

Employment and Occupational Safety and Health Indicators

Employment Indicators

	Unit	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
Number of Employees on a Consolidated Basis ^{※1 ※3}	Persons	12,771	11,741	13,057	12,881	12,943
Male	Persons	11,389	10,479	11,691	11,451	11,503
Female	Persons	1,382	1,262	1,366	1,430	1,440
Paper and Paperboard Business ^{※1 ※2}	Persons	—	6,849	6,967	6,818	7,229
Daily-Life Products Business ^{※1 ※2}	Persons	—	1,854	2,433	2,448	2,536
Energy Business ^{※1 ※2}	Persons	—	19	19	35	54
Wood Products and Construction Related Business ^{※1 ※2}	Persons	—	1,636	2,273	2,192	1,411
Other Businesses ^{※1 ※2}	Persons	—	1,383	1,365	1,388	1,713
Overseas	Persons	1,745	1,662	2,723	2,582	2,587
Male	Persons	1,531	1,433	2,385	2,257	2,263
Female	Persons	214	229	338	325	324
Percent of upper management from the local community	%	83.2	80.6	74.1	80.6	82.1
New graduate hired ^{※4}	Persons	160	240	265	245	200
Male	Persons	143	218	239	220	171
Female	Persons	17	22	26	25	29
Mid-career recruits ^{※4}	Persons	190	146	163	198	204
Male	Persons	169	136	141	169	180
Female	Persons	21	10	22	29	24
The rate of employment of people with disabilities ^{※1 ※7}	%	1.99	1.98	1.94	1.92	2.17
Employees reemployed after retirement age ^{※8}						
Nippon Paper Ind.	Persons	112	172	185	46	168
Consolidated companies in Japan	Persons	309	327	331	227	332
Average age of employees ^{※1 ※4}	Years	42.7	43.3	43.3	43.4	43.4
Male	Years	42.7	43.3	43.3	43.4	43.3
Female	Years	42.0	42.8	43.1	43.5	43.6
Average years of employment ^{※1 ※4}	Years	18.7	19.0	19.1	19.4	19.3
Male	Years	19.0	19.2	19.2	19.6	19.5
Female	Years	15.9	17.8	18.2	18.0	17.8
Turnover rate(Includes employees leaving at the mandatory retirement age) ^{※1 ※4}	%	3.8	4.2	2.9	2.6	5.7
Number of Managers ^{※1 ※5}						
Nippon Paper Ind.	Persons	1,149	1,191	1,128	1,095	1,134
Consolidated companies in Japan	Persons	2,434	2,373	2,336	2,305	2,227
Consolidated subsidiaries outside Japan ^{※6}	Persons	107	93	112	139	151
Number of Female Managers ^{※1 ※5}						
Nippon Paper Ind.	Persons	18	19	21	27	26
Consolidated companies in Japan	Persons	44	45	50	55	55
Consolidated subsidiaries outside Japan ^{※6}	Persons	19	19	26	20	24
Female employees in management ^{※1 ※5}						
Nippon Paper Ind.	%	1.57	1.60	1.86	2.47	2.29
Consolidated companies in Japan	%	1.81	1.90	2.14	2.39	2.47
Consolidated subsidiaries outside Japan ^{※6}	%	17.8	20.4	23.2	14.4	15.9
Dispatched workers ^{※1 ※4}	Persons	87	131	77	105	89
Male	Persons	28	51	27	39	41
Female	Persons	59	80	50	66	48

※ 1 Fiscal year-end data

※ 2 Estimates based on re-organized segments formed in fiscal 2018

※ 3 Data scope: consolidated companies

※ 4 Data scope: consolidated companies in Japan

※ 5 Percent of only full-time employees which excludes associate directors, employees commissioned for specific purposes, employees on temporary assignment from other companies, and other non-full-time personnel

※ 6 Managerial personnel at the level of section manager or positions higher

※ 7 Data scope: Nippon Paper Industries Co., Ltd.

