

**Table 1: List of ballast water management systems that make use of Active Substances which received Basic Approval from IMO<sup>1</sup>**

	<b>Name of the system and proposing country</b>	<b>Name of manufacturer</b>	<b>Date of Basic Approval</b>
1	Peraclean® Ocean (subsequently changed to SEDNA® Ballast Water Management System (Using Peraclean® Ocean)), Germany	Degussa GmbH, Germany	24 March 2006 (MEPC 54)
2	Electro-Clean (electrolytic disinfection) system (subsequently changed to Electro-Cleen™), Republic of Korea	Techcross Ltd. and Korea Ocean Research and Development Institute (KORDI)	24 March 2006 (MEPC 54)
3	Special Pipe Ballast Water Management System (combined with Ozone treatment), Japan (subsequently changed to FineBallast OZ (the Special Pipe Hybrid Ballast Water Management System combined with Ozone treatment version))	Japan Association of Marine Safety (JAMS)	13 October 2006 (MEPC 55)
4	EctoSys™ electrochemical system, Sweden (subsequently changed to the RWO ballast water management system)	Permascand AB, Sweden, subsequently acquired by RWO GmbH, Germany	13 October 2006 (MEPC 55)
5	PureBallast System, Sweden	Alfa Laval/Wallenius Water AB	13 July 2007 (MEPC 56)
6	NK Ballast Water Treatment System, Republic of Korea (subsequently changed to NK-O3 BlueBallast System (Ozone))	NK Company Ltd., Republic of Korea	13 July 2007 (MEPC 56)
7	Hitachi Ballast Water Purification System (ClearBallast), Japan	Hitachi, Ltd./Hitachi Plant technologies, Ltd.	4 April 2008 (MEPC 57)
8	Resource Ballast Technologies System, South Africa	Resource Ballast Technologies (Pty) Ltd.	4 April 2008 (MEPC 57)
9	GloEn-Patrol™ Ballast Water Management System, Republic of Korea	Panasia Co., Ltd.	4 April 2008 (MEPC 57)
10	OceanSaver® Ballast Water Management System, Norway	MetaFil AS (subsequently changed to OceanSaver AS)	4 April 2008 (MEPC 57)
11	TG Ballastcleaner and TG Environmentalguard System (subsequently changed to JFE Ballast Water Management System), Japan	The Toagosei Group (TG Corporation, Toagosei Co., Ltd. and Tsurumi Soda Co., Ltd.)	10 October 2008 (MEPC 58)
12	Greenship Sedinox Ballast Water Management System, the Netherlands	Greenship Ltd	10 October 2008 (MEPC 58)
13	Ecochlor® Ballast Water Treatment System, Germany	Ecochlor, Inc, Acton, the United States	10 October 2008 (MEPC 58)
14	Blue Ocean Shield Ballast Water Management System, China	China Ocean Shipping (Group) Company (COSCO)	17 July 2009 (MEPC 59)

<sup>1</sup> More comprehensive information regarding the systems approved until May 2019 is available in document BWM.2/Circ.34/Rev.8.

Table 1 (continued)

	<b>Name of the system and proposing country</b>	<b>Name of manufacturer</b>	<b>Date of Basic Approval</b>
15	Hyundai Heavy Industries Co., Ltd. (HHI) Ballast Water Management System (EcoBallast), Republic of Korea	Hyundai Heavy Industries Co., Ltd., Republic of Korea	17 July 2009 (MEPC 59)
16	AquaTriComb™ Ballast Water Treatment System, Germany	Aquaworx ATC GmbH	17 July 2009 (MEPC 59)
17	SiCURE™ Ballast Water Management System, Germany	Siemens Water Technologies	26 March 2010 (MEPC 60)
18	Sunrui Ballast Water Management System (subsequently changed to BalClor Ballast Water Management System), China	Qingdao Sunrui Corrosion and Fouling Control Company	26 March 2010 (MEPC 60)
19	DESMI Ocean Guard Ballast Water Management System, Denmark	DESMI Ocean Guard A/S	26 March 2010 (MEPC 60)
20	Blue Ocean Guardian (BOG) Ballast Water Management System, (subsequently changed to "ARA Ballast" Ballast Water Management System), Republic of Korea	21st Century Shipbuilding Co., Ltd.	26 March 2010 (MEPC 60)
21	Hyundai Heavy Industries Co., Ltd. (HHI) Ballast Water Management System (HiBallast), Republic of Korea	Hyundai Heavy Industries Co., Ltd., Republic of Korea	26 March 2010 (MEPC 60)
22	Kwang San Co., Ltd. (KS) Ballast Water Management System "En-Ballast", Republic of Korea	Kwang San Co., Ltd.	26 March 2010 (MEPC 60)
23	OceanGuard™ Ballast Water Management System, Norway	Qingdao Headway Technology Co., Ltd.	26 March 2010 (MEPC 60)
24	Severn Trent DeNora BalPure® Ballast Water Management System (subsequently changed to BalPure® BP-500), Germany	Severn Trent De Nora (STDN), LLC	26 March 2010 (MEPC 60)
25	Techwin Eco Co., Ltd. (TWECO) Ballast Water Management System (Purimar), Republic of Korea	Techwin Eco Co., Ltd. Purchased by Samsung	1 October 2010 (MEPC 61)
26	AquaStar Ballast Water Management System, Republic of Korea (subsequently changed to AquaStar™ BWMS and MACGREGOR WATER BALLAST TREATMENT SYSTEM)	AQUA Eng. Co., Ltd.	1 October 2010 (MEPC 61)
27	Kuraray Ballast Water Management System, (subsequently changed to MICROFADE™ Ballast Water Management System), Japan	Kuraray Co., Ltd.	1 October 2010 (MEPC 61)
28	ERMA FIRST Ballast Water Management System (subsequently changed to ERMA FIRST BWTS), Greece	ERMA FIRST ESK Engineering Solutions S.A.	15 July 2011 (MEPC 62)
29	BlueSeas Ballast Water Management System, Singapore	Envirotech and Consultancy Pte. Ltd.	15 July 2011 (MEPC 62)
30	SKY-SYSTEM® with Peraclean® Ocean Ballast Water Management System, Japan	Katayama Chemical, Inc.	15 July 2011 (MEPC 62)

