Chapter 2 Results of the Detailed Environmental Survey in FY2020

1. Purpose of the survey

The Detailed Environmental Survey is implemented to provide as required under the Law Concerning the Examination and Regulation of Manufacture, etc. of Chemical Substances (Law 117, 1973) (hereafter, the Chemical Substances Control Law), the data and details required for risk assessments et al. of chemical substances prioritized for evaluations. This compiled material is intended to allow for nationwide assessments of exposure in the general environment.

2. Target chemicals

In the FY2020 Detailed Environmental Survey, 7 chemicals (groups) that were selected and designated as target chemicals. The combinations of target chemicals and the surveyed media are given below.

		The Chemica Control	al Substances Law *1	The P	RTR La	w *2,3	Surv	veyed m	edia
No.	Name	Before the revision	After the revision	2000-	2008-	2021-	Surface water	Sedi- ment	Wild- life
[1]	Aniline	II Monitored	Priority Assessment Chemical Substances	I 15	I 18	I 20	0		
	[(3-Alkaneamidopropyl)(dimethyl)ammonio] acetate (The alkaneamido group is linear with 10 - 14 carbon atoms.) and (<i>Z</i>)-{[3-(Octadeca- 9-enamido)propyl](dimethyl)ammonio}acetate								
	[2-1] [(3-Decanamidopropyl)(dimethyl) ammonio]acetate						0	0	
[0]	[2-2] [(3-Dodecanamidopropyl)(dimethyl) ammonio]acetate		Priority Assessment			105	0	0	
[2]	[2-3] [(3-Tetradecanamidopropyl)(dimethyl) ammonio]acetate		Chemical Substances			135	0	0	
	[2-4] [(3-Hexadecanamidopropyl)(dimethyl) ammoniolacetate						0	0	
	[2-5] [(3-Octadecanamidopropyl)(dimethyl) ammoniolacetate						0	0	
	[2-6] (<i>Z</i>)-{[3-(Octadeca-9-enamido)propyl] (dimethyl)ammonio}acetate						0	0	
	Cyclopolydimethylsiloxanes								
	[3-1] Octamethylcyclotetrasiloxane		Monitored			I 96	°*4		0
[3]	[3-2] Decamethylcyclopentasiloxane						°*4		0
	[3-3] Dodecamethylcyclohexasiloxane		Monitored				0 * 4		0
[4]	Carbon disulfide	II Monitored	Priority Assessment Chemical Substances	I 241	I 318	I 361	0		
[5]	<i>N,N'</i> -Ethylenebis(thiocarbamoylthiozinc) bis(<i>N,N</i> -dimethyldithiocarbamate) (synonym: Polycarbamate)	III Monitored	Priority Assessment Chemical	I 250	I 329	I 371			
	[5-1] <i>N</i> , <i>N</i> -Ethylenebis(diffilocarbamamic acid) [5-2] <i>N</i> , <i>N</i> -Dimethyldithiocarbamamic acid	-	Substances					0	
	Phthalate esters								
	[6-1] Dimethyl phthalate	1					0		
	[6-2] Diethyl phthalate				I 353	II 94	0		
	[6-3] Diisobutyl phthalate			II 60		II 93	0		
	[6-4] Di- <i>n</i> -butyl phthalate	II Monitored		I 270	I 354	I 395	0		
	[6-5] Di- <i>n</i> -hexyl phthalate						0		
573	[6-6] Dioctyl phthalates						0		
[6]	[6-6-1] Di- <i>n</i> -octyl phthalate			I 269		I 394	0		
	[6-6-2] Di(2-ethylhexy) phthalate	II Monitored	Priority Assessment Chemical Substances	I 272	I 355	I 396	0		
	[6-7] Dinonyl phthalates						0		
	[6-8] Didecyl phthalates						0		
	[6-9] Diundecyl phthalates						0		

N	News	The Chemica Control	al Substances Law *1	The P	RTR La	w *2,3	Surv	veyed m	edia
INO.	Iname	Before the	After the	2000-	2008-	2021-	Surface	Sedi-	Wild-
		revision	revision	2000	2000	2021	water	ment	life
[7]	2- <i>sec</i> -Butylphenyl <i>N</i> -methylcarbamate (synonym: Fenobucarb or BPMC)	II Monitored III Monitored	Priority Assessment Chemical Substances	I 330	I 428	I 477	0		

(Note 1) "Before the revision" in "The Chemical Substances Control Law" means designation before the May 20, 2009 revison of tha low (enforced April 1, 2011), and "After the revision" means designation after the law revison.

(Note 2) "The PRTR Law" hereafter means "Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof (Law No. 86 of 1999)."

- (Note 3) "2000-" in the "The PRTR Law" means designation at the time of enactment of government ordinance of tha low on June 7, 2000, "2008-" means the designation after the revision of the government ordinance on November 21, 2008, and "2021-" means the designation after the revision of the government ordinance on October 20, 2021.
- (Note 4) For Cyclopolydimethylsiloxanes, a survey was also conducted in FY2019, but due to doubts about the analytical results of surface water, it was decided to make a new decision on whether to adopt the results of FY2019 based on the results of FY2020, and the treatment of the results was put on hold. After reviewing the surface water results for FY2019, we found that the measured values for FY2019 deviated significantly from the environmental residual concentrations obtained in FY2020 and other previous surveys, and we were unable to dispel doubts about the values obtained by instrumental measurement. Therefore, all surface water results for 2019 are treated as missing.

Chemical and physical properties of target chemicals of the Detailed Environmental Survey are as follows.



(Abbreviations) CAS CAS registry number, ENCS registry number in the Existing and New Chemical Substances List, MW molecular weight, mp melting point, bp boiling point, SW solubility in water, Specific gravities Specific gravity(no unit) or density, logPow *n*-octanol-water partition coefficient, kPa kilopascal (1 atom approximately equal to 101.3kPa).