※ 8 Data scope: Figures cover consolidated subsidiaries in Japan and management employees

Work-Life Balance Indicators

	Unit	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
Employees taking child-care leave ^{*1}	Persons	25	24	26	26	23
Male	Persons	4	0	0	0	3
Female	Persons	21	24	26	26	20
recently giving birth	%	91	100	100	100	100
who returned to work	%	100	100	100	100	90
Employees taking maternity/paternity leave ^{*2}	Persons	164	167	186	148	183
Male	Persons	141	145	160	122	163
Female	Persons	23	22	26	26	20
Average number of days taken for maternity/paternity leave ^{*2}						
Male	Days	3.1	3.2	3.0	3.4	3.7
Female	Days	85.6	79.4	64.9	78.0	79.2
Employees taking nursing-care leave ^{*2}	Persons	2	0	1	1	2
Total number of working hours ^{*3}						
Non-management employees	Hours per person	1,885	1,912	1,927	1,903	1,900
All employees		—	—	—	1,927	1,923
The rate of annual paid leave taken by non-management employees	% ^{*1} % ^{*3}	69.2	66.8	68.3	71.8	58.3 75.1

※ 1 Data scope: consolidated subsidiaries in Japan

※ 2 Data scope: In fiscal 2014, figures covered consolidated subsidiaries in Japan. In fiscal 2013, figures covered only Nippon Paper Industries.

※ 3 Data scope: Nippon Paper Industries

Occupational Accidents

(Calendar year)

		FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
Frequency rate for occupational accidents requiring time off from work	Nippon Paper Group [*]	0.40	0.40	0.10	0.68	1.16
	Nippon Paper Group (including affiliates)	0.65	0.43	0.39	0.63	0.77
Occupational accident severity rate	Nippon Paper Group [*]	0.02	0.02	0.01	0.02	0.03
	Nippon Paper Group (including affiliates)	0.06	0.02	0.03	0.03	0.30

※ Data Scope : The manufacturing facilities of Nippon Paper Industries Co., Ltd., Nippon Paper Crecia Co., Ltd., Nippon Paper Papyrus Co., Ltd., and Nippon Paper Liquid Package Product Co., Ltd.

Principal organization memberships (as of July 2019)

Organization	Position
Japan Paper Association	Vice Chairman
Japan Tappi	President
Forest Management Association	Director
Japan Woody Bioenergy Association	Director
Paper Recycling Promotion Center	Vice President
Japan Paper Exporters' Association	Chairman
Japan Paper Importers' Association	Vice Chairman
Japan Association of Milk Packaging and Machinery	Chairman
Committee for Milk Container Environmental Issues	Vice Chairman
Association of Large-scale On-site Power-plant Owners	Auditor-Secretary
National Institute of Advanced Industrial Science and Technology Nanocellulose Forum	Auditor

Acquisition of Certification

Acquisition of ISO 9001 Certification (as of March 31, 2019)

Company Name	Mills/Operating Division/ Production Subsidiaries
Nippon Paper Industries Co., Ltd.	Hokkaido Mill(Yufutsu Pulp Production Sec.(KCF), Shiraoi 10M/C), Akita Mill, Nakoso Mill, Kanto Mill, Fuji Mill(Yoshinaga), Gotsu Mill※, Otake Mill, Iwakuni Mill(Chemical Production Dept.), Higashimatsuyama Mill
Nippon Paper Crecia Co., Ltd.	Tokyo Mill
Nippon Paper Papylia Co., Ltd.	Harada Mill, Suita Mill, Kochi Mill
Nippon Seitai Corporation	Hokkaido Office, Maebashi Mill, Saitama Mill, Kansai Office
Kyoei Seitai K.K.	Hokkaido Plant, Koganei Plant
NIPPON PAPER UNITEC CO., LTD.	Four business sites at headquarters (construction/electricity/control systems/plant engineering)
NANKO UNYU CO.,LTD.	Ishinomaki Office(Products Operation Dept., Raw Materials Operation Dept.), Port Transport Dept., Land Transport Dept. and Tokyo Branch, Iwanuma Office, Nakoso Office, Akita Sales Office, Sendai Sales Office, Serive Dept., Greening and Engineering Sales Office
Nippon Paper Ishinomaki Technology Co., Ltd.	Headquarters
GAC Co., Ltd.	Headquarters/Mill, Marketing Division
FLOWRIC CO., LTD.	Headquarters, Concrete Research Center, Nagoya Mill
N&E Co., Ltd.	
Paper Australia Pty Ltd.	Maryvale, Preston
Jujo Thermal Oy	Kaattua
Siam Nippon Industrial Paper Co., Ltd.	
Nippon Dynawave Packaging Co.	

