

**Certificate of Type Approval
for Oil Filtering Equipment
(15 ppm equipment)**



Germanischer Lloyd

issued under the authority of the
GRAND-DUCHY OF LUXEMBOURG
by Germanischer Lloyd

This is to certify that the equipment listed below has been examined and tested in accordance with the requirements of the Specifications contained in part 1 of the annex to the Guidelines and Specifications contained in IMO resolution MEPC.107(49). This Certificate is valid only for 15 ppm Bilge Separator referred to below.

| | | | |
|---|--|-------------------|------------|
| 15 ppm Bilge Separator supplied by | SEPARATECH Canada INC., 240 St-Jacques West. Suite 620 Montreal (Quebec), H2Y 1L9, Canada | | |
| Under type and model designation and incorporating | COP 1.5 | | |
| *15 ppm Bilge Separator manufactured by | SEPARATECH Canada INC. | | |
| to specification/assembly drawing No. | GL-COP 1.5 PFID - OP - MOD | date | 2004-10-29 |
| | GL-COP 1.5 PFID - BACK - MOD | date | 2004-10-29 |
| * Coalescer manufactured by | SEPARATECH Canada INC. | | |
| to specification/assembly drawing No. | GL-COP 1.5 SKIM - DIM | date | 2004-06-01 |
| | GL-COP 1.5 COA - DM | date | 2004-06-01 |
| * Filters manufactured by | SEPARATECH Canada INC. | | |
| to specification/assembly drawing No. | GL-COP 1.5 POL - DIM | date | 2004-06-01 |
| | | date | |
| * Other means | Not applicable | | |
| to specification/assembly drawing No. | | date | |
| | | date | |
| Control equipment manufactured by | LIQUITECK | | |
| to specification/assembly drawing No. | No S.D 8950-B | date | 2004-11-12 |
| | | date | |
| Supply pump capacity / rpm | 1.5 m ³ /h / 285 1/min | Motor rating | 0.7 kW |
| Maximum throughput of system | 1.5 | m ³ /h | |

If integral feed pump is not fitted state method proposed for ensuring maximum throughput of system is not exceeded.

Test date and results attached in the appendix.

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

* Delete as appropriate.



Limiting Conditions Imposed

Installation location

The oily water separator of type COP 1.5 shall not be installed in spaces subject to explosion hazards.

Supply pumps approved

1. Pump type: progressive cavity pump, Type 500
Manufacturer: Moyno
Capacity: 1.5 m³/h at 285 rpm
2. Any other positive displacement pump of equivalent capacity and delivery characteristic.

Remarks:

This certificate of type approval for the above mentioned systems has been issued based on the test with the oily water separator of type COP 1.5 carried out in accordance with IMO regulation MEPC.107(49).

For separator unit installed on board this certificate of type approval is valid beyond the date of validity mentioned below unless it is revoked.

Test data and results attached in the appendix

This certificate of type approval is valid until 2009 - 11 - 28 or until it is recalled.

Hamburg, 2005-02-04

Germanischer Lloyd

G. Hölzer

H. Markus

The oil filtering equipment serial No. _____ complies with the tested type.

Place, Date

Stamp and Signature of Company



APPENDIX

Test Data and Results of Tests conducted on a 15 ppm Bilge Separator in Accordance with Part 1 of the Annex to the Guidelines and Specifications contained in IMO Resolution MEPC.107(49)

| | |
|-------------------------------------|---|
| 15 ppm Bilge Separator submitted by | SEPARATECH Canada INC. |
| Tested type | COP 1.5 |
| Test location | Mount Royal Walsh, Montreal |
| Date | 2004-08-27 |
| Organisation conducting the test | SEPARATECH Canada INC. |
| Method of sample analysis | ISO 9377 - 2 : 2000 |
| Test rig according to drawing | TRC - GL - 02 - COP 1.5 |
| | |
| | |
| | |
| Samples analysed by | Laboratoire d' environnement S.M-Inc., Bodycote Essais de Materiaux Canada Inc. |

Environmental testing of the electrical and electronic sections of the 15 ppm Bilge Separator 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.

Environmental test carried out at CRIQ Montreal, Test report No.: 670-33859, issued at Montreal on 2004-11-23.

Manufacturer's recommendations and information concerning the use of cleansing agents:

Use of cleaning agents of quick separating type.



Test fluid "A" *)

| | | |
|--------------------------------|-------|-------------------------------|
| Density | 988.8 | [g/dm ³] at 15 °C |
| Viscosity | 41 | Centistokes at 100 °C |
| | -- | Centistokes at 50 °C |
| Flashpoint | 94 | °C |
| Ash content | 0.035 | Weight % |
| Water content at start of test | < 0.5 | Weight % |

Test fluid "B" *)

| | | |
|--------------------------------|---------|-------------------------------|
| Density | 870 | [g/dm ³] at 15 °C |
| Viscosity | 3.11 | Centistokes at 40 °C |
| Viscosity | -- | Centistokes at 50 °C |
| Flashpoint | 75 | °C |
| Ash content | < 0.001 | Weight % |
| Water content at start of test | 0.0289 | Weight % |

