

# CERTIFICATE OF TYPE APPROVAL FOR 15 PPM BILGE ALARM

issued under the authority of the Government of the

## GRAND-DUCHY OF LUXEMBOURG

by GERMANISCHER LLOYD

### THIS IS TO CERTIFY

that the 15 ppm Bilge Alarm, comprising the equipment listed below, has been examined and tested in accordance with the requirements of the Specifications contained in part 2 of the annex to the Guidelines and Specifications contained in IMO resolution MEPC.107(49). This Certificate is valid only for 15 ppm Bilge Alarm referred to below.

15 ppm Bilge Alarm supplied by	<u>Rivertrace Engineering LTD (RTE)</u>	
Under type and model designation and incorporating	<u>Smart Cell - Bilge</u>	
*15 ppm Bilge Alarm analysing unit manufactured by	<u>RTE</u>	
to specification/assembly drawing No.	<u>Smart Cell Assembly</u> <u>Dwg. No.: 109072</u>	date <u>2004-07-14</u>
		date _____
* Electronic section of 15 ppm Bilge Alarm manufactured by	<u>RTE</u>	
to specification/assembly drawing No.	<u>Smart Bilge Assembly</u> <u>Dwg. No.: 109069</u>	date <u>2004-07-14</u>
		date _____
* Sample feed pump manufactured by	<u>N.A.</u>	
to specification/assembly drawing No.		date _____
		date _____
* Sample conditioning unit manufactured by	<u>N.A.</u>	
to specification/assembly drawing No.		date _____
		date _____

The 15 ppm Bilge Alarm is acceptable for use in accordance with regulation 14(7).

Test date and results attached in the appendix.

A copy of this Certificate should be carried aboard a vessel fitted with this equipment at all times.

Issued at  
**Hamburg** the 2009-11-17



**Germanischer Lloyd**

*Hanspeter Raschle*  
i.V. Hanspeter Raschle

*Hagen Markus*  
i.A. Hagen Markus

\* Delete as appropriate

**APPENDIX**

**Test Data and Results of Tests conducted on a 15 ppm Bilge Alarm  
in accordance with Part 2 of the Annex to the Guidelines and Specifications contained  
in IMO Resolution MEPC.107(49)**

15 ppm Bilge Alarm submitted by RTE

Test location RTE, Unit P, Kingsfield Business Centre, Philanthropic Road, Redhill, RH1 4DP, England

Organisation conducting the test Germanischer Lloyd, Hamburg, Mr Hagen Markus

Method of sample analysis ISO 9377-2:2000

Test rig according to drawing \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Samples analysed by Tei-Testing Services - Analytical Laboratory, Mr Mathew Mac Gregor

Environmental testing of the electronic section of the 15 ppm Bilge Alarm has been carried out in accordance with part 3 of the annex to the guidelines and specifications contained in IMO Resolution MEPC.107(49). The equipment functioned satisfactorily on completion of each test specified on the environmental test protocol.

Test were carried out at *Intertek Testing Services, Guilford, U.K.*, Test report No.: *04014866*, issued at \_\_\_\_\_ on \_\_\_\_\_.

Remarks:

*None*

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

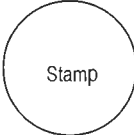
\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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The 15 ppm Bilge Alarm serial No. \_\_\_\_\_ complies with the tested type.



Place, Date \_\_\_\_\_ Signature of Company \_\_\_\_\_

## Calibration Test and Response Time

	Test Fluid					
	A		B		C	
	Measured	Grab sample	Measured	Grab sample	Measured	Grab sample
0 ppm	0	0	0	0	0	0
15 ppm	16.2	19.5	14.8	16.9	16.4	18.8
Full scale [ppm]	29.5	28.6	29.2	34.0	28.3	32.1
Water Temperature	26.5 °C		27 °C		24 °C	
Re-zero	<del>YES</del> / NO *		<del>YES</del> / NO *		<del>YES</del> / NO *	
Recalibrate	<del>YES</del> / NO *		<del>YES</del> / NO *		<del>YES</del> / NO *	
Response Time	--- sec		3.7 sec		--- sec	

## Contaminant(s) and Colour Test

Non-oil particulate matter

Meter reading shift with ppm non-oil particulate contaminants and with very salt water.

		15 ppm Bilge Alarm [ppm]	
Clean water and 10 ppm Test Fluid "B"		9.4	9.9
Very salt water		7.1	--
Iron Oxide	10 ppm	--	8.5
Iron Oxide	50 ppm	--	8.5
Iron Oxide	100 ppm	--	8.5

## Sample Pressure of Flow Test

15 ppm Bilge Alarm reading shift at normal 12.9 ppm

15 ppm Bilge Alarm reading shift at 50 % of normal 13.2 ppm

15 ppm Bilge Alarm reading shift at 200 % of normal 12.9 ppm

Deviations from this test should be stated if necessary

*None*

\* Delete as appropriate

**Shut-Off Test**

	Measured	Grab sample	
15 ppm Bilge Alarm before shut-off	<u>14.0</u>	<u>17.5</u>	ppm
15 ppm Bilge Alarm reading after start-up (minimum dry period 8 hours)	<u>15.3</u>	<u>19.5</u>	ppm

Damage to meter as follows:

*None*

**Utilities Supply Variation Test**

100 % Voltage	<u>12.1 ppm</u>
110 % voltage effects	<u>11.9 ppm</u>
90 % voltage effects	<u>11.8 ppm</u>
110 % air pressure effects	<u>n.a.</u>
90 % air pressure effects	<u>n.a.</u>
110 % hydraulic pressure effects	<u>see results of flow test</u>
90 % hydraulic pressure effects	<u>dto.</u>

**Other Comments**

*None*

**Calibration and Zero Drift Test**

Calibration drift	<u>-1.18</u>	ppm
Zero drift	<u>0.0</u>	ppm

*Hamburg* the *17*

day of *November 2009*



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