※ Certifications obtained for CMC and cellulose powder production.

Acquisition of FSSC 22000 Certifications (as of March 31, 2019)

Company Name	Mills/Operating Division/ Production Subsidiaries
Nippon Paper Industries Co., Ltd.	Gotsu Mill※
Nippon Paper Liquid Package Product Co., Ltd.	Egawa Mill, Ishioka Mill, Miki Mill
Nippon Dynawave Packaging Co.	

※ CMC, cellulose powder, and stevia and licorice sweeteners (all for use in food)

The status of Eco-Action 21 acquisition (as of March 31, 2019)

Company Name	Mills/Operating Division
Akita Jujo Chemicals Co., Ltd.	Head Office Plant

Acquisition of ISO 14001 Certification (as of March 31, 2019)

Company Name	Mills/Operating Division/ Production Subsidiaries
Nippon Paper Industries Co., Ltd.	Kushiro Mill, Hokkaido Mill, Akita Mill, Ishinomaki Mill, Iwanuma Mill, Nakoso Mill, Kanto Mill, Fuji Mill, Gotsu Mill, Otake Mill, Iwakuni Mill, Yatsushiro Mill, Higashimatsuyama Mill
Nippon Paper Liquid Package Product Co., Ltd.	Egawa Mill, Ishioka Mill, Miki Mill
Nippon Paper Crecia Co., Ltd.	Tokyo Mill, Kaisei Mill, Koyo Mill, Kyoto Mill
Nippon Paper Papylia Co., Ltd.	Harada Mill, Suita Mill, Kochi Mill
NP Trading Co., Ltd.	Headquarters/Sapporo Branch Office/ Chubu Branch Office/Kansai Branch Office/Chugoku Branch Office/Kyushu Branch Office/Shizuoka Sales Office
Daishowa Uniboard Co., Ltd.	Headquarters/Miyagi Mill
N&E Co., Ltd.	
Nippon Paper Ishinomaki Technology Co., Ltd.	Headquarters
Paper Australia Pty Ltd.	Maryvale
Jujo Thermal Oy	Kaattua

Acquisition of ISO22000 (as of March 31, 2019)

Company Name	Mills/Operating Division/ Production Subsidiaries
Nippon Paper Papylia Co., Ltd.	Kochi Mill※

※ Liquid Filtrate Paper(tea bag filter paper, coffee filter paper, etc.), Food Packaging Paper

Status of CoC certification acquisition at principal production sites (as of July 31, 2019)

Company Name	FSC®		PEFC
	Mill, Production Company	License no.	Mill, Production Company
Nippon Paper Industries Co., Ltd.	Kushiro Mill	FSC®C129049	
	Hokkaido Mill(Yufutsu, Asahikawa, Shiraoi)	FSC®C001751	Hokkaido Mill(Shiraoi)
	Ishinomki Mill		Ishinomaki Mill
	Iwakuni Mill		Iwakuni Mill
	Yatsushiro Mill		Yatsushiro Mill
	Akita Mill	FSC®C133166	Akita Mill
	Iwanuma Mill	FSC®C001751	
	Nakoso Mill	FSC®C020977	
	Kanto Mill(Soka, Ashikaga)	FSC®C133163	
	Fuji Mill Yoshinaga	FSC®C133678	Fuji Mill
	Otake Mill	FSC®C132226	Otake Mill
Other Nippon Paper Group Companies	Nippon Paper Liquid Package Product Co., Ltd. Egawa Mill, Ishioka Mill, Miki Mill	FSC®C128733	Nippon Paper Liquid Package Product Co., Ltd. Egawa Mill, Ishioka Mill, Miki Mill
	Nippon Paper Papylia Co., Ltd. Harada Mill, Kochi Mill	FSC®C005984	Nippon Paper Papylia Co., Ltd. Harada Mill, Kochi Mill
	Nippon Paper Crecia Co., Ltd. Tokyo Mill, Kaisei Mill, Koyo Mill, Kyoto Mill	FSC®C124287	
	Nippon Dynawave Packaging Co.	FSC®C131932	Nippon Dynawave Packaging Co.
	Siam Nippon Industrial Paper Co., Ltd.	FSC®C125026	
	Jujo Thermal Oy	FSC®C012566	Jujo Thermal Oy
	Paper Australia Pty Ltd. Maryvale Mill	FSC®C002059	Paper Australia Pty Ltd. Maryvale Mill