Table 1 (continued)

	Name of the system and proposing country	Name of manufacturer	Date of Basic Approval
31	JFE BallastAce that makes use of NeoChlor Marine® Ballast Water Management System, Japan	JFE Engineering Corporation	15 July 2011 (MEPC 62)
32	BallastMaster Ballast Water Management System, Germany	GEA Westfalia Separator Systems GmbH	15 July 2011 (MEPC 62)
33	BlueWorld Ballast Water Management System, Singapore	Envirotech and Consultancy Pte. Ltd.	15 July 2011 (MEPC 62)
34	Neo-Purimar™ Ballast Water Management System, Republic of Korea	Samsung Heavy Industries Co., Ltd.	15 July 2011 (MEPC 62)
35	"Smart Ballast" Ballast Water Management System, Republic of Korea	STX Metal Co., Ltd.	2 March 2012 (MEPC 63)
36	DMU ·OH Ballast Water Management System, China	Dalian Maritime University	2 March 2012 (MEPC 63)
37	EcoGuardian™ Ballast Water Management System, Republic of Korea	Hania IMS Co., Ltd.	2 March 2012 (MEPC 63)
38	KTM-Ballast Water Management System, Republic of Korea (subsequently changed to MARINOMATE™ Ballast Water Management System)	Korea Top Marine (KT Marine) Co., Ltd.	5 October 2012 (MEPC 64)
39	Hamworthy Aquarius™-EC BWMS, the Netherlands (subsequently changed to Aquarius™-EC BWMS)	Hamworthy Water Systems Ltd.	5 October 2012 (MEPC 64)
40	OceanDoctor Ballast Water Management System, China	Jiujiang Precision Measuring Technology Research Institute	5 October 2012 (MEPC 64)
41	HS-BALLAST Ballast Water Management System, Republic of Korea	HWASEUNG R&A Co., Ltd.	5 October 2012 (MEPC 64)
42	GloEn-Saver™ Ballast Water Management System, Republic of Korea	PANASIA Co., Ltd.	5 October 2012 (MEPC 64)
43	Van Oord Ballast Water Management System, the Netherlands	Van Oord B.V.	17 May 2013 (MEPC 65)
44	REDOX AS Ballast Water Management System, Norway	REDOX Maritime Technologies AS	17 May 2013 (MEPC 65)
45	BlueZone™ Ballast Water Management System, Republic of Korea	SUNBO INDUSTRIES Co., Ltd., DSEC Co., Ltd., and the Korean Institute of Machinery & Material (KIMM)	17 May 2013 (MEPC 65)
46	ECOLCELL BTs Ballast Water Management System, Italy	Azienda Chimica Genovese (ACG)	4 April 2014 (MEPC 66)
47	Ecomarine-EC Ballast Water Management System, Japan	Ecomarine Technology Research Association	4 April 2014 (MEPC 66)
48	ATPS-BLUE <sub>sys</sub> Ballast Water Management System, Japan	Panasonic Environmental Systems & Engineering Co., Ltd.	4 April 2014 (MEPC 66)
49	KURITA™ Ballast Water Management System, Japan	Kurita Water Industries Ltd.	4 April 2014 (MEPC 66)
50	ElysisGuard ballast water management system, Singapore	KALF Engineering Pte. Ltd.	17 October 2014 (MEPC 67)

Table 1 (continued)

	<b>Name of the system and proposing country</b>	<b>Name of manufacturer</b>	<b>Date of Basic Approval</b>
51	NK-CI BlueBallast System, Republic of Korea	NK Company Ltd.	15 May 2015 (MEPC 68)
52	ECS-HYCHLOR™ System, Republic of Korea	TECHCROSS Inc.	15 May 2015 (MEPC 68)
53	ECS-HYCHEM™ System, Republic of Korea	TECHCROSS Inc.	15 May 2015 (MEPC 68)
54	ECS-HYBRID™ System, Republic of Korea	TECHCROSS Inc.	15 May 2015 (MEPC 68)
55	VARUNA Ballast Water Treatment System, Singapore	Kadalneer Technologies Pte. Ltd.	15 May 2015 (MEPC 68)
56	ClearBal BWMS, Denmark	University of Strathclyde	28 October 2016 (MEPC 70)
57	MICROFADE II BWMS, Netherlands	Kashiwa Co., Ltd. and Kuraray Co., Ltd	7 July 2017 (MEPC 71)
58	Envirocleanse inTank™ BWTS, Norway	Envirocleanse, LLC	7 July 2017 (MEPC 71)
59	BIOBALLAST 1000	Biomarine S.r.l.	26 October 2018 (MEPC 73)
60	CleanBallast® – Ocean Barrier System	Veolia Water Technologies Deutschland GmbH	17 May 2019 (MEPC 74)
61	FlowSafe, Cyprus	Flowater Technologies Ltd.	17 May 2019 (MEPC 74)

**Table 2: List of ballast water management systems that make use of Active Substances which received Final Approval from IMO<sup>2</sup>**

