0	○
COD	120.0	≤20.0	≤20.0	mg/L	-	-	-	-	6.1	○	3.6	○	0.8	○	5.1	○
SS	150.0	≤70.0	≤70.0	mg/L	-	-	-	-	<1.0	○	<2.0	○	< 2.0	○	< 2.0	○
N-hexane	5.0	≤5.0	≤5.0	mg/L	-	-	-	-	<1.0	○	<2.0	○	< 2.0	○	< 2.0	○
Phenol	5.0		5.0	mg/L	-	-	-	-	<0.025	○	<0.5	○	< 0.5	○	< 0.5	○
Copper	3.0	≤3.0	≤3.0	mg/L	-	-	-	-	<0.01	○	<0.1	○	< 0.1	○	< 0.1	○
Zinc	2.0	≤2.0	≤2.0	mg/L	-	-	-	-	<0.01	○	<0.1	○	< 0.1	○	< 0.1	○
Soluble iron	10.0	≤10.0	≤10.0	mg/L	-	-	-	-	0.2	○	0.3	○	0.4	○	<0.1	○
Soluble manganese	10.0		10.0	mg/L	-	-	-	-	<0.1	○	<0.1	○	< 0.1	○	< 0.1	○
Chromium	2.0		2.0	mg/L	-	-	-	-	<0.04	○	<0.1	○	< 0.1	○	< 0.1	○
Coliform bacteria	3,000	≤3,000	≤3,000	unt/mL	-	-	-	-	<30.0	○	58	○	100	○	100	○
Nitrogen	60.0	≤10.0	≤10.0	mg/L	-	-	-	-	7.1	○	1.0	○	0.8	○	1.2	○
Phosphorus	8.0	≤1.0	≤1.0	mg/L	-	-	-	-	0.03	○	<0.1	○	<0.1	○	< 0.1	○
Fluorine	8.0		8.0	mg/L	-	-	-	-	0.1	○	-	-	<0.8	○	-	
Cadmium	0.03		0.03	mg/L	-	-	-	-	<0.005	○	-	-	< 0.001	○	-	
Cyanide	1.0		1.0	mg/L	-	-	-	-	<0.1	○	-	-	< 0.1	○	-	

Lead	0.1		0.1	mg/L	-	-	-	-	<0.02	o	-	-	< 0.01	o	-
Hexavalent chromium	0.5		0.5	mg/L	-	-	-	-	<0.04	o	-	-	< 0.05	o	-
Arsenic	0.1		0.1	mg/L	-	-	-	-	<0.01	o	-	-	< 0.01	o	-
Total mercury	0.005		0.005	mg/L	-	-	-	-	<0.0005	o	-	-	< 0.0005	o	-

Management of Chemical Substances

For the fiscal year ended December 2018, we reported the use of nine PRTR-designated chemical substances. The tables below show the results of our main production bases.

Nitec Industries, Inc. (NII) Koka Factory

Unit: kg

PRTR No.	Name of chemical substance	FY ended March 2017			FY ended December 2017			FY ended December 2018		
		Discharge volume into the atmosphere	Volume transferred to industrial waste processing companies	Reporting required / not required	Discharge volume into the atmosphere	Volume transferred to industrial waste processing companies	Reporting required / not required	Discharge volume into the atmosphere	Volume transferred to industrial waste processing companies	Reporting required / not required
53	Ethylbenzene	4,279	1,028	o	2,109	530	o	1,444	587	o
80	Xylene	25,191	6,414	o	16,261	4,219	o	9,904	4,026	o
88	Hexavalent chromium compounds	0.1	0.0	o	0.1	0.0	o	0.1	0.0	o
296	1,2,4-Trimethylbenzand	1,284	538	o	2,258	1,114	o	299	107	o
300	Toluene	83,162	48,381	o	66,399	39,970	o	83,927	36,831	o
392	N-hexane	5,275	3,080	o	5,261	3,227	o	8,371	2,375	o

Nitec Precision and Technologies, Inc. (NPT) Himeji Factory

Unit: kg

PRTR No.	Name of chemical substance	FY ended March 2017			FY ended December 2017			FY ended December 2018		
		Discharge volume into the atmosphere	Volume transferred to industrial waste processing companies	Reporting required / not required	Discharge volume into the atmosphere	Volume transferred to industrial waste processing companies	Reporting required / not required	Discharge volume into the atmosphere	Volume transferred to industrial waste processing companies	Reporting required / not required
71	Ferric chloride	0.0	0.0	o	0.0	0.0	o	0.0	0.0	o
272	Water-soluble copper salts	0.0	331.8	o	0.0	1,857.0	o	0.0	2,023.1	o

	(excluding complex salt)									
453	Molybdenum and its compounds	-	-	-	0.0	0.0	○	0.0	0.0	○

Nitec Precision and Technologies, Inc. (NPT) Kaga Factory

Unit: kg

PRTR No.	Name of chemical substance	FY ended March 2017			FY ended December 2017			FY ended December 2018		
		Discharge volume into the atmosphere	Volume transferred to industrial waste processing companies	Reporting required / not required	Discharge volume into the atmosphere	Volume transferred to industrial waste processing companies	Reporting required / not required	Discharge volume into the atmosphere	Volume transferred to industrial waste processing companies	Reporting required / not required
82	Silver and its compounds (water soluble)	-	-	-	-	-	-	-	-	-
71	Ferric chloride	0.0	0.0	○	0.0	0.0	○	0.0	0.0	○
272	Water-soluble copper salts (excluding complex salt)	0.0	0.0	○	0.0	0.0	○	0.0	0.0	○
453	Molybdenum and its compounds	-	-	-	-	-	-	-	-	-

Nitec Industries, Inc. (NPT) Tsu Factory

Unit: kg

PRTR No.	Name of chemical substance	FY ended March 2017			FY ended December 2017			FY ended December 2018		
		Discharge volume into the atmosphere	Volume transferred to industrial waste processing companies	Reporting required / not required	Discharge volume into the atmosphere	Volume transferred to industrial waste processing companies	Reporting required / not required	Discharge volume into the atmosphere	Volume transferred to industrial waste processing companies	Reporting required / not required
71	Ferric chloride	-	-	-	0.0	0.0	○	0.0	0.0	○

*Added to scope of reporting in the fiscal year ended December 2017