

Latest Information of Approval of Ballast Water Management System

ClassNK EQD
as of 5 March 2015

No	Ballast Water Management System					Approval Information		
						Approval of Active Substances G9 (MEPC169(57)) Approval given by IMO		Approval of BWMS G8 (MEPC174(58)) Approval given by the Administration
	BWMS Manufacture	BWMS Name	Country	Process	Capacity of Approved BWMS	Basic Approval	Final Approval	
1	Alfa-Laval AB	PureBallast	Sweden	Filtration + UV/TiO2	250 – 3,000m ³ /h	Approved	Approved	Approved (Norway)
2	Ocean Saver AS	OceanSaver BWTS Mark I	Norway	Filtration + Deoxygenation + Cavitation+ Electrodialytic Disinfection	40 – 10,000m ³ /h	Approved	Approved	Approved (Norway)
3	Ocean Saver AS	OceanSaver BWTS Mark II	Norway	Filtration + Electrodialytic Disinfection	200–4600m ³ /h	Approved	Approved	Approved (Norway)
4	Optimarin AS	Optimarin Ballast System	Norway	Filtration + UV	21 – 5,400m ³ /h	N.A.	N.A.	Approved (Norway)
5	Hamann AG / Degussa GmbH (withdrawn from the market)	SEDNA BWMS	Germany	Filtration + Peracetic acid	50 – 1,000m ³ /h	Approved	Approved	Approved (Germany)
6	Mitsui Engineering & Shipbuilding Co.,LTD.	FineBallast OZ	Japan	Cavitation(by high shear) + Ozonation	75 – 300m ³ /h	Approved	Approved	Approved (Japan)
7	Mitsui Engineering & Shipbuilding Co.,LTD.	FineBallast MF	Japan	Membrane filter	50 – 900m ³ /h	N.A.	N.A.	Approved (Japan)
8	Hitachi Plant Technologies, Ltd.	ClearBallast	Janan	Filtration + pre- coagulant (enhanced flocculation)	200 – 2,400m ³ /h	Approved	Approved	Approved (Japan)
9	JFE Engineering Corporation	JFE BallastAce	Japan	Filtration + Chlorination + Cavitation	17.5 – 4,500m ³ /h	Approved	Approved	Approved (Japan)

10	TEHCROSS INC	Electro-Cleen System	Korea	Electrolysis/Electrochlorination	300m ³ /h -	Approved	Approved	Approved (Korea)
11	RWO	CleanBallast	Germany	Filtration + Electrolysis/Electrochlorination	150 - 2,500m ³ /h	Approved	Approved	Approved (Germany)
12	NEI Treatment Systems, LLC	Mitsubishi VOS System	USA	Deoxygenation + Cavitation	300 - 6,800m ³ /h	N.A.	N.A.	Approved (Liberia)
13	NK CO., LTD.	NK-O3 Blue Ballast System	Korea	Ozonation	125x2 - 4,000x2m ³ /h	Approved	Approved	Approved (Korea)
14	Ecochlor, INC.	Ecochlor BWT System	USA	Filtration + CLO2	250 - 16,000m ³ /h	Approved	Approved	Approved (Germany)
15	Resource Ballast Technologies (Pty.) Ltd.	Resource Ballast Water Treatment System	South Africa	Filtration + Cavitation + Ozonation + Electrolysis/Electrochlorination	100 - 4,000m ³ /h	Approved	Approved	Approved (South Africa)
16	PANASIA CO., LTD.	GloEn-Patrol	Korea	Filtration + UV	150 - 6,000m ³ /h	Approved	Approved	Approved (Korea)
17	Hamworthy Greenship B.V.	Greenship Sedinox Ballast Water Management System	Netherlands	hydrocyclone + electrolytic chlorination		Approved	Approved	Not yet
18	COSCO Shipbuilding Industrial Company	Blue Ocean Shield	China	UV treatment + Filter system	100 - 3,500m ³ /h	Approved	N.A.	Approved (China(CCS))
19	Hyundai Heavy Industries Co. Ltd.	EcoBallast	Korea	UV treatment + Filter system	600 - 1,000m ³ /h	Approved	Approved	Approved (Korea)
20	GEA Westfalia Separator Group Gmbh	Ballast Master ultraV	Germany	UV radiation + Ultrasonic oscillation	under investigation	Approved	N.A.	Approved (Germany)