	Molecular formula:	$C_{21}H_{42}N_2O_3$
	CAS:	59272-84-3
	ENCS:	9-2027 (N-Alkanoyl (or
		alkenoyl, $C_8 \sim C_{20}$) amino
0~ / н		propyl- <i>N</i> , <i>N</i> -dimethylammonio
	MW	acetate) 370 57
	mp.	Uncertain
ö	bp:	Uncertain
	sw:	Uncertain
	Specific gravities:	Uncertain
	logPow:	Uncertain
[2-4] [(3-Hexadecanamidopropyl)(dimethyl)ammonio]acetate		
	Molecular formula:	C23H46N2O3
	CAS:	32954-43-1
	ENCS:	$2-1290$ (N-[3-{Alkanoyl (C15
		\sim C ₁₇) amido} propyij- <i>I</i> v, <i>I</i> v-
		acidbetaine. 9-2027 (N-
0 / н		Alkanovl (or alkenovl. $C_8 \sim$
		C ₂₀) aminopropyl- <i>N</i> , <i>N</i> -
		dimethylammonio acetate)
	MW:	398.62
	mp:	Uncertain
	bp:	Uncertain
	Sw: Specific gravities:	Uncertain
	logPow:	Uncertain
[2-5] [(3-Octadecanamidopropyl)(dimethyl)ammonio]acetate	<i>Q</i>	
	Molecular formula:	CarHeaNaOa
		C2511501N2O3
	CAS:	6179-44-8
	CAS: ENCS:	6179-44-8 9-2027 (<i>N</i> -Alkanoyl(or
	CAS: ENCS:	6179-44-8 9-2027 (<i>N</i> -Alkanoyl(or alkenoyl, C ₈ - C ₂₀) amino
от / н	CAS: ENCS:	6179-44-8 9-2027 (<i>N</i> -Alkanoyl(or alkenoyl, C ₈ - C ₂₀) amino propyl- <i>N</i> , <i>N</i> -dimethylammonio
	CAS: ENCS: MW:	6179-44-8 9-2027 (<i>N</i> -Alkanoyl(or alkenoyl, C ₈ - C ₂₀) amino propyl- <i>N</i> , <i>N</i> -dimethylammonio acetate) 426.66
	CAS: ENCS: MW: mp:	6179-44-8 9-2027 (<i>N</i> -Alkanoyl(or alkenoyl, C ₈ - C ₂₀) amino propyl- <i>N</i> , <i>N</i> -dimethylammonio acetate) 426.66 Uncertain
	CAS: ENCS: MW: mp: bp:	6179-44-8 9-2027 (<i>N</i> -Alkanoyl(or alkenoyl, C ₈ - C ₂₀) amino propyl- <i>N</i> , <i>N</i> -dimethylammonio acetate) 426.66 Uncertain Uncertain
	CAS: ENCS: MW: mp: bp: sw:	6179-44-8 9-2027 (<i>N</i> -Alkanoyl(or alkenoyl, C ₈ - C ₂₀) amino propyl- <i>N</i> , <i>N</i> -dimethylammonio acetate) 426.66 Uncertain Uncertain Uncertain
	CAS: ENCS: MW: mp: bp: sw: Specific gravities:	6179-44-8 9-2027 (<i>N</i> -Alkanoyl(or alkenoyl, C ₈ - C ₂₀) amino propyl- <i>N</i> , <i>N</i> -dimethylammonio acetate) 426.66 Uncertain Uncertain Uncertain Uncertain
	CAS: ENCS: MW: mp: bp: sw: Specific gravities: logPow:	6179-44-8 9-2027 (<i>N</i> -Alkanoyl(or alkenoyl, C ₈ - C ₂₀) amino propyl- <i>N</i> , <i>N</i> -dimethylammonio acetate) 426.66 Uncertain Uncertain Uncertain Uncertain Uncertain
[2-6] (Z)-{[3-(Octadeca-9-enamido)propyl](dimethyl)ammonio}aceta	CAS: ENCS: MW: mp: bp: sw: Specific gravities: logPow: ate	6179-44-8 9-2027 (<i>N</i> -Alkanoyl(or alkenoyl, C ₈ - C ₂₀) amino propyl- <i>N</i> , <i>N</i> -dimethylammonio acetate) 426.66 Uncertain Uncertain Uncertain Uncertain
$[2-6] (Z)-\{[3-(Octadeca-9-enamido)propyl](dimethyl)ammonio\} aceta$	CAS: ENCS: MW: mp: bp: sw: Specific gravities: logPow: tte Molecular formula:	C25H48 N2O3 C25H48 N2O3 C25H48 N2O3
$[2-6] (Z)-\{[3-(Octadeca-9-enamido)propyl](dimethyl)ammonio\} aceta$	CAS: ENCS: MW: mp: bp: sw: Specific gravities: logPow: tte Molecular formula: CAS: ENCS:	C25H48 N2O3 C25H48 N2O3 C25H48 N2O3 C25U48 N2O3 C25U48 C44 C412 C44 C412 C44 C45C C45U48 C44 C412 C44 C412 C44 C412
$[2-6] (Z)-\{[3-(Octadeca-9-enamido)propyl](dimethyl)ammonio\} aceta$	CAS: ENCS: MW: mp: bp: sw: Specific gravities: logPow: tte Molecular formula: CAS: ENCS:	C25H30H2O3 6179-44-8 9-2027 (<i>N</i> -Alkanoyl(or alkenoyl, C ₈ - C ₂₀) amino propyl- <i>N</i> , <i>N</i> -dimethylammonio acetate) 426.66 Uncertain Uncertain Uncertain Uncertain Uncertain Uncertain C25H48 N2O3 25054-76-6 2-1290 (<i>N</i> -[3-{Alkanoyl(C ₁₅ ~ C ₁₇) amido} provVl- <i>N</i> N-
$O \rightarrow O \rightarrow$	CAS: ENCS: MW: mp: bp: sw: Specific gravities: logPow: tte Molecular formula: CAS: ENCS:	C251150142O3 6179-44-8 9-2027 (<i>N</i> -Alkanoyl(or alkenoyl, C ₈ - C ₂₀) amino propyl- <i>N</i> , <i>N</i> -dimethylammonio acetate) 426.66 Uncertain Uncertain Uncertain Uncertain Uncertain Uncertain C25H ₄₈ N ₂ O3 25054-76-6 2-1290 (<i>N</i> -[3-{Alkanoyl(C ₁₅ ~ C ₁₇) amido} propyl]- <i>N</i> , <i>N</i> - dimethyl- <i>a</i> -carboxylic
[2-6] (Z)-{[3-(Octadeca-9-enamido)propyl](dimethyl)ammonio}aceta	CAS: ENCS: MW: mp: bp: sw: Specific gravities: logPow: tte Molecular formula: CAS: ENCS:	C25H30H2O3 6179-44-8 9-2027 (<i>N</i> -Alkanoyl(or alkenoyl, C ₈ - C ₂₀) amino propyl- <i>N</i> , <i>N</i> -dimethylammonio acetate) 426.66 Uncertain Uncertain Uncertain Uncertain Uncertain Uncertain C25H48 N2O3 25054-76-6 2-1290 (<i>N</i> -[3-{Alkanoyl(C15 ~ C17) amido}propyl]- <i>N</i> , <i>N</i> - dimethyl- <i>a</i> -carboxylic acidbetaine, 9-2027 (<i>N</i> -