	<b>Name of the system and proposing country</b>	<b>Name of manufacturer</b>	<b>Date of Final Approval</b>
1	PureBallast System, Norway	Alfa Laval/Wallenius Water AB	13 July 2007 (MEPC 56)
2	SEDNA® Ballast Water Management System (Using Peraclean® Ocean), Germany	Degussa GmbH, Germany	4 April 2008 (MEPC 57)
3	Electro-Clean™ System, Republic of Korea	Techcross Ltd. and Korea Ocean Research and Development Institute (KORDI)	10 October 2008 (MEPC 58)
4	OceanSaver® Ballast Water Management System, Norway	OceanSaver AS	10 October 2008 (MEPC 58)
5	RWO Ballast Water Management System (CleanBallast), Germany	RWO GmbH Marine Water Technology, Germany	17 July 2009 (MEPC 59)
6	NK-O3 BlueBallast System (Ozone), Republic of Korea	NK Company Ltd., Republic of Korea	17 July 2009 (MEPC 59)
7	Hitachi Ballast Water Purification System (ClearBallast), Japan	Hitachi, Ltd. /Hitachi Plant technologies, Ltd.	17 July 2009 (MEPC 59)
8	Greenship Sedinox Ballast Water Management System, the Netherlands	Greenship Ltd	17 July 2009 (MEPC 59)
9	GloEn-Patrol™ Ballast Water Management System, Republic of Korea	Panasia Co., Ltd.	26 March 2010 (MEPC 60)
10	Resource Ballast Technologies System, South Africa	Resource Ballast Technologies (Pty) Ltd.	26 March 2010 (MEPC 60)
11	JFE BallastAce® Ballast Water Management System, Japan	JFE Engineering Corporation	26 March 2010 (MEPC 60)
12	Hyundai Heavy Industries Co., Ltd. (HHI) Ballast Water Management System (EcoBallast), Republic of Korea	Hyundai Heavy Industries Co., Ltd., Republic of Korea	26 March 2010 (MEPC 60)
13	Special Pipe Hybrid Ballast Water Management System combined with Ozone treatment version (SP-Hybrid BWMS Ozone version), Japan	Mitsui Engineering & Shipbuilding Co., Ltd.	1 October 2010 (MEPC 61)
14	"ARA Ballast" Ballast Water Management System, Republic of Korea	21st Century Shipbuilding Co., Ltd.	1 October 2010 (MEPC 61)
15	BalClor Ballast Water Management System, China	Qingdao Sunrui Corrosion and Fouling Control Company	1 October 2010 (MEPC 61)
16	OceanGuard™ Ballast Water Management System, Norway	Qingdao Headway Technology Co., Ltd.	1 October 2010 (MEPC 61)
17	Ecochlor® Ballast Water Management System, Germany	Ecochlor Inc, Acton, the United States	1 October 2010 (MEPC 61)

<sup>2</sup> More comprehensive information regarding the systems approved until May 2019 is available in document BWM.2/Circ.34/Rev.8.

Table 2 (continued)

	<b>Name of the system and proposing country</b>	<b>Name of manufacturer</b>	<b>Date of Final Approval</b>
18	Severn Trent De Nora BalPure® Ballast Water Management System (subsequently changed to BalPure® BP-500), Germany	Severn Trent De Nora (STDN), LLC	1 October 2010 (MEPC 61)
19	HiBallast Ballast Water Management System, Republic of Korea	Hyundai Heavy Industries Co., Ltd.	15 July 2011 (MEPC 62)
20	Purimar Ballast Water Management System, Republic of Korea	Samsung Heavy Industries Co., Ltd.	15 July 2011 (MEPC 62)
	Final Approval extended for use in fresh water		17 May 2019 (MEPC 74)
21	SiCURE™ Ballast Water Management System, Germany	Siemens Water Technologies	2 March 2012 (MEPC 63)
22	ERMA FIRST Ballast Water Management System (subsequently changed to ERMA FIRST BWTS), Greece	ERMA FIRST E.S.K. Engineering Solutions S.A.	2 March 2012 (MEPC 63)
23	MICROFADE™ Ballast Water Management System, Japan	Kuraray Co., Ltd.	2 March 2012 (MEPC 63)
24	AquaStar™ Ballast Water Management, Republic of Korea (subsequently changed to AquaStar™ BWMS and MACGREGOR WATER BALLAST TREATMENT SYSTEM)	AQUA Eng. Co.	2 March 2012 (MEPC 63)
25	Neo-Purimar™ Ballast Water Management System, Republic of Korea	Samsung Heavy Industries Co., Ltd. (SHI)	2 March 2012 (MEPC 63)
26	DESMI Ocean Guard BWMS, Denmark	DESMI Ocean Guard A/S	5 October 2012 (MEPC 64)
27	JFE BallastAce that makes use of NEO-CHLOR MARINE™, Japan	JFE Engineering Corporation	5 October 2012 (MEPC 64)
28	Smart Ballast BWMS, Republic of Korea	STX Metal Co., Ltd.	5 October 2012 (MEPC 64)
29	AQUARIUS® EC Ballast Water Management System, the Netherlands	Wärtsilä Water Systems Limited	17 May 2013 (MEPC 65)
30	EcoGuardian™ Ballast Water Management System, Republic of Korea	Hanla IMS Co., Ltd.	17 May 2013 (MEPC 65)
31	OceanDoctor BWMS, China	Jiujiang Precision Measuring Technology Research Institute and Institute of Marine Materials Science and Engineering of Shanghai Maritime University	17 May 2013 (MEPC 65)
32	Ballast Water Management System with PERACLEAN® OCEAN (SKY-SYSTEM), Japan	Nippon Yuka Kogyo Co., and Katayama Chemical, Inc.	4 April 2014 (MEPC 66)
33	Evonik Ballast Water Treatment System with PERACLEAN® OCEAN, Germany	Evonik Industries AG	4 April 2014 (MEPC 66)

Table 2 (continued)

