Employment and Occupational Safety and Health Indicators

Employment Indicators

	Unit	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Number of Employees on a Consolidated Basis※1※3	Persons	13,107	12,771	11,741	13,057	12,881
Male	Persons	11,677	11,389	10,479	11,691	11,451
Female	Persons	1,430	1,382	1,262	1,366	1,430
Paper and Paperboard Business※1※2	Persons	—	—	6,849	6,967	6,818
Daily-Life Products Business※1※2	Persons	—	—	1,854	2,433	2,448
Energy Business※1※2	Persons	—	—	19	19	35
Wood Products and Construction Related Business※1※2	Persons	—	—	1,636	2,273	2,192
Other Businesses※1※2	Persons	—	—	1,383	1,365	1,388
Overseas	Persons	1,785	1,745	1,662	2,723	2,582
Male	Persons	1,531	1,531	1,433	2,385	2,257
Female	Persons	254	214	229	338	325
Percent of upper management from the local community	%	—	83.2	80.6	74.1	80.6
New graduate hired※4	Persons	150	160	240	265	245
Male	Persons	135	143	218	239	220
Female	Persons	15	17	22	26	25
Mid-career recruits※4	Persons	123	190	146	163	198
Male	Persons	110	169	136	141	169
Female	Persons	13	21	10	22	29
The rate of employment of people with disabilities※1※7	%	1.78	1.99	1.98	1.94	1.92
Employees reemployed after retirement age※8						
Nippon Paper Ind.	Persons	53	112	172	185	46
Consolidated companies in Japan	Persons		309	327	331	227
Average age of employees※1※4	Years	41.9	42.7	43.3	43.3	43.4
Male	Years	41.9	42.7	43.3	43.3	43.4
Female	Years	42.0	42.0	42.8	43.1	43.5
Average years of employment※1※4	Years	21.0	18.7	19.0	19.1	19.4
Male	Years	21.1	19.0	19.2	19.2	19.6
Female	Years	20.0	15.9	17.8	18.2	18.0
Turnover rate(Includes employees leaving at the mandatory retirement age)※1※4	%	3.3	3.8	4.2	2.9	2.6
Female employees in management※1※5						
Nippon Paper Ind.	%	1.48	1.57	1.60	1.86	2.47
Consolidated companies in Japan	%	1.70	1.81	1.90	2.14	2.39
Consolidated subsidiaries outside Japan※6	%	16.0	17.8	20.4	23.2	14.4
Dispatched workers※1※4	Persons	—	87	131	77	105
Male	Persons	—	28	51	27	39
Female	Persons	—	59	80	50	66

※ 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 Beginning with fiscal 2013 percentages have been adjusted retroactively to exclude associate directors, employees commissioned for specific purposes, employees on temporary assignment from other companies, and other non-full-time personnel to present percentages of only full-time employees.

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

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

※ 8 Data scope: Beginning with fiscal 2014, figures cover consolidated subsidiaries in Japan and management employees. Until fiscal 2013, figures covered only non-management employees at Nippon Paper Industries.

Work-Life Balance Indicators

	Unit	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Employees taking child-care leave※1	Persons	29	25	24	26	26
Male	Persons	1	4	0	0	0
Female	Persons	28	21	24	26	26
recently giving birth	%	90	91	100	100	100
who returned to work	%	—	100	100	100	100
Employees taking maternity/paternity leave※2	Persons	153	164	167	186	148
Male	Persons	140	141	145	160	122
Female	Persons	13	23	22	26	26
Average number of days taken for maternity/paternity leave※2						
Male	Days	3.3	3.1	3.2	3.0	3.4
Female	Days	66.0	85.6	79.4	64.9	78.0
Employees taking nursing-care leave※2	Persons	0	2	0	1	1
Total number of working hours※3	Hours per person					
Non-management employees		1,831	1,885	1,912	1,927	1,903
All employees		–	–	–	–	1,927
The rate of annual paid leave taken by non-management employees※3	%	70.9	69.2	66.8	68.3	71.8

※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 2013	FY 2014	FY 2015	FY 2016	FY 2017
Frequency rate for occupational accidents requiring time off from work	Nippon Paper Group※	0.30	0.40	0.40	0.10	0.68
	Nippon Paper Group (including affiliates)	0.56	0.65	0.43	0.39	0.63
Occupational accident severity rate	Nippon Paper Group※	0.76	0.02	0.02	0.01	0.02
	Nippon Paper Group (including affiliates)	0.30	0.06	0.02	0.03	0.03

※ Data Scope : The manufacturing facilities of Nippon Paper Industries Co., Ltd., Nippon Paper Crecia Co., Ltd., Nippon Paper Papylia Co., Ltd., and Kitakami Paper Co., Ltd.