$O \rightarrow A \rightarrow $	CAS: ENCS: MW: mp: bp: sw: Specific gravities: logPow: ate Molecular formula: CAS: ENCS:	C25H30H2O3 6179-44-8 9-2027 (<i>N</i> -Alkanoyl(or alkenoyl, C ₈ - C ₂₀) amino propyl- <i>N</i> , <i>N</i> -dimethylammonio acetate) 426.66 Uncertain Uncertain Uncertain Uncertain Uncertain Uncertain C25H48 N2O3 25054-76-6 2-1290 (<i>N</i> -[3-{Alkanoyl(C ₁₅ ~ C ₁₇) amido}propyl]- <i>N</i> , <i>N</i> - dimethyl- <i>a</i> -carboxylic acidbetaine, 9-2027 (<i>N</i> - Alkanoyl (or alkenoyl, C ₈ ~
$[2-6] (Z) - \{[3-(Octadeca-9-enamido)propyl](dimethyl)ammonio\} aceta$	CAS: ENCS: MW: mp: bp: sw: Specific gravities: logPow: nte Molecular formula: CAS: ENCS:	C25H48 N2O3 6179-44-8 9-2027 (N-Alkanoyl(or alkenoyl, C ₈ - C ₂₀) amino propyl- N,N -dimethylammonio acetate) 426.66 Uncertain Uncertain Uncertain Uncertain Uncertain C25H48 N2O3 25054-76-6 2-1290 (N -[3-{Alkanoyl(C ₁₅ ~ C ₁₇) amido}propyl]- N,N - dimethyl- α -carboxylic acidbetaine, 9-2027 (N - Alkanoyl (or alkenoyl, C ₈ ~ C ₂₀) aminopropyl- N,N -
$[2-6] (Z)-\{[3-(Octadeca-9-enamido)propyl](dimethyl)ammonio\} aceta$	CAS: ENCS: MW: mp: bp: sw: Specific gravities: logPow: tte Molecular formula: CAS: ENCS:	C25H ₄₈ N ₂ O ₃ C_{20} (<i>N</i> -Alkanoyl(or alkenoyl, C ₈ - C ₂₀) amino propyl- <i>N</i> , <i>N</i> -dimethylammonio acetate) 426.66 Uncertain Uncertain Uncertain Uncertain Uncertain C25H ₄₈ N ₂ O ₃ 25054-76-6 2-1290 (<i>N</i> -[3-{Alkanoyl(C ₁₅ ~ C ₁₇) amido}propyl]- <i>N</i> , <i>N</i> - dimethyl- <i>a</i> -carboxylic acidbetaine, 9-2027 (<i>N</i> - Alkanoyl (or alkenoyl, C ₈ ~ C ₂₀) aminopropyl- <i>N</i> , <i>N</i> - dimethylammonio acetate)
$[2-6] (Z)-\{[3-(Octadeca-9-enamido)propyl](dimethyl)ammonio\} aceta$	CAS: ENCS: MW: mp: bp: sw: Specific gravities: logPow: tte Molecular formula: CAS: ENCS:	C25H30H2O3 6179-44-8 9-2027 (<i>N</i> -Alkanoyl(or alkenoyl, C ₈ - C ₂₀) amino propyl- <i>N</i> , <i>N</i> -dimethylammonio acetate) 426.66 Uncertain Uncertain Uncertain Uncertain Uncertain C25H48 N2O3 25054-76-6 2-1290 (<i>N</i> -[3-{Alkanoyl(C15 ~ C17) amido}propyl]- <i>N</i> , <i>N</i> - dimethyl- α -carboxylic acidbetaine, 9-2027 (<i>N</i> - Alkanoyl (or alkenoyl, C ₈ ~ C20) aminopropyl- <i>N</i> , <i>N</i> - dimethylammonio acetate) 424.66 Uncertain
$[2-6] (Z)-\{[3-(Octadeca-9-enamido)propyl](dimethyl)ammonio\} aceta$	CAS: ENCS: MW: mp: bp: sw: Specific gravities: logPow: tte Molecular formula: CAS: ENCS: WW: mp: br:	C25H30H2O3 6179-44-8 9-2027 (N-Alkanoyl(or alkenoyl, C ₈ - C ₂₀) amino propyl- N , N -dimethylammonio acetate) 426.66 Uncertain Uncertain Uncertain Uncertain C25H48 N ₂ O3 25054-76-6 2-1290 (N -[3-{Alkanoyl(C ₁₅ ~ C ₁₇) amido}propyl]- N , N - dimethyl- α -carboxylic acidbetaine, 9-2027 (N - Alkanoyl (or alkenoyl, C ₈ ~ C ₂₀) aminopropyl- N , N - dimethylammonio acetate) 424.66 Uncertain Lincertain
$[2-6] (Z)-\{[3-(Octadeca-9-enamido)propyl](dimethyl)ammonio\} aceta$	CAS: ENCS: MW: mp: bp: sw: Specific gravities: logPow: tte Molecular formula: CAS: ENCS: ENCS:	C25H30H2O3 6179-44-8 9-2027 (<i>N</i> -Alkanoyl(or alkenoyl, C ₈ - C ₂₀) amino propyl- <i>N</i> , <i>N</i> -dimethylammonio acetate) 426.66 Uncertain Uncertain Uncertain Uncertain C25H48 N ₂ O3 25054-76-6 2-1290 (<i>N</i> -[3-{Alkanoyl(C ₁₅ ~ C ₁₇) amido}propyl]- <i>N</i> , <i>N</i> - dimethyl- α -carboxylic acidbetaine, 9-2027 (<i>N</i> - Alkanoyl (or alkenoyl, C ₈ ~ C ₂₀) aminopropyl- <i>N</i> , <i>N</i> - dimethylammonio acetate) 424.66 Uncertain Uncertain Uncertain Uncertain
$[2-6] (Z)-\{[3-(Octadeca-9-enamido)propyl](dimethyl)ammonio\} aceta$	CAS: ENCS: MW: mp: bp: sw: Specific gravities: logPow: tte Molecular formula: CAS: ENCS: ENCS: MW: mp: bp: sw: Specific gravities:	C25H30H2O3 6179-44-8 9-2027 (<i>N</i> -Alkanoyl(or alkenoyl, C ₈ - C ₂₀) amino propyl- <i>N</i> , <i>N</i> -dimethylammonio acetate) 426.66 Uncertain Uncertain Uncertain Uncertain Uncertain C25H48 N2O3 25054-76-6 2-1290 (<i>N</i> -[3-{Alkanoyl(C15 ~ C17) amido}propyl]- <i>N</i> , <i>N</i> - dimethyl- <i>a</i> -carboxylic acidbetaine, 9-2027 (<i>N</i> - Alkanoyl (or alkenoyl, C ₈ ~ C20) aminopropyl- <i>N</i> , <i>N</i> - dimethylammonio acetate) 424.66 Uncertain Uncertain Uncertain Uncertain Uncertain