Forest Management and Raw Material Procurement-Related Indicators

Tree Species Nippon Paper Industries Co., Ltd. Procured from Overseas, and Their Countries of Origin (Fiscal 2018)

Hardwood

Country	Percentage	Species
Vietnam	28%	Acacia
Australia	21%	Eucalyptus
Brazil	20%	Eucalyptus, Acacia
South Africa	18%	Acacia
Chile	11%	Eucalyptus
Thailand	2%	Eucalyptus
Total	100%	

Softwood

Country	Percentage	Species
Australia	71%	Radiata pine
U.S.A	21%	Douglas fir
Russia	8%	Yezo spruce
Total	100%	

Overseas Afforestation Areas by Country (1,000 hectares)

Country	End of 2011	End of 2012	End of 2013	End of 2014	End of 2015	End of 2016	End of 2017	End of 2018
Australia	77	38	38	36	15	15	11	10
Chile	13	13	13	13	13	13	13	12
Brazil	62	62	54	54	50	52	53	53
South Africa	11	11	11	11	11	11	11	8
Total	163	124	116	114	89	91	88	83

Status of Forest Certification Acquisition for Overseas Afforestation Projects and Company-Owned Forests in Japan

Overseas Plantation Project by operating company	Certification system name (License no)	Date of acquisition
PTP (Australia)	AFS	June 2006
BTP (Australia)	AFS	April 2006
Volterra (Chile)	FSC® (FSC®C120260)	January 2014
	CERTFORCHILE	December 2007
Forestco (South Africa)	FSC® (FSC®C012171)	April 2003
AMCEL (Brazil)	FSC® (FSC®C023383)	December 2008
	CERFLOR	September 2014

Company-owned forests in Japan by area	Certification system name	Date of acquisition
Hokkaido	SGEC	December 2005
Tohoku	SGEC	October 2007
Kanto and Chubu	SGEC	October 2007*
Kinki, Chugoku and Shikoku	SGEC	December 2006
Kyushu	SGEC	March 2005

*The Company's Kitayama Forest in Shizuoka Prefecture was certified in December 2003.

Breakdown of company-owned forests in Japan by IUCN(International Union for Conservation of Nature) (as of March 31, 2019) (1,000 hectares)

IUCN category		Commercial forest area*	Environmental forest area*	Total	% Share	Ratio of environmental forest area (%)	
I	Strict nature reserve / wilderness area	0	0	0	0%	-	Protected area that is managed mainly for scientific research or wilderness
II	National park	0.6	4.5	5.1	6%	88%	Protected area managed mainly for ecological processes and recreation
III	Natural monument or Feature	0	0	0	0%	-	Protected area managed mainly for specific natural monument
IV	Habitat / species management area	0	0	0	0%	-	Protected area managed mainly for particular species or habitats
V	Protected landscape/seascape	2.5	0.7	3.2	4%	22%	Protected area managed mainly for landscape/seascape protection and recreation
VI	Protected area with sustainable use of natural resources	0	0	0	0%	-	Protected area managed mainly for the sustainable use of ecosystems
Not Applicable		68.9	12.4	81.3	91%	15%	
Total		72.0	17.6	89.6	100%	20%	

* Commercial forest area: The portion of Company-owned forests utilized as resources under appropriate forest management.

Environmental forest area: The portion of forests where environmental functions are conserved.

The logging of trees for the purpose of lumber production is prohibited in this portion.

Environmental Accounting※

Environmental Conservation Costs

(Fiscal 2018)

(Millions of Yen)

	Investment	Cost
(1) Business area costs		
①Pollution prevention costs	3,055	12,014
②Global environmental conservation costs	3,244	627
③Resources circulation costs	860	9,419
(2) Upstream/downstream cost	-	3,994
(3) Administration cost	-	250
(4) R&D cost	-	3,112
(5) Social activity costs	-	61
(6) Environmental remediation costs	-	512
Total	7,158	29,999

Environmental conservation impacts (Fiscal 2018)