21	SIEMENS	SiCURE BWM System	Germany	Sodium Hypochlorite + Filter		Approved	Approved	<i>Not yet</i>
22	MAHLE Industrial Filtration	Ocean Protection System	Germany	Filter + UV Treatment	250m ³ /h	N.A.	N.A.	Approved (Germany)
23	Hyde Marine Inc.	Hyde GUARDIAN	U.S.A	Filter + UV Treatment	60 – 6,000m ³ /h	N.A.	N.A.	Approved (UK)
24	SunRui Marine Environment Engineering Company	BalClor BWMS	China	Filter + Electrolysis	100 – 7,000m ³ /h	Approved	Approved	Approved (China(CCS))
25	DESMI Ocean Guard A/S	DESMI Ocean Guard Ballast Water Treatment System	Denmark	Filter + UV + Ozone	75 – 3,000m ³ /h	Approved	Approved	Approved (Denmark)
26	SAMKUN CENTURY Co., Ltd.	ARA PLASMA BWTS	Korea	Filter + UV + Plasma	150 – 2,600m ³ /h	Approved	Approved	Approved (Korea)
27	Hyundai Heavy Industries Co. Ltd.	HiBallast	Korea	Filtration + Electrolysis/Electrochlorination	75 – 2,000m ³ /h	Approved	Approved	Approved (Korea)
28	Kwang San Co. Ltd.	En-Ballast System	Korea	Filter + Electrolysis		Approved	<i>Not yet</i>	<i>Not yet</i>
29	Qingdao Headway Technology Co., Ltd.	OceanGuard BWTS	China	Filter + Electro catalysis	50 – 9,350m ³ /h	Approved	Approved	Approved (Norway)
30	Wuxi Brightsky Electronic CO., Ltd.	BSKY BWMS	China	Filter + UV	100 – 6,000m ³ /h	N.A.	N.A.	Approved (China(CCS))
31	Severn Trent DeNora	BalPure BWMS	USA	Filter + Electrolysis	up to 500m ³ /h	Approved	Approved	Approved (Germany)
32	Samsung Heavy Industries Co., Ltd.	Purimar System	Korea	Filter + Electrolysis	250 – 6,500m ³ /h	Approved	Approved	Approved (Korea)

33	AQUA Eng. Co., Ltd.	AquaStar BWMS	Korea	Filter + Electrolysis	200 – 5,000m ³ /h	Approved	Approved	Approved (Korea)
34	Kuraray Co., Ltd.	MICROFADE	Japan	Filter + Calcium hypochlorite	125 – 4,000m ³ /h	Approved	Approved	Approved (Japan)
35	JFE Engineering Corporation	JFE BallastAce (NEO-CHLOR MARINE)	Japan	Filtration + Chemical Injection	17.5 – 4,500m ³ /h	Approved	Approved	Approved (Japan)
36	NIPPON YUKA KOGYO CO., LTD.	SKY-SYSTEM (ex. BWMS with Peraclean Ocean(SKY-System))	Japan	Chemical Injection	25 – 34,000m ³ /h	Approved	Approved	Approved (Japan)
37	ERMA FIRST	ERMA FIRST BWMS	Greece	Filtration + hydrocyclone + electrolytic chlorination	50 – 3,000m ³ /h	Approved	Approved	Approved (Greece)
38	Envirotech and Consultancy Pte. Ltd.	BlueSeas BWMS	Singapore	Filter + Electrolysis		Approved	Not yet	Not yet
39	Envirotech and Consultancy Pte. Ltd.	BlueWorld BWMS	Singapore	Filtration + Chemical Injection		Approved	Not yet	Not yet
40	GEA Westfalia Separator Group Gmbh	Ballast Master ecoP	Germany	Filtration + Chemical Injection		Approved	Not yet	Not yet
41	Samsung Heavy Industries Co., Ltd.	SHI BWMS (Neo-Purimar)	Korea	Filtration + Chemical Injection		Approved	Approved	Not yet
42	Daliam Marine University	DMU OH BWMS	China	Filtration + Sodium subsulfite		Approved	Not yet	Not yet
43	Hanla IMS Co., Ltd.	EcoGuardian System	Korea	Filtration + Electrolysis		Approved	Approved	Not yet