References

- 1) International Labour Organization (ILO), Aniline, International Chemical Safety Cards (ICSCs), ICSC: 0011 (2014)
- 2) Information Material 1, Review Sheet for Class I Specified Chemical Substances and Monitoring Chemical Substances, from the 8th Committee on Safety of Chemical Substances n the fiscal year 2017, Pharmaceutical Affairs Committee, Pharmaceutical Affairs and Food Sanitation Council; the 173rd Review Committee by Subcommittee on Chemical Substances and Chemical Substances Council; the 180th Chemicals Evaluation Subcommittee, Environmental Health Committee, Central Environment Council (December 22, 2017)
- 3) Rumble, J.R. (ed), CRC Handbook of Chemistry and Physics 98th Edition, The Royal society of Chemistry (2017).
- 4) U.S. National Library of Medicine, PubChem (https://pubchem.ncbi.nlm.nih.gov/, Retrieved on October, 2021)
- 5) International Labour Organization (ILO), Carbon disulfide, International Chemical Safety Cards (ICSCs), ICSC: 0022 (2000)
- 6) U.S. EPA, Estimation Programs Interface (EPI) Suite v4.1 (http://www.epa.gov/oppt/exposure/pubs/episuitedl.htm)
- 7) International Labour Organization (ILO), Dimethyl phthalate, International Chemical Safety Cards (ICSCs), ICSC: 0261 (2005)
- 8) International Labour Organization (ILO), Diethyl phthalate, International Chemical Safety Cards (ICSCs), ICSC: 0258 (2001)
- 9) International Labour Organization (ILO), Diisobutyl phthalate, International Chemical Safety Cards (ICSCs), ICSC: 0829 (2006)
- 10) International Labour Organization (ILO), Dibutyl phthalate, International Chemical Safety Cards (ICSCs), ICSC: 0036 (2002)
- 11) International Labour Organization (ILO), Diisooctyl phthalate, International Chemical Safety Cards (ICSCs), ICSC: 0876 (2005)
- 12) International Labour Organization (ILO), Di(2-ethylhexy) phthalate, International Chemical Safety Cards (ICSCs), ICSC: 0271 (2001)
- 13) International Labour Organization (ILO), Diisononyl phthalate, International Chemical Safety Cards (ICSCs), ICSC: 0831 (2003)
- 14) International Labour Organization (ILO), Diisodecyl phthalate, International Chemical Safety Cards (ICSCs), ICSC: 0875 (1998)

3. Surveyed site and procedure

In the Detailed Environmental Survey, the sampling and analysis of specimens was entrusted to prefectural governments and government-designated cities across Japan, and some specimens were sampled and analysed by private analytical laboratories.

Local		Sur	veyed me	edia
communities	Organisations responsible for sampling *1	Surface water	Sedi- ment	Wild- life
Hokkaido	Environmental Promotion Section, Environment Division, Department of Environment	0		
	and Lifestyle, Hokkaido Prefectural Government and Research Institute of Energy,			
	Environment and Geology, Hokkaido Research Organization			
Sapporo City	Sapporo City Institute of Public Health	0		
Iwate Pref.	Research Institute for Environmental Sciences and Public Health of Iwate Prefecture	0		0
Miyagi Pref.	Miyagi Prefectural Institute of Public Health and Environment	0		
Sendai City	Sendai City Institute of Public Health	0	0	
Akita Pref.	Akita Research Center for Public Health and Environment	0	0	
Fukushima Pref.	Fukushima Prefectural Environmental Center	0		
Ibaraki Pref.	Ibaraki Kasumigaura Environmental Science Center	0	0	
Tochigi Pref.	Tochigi Prefectural Institute of Public Health and Environmental Science	0		
Gunma Pref.	Gunma Prefectural Institute of Public Health and Environmental Sciences	0		
Saitama Pref.	Center for Environmental Science in Saitama	0		
Saitama City	Saitama City Institute of Health Science and Research	0		
Chiba Pref.	Chiba Prefectural Environmental Research Center	0	0	
Tokyo Met.	Environmental Improvement Division, Bureau of Environment, Tokyo Metropolitan	0	0	0
	Government and Tokyo Metropolitan Research Institute for Environmental Protection			
Yokohama City	Yokohama Environmental Science Research Institute	0	0	0
Kawasaki City	Kawasaki Environment Research Institute			0
Niigata Pref.	Niigata Prefectural Institute of Public Health and Environmental Sciences	0	0	
Toyama Pref.	Environment Preservation Division, Living Environmental and Cultural Affairs	0	0	0
	Department, Toyama Prefectural Government and Toyama Prefectural Environmental			
	Science Research Center			
Ishikawa Pref.	Ishikawa Prefectural Institute of Public Health and Environmental Science	0	0	°*2
Fukui Pref.	Fukui Prefectural Institute of Public Health and Environmental Science	0	0	
Nagano Pref.	Nagano Environmental Conservation Research Institute	0	0	
Shizuoka Pref.	Shizuoka Institute of Environment and Hygiene	0	0	
Aichi Pref.	Aichi Environmental Research Center	0	0	
Nagoya City	Nagoya City Environmental Science Research Center, Regional Environmental	0	0	
	measures Division, Environmental Bureau, Nagoya city			
Mie Pref.	Mie Prefecture Health and Environment Research Institute	0	0	
Shiga Pref.	Lake Biwa Environmental Research Institute	0		
Kyoto City	Kyoto City Institute of Health and Environmental Sciences	0	0	
Osaka Pref.	Environment Preservation Division, Environment Management Office, Department of Environment, Agriculture, Forestry and Fisheries, Osaka Prefectural Government and	0	0	0
	Research Institute of Environment, Agriculture and Fisheries, Osaka Prefecture			
Osaka City	Osaka City Institute of Public Health and Environmental Sciences	0	0	
Hyogo Pref.	Water and Air Quality Control Division, Environmental Management Bureau, Agricultural and Environmental Affairs Department, Hyogo Prefectural Government and Hyogo Prefectural Institute of Environmental Sciences, Hyogo Environmental Advancement Association	0	0	0
Kobe City	Natural Environmental Symbiotic Division, Environmental Preservation Branch, Environment Bureau, Kobe City and Kobe Institute of Health, Welfare Bureau, Health Division, Health	0	0	
Nara Pref.	Nara Prefecture Landscape and Environment Center	0	0	ļ
Wakayama Pref.	Wakayama Prefectural Research Center of Environment and Public Health	0		ļ
Okayama Pref.	Okayama Prefectural Institute for Environmental Science and Public Health	0	0	0
Yamaguchi Pref.	Yamaguchi Prefectural Institute of Public Health and Environment	0	0	0
Tokushima Pref.	Tokushima Prefectural Pablic Health, Pharmaceutical and Environmental Sciences Center	0		
Kagawa Pref.	Kagawa Prefectural Research Institute for Environmental Sciences and Public Health		0	0
Ehime Pref.	Ehime Prefectural Institute of Public Health and Environmental Science	0	0	
Fukuoka Pref.	Fukuoka Institute of Health and Environmental Sciences	0		
Kitakyushu City	Kitakyushu City Institute of Health and Environmental Sciences	0	0	
Fukuoka City	Fukuoka City Institute for Hygiene and the Environment	0	0	