Categories	Environmental Impact Indicators		Results	YoY Change
Effects related to resources introduced to business activities	Afforestation projects overseas	Overseas afforestation areas	83 k ha	Down 5 k ha
	Energy-saving measures	Fuel reduction(Heavy oil equivalent)	55,775kl	
Effects related to environmental impact and waste from business activities	Greenhouse gas emissions		6.83 Mt	Down 0.20 Mt
	Air pollutant emissions	NOx emissions (NO equivalent)	8,720 t	Up 90t
		SOx emissions (SO ₂ equivalent)	3,576 t	Up 381t
		Soot and dust emissions	1,146 t	Down 150t
	Effluent		834 Mt	Down 54 Mt
	Water contaminant emissions	COD/BOD emissions	52,376 t	Down 1,775t
		SS emissions	19,860 t	Down 680t
Final waste disposal		13.2 kt	Up 3.9 kt	
Effects related to goods and services produced from business activities	Product recycling	Recycled paper utilization rate(paper)	33.9%	Down 1.3%
		Recycled paper utilization rate (paperboard)	88.2%	Down 0.4%
	Shipping material recycling	Pallet recovery rate	43.9%	Down 1.0%

Environmental Benefits of Environmental Conservation (Fiscal 2018)

(Millions of Yen)

Effect	Amount
Income from company-owned forests in Japan	519
Reduced expenses from energy saved	2,901
Reduced disposal expenses through the effective use of waste	4,291
Gain on sales from the recycled waste	472
Reduced expenses through the recycling of shipping material	1,056
Total	9,239

※ Accounting standards are based on Environmental Accounting Guidelines 2005
Data Scope: consolidated subsidiaries in Japan

Environment-Related Indicators

Balance of Materials for All Businesses (Principal Materials) (Fiscal 2018)

[Units] GWh = Gigawatt hours, BDt = Bone-dry tonnes, ADt = Air-dry tonnes Note: t indicates Tonnes (also called Metric Tons)

		Unit	FY2016 ^{※1}	FY2017 ^{※1}	FY2018 ^{※1}
Input					
Energy input	Purchased electricity	GW h	2,148	2,144	2,134
	Oil	Thousand kl	177	184	462
	Coal	Thousand t	2,626	2,593	2,841
	Gas		243	279	261
	Other fossil fuels		18	24	23
	Other non-fossil fuels ^{※2}		6,184	6,453	6,622
	Black liquor subtotal:		4,620	4,749	4,906
Chemical substances subject to the PRTR Law ^{※3}	Amount handled	t	12,012	10,901	9,527
Water consumption	Water Consumption	Million t	957	966	901
	River water		769	775	750
	Industrial water		133	164	123
	Well water		55	26	27
	Public water supply		1	1	1
Raw Material	Woodchips	Thousand BDt	5,361	5,498	5,443
	Logs		724	789	808
	Pulp	Thousand ADt	478	494	511
	Recycled paper(Pulp)		3,139	3,122	2,899
	Base Paper		113	100	100
Output					
Gas Emissions	GHG emissions	Million t-CO ₂	8	8	8
	SOx emissions	Thousand t	4	4	4
	NOx emissions		9	10	11
	Soot and dust		1	2	1
Chemical substances subject to the PRTR Law ^{※3}	Amount released	t	191	166	201
	Amount transferred		83	76	82
Waste Water	Wastewater Total	Million t	933	930	875
	Public water		923	920	866
	Sewerage		10	10	9
	COD/BOD	Thousand t	63	64	62
	SS		26	24	24
	Nitrogen		1	2	1
	Phosphorous		0	0	0
Waste	Total Waste Generated	Thousand BDt	911	918	982
	Final disposal subtotal		106	111	124
	Recycled subtotal		805	807	858
Products manufactured	Paper, household Paper	Million t	4	4	4
	Paperboard		2	2	2
	Pulp	Thousand t	227	229	268
	Paper container		100	89	83
	Chemical products		111	107	101
	Building materials		68	67	85
Electricity	Electricity	GW h	1,191	1,304	2,523

※1 Coverage : FY2016 https://www.nipponpapergroup.com/english/csr/npg_csrr2017_e_all.pdf#page=3

FY2017 https://www.nipponpapergroup.com/english/csr/npg_csrr2018_e_all.pdf#page=3

FY2018 https://www.nipponpapergroup.com/english/csr/npg_csrr2019_e_all.pdf#page=2

※2 Biomass fuels and waste fuels

※3 Japan only. Dioxins are not included in total data.