	<b>Name of the system and proposing country</b>	<b>Name of manufacturer</b>	<b>Date of Final Approval</b>
34	MARINOMATE™ Ballast Water Management System, Republic of Korea	KT Marine Co. Ltd.	17 October 2014 (MEPC 67)
35	BlueZone™ Ballast Water Management System, Republic of Korea	SUNBO Industries Co. Ltd.	17 October 2014 (MEPC 67)
36	KURITA Ballast Water Management System, Japan	Kurita Water Industries Ltd.	17 October 2014 (MEPC 67)
37	Ecomarine-EC Ballast Water Management System, Japan	Ecomarine Technology Research Association	15 May 2015 (MEPC 68)
38	ECS-HYCHLOR™ System, Republic of Korea	TECHCROSS Inc.	22 April 2016 (MEPC 69)
39	NK-CI BlueBallast System, Republic of Korea	NK Company Ltd.	22 April 2016 (MEPC 69)
40	ATPS-BLUE <sub>sys</sub> Ballast Water Management System, Japan	Panasonic Environmental Systems & Engineering Co., Ltd.	22 April 2016 (MEPC 69)
41	ECS-HYCHEM™ System, Republic of Korea	TECHCROSS Inc.	28 October 2016 (MEPC 70)
42	ECS-HYBRID™ System, Republic of Korea	TECHCROSS Inc.	7 July 2017 (MEPC 71)
43	Envirocleanse inTank™ BWTS (Electrochlorination Variation), Norway	Envirocleanse, LLC.	26 October 2018 (MEPC 73)
44	Envirocleanse inTank™ BWTS (Bulk Chemical Variation), Norway	Envirocleanse, LLC	17 May 2019 (MEPC 74)
45	MICROFADE II, Japan	Kuraray Co., Ltd.	17 May 2019 (MEPC 74)

**Table 3: List of type approvals for ballast water management systems that are in accordance with the 2016 Guidelines (G8) or the BWMS Code (resolution MEPC.279(70) or MEPC.300(72))\***

	Approval Date	Name of the Administration	Name of the ballast water management system	Copy of Type Approval Certificate	Active Substance employed	MEPC report granting Final Approval
1	2 February 2018	Norwegian Maritime Authority	PureBallast 3.2 and PureBallast 3.2 Compact Flex ballast water management system	Provided (MEPC 72/INF.19)	No Active Substances used according to the communication received from the Administration of Singapore (please refer to MEPC 72/INF.19)	Not applicable
2	21 September 2018	Danish Environmental Protection Agency and Danish Maritime Authority	CompactClean ballast water management system	Provided (MEPC 74/INF.32)	No Active Substances used according to the communication received from the Administration of Denmark (please refer to MEPC 74/INF.32)	Not applicable
3	14 December 2018	Norwegian Maritime Authority	OceanGuard® Ballast Water Management System	Provided (MEPC 74/INF.9)	Yes, please refer to MEPC 61/2/21, annex 5	Please see MEPC 61/24, paragraph 2.7
4	19 December 2018	Norwegian Maritime Authority	HiBallast™ Ballast Water Management System	Provided (MEPC 74/INF.8)	Yes, please refer to MEPC 62/2/18, annex 5	MEPC 62/24, paragraph 2.5
5	20 December 2018	Norwegian Maritime Authority	Envirocleanse inTank™ Electro-chlorination Ballast Water Treatment System	Provided (MEPC 74/INF.6)	Yes, please refer to MEPC 73/4/1, annex 5	Please see MEPC 73/19, paragraph 4.4
6	6 April 2018 (revised 20 December 2018)	Norwegian Maritime Authority	BalClor® Ballast Water Management System	Provided (MEPC 74/INF.7)	Yes, please refer to MEPC 61/2/15, annex 9	MEPC 61/24, Paragraph 2.7.3

\* Table 3 above was compiled based on information provided to IMO by the respective Administrations taking into account resolution MEPC.228(65) on *Information reporting on type approved ballast water management systems*



**Table 4: List of type approvals for ballast water management systems that are in accordance with Guidelines (G8) (resolutions MEPC.125(53) and MEPC.174(58))\***

	Approval Date	Name of the Administration	Name of the ballast water management system	Copy of Type Approval Certificate	Active Substance employed	MEPC report granting Final Approval
1	June 2008	Det Norske Veritas, on behalf of the Norwegian Administration	PureBallast System	Provided (MEPC 61/INF.3)	Yes, please refer to MEPC 56/2/2, annex 5	MEPC 56/23, paragraph 2.8
2	10 June 2008	Federal Maritime and Hydrographic Agency, Germany	SEDNA® Ballast Water Management System (Using Peraclean® Ocean)	Provided (MEPC 58/INF.17)	Yes, please refer to MEPC 57/2/10, annex 7	MEPC 57/21, paragraph 2.16
3	2 September 2008	Office of the Maritime Administration, Marshall Islands	NEI Treatment System VOS-2500-101	Available at request	No Active Substances used according to the communication received from the Administration of Marshall Islands (Letter of 10 December 2008)	Not applicable
4	31 December 2008	Ministry of Land, Transport and Maritime Affairs, Republic of Korea	Electro-Clean™ System	Provided (MEPC 59/INF.6)	Yes, please refer to MEPC 58/2/7, annex 7	MEPC 58/23, paragraph 2.8
5	17 April 2009	Det Norske Veritas, on behalf of the Norwegian Maritime Directorate	OceanSaver® Ballast Water Management System	Provided (MEPC 59/INF.17 and MEPC 62/INF.15)	Yes, please refer to MEPC 58/2/8, annex 4	MEPC 58/23, paragraph 2.10
6	29 April 2009	Lloyd's Register, as delegated by the Administration of the United Kingdom	Hyde GUARDIAN™ ballast water management system	Provided (MEPC 59/INF.20)	No Active Substances used according to the communication received from the Administration of United Kingdom (please refer to MEPC 59/INF.20)	Not applicable

\* Table 4 above was compiled based on information provided by the respective Administrations taking into account resolution MEPC.228(65) on *Information reporting on type approved ballast water management systems*. Systems listed in this table may have also received type approval based on the 2016 Guidelines (G8) or the BWMS Code (resolution MEPC.279(70) or MEPC.300(72)). Please refer to Table 3 for a list of ballast water management systems that have received type approvals under the 2016 Guidelines (G8) or the BWMS Code.