(1) Organisations responsible for sampling

	Sur	veyed me	dia
Organisations responsible for sampling *1	Surface	Sedi-	Wild-
	water	ment	life
Saga Prefectural Environmental Research Center	0	0	
Kumamoto Prefectural Institute of Public-Health and Environmental Science	0		
Environment Preservation Division, Department of Environment, Oita Prefectural	0	0	0
Government and Oita Prefectural Institute of Health and Environment			
Okinawa Prefectural Institute of Health and Environment	0		
	Organisations responsible for sampling *1 Saga Prefectural Environmental Research Center Kumamoto Prefectural Institute of Public-Health and Environmental Science Environment Preservation Division, Department of Environment, Oita Prefectural Government and Oita Prefectural Institute of Health and Environment Okinawa Prefectural Institute of Health and Environment	Surface Organisations responsible for sampling *1 Surface water Saga Prefectural Environmental Research Center Sumamoto Prefectural Institute of Public-Health and Environmental Science Environment Preservation Division, Department of Environment, Oita Prefectural Government and Oita Prefectural Institute of Health and Environment Okinawa Prefectural Institute of Health and Environment	Organisations responsible for sampling *1 Surface Sedi- water ment Saga Prefectural Environmental Research Center 0 0 0 Kumamoto Prefectural Institute of Public-Health and Environmental Science 0 0 0 Environment Preservation Division, Department of Environment, Oita Prefectural 0 0 0 Government and Oita Prefectural Institute of Health and Environment 0 0 0 0 Okinawa Prefectural Institute of Health and Environment 0 <

(Note 1) *1: Organisations responsible for sampling are described by their official names in FY 2020

(Note 2) *2: Those organizations cooperated with a private analytical laboratory in sampling specimens.

(2) Surveyed sites and target chemicals

The numbers of target chemicals (groups) and the numbers of surveyed sites, etc. by surveyed medium in the detailed environmental survey were as shown in the following table.

The target chemicals and the national distribution map of the survey sites for each medium are shown in Table 2-1-1 and Figures 2-1-1 for surface water, Table 2-1-2 and Fig.2-1-1 for sediment and Table 2-1-3 and Fig.2-1-2 for wildlife.

In addition, about 20 sites were selected as survey sites per target chemical. To obtain data for areas to be expected to high concentrations in the general environment survey sites are selected based on information regarding releases and emissions. Among the sites considering to rank in the top of PRTR emissions, it was included the surrounding sites where samples can be taken in the survey sites.

Surveyed media	Numbers of local communities	Numbers of target chemicals	Numbers of surveyed sites	Numbers of samples at a surveyed site
Surface water	43	6	71	1
Sediment	29	2	34	3
Wildlife	11*	1	12	3
All media	45	7	85	

(Note) *: For 1 of the 11 organizations, it was cooperated with a private analytical laboratory in sampling specimens.

(3) Detection limit

The detection limits of analysed values reported by the analytical laboratory are not necessarily the same because of differences in the properties of specimens and in the available measurement equipment. To enable summarisation, therefore, a unified detection limit is predetermined and the analytical values reported by the analytical laboratory are summarised by the following procedure.

Treatment of measured value as an undetected value in high-sensitivity analysis

In the case of high-sensitivity analysis, in which the detection limit of the analytical laboratory is lower than the unified detection limit, any measured value lower than the unified detection limit is treated as an undetected value in the nationwide summary (see schematic (A)).

Elimination of undetected values in low-sensitivity analysis from summary subject

When the detection limit of the analytical laboratory is higher than the unified detection limit, any target chemical not detected is eliminated from the subject of the summary (see schematic (B)).

When the instrument detection limit (IDL) and the method detection limit (MDL) are given in the analytical method, which is described in reports on the investigation of the development of analytical methods for chemicals and adopted in the Initial Environmental Survey (hereafter, the Initial Environmental Survey Analytical Method), if the IDL measured by the analytical laboratory is lower than the given IDL, the MDL of the Initial Environmental Survey Analytical Method is used as the detection limit by the analytical laboratory.

When IDL and MDL are not given in the Initial Environmental Survey Analytical Method, the detection limit is predetermined by the following procedure.

When the analytical laboratory calculates the appropriate IDL and MDL following the calculation method stated in the analytical method development instruction manuals, this calculated MDL is used as the detection limit by the analytical laboratory.

When the appropriate IDL and MDL are not calculated by the analytical laboratory, one of the following procedures was employed to establish the detection limit by the analytical laboratory.

- deduction from the IDL and MDL calculated for the corresponding chemical by Initial Environmental Survey Analytical Method or other analytical laboratories
- · deduction from the lowest calibration curve concentration and the results of recovery tests
- deduction from the results of addition and collection tests, the results of operation blank tests, and the signal/noise ratio (S/N ratio) obtained from the chromatogram of environmental specimens