Principal organization memberships (as of July 2018)

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	Managing Director
Japan Paper Importers' Association	Managing Director
Japan Association of Milk Packaging and Machinery	Vice Chairman
Committee for Milk Container Environmental Issues	Vice Chairman
Association of Large-scale On-site Power-plant Owners	Managing Director
National Institute of Advanced Industrial Science and Technology Nanocellulose Forum	Chair

Acquisition of Certification

Acquisition of ISO 9001 Certification
(as of March 31, 2018)

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
Kyouei Seitai K.K.	Hokkaido Plant, Koganei Plant
NIPPON PAPER UNITEC CO., LTD.	Four business sites at headquarters (construction/electricity/control systems/plant engineering)
Kokusaku Kiko Co., Ltd.	Headquarters / Equipment & Facilities Department / Yufutsu Department / Shiraoi Department / Asahikawa Department
NANKO UNYU CO.,LTD.	Ishinomaki Office(Products Operation Deprt., 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	Kauttua
Siam Nippon Industrial Paper Co., Ltd.	
Nippon Dynawave Packaging Co.	

※ Certifications obtained for CMC and cellulose powder production.

Acquisition of ISO 14001 Certification
(as of March 31, 2018)

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	Kauttua

Acquisition of ISO22000
(as of March 31, 2018)

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

Acquisition of FSSC 22000 Certifications
(as of March 31, 2018)

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

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

The status of Eco-Action 21 acquisition
(as of March 31, 2018)

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

Status of CoC certification acquisition at principal production sites (as of July 31, 2018)

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®C134786	
	Nakoso Mill	FSC®C020977	
	Kanto Mill(Soka, Ashikaga)	FSC®C133678	
	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 2017)

Hardwood (tonnes=bone dry tonnes)

Country	Percentage	Species
Australia	29%	Eucalyptus
South Africa	23%	Acacia
Brazil	18%	Eucalyptus, Acacia
Vietnam	16%	Acacia
Chile	14%	Eucalyptus
Total	100%	

Softwood (tonnes=bone dry tonnes)

Country	Percentage	Species
Australia	79%	Radiata pine
U.S.A	13%	Douglas fir
Russia	8%	Yezo spruce
Total	100%	

Overseas Afforestation Areas by Country (1,000 hectares)

Country	End of 2010	End of 2011	End of 2012	End of 2013	End of 2014	End of 2015	End of 2016	End of 2017
Australia	79	77	38	38	36	15	15	11
Chile	13	13	13	13	13	13	13	13
Brazil	62	62	62	54	54	50	52	53
South Africa	11	11	11	11	11	11	11	11
Total	**165**	**163**	**124**	**116**	**114**	**89**	**91**	**88**

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, 2018) (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		69.0	12.4	81.4	91%	15%	
Total		72.1	17.6	89.7	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 2017) (Millions of Yen)

	Investment	Cost
(1) Business area costs		
①Pollution prevention costs	682	11,817
②Global environmental conservation costs	3,794	657
③Resources circulation costs	875	7,497
(2) Upstream/downstream cost	-	4,105
(3) Administration cost	-	672
(4) R&D cost	-	2,774
(5) Social activity costs	-	158
(6) Environmental remediation costs	-	524
Total	**5,351**	**28,204**

Environmental conservation impacts (Fiscal 2017)

Categories	Environmental Impact Indicators		Results	YoY Change
Effects related to resources introduced to business activities	Afforestation projects overseas	Overseas afforestation areas	88 k ha	Down 3 k ha
	Energy-saving measures	Fuel reduction(Heavy oil equivalent)	64,204kl	
Effects related to environmental impact and waste from business activities	Greenhouse gas emissions		6.99 Mt	Down 0.18 Mt
	Air pollutant emissions	NOx emissions (NO equivalent)	8,630 t	Up 628t
		SOx emissions (SO_2 equivalent)	3,195 t	Down 150t
		Soot and dust emissions	1,296 t	Up 113t
	Effluent		887 Mt	Up 6 Mt
	Water contaminant emissions	COD/BOD emissions	54,151 t	Up 1,132t
		SS emissions	20,540 t	Down 1,584t
	Final waste disposal		9.3 kt	Down 1.4 kt
Effects related to goods and services produced from business activities	Product recycling	Recycled paper utilization rate(paper)	35.2%	Down 3.2%
		Recycled paper utilization rate (paperboard)	88.6%	Down 0.1%
	Shipping material recycling	Pallet recovery rate	44.9%	Up 0.9%