Balance of Materials in the Pulp and Paper Businesses in Japan (Principal Materials) (Fiscal 2018)

[Units] GWh = Gigawatt hours, BDt = Bone-dry tonnes, ADt = Air-dry tonnes Note: t indicates Tonnes (also called Metric Tons)

		Unit	FY2016 ^{*1}	FY2017 ^{*1}	FY2018 ^{*1}
Input					
Energy input	Purchased electricity	GW h	936	927	929
	Oil	Thousand kl	171	153	170
	Coal	Thousand t	2,040	2,007	1,942
	Gas		106	107	101
	Other fossil fuels		18	24	23
	Other non-fossil fuels ^{*2}		4,529	4,636	4,608
	(Black liquor subtotal:)		3,179	3,317	3,315
Chemical substances subject to the PRTR Law ^{*3}	Amount handled	t	383	660	328
Water consumption		Million t	835	843	778
Raw Material	Woodchips	Thousand BDt	4,164	4,348	4,239
	Logs		24	28	25
	Pulp	Thousand ADt	404	394	430
	Recycled paper(Pulp)		3,066	3,038	2,823
Output					
Gas Emissions	GHG emissions	Million t-CO ₂	7	6	7
	SOx emissions	Thousand t	3	3	3
	NOx emissions		8	8	8
	Soot and dust		1	1	1
Chemical substances subject to the PRTR Law ^{*3}	Amount released	t	138	91	147
	Amount transferred		18	4	0
Waste Water	Waste Water Total	Million t	810	816	763
	COD/BOD	Thousand t	45	46	44
	SS		19	19	18
	Nitrogen		1	1	1
	Phosphorous		0	0	0
Waste	Total Waste Generated	Thousand BDt	657	609	714
	Final disposal subtotal		9	6	12
	Recycled subtotal		648	603	702
Products manufactured	Paper, household Paper	Million t	4	4	4
	Paperboard		2	2	2
		Pulp	Thousand t	26	19

*1 Coverage : Pulp and Paper Businesses in Japan extracted from P.8 coverage

*2 Biomass fuels and waste fuels

*3 Japan only. Dioxins are not included in total data.

Environment-Related Complaints (FY 2018)

Complaints	Noise	Vibration	Odor	Dust and mist dispersal	Smoke	Other	Total
Number	5	0	0	9	0	2	16

External Awards for Environmental Conservation Activities (FY 2018)

Recipient	Award	Award Organization
Employees of Nippon Paper Industries Co., Ltd. Iwakuni Mill	Silver award : Environment Preservation Slogan in FY2018 (1 person)	The Association for the Environmental Conservation of The Seto Inland Sea, Yamaguchi Prefecture
	Honorable mention : Environment Preservation Slogan in FY2018 (1 person)	
	Silver award : Environment Preservation Senryu(satirical haiku) in FY2018 (1 person)	
	Contributor Award for environmental preservation activity by governor of Yamaguchi prefecture in 2018	The Governor of Yamaguchi Prefecture

Amounts of Substances Subject to the PRTR Law Released and Transferred^{※1} (FY 2018)