4-12

Schematic of procedure for data summarisation

Local	Surgraved aites			Target c	hemicals		
communities	Surveyed sites	[1]	[2]	[3]	[4]	[6]	[7]
Hokkaido	Suzuran-ohashi Bridge, Riv			0		0	
	Tokachi (Obihiro City)						
Sapporo	Nakanuma of Riv.Toyohira		0	0			
City	(Sapporo City)						
-	Daiichishinkawa-bashi Bridge, Riv.		0	0			
	Shin (Sapporo City)						
Iwate Pref.	Tovosawa-bashi Bridge, Riv.					0	0
	Tovosawa (Hanamaki City)						
Miyagi Pref.	Futatsuva-bashi Bridge, Riv.	0			0	0	
58	Hasama (Tome City)						
	Sakura-hodoukyou Bridge.	0			0	0	
	Riv.Shiroishi (Shibata Town)						
Sendai City	Hirose-ohashi Bridge, Riv, Hirose		0	0			0
5	(Sendai City)						
Akita Pref.	Akita Canal (Akita City)	0	0	0	0	0	0
Fukushima	Upstream of the junction with					0	
Pref.	Riv.Omori, Riv. Nigori (Fukushima						
	City)						
Ibaraki Pref.	Tonekamome-ohasi Bridge, Mouth	0	0		0		0
	of Riv. Tone (Kamisu City)						
Tochigi	Tagawa Kyubun Area Head Works.	0	0	0			0
Pref.	Riv. Tagawa (Utsunomiya City)						
Gunma Pref.	Ainokawa-bashi Bridge, Riv. Yata	0					
	(Itakura Town)						
	Furutone-bashi Bridge, Riv. Ishida			0			
	(Ota City)						
	Seinai-bashi Bridge, Riv. Nira						0
	(Maebashi City)						
Saitama	Do-bashi Bridge, Riv. Naka (Kazo					0	
Pref.	City)						
	Matsutomi-hashi Bridge, Riv. Naka	0					
	(Kasukabe City)						
	Ronsho-bashi Bridge, Riv.	0					
	Touemon (Kawaguchi City)						
	Akigaseshusuizeki of Riv. Arakawa	0		0	0	0	
	(Shiki City)						
Saitama	Nakadote-hashi Bridge, Riv. Kamo		0		0		0
City	(Saitama City)						
Chiba Pref.	Asai-bashi Bridge, Riv. Yourou	0		0	0		
	(Ichihara City)						
	Coast of Ichihara and Anegasaki	0		0	0	0	
Tokyo Met.	Mouth of Riv. Arakawa (Koto		0	0	0		0
	Ward)						
	Mouth of Riv. Sumida (Minato		0	0	0		0
	Ward)						
Yokohama	Kamenoko-bashi Bridge,	0	0	0	0	0	0
City	Riv.Tsurumi (Yokohama City)						
	Yokohama Port	0	0	0	0	0	0
	Yoshikura-bashi Bridge, Riv.Kashio	0	0	0	0	0	0
	(Yokohama City)						
Niigata Pref.	Lower Riv. Shinano (Niigata City)		0	0		0	0
	Front of Teraji, offshore of				0		
	Nishikubiki						
Toyama	Ishida-bashi Bridge, Riv. Kurose					0	
Pref.	(Kurobe City)						
	Daimon-ohashi Bridge, Riv. Sho					0	
	(Imizu City)						
Ishikawa	Mouth of Riv. Sai (Kanazawa City)	0	0	0			0
Pref.							
Fukui Pref.	Mishima-bashi Bridge, Riv. Shono		0			0	0
	(Tsuruga City)						
	End of Riv. Mawatari	0					

Table 2-1-1 List of surveyed sites (surface water) and target chemicals in the Detailed Environmental Survey in FY2020

Local				Target c	hemicals		
communities	Surveyed sites	[1]	[2]	[3]	[4]	[6]	[7]
Nagano	Lake Suwa (center)	L]	0				0
Pref.	Manzai-ohashi Bridge, Riv., Achi					0	
	(Jida City)					_	
Shizuoka	Shimizu Port		0				0
Pref.	Kaketsuka-bashi Bridge, Riv.		0				0
	Tenryu (Iwata City)						
Aichi Pref.	West of Shiomi Wharf, Nagova Port	0		0	0	0	0
Nagova City	Minatoshinbashi Bridge, Riv. Hori	0	0		0	0	
	(Nagoya City)						
	South of Shiomi Wharf, Nagoya	0			0	0	
	Port						
Mie Pref.	Yokkaichi Port	0	0	0	0	0	0
	Toba Port		0		0		0
Shiga Pref	Lake Biwa (center, offshore of		Ŭ			0	Ŭ
Singu Pren	Minamihira)					Ŭ	
	Lake Biwa (center, offshore of					0	
	Karasaki)					-	
Kvoto Citv	Miyamae-bashi Bridge, Riv.		0	0			
	Katsura (Kvoto City)						
Osaka Pref.	Mouth of Riv. Yamato (Sakai City)	0	0	0	0	0	0
Osaka Citv	Kema-bashi Bridge, Riv. Oh-kawa	0			0	0	
	(Osaka City)						
	Osaka Port	0			0	0	
Hyogo Pref.	Offshore of Himeji			0		0	
	Koakamatsu-bashi Bridge, Riv.			0			
	Chigusa (Sayo Town)						
Kobe City	Kobe Port (center)		0	0		0	
Nara Pref.	Taisho-bashi Bridge, Riv. Yamato		0	0			
	(Oji Town)						
Wakayama	Kinokawa-ohashi Bridge, Mouth of				0		0
Pref.	Riv. Kinokawa (Wakayama City)						
	Noguchi-bashi Bridge, Riv. Hidaka				0	0	0
	(Gobo City)						
Okayama	Sasagase-bashi Bridge, Riv.		0	0	0		0
Pref.	Sasagase (Okayama City)						
	Offshore of Mizushima		0	0	0		0
Yamaguchi	Tokuyama Bay	0					0
Pref.	Offshore of Hagi	0					0
T 1 1	V 1.1'D'1 D'						
Tokushima	Kagasuno-bashi Bridge, Riv.				0		
Prei.	Imagire (Televalima City, Mataushiga						
	(Tokushima City, Matsushige						
Ehima Draf	Sowadu Fishing Port		0				0
Linnie i iei.	Mishima area Riv Juamatsu	0	0				0
	(Uwajima City)	0	0				0
Fukuoka	Kabura-bashi Bridge Riv Raizan	0			0		
Pref	(Itoshima City)	Ģ			0		
1101.	Offshore of Omuta	0			0		
Kitakyushu	Dokaj Bay	0				0	0
City		-				-	-
Fukuoka	Hakata Bay	0	0	0	0	0	
City	5						
Saga Pref.	Imari Bay				0	0	0
Kumamot	Front of Yahata pool, Yatsushiro-			0			
Pref.	kai Sea						
	Umedo Port, Yatsushiro-kai Sea			0			
Oita Pref.	Mouth of Riv. Oita (Oita City)	0	0		0		
Okinawa	Ryutou-bashi Bridge, Riv. Nagadou					0	
Pref.	(Tomigusuku City, Haebaru Town)						
	Naha Port		1	T		0	

[1] Aniline, [2] [(3-Alkaneamidopropyl)(dimethyl)ammonio] acetate (The alkaneamido group is linear with 10 - 14 carbon atoms.) and (*Z*)-{[3-(Octadeca-9-enamido)propyl](dimethyl)ammonio}acetate, [3] Cyclopolydimethylsiloxanes, [6] Phthalate esters, [7] 2-sec-Butylphenyl *N*-methylcarbamate (synonym: Fenobucarb or BPMC)