Environmental Benefits of Environmental Conservation (Fiscal 2017)

(Millions of Yen)

Effect	Amount
Income from company–owned forests in Japan	580
Reduced expenses from energy saved	2,785
Reduced disposal expenses through the effective use of waste	4,206
Gain on sales from the recycled waste	210
Reduced expenses through the recycling of shipping material	981
Total	**8,762**

※ 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 2017)

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

INPUT

Energy input	
Purchased electricity	2,144GWh
Oil	184k kℓ
Coal	2,593kt
Gas	279kt
Other fossil fuels	24kt
Other non-fossil fules※1	6,453kt
(Black liquor subtotal:	4,749kt)
Chemical substances subject to the PRTR Law※2	
Amount handled	10,901t
Water consumption	966Mt
River water	775Mt
Industrial water	164Mt
Well water	26Mt
Public water supply	1Mt
Raw Material	
Woodchips	5,498k BDt
Logs	789k BDt
Pulp	494k Adt
Recycled paper(Pulp)	3,122k Adt
Base Paper	100k Adt

OUTPUT

GHG emissions	8.10Mt
SOx emissions	3.53kt
NOx emissions	9.99kt
Soot and dust	1.55kt
Chemical substances subject to the PRTR Law※2	
Amount released	166t
Amount transferred	76t
Wastewater	930Mt
Public water	920Mt
Sewerage	10Mt
COD/BOD	64.2kt
SS	23.9kt
Nitrogen	1.58kt
Phosphorous	0.21kt
Total Waste Generated	918kBDt
Final disposal subtotal	111kBDt
Recycled subtotal	807kBDt
Products manufactured	
Paper, household Paper	4.39Mt
Paperboard	2.17Mt
Pulp	229kt
Paper container	89kt
Chemical products	107kt
Building materials	67kt
Electricity	1,304GWh

※1 Biomass fuels and waste fuels
※2 Japan only. Dioxins(amonts handled 0, amounts released 1.2g-TEQ, amounts transferred 3.6g-TEQ) are not included in total data.

Balance of Materials in the Pulp and Paper Businesses in Japan (Principal Materials) (Fiscal 2017)

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

INPUT

Energy input	
Purchased electricity	927GWh
Oil	153k kℓ
Coal	2,007kt
Gas	107kt
Other fossil fuels	24kt
Other non-fossil fules※1	4,636kt
(Black liquor subtotal:	3,317kt)
Chemical substances subject to the PRTR Law※2	
Amount handled	660t
Water consumption	843Mt
Raw Material	
Woodchips	4,348kBDt
Logs	28kBDt
Pulp	394kAdt
Recycled paper(Pulp)	3,038kAdt

OUTPUT

GHG emissions	6.33Mt
SOx emissions	2.9kt
NOx emissions	8.3kt
Soot and dust	1.3kt
Chemical substances subject to the PRTR Law※2	
Amount released	91t
Amount transferred	4t
Wastewater	816Mt
COD/BOD	46kt
SS	18.6kt
Nitrogen	1.37kt
Phosphorous	0.19kt
Total Waste Generated	609kBDt
Final disposal subtotal	6kBDt
Recycled subtotal	603kBDt
Products manufactured	
Paper, household Paper	3.95Mt
Paperboard	1.73Mt
Pulp	19kt

※1 Biomass fuels and waste fuels
※2 Japan only. Dioxins(amonts handled 0, amounts released 1.2g-TEQ, amounts transferred 3.6g-TEQ) are not included in total data.

Major Environmental Performance Data※1

		Unit	FY2013	FY2014	FY2015	FY2016	FY2017
Energy	Fossil energy input	Million GJ	97	95	94	99	96
	Non-fossil energy input※2	Million GJ	77	80	81	91	92
Water consumption		Million t	883	939	942	957	966
Waste water	Amount discharged	Million t	907	918	920	933	930
	COD/BOD	Thousand t	56.0	63.7	62.9	62.5	64.2
	SS	Thousand t	22.0	23.6	26.0	25.5	23.9
Gas emissions	GHG emissions	Million t-CO_2	–	–	–	8.21	8.10
	SOx	Thousand t	3.34	4.32	5.08	3.77	3.53
	NOx	Thousand t	9.03	8.78	9.61	9.42	9.99
	Soot and dust	Thousand t	1.52	1.54	1.47	1.40	1.55
Waste	Total Waste Generated	Thousand t	819	850	839	911	918
	Final disposal subtotal	Thousand t	71.9	54.2	52.4	106	111