Table 4 (continued)

	Approval Date	Name of the Administration	Name of the ballast water management system	Copy of Type Approval Certificate	Active Substance employed	MEPC report granting Final Approval
7	12 November 2009	Det Norske Veritas, on behalf of the Norwegian Maritime Directorate	OptiMarin Ballast System (OBS)	Provided (MEPC 61/INF.4)	No Active Substances used according to the communication received from the Administration of Norway (please refer to MEPC 61/INF.4)	Not applicable
8	24 November 2009	Ministry of Land, Transport and Maritime Affairs, Republic of Korea	NK-O3 BlueBallast System (Ozone)	Provided (MEPC 60/INF.14)	Yes, please refer to MEPC 59/2/16, annex 6	MEPC 59/24, paragraph 2.8.
9	4 December 2009	Ministry of Land, Transport and Maritime Affairs, Republic of Korea	GloEn-Patrol™ Ballast Water Management System	Provided (MEPC 61/2/19)	Yes, please refer to MEPC 60/2/11, annex 4	MEPC 60/22, paragraph 2.7
10	19 January 2010	Merchant Shipping Directorate of Malta	NEI Treatment System VOS-2500-101	Provided (BWM.2/Circ.25)	Please refer to circular BWM.2/Circ.25	Not applicable
11	5 March 2010	Ministry of Land, Infrastructure, Transport and Tourism of Japan	Hitachi Ballast Water Management System (ClearBallast)	Provided (MEPC 61/INF.21)	Yes, please refer to MEPC 59/2/19, annex 4	MEPC 59/24, paragraph 2.8
12	26 May 2010 and 25 March 2011	Inspection and Measurement Division, Maritime Bureau, Ministry of Land, Infrastructure, Transport and Tourism of Japan	JFE BallastAce® Ballast Water Management System	Provided (MEPC 62/INF.25)	Yes, please refer to MEPC 60/2/12, annex 5	MEPC 60/22, paragraph 2.7
13	1 September 2010	Federal Maritime and Hydrographic Agency, Germany	CleanBallast® 500-1 ballast water management system (formerly named RWO Ballast Water Management System (CleanBallast))	Provided (MEPC 67/INF.29)	Yes, please refer to MEPC 59/2/16, annex 5	MEPC 59/24, paragraph 2.8
14	28 January 2011	China Maritime Safety Administration	BalClor™ Ballast Water Management System	Provided (MEPC 62/INF.29)	Yes, please refer to MEPC 61/2/15, annex 9	MEPC 61/24, Paragraph 2.7.3

Table 4 (continued)

	Approval Date	Name of the Administration	Name of the ballast water management system	Copy of Type Approval Certificate	Active Substance employed	MEPC report granting Final Approval
15	19 April 2011	The South African Department of Transport	Resource Ballast Technologies System	Provided (MEPC 62/INF.18)	Yes, please refer to MEPC 60/2/11, annex 7	MEPC 60/22, paragraph 2.7
	Renewal 18 January 2013	The South African Department of Transport		Provided (MEPC 65/INF.26)		
16	16 February 2011	China Maritime Safety Administration	Blue Ocean Shield Ballast Water Management System	Provided (MEPC 62/INF.28)	No Active Substances used according to the communication received from the Administration of China (please refer to MEPC 62/INF.28)	Not applicable
17	10 March 2011	Det Norske Veritas, on behalf of the Norwegian Maritime Directorate	PureBallst 2.0 and PureBallast 2.0 Ex	Provided (MEPC 62/INF.14)	No Active Substances used according to the communication received from the Administration of Norway (please refer to MEPC 62/INF.14)	Not applicable
18	16 March 2011	The Ministry of Land, Transport and Maritime Affairs, Republic of Korea	EcoBallast Ballast Water Management System (Hyundai Heavy Industries Co., Ltd.)	Provided (MEPC 63/INF.5)	Yes, please refer to MEPC 59/2/16, annex 8	MEPC 60/22, paragraph 2.13
19	28 March 2011	China Maritime Safety Administration	BSKY™ Ballast Water Management System	Provided (MEPC 62/INF.30)	No Active Substances used according to the communication received from the Administration of China (please refer to MEPC 62/INF.30)	Not applicable
20	29 April 2011	Federal Maritime and Hydrographic Agency, Germany	Ocean Protection System® OPS-250	Provided (MEPC 67/INF.27)	No Active Substances used according to the communication received from the Administration of Germany (please refer to MEPC 67/INF.27)	Not applicable
21	6 June 2011	Inspection and Measurement Division, Maritime Bureau, Ministry of Land, Infrastructure, Transport and Tourism of Japan	FineBallast® OZ (the Special Pipe Hybrid Ballast Water Management System combined with Ozone treatment version)	Provided (MEPC 63/INF.12)	Yes, please refer to MEPC 61/2/15, annex 6	MEPC 61/24, paragraph 2.7

Table 4 (continued)

	Approval Date	Name of the Administration	Name of the ballast water management system	Copy of Type Approval Certificate	Active Substance employed	MEPC report granting Final Approval
22	27 July 2011	Federal Maritime and Hydrographic Agency, Germany	BalPure® BP-500	Provided (MEPC 64/INF.20)	Yes, please refer to MEPC 61/2/21, annex 7	MEPC 61/24, paragraph 2.7
23	6 August 2011	Office of the Maritime Administrator, Republic of the Marshall Islands	NEI Treatment System VOS-500 to VOS-6000	Available at request	No Active Substances used according to the communication received from the Administration of Marshall Islands (Letter of 9 August 2011)	Not applicable
24	31 October 2011	The Ministry of Land, Transport and Maritime Affairs, Republic of Korea	Purimar™ System	Provided (MEPC 63/INF.6)	Yes, please refer to MEPC 62/2/18, annex 6	MEPC 62/24, paragraph 2.5
25	7 November 2011	Det Norske Veritas, on behalf of the Norwegian Maritime Directorate	OceanGuard™ Ballast Water Management System	Provided (MEPC 65/INF.2)	Yes, please refer to MEPC 61/2/21, annex 5	MEPC 61/24, paragraph 2.7
26	4 November 2011	Federal Maritime and Hydrographic Agency, Germany	Ecochlor® Ballast Water Treatment System, Series 75	Provided (MEPC 67/INF.26)	Yes, please refer to MEPC 61/2/21, annex 6	MEPC 61/24, paragraph 2.7
27	11 November 2011	The Ministry of Land, Transport and Maritime Affairs, Republic of Korea	HiBallast™ Ballast Water Management System	Provided (MEPC 63/INF.4)	Yes, please refer to MEPC 62/2/18, annex 5	MEPC 62/24, paragraph 2.5
28	22 December 2011	Det Norske Veritas, on behalf of the Norwegian Maritime Directorate	OceanSaver® Ballast Water Management System	Provided (MEPC 64/INF.4)	Yes, please refer to MEPC 58/2/8, annex 4	MEPC 58/23, paragraph 2.10