Cabinet Order No.	CAS No	Chemical Substance	Unit	Amount Released	Amount Transferred
1	—	Water-soluble zinc compounds	kg	3,800	0
2	79-06-1	Acrylamide	kg	12	0
4	—	Acrylic acid and water-soluble salt	kg	15	0
9	107-13-1	Acrylonitrile	kg	1	0
53	100-41-4	Ethylbenzene	kg	0	0
57	110-80-5	Ethylene glycol monoethyl ether	kg	450	4,300
80	1330-20-7	Xylene	kg	1,927	0
85	111-30-8	Glutaraldehyde	kg	8	2
127	67-66-3	Chloroform	kg	40,060	20,000
149	56-23-5	Tetrachloromethane	kg	0	42,000
150	123-91-1	1,4-dioxane	kg	380	0
154	108-91-8	Cyclohexylamine	kg	740	0
186	75-09-2	Methylene chloride	kg	0	0
213	127-19-5	N,N-dimethyl acetamide	kg	364	228
232	68-12-2	N,N-dimethylmethanamide	kg	60	260
237	—	Mercury and its compounds	kg	0	0
242	—	Selenium and its compounds	kg	0	0
243	—	Dioxins ^{※2}	g-TEQ	0.2	3.9
296	95-63-6	1,2,4-trimethylbenzene	kg	2,566	0
297	108-67-8	1,3,5-trimethylbenzene	kg	0	0
300	108-88-3	Toluene	kg	34,133	14,830
302	91-20-3	Naphthalene	kg	1	0
332	—	Arsenic and its inorganic compounds ^{※2}	kg	0	0
374	—	Hydrogen fluoride and its water-soluble salts	kg	86,429	0
392	110-54-3	N-hexane	kg	0	0
400	71-43-2	Benzene ^{※2}	kg	0	0
405	—	Boron compounds	kg	23,460	0
411	50-00-0	Formaldehyde ^{※2}	kg	5,732	260
412	—	Manganese and its compounds	kg	0	0
415	79-41-4	Methacrylic acid	kg	4	0
418	2867-47-2	2-(dimethylamino) ethyl methacrylate	kg	35	0
420	80-62-6	Methyl methacrylate	kg	44	0
438	1321-94-4	Methylnaphthalene	kg	364	0
Total ^{※3}			kg	200,586	81,880

※1 A summary of the volumes Group companies reported in accordance with the PRTR Law. Rounded to one decimal place for chemical substances less than 1kg. Includes unintentionally generated chloroform and dioxins.

※2 Type 1 chemical substances.

※3 Dioxins are not included in total data.

The Nippon Paper Group Environmental Action Plan (Green Action Plan 2020) - Fiscal 2018 Progress Report