※1 Changes in the Data Collection Scope:
in fiscal 2013 (added) Paper Australia Pty Ltd.
in fiscal 2014 (added) Jujo Thermal Oy and South East Fibre Exports Pty. Ltd. (excluded) SHIKOKU COCA-COLA BOTTLING CO., LTD.
in fiscal 2015 (added) Siam Nippon Industrial Paper Co., Ltd. (excluded) The Shoalhaven Mill of Paper Australia Pty Ltd., South East Fibre Exports Pty. Ltd.
in fiscal 2016 (added) Amapá Florestal e Celulose S.A. (AMCEL) Nippon Dynawave Packaging Co. (excluded) Nippon Paper Industries USA Co., Ltd.

※2 Energy from biomass and waste

Environment–Related Complaints (FY 2017)

Complaints	Noise	Vibration	Odor	Dust and mist dispersal	Smoke	Other	Total
Number	6	0	1	3	0	1	11

External Awards for Environmental Conservation Activities (FY 2017)

Recipient	Award	Award Organization
Employees of Nippon Paper Industries Co., Ltd. Iwakuni Mill	Golden award : Environment Preservation Slogan in FY2017 (1 person)	The Association for the Environmental Conservation of The Seto Inland Sea, Yamaguchi Prefecture
	Honorable mention : Environment Preservation Slogan in FY2017 (1 person)	
	Honorable mention : Environment Preservation Senryu(satirical haiku) in FY2017 (3 persons)	
Paper Australia Pty Ltd.	The 2017 Sustainability Award	The Victorian Association of Forest Industries

Amounts of Substances Subject to the PRTR Law Released and Transferred※1 (FY 2017)

Cabinet Order No.	CAS No	Chemical Substance	Unit	Amount Released	Amount Transferred
1	—	Water-soluble zinc compounds	kg	1,180	3,500
2	79-06-1	Acrylamide	kg	11	0
4	—	Acrylic acid and water-soluble salt	kg	16	0
9	107-13-1	Acrylonitrile	kg	0.8	0
53	100-41-4	Ethylbenzene	kg	0.1	0
57	110-80-5	Ethylene glycol monoethyl ether	kg	240	3,700
80	1330-20-7	Xylene	kg	2,108	0
85	111-30-8	Glutaraldehyde	kg	6	0
127	67-66-3	Chloroform	kg	60,255	24,000
149	56-23-5	Tetrachloromethane	kg	0	41,000
154	108-91-8	Cyclohexylamine	kg	820	0
186	75-09-2	Methylene chloride	kg	110	0
213	127-19-5	N,N-dimethyl acetamide	kg	320	270
232	68-12-2	N,N-dimethylmethanamide	kg	40	240
237	—	Mercury and its compounds	kg	8	0
242	—	Selenium and its compounds	kg	34	0
243	—	Dioxins※2	g-TEQ	1.2	3.6
296	95-63-6	1,2,4-trimethylbenzene	kg	2,711	0
297	108-67-8	1,3,5-trimethylbenzene	kg	0	0
300	108-88-3	Toluene	kg	50,433	3,040
302	91-20-3	Naphthalene	kg	0.7	0
332	—	Arsenic and its inorganic compounds※2	kg	68	0
374	—	Hydrogen fluoride and its water-soluble salts	kg	17,984	0
392	110-54-3	N-hexane	kg	0.2	0
400	71-43-2	Benzene※2	kg	0.1	0
405	—	Boron compounds	kg	20,608	0
411	50-00-0	Formaldehyde※2	kg	5,956	65
412	—	Manganese and its compounds	kg	2,202	0
415	79-41-4	Methacrylic acid	kg	4	0
418	2867-47-2	2-(dimethylamino) ethyl methacrylate	kg	58	0
420	80-62-6	Methyl methacrylate	kg	81	0
438	1321-94-4	Methylnaphthalene	kg	295	0
Total ※3			kg	165,552	75,815