Local		Target ch	nemicals
communities	Surveyed sites	[4]	[5]
Sendai City	Hirose-ohashi Bridge, Riv. Hirose (Sendai City)	0	0
Akita Pref.	Akita Canal (Akita City)	0	0
Ibaraki Pref.	Tonekamome-ohasi Bridge, Mouth	0	0
	of Riv. Tone (Kamisu City)		
Chiba Pref.	Coast of Ichihara and Anegasaki		0
Tokyo Met.	Mouth of Riv. Arakawa (Koto Ward)	0	0
	Mouth of Riv. Sumida (Minato Ward)	0	0
Yokohama City	Yokohama Port	0	
Niigata Pref.	Lower Riv. Shinano (Niigata City)	0	0
Toyama	Hagiura-bashi Bridge, Mouth of Riv.		0
Pref.	Jintsu (Toyama City)		
Ishikawa Pref.	Mouth of Riv. Sai (Kanazawa City)	0	0
Fukui Pref.	Mishima-bashi Bridge, Riv. Shono (Tsuruga City)	0	0
Nagano Pref.	Lake Suwa (center)	0	0
Shizuoka	Shimizu Port	0	0
Pref.	Kaketsuka-bashi Bridge, Riv. Tenryu (Iwata City)	0	0
Aichi Pref.	West of Shiomi Wharf, Nagoya Port	0	0
Nagoya City	Hinode-bashi Bridge, Riv.Shin-hori (Nagoya City)	0	0
Mie Pref.	Yokkaichi Port	0	0
	Toba Port	0	0
Kyoto City	Miyamae-bashi Bridge, Riv. Katsura	0	0
5 5	(Kyoto City)		
Osaka Pref.	Mouth of Riv. Yamato (Sakai City)	0	0
Osaka City	Kema-bashi Bridge, Riv. Oh-kawa (Osaka City)	0	0
	Osaka Port	0	0
Hyogo Pref.	Offshore of Himeji		0
Kobe City	Kobe Port (center)	0	0
Nara Pref.	Taisho-bashi Bridge, Riv. Yamato (Oji Town)	0	0
Okayama Pref.	Offshore of Mizushima	0	0
Yamaguchi	Tokuyama Bay	0	0
Pref.	Offshore of Hagi	0	0
Kagawa Pref.	Takamatsu Port	0	0
Ehime Pref.	Mishima area, Riv. Iwamatsu (Uwajima City)	0	0
Kitakyushu City	Dokai Bay	0	0
Fukuoka City	Hakata Bay	0	0
Saga Pref.	Imari Bay	0	0
Oita Pref.	Mouth of Riv. Oita (Oita City)	0	0

Table 2-1-2 List of surveyed sites (sediment) and target chemicals in the Detailed Environmental Survey in FY2020

[2] [(3-Alkaneamidopropyl)(dimethyl)ammonio] acetate (The alkaneamido group is linear with 10 - 14 carbon atoms.) and (Z)-{[3-(Octadeca-9-enamido)propyl](dimethyl)ammonio} acetate, [7] N,N'-Ethylenebis(thiocarbamoylthiozinc) bis(N,N-dimethyldithio carbamate) (synonym: Polycarbamate)



Figure 2-1-1 Surveyed sites (surface water and sediment) in the Detailed Environmental Survey in FY2020

Local	C	W/141:6	Target chemicals
communities	Surveyed sites	wildine species	[3] Cyclopolydimethylsiloxanes
Iwate Pref.	Yamada Bay	Blue mussel	0
		(Mytilus galloprovincialis)	
		Greenling	0
		(Hexagrammos otakii)	
Tokyo Met.	Tokyo Bay	Sea bass	0
		(Lateolabrax japonicus)	
Yokohama	Yokohama Port	Green mussel	0
City		(Perna viridis)	
Kawasaki	Offshore of Ogishima Island,	Sea bass	0
City	Port of Kawasaki	(Lateolabrax japonicus)	
Ishikawa	Coast of Noto Peninsula	Blue mussel	0
Pref.		(Mytilus galloprovincialis)	
Osaka Pref.	Osaka Bay	Sea bass	0
		(Lateolabrax japonicus)	
Hyogo Pref.	Offshore of Himeji	Sea bass	0
		(Lateolabrax japonicus)	
Okayama	Offshore of Mizushima	Striped mullet	0
Pref.		(Mugil cephalus)	
Yamaguchi	Tokuyama Bay	Striped mullet	0
Pref.		(Mugil cephalus)	
Kagawa Pref.	Takamatsu Port	Striped mullet	0
		(Mugil cephalus)	
Oita Pref.	Mouth of Riv. Oita (Oita City)	Sea bass	0
		(Lateolabrax japonicus)	

Table 2-1-3 List of surveyed sites (wildlife) and target chemicals in the Detailed Environmental Survey in FY2020



Figure 2-1-2 Surveyed sites (wildlife) in the Detailed Environmental Survey in FY 2020

4. Summary of survey results

The detection ranges and the detection limits are shown in Table 1-2. The survey results are summarized as follows.

In surface water, all 6 target chemicals (groups) were detected. Target chemicals were categorized by analytical methods such as structurally similar chemicals capable of simultaneous analyses.

- [1] Aniline: 23 of the 31 valid sites
- [2] [(3-Alkaneamidopropyl)(dimethyl)ammonio] acetate (The alkaneamido group is linear with 10 14 carbon atoms.) and (*Z*)-{[3-(Octadeca-9-enamido)propyl](dimethyl)ammonio}acetate
 - [2-1] [(3-Decanamidopropyl)(dimethyl) ammonio]acetate: 16 of the 31 valid sites
 - [2-2] [(3-Dodecanamidopropyl)(dimethyl) ammonio]acetate: 24 of the 31 valid sites
 - [2-3] [(3-Tetradecanamidopropyl)(dimethyl) ammonio]acetate: 18 of the 31 valid sites
 - [2-4] [(3-Hexsadecanamidopropyl)(dimethyl) ammonio]acetate: 18 of the 31 valid sites
 - [2-5] [(3-Octadecanamidopropyl)(dimethyl) ammonio]acetate: 27 of the 31 valid sites
 - [2-6] (Z)-{[3-(Octadeca-9-enamido)propyl] (dimethyl)ammonio}acetate: 6 of the 31 valid sites
- [3] Cyclopolydimethylsiloxanes
 - [3-1] Octamethylcyclotetrasiloxane: 19 of the 26 valid sites
 - [3-2] Decamethylcyclopentasiloxane: 16 of the 26 valid sites
 - [3-3] Dodecamethylcyclohexasiloxane: 15 of the 26 valid sites
- [4] Carbon disulfide: 31 of the 32 valid sites
- [6] Phthalate esters
 - [6-1] Dimethyl phthalate: 5 of the 34 valid sites
 - [6-2] Diethyl phthalate: 5 of the 34 valid sites
 - [6-3] Diisobutyl phthalate: 2 of the 34 valid sites
 - [6-4] Di-*n*-butyl phthalate: 7 of the 34 valid sites
 - [6-6] Dioctyl phthalates: 8 of the 34 valid sites
 - [6-6-2] Di(2-ethylhexy) phthalate: 10 of the 34 valid sites
 - [6-7] Dinonyl phthalates: 5 of the 34 valid sites
 - [6-8] Didecyl phthalates: 7 of the 34 valid sites
 - [6-9] Diundecyl phthalates: 2 of the 34 valid sites
- [7] 2-sec-Butylphenyl N-methylcarbamate (synonym: Fenobucarb or BPMC): 25 of the 32 valid sites

In sediment, all 2 target chemicals groups were detected. Target chemicals were categorized by analytical

methods such as structurally similar chemicals capable of simultaneous analyses.