	Green Action Plan 2020	Progress
1. Anti-global warming action	<ul style="list-style-type: none"> Reduce greenhouse gas emissions by 10% compared to fiscal 2013. ※1 	<ul style="list-style-type: none"> Reduced greenhouse gas emissions by 6.2% compared to fiscal 2013 by taking steps such as updating facilities and moving forward with fuel conversion.
	<ul style="list-style-type: none"> Reduce logistics-generated CO₂ emissions. 	<ul style="list-style-type: none"> Continuously working to reduce CO₂ emissions by shortening transportation distances and advancing highly efficient modal shift transport.
2. Protection and development of forest Resources	<ul style="list-style-type: none"> Advance domestic company-owned forest operations and the overseas afforestation project (Tree Farm Initiative) to ensure the sustainable nurturing of forest resources. 	<ul style="list-style-type: none"> As of the end of 2018, total afforested areas came to 83 thousand hectares.
	<ul style="list-style-type: none"> Maintain forest certifications in all proprietary forests, both domestically and internationally. 	<ul style="list-style-type: none"> Currently maintaining FSC®※2, PEFC, and SGEC certification for 173 thousand hectares of company-owned forests in Japan and overseas.
	<ul style="list-style-type: none"> Ensure that all wood materials for pulp and paper are endorsed under forest certification schemes. 	<ul style="list-style-type: none"> Using only PEFC- or FSC® -certified wood materials (including controlled material and controlled wood) for pulp and paper.
	<ul style="list-style-type: none"> Enhance traceability and facilitate the procurement of sustainable forest resources. 	<ul style="list-style-type: none"> In working to enhance traceability through the use of forest certifications, cleared the requirements of PEFC rules in their entirety and FSC® rules to 99% with respect to the assessment of imported wood chip risk. In the assessment of purchased pulp risk, cleared all FSC® and PEFC rules.
	<ul style="list-style-type: none"> Advance the use of wood fiber produced from domestically grown trees to promote sound growth of forest resources in Japan. 	<ul style="list-style-type: none"> Nippon Paper Industries Co., Ltd. used domestically produced wood for 35.2% of its needs.
3. Recycling of Resources	<ul style="list-style-type: none"> Promote greater use of wastepaper by achieving advances in wastepaper utilization technologies. 	<ul style="list-style-type: none"> As a result of vigorous efforts to use wastepaper, wastepaper pulp accounted for 34% of pulp used to produce paper, and 88% of pulp used to produce paperboard.
	<ul style="list-style-type: none"> Increase the waste recycling rate to at least 98%. ※1 	<ul style="list-style-type: none"> Waste recycling rate came to 98.2% because of efforts to reduce waste generation and to recycle boiler ash.
4. Observance of environment-related laws and reduction of environmental Load	<ul style="list-style-type: none"> Use the environmental management system to strengthen environmental management and reduce environmental impact. 	<ul style="list-style-type: none"> ISO14001 and other environmental management system standards are being implemented in locations with high environmental impact to ensure regulatory compliance and reduce environmental impact.
	<ul style="list-style-type: none"> Properly manage chemical substances in accordance with the Nippon Paper Group Chemical Substance Management Guidelines. 	<ul style="list-style-type: none"> Records on chemical substance types and amounts handled are being kept, and safety data sheets are being used, to properly manage chemical substances.
5. Development of eco-friendly technologies and products	<ul style="list-style-type: none"> Enhance the more sophisticated use of wood materials. 	<ul style="list-style-type: none"> Participating in NEDO project "Development of Technologies for Manufacturing Processes of Chemicals Derived from inedible Plants" and pursuing technology development in integrated manufacturing process from woody biomass to chemicals. Started commercial production of TEMPO-oxidized CNF (annual capacity of 500 tonnes) at the Ishinomaki Mill and CM-CNF (annual capacity of 30 tonnes) at the Gotsu Mill. Providing samples of CNF-reinforced resin produced by demonstration plant (annual capacity of 10 tonnes) at the Fuji Mill.
	<ul style="list-style-type: none"> Develop equipment technology for facilitating a departure from reliance on fossil energy. 	<ul style="list-style-type: none"> At the Thai test production facility, established technologies for manufacturing new-biomass-fuel, and facility design and operating pulverized coal boiler.
	<ul style="list-style-type: none"> Reduce the environmental load through the provision of ecofriendly products and services. 	<ul style="list-style-type: none"> Built production system of SHIELDPLUS® with oxygen and water vapor barrier properties and SHIELDPLUS® Premier, a new product with excellent high barrier properties, as a substitute for plastic package. Launched paper straws featuring pleasant texture, high durability and safety Constructed a demonstration plant at Fuji Mill for new functional materials, "MinerPa®" which is a hybrid material composed of wood pulp and particulate minerals using our own unique pulp-modification technologies, and accelerated sample work for developing new applications.
6. Environmental Communication	<ul style="list-style-type: none"> Disclose environment-related information to stakeholders and accelerate environmental communication through dialogue and other means. 	<ul style="list-style-type: none"> Shared risk information and invigorated dialogue with local communities through publication of the Sustainability Report and through environmental risk communication efforts undertaken at individual mills.
	<ul style="list-style-type: none"> Proactively participate in and support environment conservation activities. 	<ul style="list-style-type: none"> Actively participated in environmental protection endeavors including clean-up and greening initiatives organized by local communities, while promoting various activities including mill tours and internships.
7. Biodiversity Commitments	<ul style="list-style-type: none"> Advance companywide biodiversity initiatives in accordance with the Nippon Paper Group Basic Policies on Protection of Biodiversity. 	<ul style="list-style-type: none"> Preserving Blakiston's fish owl habitat while pursuing business activities, collaborating with the Wild Bird Society of Japan Conducted School of Friendship for Forests and Paper, utilizing forests owned by Nippon Paper Industries Co., Ltd.

※1 For manufacturing sites in Japan.

※2 FSC® Logo License No. FSC®C120260, FSC®C012171, FSC®C023383

Percentage of employees that are temporary staff

	FY2016	FY2017	FY2018
Consolidated companies in Japan	0.7%	1.0%	0.8%

Number of work-related employee/affiliate fatalities of Nippon Paper Group*

(Unit : persons)

	2016	2017	2018	2019
Nippon Paper Group Employees	0	0	0	0
Affiliates	0	0	1	1
Total	0	0	1	1

* The manufacturing facilities of Nippon Paper Industries Co., Ltd.; Nippon Paper Crecia Co., Ltd.; Nippon Paper Papylia Co., Ltd.; and Nippon Paper Liquid Package Product Co., Ltd.

Acquisition of OHSAS18001 certification (as of March 31, 2019)

	Number of sites with certification	Number of sites	Percentage of sites with certification
Consolidated companies in Japan	0	38	0.0%
Overseas consolidated companies	1	4	25.0%
Total	1	42	2.4%