Table 4 (continued)

	Approval Date	Name of the Administration	Name of the ballast water management system	Copy of Type Approval Certificate	Active Substance employed	MEPC report granting Final Approval
29	10 May 2012  Amended (1 <sup>st</sup> ) 15 January 2015  Amended (2 <sup>nd</sup> ) 19 October 2018	Hellenic Republic, Ministry of Development, Competitiveness and Shipping, General Secretariat of Shipping, Merchant Ships Inspection General Directorate, Design and Construction Directorate	ERMA FIRST BWTS  ERMA FIRST BWTS	Provided (MEPC 64/INF.26)  Amended (MEPC 68/INF.19)  Amended (MEPC 74/INF.4)	Yes, please refer to MEPC 63/2/11, annex 5	MEPC 63/23, paragraph 2.7
30	30 May 2012	Inspection and Measurement Division, Maritime Bureau, Ministry of Land, Infrastructure, Transport and Tourism of Japan	MICROFADE™ Ballast Water Management System	Provided (MEPC 64/INF.17)	Yes, please refer to MEPC 63/2/11, annex 6	MEPC 63/23, paragraph 2.7
31	12 June 2012	China Maritime Safety Administration	Cyeco™ Ballast Water Management System	Provided (MEPC 64/INF.12)	No Active Substances used according to the communication received from the Administration of China (please refer to MEPC 64/INF.12)	Not applicable
32	15 June 2012	The Ministry of Land, Transport and Maritime Affairs, Republic of Korea	AquaStar™ Ballast Water Management System (subsequently changed to AquaStar™ BWMS and MACGREGOR WATER BALLAST TREATMENT SYSTEM)	Provided (MEPC 64/INF.18)	Yes, please refer to MEPC 63/2/11, annex 7	MEPC 63/23, paragraph 2.7
33	12 July 2012	The Ministry of Land, Transport and Maritime Affairs, Republic of Korea	ARA PLASMA BWTS Ballast Water Management System	Provided (MEPC 64/INF.33)	Yes, please refer to MEPC 61/2/15, annex 8	MEPC 61/24, paragraph 2.7
34	27 August 2012	Federal Maritime and Hydrographic Agency, Germany	BallastMaster ultraV 250 ballast water management system (formerly named AquaTriComb BW 250)	Provided (MEPC 67/INF.28)	No Active Substances used according to the communication received from the Administration of Germany (please refer to MEPC 67/INF.28)	Not applicable

Table 4 (continued)

	Approval Date	Name of the Administration	Name of the ballast water management system	Copy of Type Approval Certificate	Active Substance employed	MEPC report granting Final Approval
35	20 September 2012	The Norwegian Maritime Authority	CrystalBallast® Ballast Water Management System	Provided (MEPC 65/INF.13)	No Active Substances used according to the communication received from the Administration of Norway (please refer to MEPC 65/INF.13)	Not applicable
36	7 November 2012	The Danish Maritime Authority and the Danish Nature Agency	DESMI Ocean Guard OxyClean Ballast Water Management System	Provided (MEPC 65/INF.5)	Yes, please refer to MEPC 64/2/6, annex 4	MEPC 64/23, paragraph 2.6
37	12 December 2012	The Norwegian Maritime Authority	MMC Ballast Water Management System	Provided (MEPC 66/INF.9)	No Active Substances used according to the communication received from the Administration of Norway (please refer to MEPC 66/INF.9)	Not applicable
38	20 December 2012	The Netherlands Ministry of Infrastructure and the Environment	Wärtsilä AQUARIUS® UV ballast water management system	Provided (MEPC 65/INF.11)	No Active Substances used according to the communication received from the Administration of the Netherlands (please refer to MEPC 65/INF.11)	Not applicable
39	5 February 2013	China Maritime Safety Administration	BALWAT Ballast Water Management System	Provided (MEPC 66/INF.15)	No Active Substances used according to the communication received from the Administration of China (please refer to MEPC 66/INF.15)	Not applicable
40	5 June 2013	French Ministry of Ecology Sustainable Development and Energy	BIO-SEA® Ballast Water Treatment System	Provided (MEPC 66/INF.10)	No Active Substances used according to the communication received from the Administration of France (please refer to MEPC 66/INF.10)	Not applicable
41	26 June 2013	Inspection and Measurement Division, Maritime Bureau, Ministry of Land, Infrastructure, Transport and Tourism of Japan	JFE BallastAce	Provided (MEPC 66/INF.30)	Yes, please refer to MEPC 64/2/7, annex 5	MEPC 64/23, paragraph 2.6

Table 4 (continued)