- [2] [(3-Alkaneamidopropyl)(dimethyl)ammonio] acetate (The alkaneamido group is linear with 10 14 carbon atoms.) and (*Z*)-{[3-(Octadeca-9-enamido)propyl](dimethyl)ammonio}acetate
 - [2-3] [(3-Tetradecanamidopropyl)(dimethyl) ammonio]acetate: 1 of the 31 valid sites
 - [2-4] [(3-Hexsadecanamidopropyl)(dimethyl) ammonio]acetate: 6 of the 31 valid sites
 - [2-5] [(3-Octadecanamidopropyl)(dimethyl) ammonio]acetate: 9 of the 31 valid sites
 - [2-6] (Z)-{[3-(Octadeca-9-enamido)propyl] (dimethyl)ammonio}acetate: 13 of the 31 valid sites
- [5] *N*,*N*'-Ethylenebis(thiocarbamoylthiozinc) bis(*N*,*N*-dimethyldithiocarbamate) (synonym: Polycarbamate):
 - [5-1] *N*,*N*-Ethylenebis(dithiocarbamamic acid): 2 of the 28 valid sites

In wildlife, 1 target chemicals groups were detected. Target chemicals were categorized by analytical methods such as structurally similar chemicals capable of simultaneous analyses.

- [3] Cyclopolydimethylsiloxanes
 - [3-1] Octamethylcyclotetrasiloxane: 8 of the 12 valid sites
 - [3-2] Decamethylcyclopentasiloxane: all 12 valid sites
 - [3-3] Dodecamethylcyclohexasiloxane: 7 of the 12 valid sites

Table 1-2 Summary of the detection ranges and the detection limits in theDetailed Environmental Survey in FY 2020

		Surface wa	ter [ng/L]	Sediment [ng/g-dry]	Wildlife [1	ng/g-wet]
No.	Target chemicals	Detection	Detection	Detection	Detection	Detection	Detection
1.0.	Turget enermeuts	range and	limit	range and	limit	range and	limit
		requency		Trequency		frequency	
[1]	Aniline *	23/31	14				
	[(3-Alkaneamidopropyl)(dimethyl)ammonio] acetate						
	(The alkaneamido group is linear with 10 - 14 carbon atoms) and (7) - $\{[3-(Octadeca-9-enamido))$ around						
	(dimethyl)ammonio}acetate						
	[2-1] [(3-Decanamidopropyl)(dimethyl)ammonio]	nd ~ 12	0.35	nd	0.24		
		16/31	0.55	0/31	0.24		ļ
[2]	[2-2] [(3-DodecanamidopropyI)(dimethyl)ammonio] acetate	nd ~ 140 24/31	2.6	nd 0/31	5.0		
[2]	[2-3] [(3-Tetradecanamidopropyl)(dimethyl)	$nd \sim 26$	2.8	$nd \sim 1.1$	0.94		
	ammonio acetate	18/31		$\frac{1/31}{nd \sim 0.39}$			
	ammonio]acetate	18/31	0.76	6/31	0.19		
	[2-5] [(3-Octadecanamidopropyl)(dimethyl)	nd ~ 9.2	0.24	$nd \sim 0.28$	0.095		
	ammonio]acetate	27/31	0.21	9/31	0.095		
	[2-6] (Z)-{[3-(Octadeca-9-enamido)propy1] (dimethyl)ammonio}acetate	$nd \sim 0.40$ 6/31	0.091	$nd \sim 0.16$ 13/31	0.020		
	Cyclopolydimethylsiloxanes *	0/51		15/51			
	[3-1] Octamethylcyclotetrasiloxane	nd ~ 14 19/26	2.7			nd ~ 65 8/12	0.79
[3]	[3-2] Decamethylcyclopentasiloxane	nd ~ 120 16/26	4.3			nd ~ 780 12/12	1.3
	[3-3] Dodecamethylcyclohexasiloxane	nd ~ 12 15/26	2.3			nd ~7.5 7/12	0.78
[4]	Carbon disulfide *	$\begin{array}{c} nd \sim 420\\ 31/32 \end{array}$	4.2				
	<i>N</i> , <i>N</i> '-Ethylenebis(thiocarbamoylthiozinc) bis(<i>N</i> , <i>N</i> -dimethyldithiocarbamate) (synonym: Polycarbamate)						
[5]	[7-1] N,N-Ethylenebis(dithiocarbamamic acid)			nd ~0.48 2/28	0.34		
	[7-2] N,N-Dimethyldithiocarbamamic acid			nd 0/28	1.3		
	Phthalate esters						
	[6-1] Dimethyl phthalate	nd ~120 5/34	11				
[6]	[6-2] Diethyl phthalate	nd ~48 5/34	23				
	[6-3] Diisobutyl phthalate	nd ~150 2/34	26				
	[6-4] Di- <i>n</i> -butyl phthalate *	nd ~120 7/34	18				

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		Detection range and frequency	Detection limit	Detection range and frequency	Detection limit	Detection range and frequency	Detection limit
[6]	[6-5] Di- <i>n</i> -hexyl phthalate	nd 0/34	6.3				
	[6-6] Dioctyl phthalates	nd ~ 590 8/34	130				
	[6-6-1] Di- <i>n</i> -octyl phthalate	nd 0/34	7.9				
	[6-6-2] Di(2-ethylhexy) phthalate *	nd ~2,900 10/34	190				
	[6-7] Dinonyl phthalates	nd ~ 840 5/34	82				
	[6-8] Didecyl phthalates	nd ~330 7/34	27				
	[6-9] Diundecyl phthalates	nd ~31 2/34	13				
[7]	2- <i>sec</i> -Butylphenyl <i>N</i> -methylcarbamate (synonym: Fenobucarb or BPMC) *	nd ~4.2 25/32	0.052				

(Note 1) Detection frequency is based on the number of sites, thus means (the number of detected sites/the number of surveyed sites). A site where data was not available was excluded from the number of surveyed sites. A site where the data became invalid under a unified detection limit was also excluded. In sediment, wildlife and air, 3 samples were measured for a site, and the detection in more than one out of samples from a site can be defined as one detected site.

(Note 2) Detection range is based on the number of samples and therefore can be shown as "nd~" even if a target chemical is detected in all sites. (Note 3) means the medium was not surveyed.

(Note 4) * connote target substances or points selected for survey in light of documentation or submittals regarding emissions.