44	STX Metal Co., Ltd.	Smart Ballast BWMS	Korea	Electrolysis		Approved	Approved	<i>Not yet</i>
45	Sumitomo Electric Industries, Ltd.	SEI-BWMS	Japan	Filter + UV		N.A.	N.A.	<i>Not yet</i>
46	Jiujiang Precision Measuring Technology Research Institute	OceanDoctor	China	Filter + Photocatalytic		Approved	Approved	<i>Not yet</i>
47	HWASEUNG R&A Co. Ltd.	HS-BALLAST	Korea	Electrolysis		Approved	<i>Not yet</i>	<i>Not yet</i>
48	PANASIA Co., Ltd.	GloEn-Saver	Korea	Filter+Electrochlorination		Approved	<i>Not yet</i>	<i>Not yet</i>
49	Korea Top Marine (KT Marine) Co., Ltd.	MARINOMATE (ex. KTM-BWMS)	Korea	Plankill pipe+electrolyzer		Approved	Approved	<i>Not yet</i>
50	Wärtsilä Water Systems Ltd	AQUARIUS EC BWMS	Netherlands	Filter+Electrochlorination		Approved	Approved	<i>Not yet</i>
51	Shanghai Cyeco Environmental Technology Co., Ltd.	Cyeco Ballast Water Management System	China	Filter + UV	250 & 300m ³ /h	N.A.	N.A.	Approved (China(CCS))
52	Knutsen Ballatvann AS	KBAL Ballast Water Management System	Norway	UV	200 & 600m ³ /h	N.A.	N.A.	Approved (Norway)
53	AURAMARINE LTD.	CrystalBallast Ballast Water Management System	Finland	Filter + UV	21 - 1,500m ³ /h	N.A.	N.A.	Approved (Norway)
54	Van Oord B.V.	Van Oord Ballast Water Management System	Netherlands	Chlorine(Drinking water only)		Approved	N.A.	<i>Not yet</i>
55	Redox Maritime Technologies AS	REDOX AS Ballast Water Management System	Norway	Filter + Ozone + UV		Approved	<i>Not yet</i>	<i>Not yet</i>

56	SUNBO INDUSTRIES Co. Ltd., DSEC Co. Ltd. and the Korea Institute of Machinery & Material	Blue Zone Ballast Water Management System	Korea	Ozone		Approved	Approved	Not yet
57	Wärtsilä Water Systems Ltd	Wärtsilä AQUARIUS UV ballast water management system	Netherlands	Filter+UV	50 – 1,000m ³ /h	N.A.	N.A.	Approved (Netherlands)
58	BIO-UV SAS	BIO-SEA	France	Filter+UV	75 – 2,000m ³ /h	N.A.	N.A.	Approved (France(BV))
59	MMC Green Technology AS	MMC BWMS	Norway	Filter+UV	150 & 300m ³ /h	N.A.	N.A.	Approved (Norway)
60	Jiangsu Nanji Machinery Co., Ltd.	NiBallast BWMS	China	Filter+ Micromembrane + Deoxygenation	200 – 1,500m ³ /h	N.A.	N.A.	Approved (China(CCS))
61	Elite Marine Ballast Water Treatment System Corp.	Seascape Ballast Water Management System	China	Filter+UV	250 m ³ /h	N.A.	N.A.	Approved (China(CCS))
62	Shanghai Hengyuan Marine Equipment Co., Ltd	HY-BWMS	China	Filter+UV	200 m ³ /h	N.A.	N.A.	Approved (China(CCS))
63	Shanghai Jiazhou Environmental Mechanical & Electrical	BALWAT Ballast Water Management System	China	Under investigation	200 m ³ /h	N.A.	N.A.	Approved (China(CCS))
64	Azienda Chimica Genovese (ACG)	ECOLCELL BTs Ballast Water Management System	Italy	Filter+ Electrochlorination		Approved	Not yet	Not yet
65	Panasonic Environmental Systems & Engineering Co., Ltd.	ATPS-BLUE _{sys} Ballast Water Management System	Japan	Electrochlorination		Approved	Not yet	Not yet
66	Ecomarine Technology Research Association	Ecomarine-EC Ballast Water Management System	Japan	Filter+ Electrochlorination		Approved	Not yet	Not yet
67	Kurita Water Industries Ltd.	KURITA	Japan	Chemical Injection		Approved	Approved	Not yet

68	Evonik Industries AG	Evonik Ballast Water Treatment System with PERACLEAN Ocean	Germany	Filter+ Electrochlorination		Approved	Approved	<i>Not yet</i>
69	MIURA Co., Ltd.	Miura BWMS	Japan	Filter+UV	200 – 6000 m ³ /h	N.A.	N.A.	Approved (Japan)
70	SUMITOMO ELECTRIC INDUSTRIES, LTD.	ECOMARINE	Japan	Filter+UV	100 – 1000 m ³ /h	N.A.	N.A.	Approved (Japan)
71	KALF Engineering Pte. Ltd.	ElysisGuard	Singapore	Filter+ Electrochlorination		Approved	<i>Not yet</i>	<i>Not yet</i>
72	Trojan Technologies	Trojan Marinex BWT Ballast Water Management System	Canada	Filter+UV	150, 250, 500 m ³ /h	N.A.	N.A.	Approved (Norway)
73	Cathelco LTD	Cathelco Ballast Water Management System – A2	U.K.	Filter+UV	200 m ³ /h	N.A.	N.A.	Approved (Germany)
74	Bawat A/S	Bawat BWMS	Denmark	Heat treatment + Oxygen stripping	N.A.	N.A.	N.A.	Approved (Denmark)