	Approval Date	Name of the Administration	Name of the ballast water management system	Copy of Type Approval Certificate	Active Substance employed	MEPC report granting Final Approval
42	22 August 2013	China Maritime Safety Administration	HY™-BWMS	Provided (MEPC 66/INF.14)	No Active Substances used according to the communication received from the Administration of China (please refer to MEPC 66/INF.14)	Not applicable
43	10 October 2013	China Maritime Safety Administration	NiBallast™ Ballast Water Management System	Provided (MEPC 66/INF.12)	No Active Substances used according to the communication received from the Administration of China (please refer to MEPC 66/INF.12)	Not applicable
44	4 November 2013	China Maritime Safety Administration	Cyeco™ Ballast Water Management System	Provided (MEPC 66/INF.16)	No Active Substances used according to the communication received from the Administration of China (please refer to MEPC 66/INF.16)	Not applicable
45	5 November 2013	Inspection and Measurement Division, Maritime Bureau, Ministry of Land, Infrastructure, Transport and Tourism of Japan	FineBallast MF	Provided (MEPC 66/INF.28)	No Active Substances used according to the communication received from the Administration of Japan (please refer to MEPC 66/INF.28)	Not applicable
46	14 November 2013	The Norwegian Maritime Authority	KBAL Ballast Water Management System	Provided (MEPC 65/INF.12)	No Active Substances used according to the communication received from the Administration of Norway (please refer to MEPC 65/INF.12)	Not applicable
47	2 December 2013	China Maritime Safety Administration	Seascope Ballast Water Management System	Provided (MEPC 66/INF.13)	No Active Substances used according to the communication received from the Administration of China (please refer to MEPC 66/INF.13)	Not applicable
48	20 December 2013	The Norwegian Maritime Authority	Trojan Marinex™ Ballast Water Management System	Provided (MEPC 67/INF.6)	No Active Substances used according to the communication received from the Administration of Norway (please refer to MEPC 67/INF.6)	Not applicable

Table 4 (continued)

	Approval Date	Name of the Administration	Name of the ballast water management system	Copy of Type Approval Certificate	Active Substance employed	MEPC report granting Final Approval
50	24 February 2014	Federal Maritime and Hydrographic Agency (BSH)	SeaCURE BWMS SC-1500/1	Provided (MEPC 69/INF.13)	No Active Substances used according to the communication received from the Administration of Germany (please refer to MEPC 69/INF.13)	MEPC 63/23, paragraph 2.7
51	27 March 2014	Inspection and Measurement Division, Maritime Bureau, Ministry of Land, Infrastructure, Transport and Tourism of Japan	Miura BWMS ballast water management system	Provided (MEPC 67/INF.20)	No Active Substances used according to the communication received from the Administration of Japan (please refer to MEPC 67/INF.20)	Not applicable
52	30 April 2014	Federal Maritime and Hydrographic Agency, Germany	Cathelco Ballast Water Management System – A2	Provided (MEPC 67/INF.30)	No Active Substances used according to the communication received from the Administration of Germany (please refer to MEPC 67/INF.30)	Not applicable
53	18 June 2014	Inspection and Measurement Division, Maritime Bureau, Ministry of Land, Infrastructure, Transport and Tourism of Japan	ECOMARINE ballast water management system	Provided (MEPC 67/INF.21)	No Active Substances used according to the communication received from the Administration of Japan (please refer to MEPC 67/INF.21)	Not applicable
54	30 June 2014	The Norwegian Maritime Authority	Alfa Laval PureBallast 3.0 Ballast Water Management System	Provided (MEPC 67/INF.5)	No Active Substances used according to the communication received from the Administration of Norway (please refer to MEPC 67/INF.5)	Not applicable
55	11 July 2014	China Maritime Safety Administration	PACT marine™ Ballast Water Management System	Provided (MEPC 68/INF.5)	No Active Substances used according to the communication received from the Administration of China (please refer to MEPC 68/INF.5)	Not applicable
56	5 September 2014	The Danish Maritime Authority and The Danish Nature Agency	RayClean™ BWTS	Provided (MEPC 68/INF.10)	No Active Substances used according to the communication received from the Administration of Denmark (please refer to MEPC 68/INF.10)	Not applicable



Table 4 (continued)

	Approval Date	Name of the Administration	Name of the ballast water management system	Copy of Type Approval Certificate	Active Substance employed	MEPC report granting Final Approval
57	21 October 2014	Inspection and Measurement Division, Maritime Bureau, Ministry of Land, Infrastructure, Transport and Tourism of Japan	SKY-SYSTEM®	Provided (MEPC 68/INF.28)	Yes, please refer to MEPC 66/2/7, annex 4 and Corr.1	MEPC 66/21, paragraph 2.5
58	17 November 2014	China Maritime Safety Administration	OceanDoctor® Ballast Water Management System	Provided (MEPC 68/INF.4)	Yes, please refer to MEPC 65/2/19, annex 7	MEPC 65/22, paragraph 2.8
59	5 January 2015	The Danish Maritime Authority and The Danish Nature Agency	Bawat™ BWMS	Provided (MEPC 68/INF.9)	No Active Substances used according to the communication received from the Administration of Denmark (please refer to MEPC 68/INF.9)	Not applicable
60	27 January 2015	China Maritime Safety Administration	AHEAD®-BWMS ballast water management system	Provided (MEPC 69/INF.2)	No Active Substances used according to the communication received from the Administration of China (please refer to MEPC 68/INF.2)	Not applicable
61	6 February 2015	United Kingdom, Maritime & Coastguard Agency	Coldharbour GLD™ Ballast Water Management System, incorporating types SeaGuardian™ IGG500 to IGG6000	Provided (MEPC 68/INF.27)	No Active Substances used according to the communication received from the Administration of the United Kingdom (please refer to MEPC 68/INF.27)	Not applicable
62	28 February 2015	China Maritime Safety Administration	YP-BWMS ballast water management system	Provided (MEPC 69/INF.5)	No Active Substances used according to the communication received from the Administration of China (please refer to MEPC 69/INF.5)	Not applicable
63	8 May 2015	Ministry of Oceans and Fisheries of Republic of Korea	EcoGuardian™ Ballast Water Management System	Provided (MEPC 69/INF.31)	No Active Substances used according to the communication received from the Administration of the Republic of Korea (please refer to MEPC 69/INF.31)	MEPC 65/22, paragraph 2.8

Table 4 (continued)