※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 2017 Progress Report

	Green Action Plan 2020	Progress
1. Anti-global warming action	・Reduce greenhouse gas emissions by 10% compared to fiscal 2013. ※1	・Reduced greenhouse gas emissions by 3.9% compared to fiscal 2013 by taking steps such as updating facilities and moving forward with fuel conversion.
	・Reduce logistics-generated CO_2 emissions.	・Continuously working to reduce CO_2 emissions by shortening transportation distances and advancing highly efficient modal shift transport.
2. Protection and development of forest Resources	・Advance domestic company-owned forest operations and the overseas afforestation project (Tree Farm Initiative) to ensure the sustainable nurturing of forest resources.	・As of the end of 2017, total afforested areas came to 88 thousand hectares.
	・Maintain forest certifications in all proprietary forests, both domestically and internationally.	・Currently maintaining FSC®※2, PEFC, and SGEC certification for 178 thousand hectares of company-owned forests in Japan and overseas.
	・Ensure that all wood materials for pulp and paper are endorsed under forest certification schemes.	・Using only PEFC- or FSC® -certified wood materials (including controlled material and controlled wood) for pulp and paper.
	・Enhance traceability and facilitate the procurement of sustainable forest resources.	・In working to enhance traceability through the use of forest certifications, cleared the requirements of PEFC rules in their entirety and FSC® rules to 94% with respect to the assessment of imported wood chip risk. In the assessment of purchased pulp risk, cleared all FSC® and PEFC rules.
	・Advance the use of wood fiber produced from domestically grown trees to promote sound growth of forest resources in Japan.	・Nippon Paper Industries Co., Ltd. used domestically produced wood for 36% of its needs.
3. Recycling of Resources	・Promote greater use of wastepaper by achieving advances in wastepaper utilization technologies.	・ As a result of vigorous efforts to use wastepaper, wastepaper pulp accounted for 35% of pulp used to produce paper, and 89% of pulp used to produce paperboard.
	・Increase the waste recycling rate to at least 98%.※1	・Waste recycling rate came to 98.6% because of efforts to reduce waste generation and to recycle boiler ash.
4. Observance of environment-related laws and reduction of environmental Load	・Use the environmental management system to strengthen environmental management and reduce environmental impact.	・ISO14001 and other environmental management system standards are being implemented in locations with high environmental impact to ensure regulatory compliance and reduce environmental impact.
	・Properly manage chemical substances in accordance with the Nippon Paper Group Chemical Substance Management Guidelines.	・ 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	・Enhance the more sophisticated use of wood materials.	・ Approved the establishment of a test production facility for Minerpa®, a functional material that is a composite of minerals and cellulose fiber, and offers excellent anti-odor, antibacterial, fire-resistance, and radiation shielding properties. The facility will be built at Nippon Paper Industries Co., Ltd.'s Fuji Mill, with startup planned for October 2018. ・A production facility (annual capacity of 500 tonnes) for industrial TEMPO-oxidized CNF began operating in April 2017 at Nippon Paper Industries Co., Ltd.'s Ishinomaki Mill. A production facility (annual capacity of 10 tonnes) for CNF-reinforced resin began operating at the Fuji Mill in June 2017. A production facility (annual capacity of 30 tonnes) for CM-CNF for use as a food and cosmetics additive began operating at the Gotsu Mill in September 2017.
	・Develop equipment technology for facilitating a departure from reliance on fossil energy.	・At the Thai torrefied pellet test production facility, developed technology for manufacturing fuel for co-firing in a pulverized-coal-fired boiler.
	・Reduce the environmental load through the provision of ecofriendly products and services.	・Nippon Paper Venti Wind Power Co., Ltd. began wind power business operations in January 2018 at a location adjacent to Nippon Paper Industries Co., Ltd.'s Akita Mill. Nippon Paper Ishinomaki Energy Center Ltd. began biomass mixed combustion power generation operations in March 2018. Through these and other initiatives, the Group is advancing renewable energy businesses that are environmentally friendly. ・Sold CfFA® concrete admixture (making effective use of pulverized-coal boiler ash from Nippon Paper Industries Co., Ltd.'s Ishinomaki Mill) for use in disaster recovery construction in the Tohoku region of Japan.
6. Environmental Communication	・Disclose environment-related information to stakeholders and accelerate environmental communication through dialogue and other means.	・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.
	・Proactively participate in and support environment conservation activities.	・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	・Advance companywide biodiversity initiatives in accordance with the Nippon Paper Group Basic Policies on Protection of Biodiversity.	・Signed and began implementing an agreement with the Kyushu Regional Forest Office of Japan's Forest Agency to eradicate invasive species and perform other forest conservation activities in a national forest on Iriomote Island.

※1 For manufacturing sites in Japan.
※2 FSC® Logo License No. FSC®C120260, FSC®C012171, FSC®C023383