Test fluid "C" *)

| | |
|-------------|---|
| Surfactant | Dodecylbenzene Sodium Sulfonate, Powder, CAS 25155-30-0 |
| Iron Oxides | CAS 1317-61-9, 98% concentration |

Test water

| | | |
|----------------------|-----------|--------------|
| Density | 995.2 | g/l at 20 °C |
| Solid matter present | No solids | g/l |

Test temperature

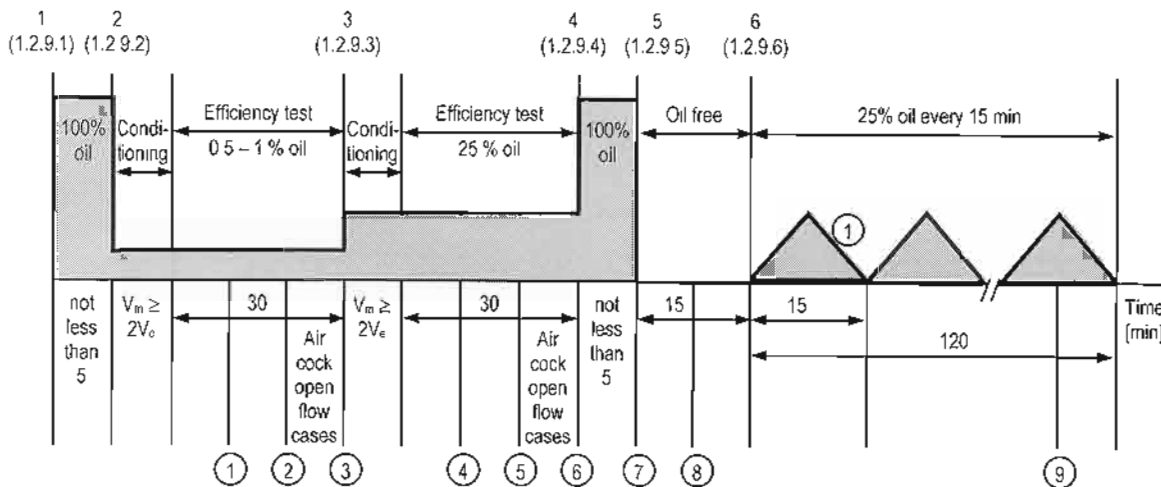
| | | |
|-------------------|---------|----|
| Ambient | 26 | °C |
| Test fluid "A" *) | 25 | °C |
| Test fluid "B" *) | 26 | °C |
| Test fluid "C" *) | 25 | °C |
| Test water | 18 - 20 | °C |

* Delete as appropriate



Test Results (in ppm (mg/L)) and Test Procedures

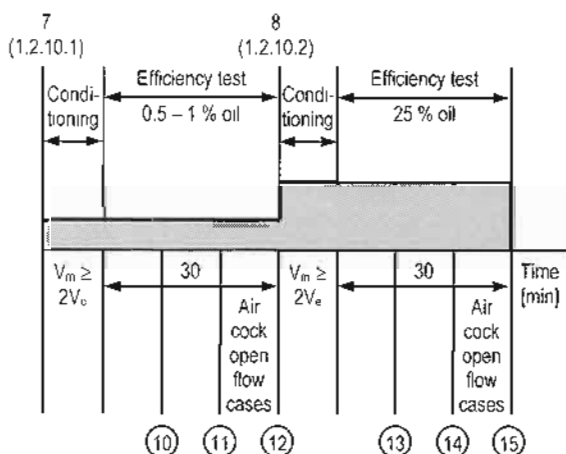
Test Fluid "A"



Test sample ⑨ (taken at the end of auto test, paragraph 1.2.9.6 Annex to resolution MEPC.107(49))

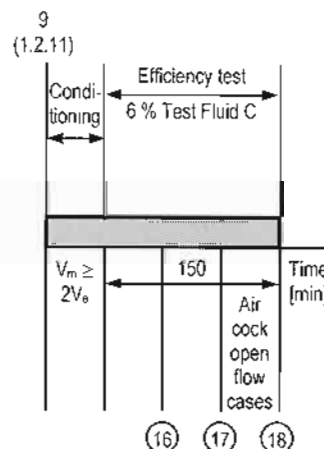
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|----------------|---------|---------|---------|-------|-------|-------|-------|-------|-------|
| Influent [%] | 0.5 - 1 | 0.5 - 1 | 0.5 - 1 | 25 | 25 | 25 | 100 | 8 | 25 |
| Effluent [ppm] | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 |

Test Fluid "B"



| | 10 | 11 | 12 | 13 | 14 | 15 |
|----------------|---------|---------|---------|-------|-----|-----|
| Influent [%] | 0.5 - 1 | 0.5 - 1 | 0.5 - 1 | 25 | 25 | 25 |
| Effluent [ppm] | < 0.3 | < 0.3 | < 0.3 | < 0.3 | 0.4 | 0.4 |

Test Fluid "C"



| | 16 | 17 | 18 |
|----------------|-----|-----|-----|
| Influent [%] | 6 | 6 | 6 |
| Effluent [ppm] | 2.3 | 5.2 | 3.7 |

V_o - volume of oily water separator (OWS)

V_m - oil/water mixture passed through OWS

Hamburg, 2005-02-04

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