	Approval Date	Name of the Administration	Name of the ballast water management system	Copy of Type Approval Certificate	Active Substance employed	MEPC report granting Final Approval
64	8 September 2015	Ministry of Oceans and Fisheries of the Republic of Korea	BlueZone™ Ballast Water Management System	Provided (MEPC 69/INF.32)	No Active Substances used according to the communication received from the Administration of the Republic of Korea (please refer to MEPC 69/INF.32)	MEPC 67/20, paragraph 2.6
65	12 September 2015	China Maritime Safety Administration	NiBallast™ Ballast Water Management System	Provided (MEPC 69/INF.3)	No Active Substances used according to the communication received from the Administration of China (please refer to MEPC 69/INF.3)	Not applicable
66	19 November 2015	Netherlands Shipping Inspectorate, Ministry of Infrastructure and the Environment	Van Oord Ballast Water Management System	Provided (MEPC 69/INF.15)	No Active Substances used according to the communication received from the Administration of Norway (please refer to MEPC 69/INF.15)	Please see MEPC 65/22, paragraph 2.5
67	21 December 2015	China Maritime Safety Administration	Seascape® Ballast Water Management System	Provided (MEPC 69/INF.4)	No Active Substances used according to the communication received from the Administration of China (please refer to MEPC 69/INF.4)	Not applicable
68	23 December 2015	French Ministry of Ecology Sustainable Development and Energy	BIO-SEA® Ballast Water Treatment System (BWTS); Models BIO-SEA®30-55, BIO-SEA®30-87, BIO-SEA®60-55, BIO-SEA®60-87 and BIO-SEA®90-87	Provided (MEPC 70/INF.24)	No Active Substances used according to the communication received from the Administration of France (please refer to MEPC 70/INF.24)	Not applicable
69	11 January 2016	China Maritime Safety Administration	LeesGreen® Ballast Water Management System	Provided (MEPC 70/INF.5)	No Active Substances used according to the communication received from the Administration of China (please refer to MEPC 70/INF.5)	Not applicable

Table 4 (continued)

	Approval Date	Name of the Administration	Name of the ballast water management system	Copy of Type Approval Certificate	Active Substance employed	MEPC report granting Final Approval
70	15 April 2016	China Maritime Safety Administration	PACT Marine™ Ballast Water Management System	Provided (MEPC 70/INF.4)	No Active Substances used according to the communication received from the Administration of China (please refer to MEPC 70/INF.4)	Not applicable
71	27 July 2016	Singapore	Semb-Eco LUV 500 ballast water management system	Provided (MEPC 70/INF.22)	No Active Substances used according to the communication received from the Administration of Singapore (please refer to MEPC 70/INF.22)	Not applicable
72	12 January 2017	Singapore	Semb-Eco LUV 500 & Semb-Eco LUV 1500 ballast water management system	Provided (MEPC 71/INF.12)	No Active Substances used according to the communication received from the Administration of Singapore (please refer to MEPC 71/INF.12)	Not applicable
73	13 January 2017	Inspection and Measurement Division, Maritime Bureau, Ministry of Land, Infrastructure, Transport and Tourism of Japan	KURITA BWMS	Provided (MEPC 71/INF.26)	Yes, please refer to MEPC 67/2/4, annex 6	Please see MEPC 67/20, paragraph 2.6
74	19 March 2017	Netherlands Shipping Inspectorate, Ministry of Infrastructure and the Environment	Damen InvaSave 300	Provided (MEPC 71/INF.4)	No Active Substances used according to the communication received from the Administration of the Netherlands (please refer to MEPC 71/INF.4)	Not applicable
75	30 March 2017	Inspection and Measurement Division, Maritime Bureau, Ministry of Land, Infrastructure, Transport and Tourism of Japan	ATPS-BLUE <sub>sys</sub>	Provided (MEPC 71/INF.27)	Yes, please refer to MEPC 69/4/5, annex 6	Please see MEPC 69/21, paragraph 4.6

Table 4 (continued)

	Approval Date	Name of the Administration	Name of the ballast water management system	Copy of Type Approval Certificate	Active Substance employed	MEPC report granting Final Approval
76	13 November 2017	Singapore	Semb-Eco LUV 250, Semb-Eco LUV 500, Semb-Eco LUV 750, Semb-Eco LUV 1000 and Semb-Eco LUV 1500 ballast water management system	Provided (MEPC 72/INF.2)	No Active Substances used according to the communication received from the Administration of Singapore (please refer to MEPC 72/INF.2)	Not applicable
77	2 February 2018	Norwegian Maritime Authority	PureBallast 3.2 and PureBallast 3.2 Compact Flex ballast water management system	Provided (MEPC 72/INF.19)	No Active Substances used according to the communication received from the Administration of Singapore (please refer to MEPC 72/INF.19)	Not applicable
78	6 April 2018 (revised 20 December 2018)	Norwegian Maritime Authority	BalClor® Ballast Water Management System	Provided (MEPC 74/INF.7)	Yes, please refer to MEPC 61/2/15, annex 9	MEPC 61/24, Paragraph 2.7.3
79	12 April 2018	French Ministry of Ecology, Sustainable Development and Energy	BIO-SEA® B ballast water management system (BWMS); Models BIO SEA B01-0055 to BIO-SEA B14 2000	Provided (MEPC 73/INF.7)	No Active Substances used according to the communication received from the Administration of France (please refer to MEPC 73/INF.7)	Not applicable
80	21 September 2018	Danish Environmental Protection Agency and Danish Maritime Authority	CompactClean ballast water management system	Provided (MEPC 74/INF.32)	No Active Substances used according to the communication received from the Administration of Denmark (please refer to MEPC 74/INF.32)	Not applicable
81	14 December 2018	Norwegian Maritime Authority	OceanGuard® Ballast Water Management System	Provided (MEPC 74/INF.9)	Yes, please refer to MEPC 61/2/21, annex 5	Please see MEPC 61/24, paragraph 2.7
82	19 December 2018	Norwegian Maritime Authority	HiBallast™ Ballast Water Management System	Provided (MEPC 74/INF.8)	Yes, please refer to MEPC 62/2/18, annex 5	MEPC 62/24, paragraph 2.5

83	20 December 2018	Norwegian Maritime Authority	Envirocleanse inTank™ Electro-chlorination Ballast Water Treatment System	Provided (MEPC 74/INF.6)	Yes, please refer to MEPC 73/4/1, annex 5	Please see MEPC 73/19, paragraph 4.4
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**Note: all lists above updated in December 2019.**