



# Testing of Pipelife oil separator in a manhole, NS3, class I

**Test report**

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**Carried out for:**  
Pipelife Nederland B.V.

Nederland

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## 1. Test

### 1.1. Test separator

The oil separator is build in a manhole, nominal size NS 3, class 1. There was no sludge trap combined to the separator.

All materials are HDPE, except for the filter, which is PP. All metals part is stainless steel.

Inlet is  $\varnothing 160$  mm and outlet is  $\varnothing 125$  for the 3 l/s separator. A picture of the separator is shown in supplement 2. Testing was carried out on a prototype-separator.

### 1.2. Purpose and scope of the test

The purpose of the test is to obtain CE-marking for the separator.

### 1.3. Test separator - sampling

The test separator was sent to the Danish Technological Institute by the manufacturer. The test was carried out in a test set-up described in EN 858-1.

### 1.4. Test method

The test was carried out according to:

1. EN 858 – 1, 2002 / 1/A1 - 2005  
Separator systems for light liquids – Part 1. Principles of products design, performance, and testing, marking and quality control.
2. Testing of the efficiency of the separator and analyses of samples are carried out according to this standard.

### 1.5. Conclusion

The test shows that the separator meets all relevant requirements in EN 858-1 / 1/A1 - 2005. With a flow of 3 l/s, there is a content of residual oil at 3.9 mg/l in the discharge. The separator can be placed in class I (maximum 5 mg/l oil in the discharge). The results are shown in supplement 1.

Furthermore the separator system conforms with the requirements in 6.3.2-6.3.5 and 6.5.1-6.5.3

PIPE CENTRE

March 10<sup>th</sup>, 2010

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### **Supplement 1: Test result**

#### **6.2**

##### **Materials**

All materials are HDPE, except for the filter, which is PP. All metals part will be stainless steel. There is no documentation for the properties of the materials. The testing has not included checking specific documentation for the composition and oil-resistance of the materials, and no tests of the materials' tightness and resistance to oleaginous liquids have been carried out, except for tests of the separator's efficiency with subsequent observation, which gives no reason for further comment.

#### **6.3.2**

##### **Watertightness has been testing according to 8.2**

The system has been tested by filling up water to 40 mm above the maximum operational liquid level. There were no leaks after 20 min of testing. The tightness of the extension shaft has not been tested. If extension shafts are used, the tightness of the connections must be tested after installation.

#### **6.3.3**

##### **Accessibility**

The separator system including the inlet and outlet is accessible for maintenance and inspection.

#### **6.3.4**

##### **Water seals**

The separator has a water seal at the inlet and outlet. The water seal is the result of the inlet and outlet being run through closed pipes, which are submerged at least 100 mm under all normal operating conditions.

#### **6.3.5**

##### **Pipe and pipe joints**

The inlet and outlet of the separator is 160mm and 125mm which is correct according to table 2.

#### **6.5.1**

##### **Safeguard against reflux**

There is no risk of reflux in the inlet during normal operations.

#### **6.5.2**

##### **Storage Capacity**

Pipelife Nederland has informed, that the storage capacity is calculated to 250 l. With a capacity of 250 l there is still a safe distance to the upper edge of the outlet.

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### 6.5.3

#### **Automatic closure device**

The separator was equipped with an automatic closure device which has been tested according to DS/EN 858-1, clause 6.5.3 and 8.3.2. The leakage did not exceed 100 \* NS of the separator, in millimetres, during a period of 15 min. Pipelife Nederland has informed that the automatic closure device only will be installed when necessary. The closure device is calibrated to the oil used in the test, and closes automatically at the desired storage capacity.

### 6.5.6

#### **Determination of the nominal size and class**

The oilseparator has been testing according to 8.3.3

### 8.3.3

#### **A. Surface levels in the separator**

During testing with a flow of 3 l/s there is more than 60 mm from the upper edge of the separator to the water level.

#### **B. Separator efficiency**

The test was carried out as described in EN 858-1.

The samples in the separator outlet were taken through an inclined tube to the sample bottle.

The following tests use an oil type with specifications corresponding to ISO 8217, ISO-F-DMA, with a density of  $0.85 \pm 0.015 \text{ g/cm}^3$  at 12°C.

#### **C. Method**

The separator is measured and the dimensions noted on the manufacturer's drawing.

The separator is filled with water up to the outlet. The volume of water is called:  $V_K = 834$  litres.

#### Flow 3 l/s

Water at 3 l/s and oil at 15 ml/s (5 ml per l/s) is added for a period of:

$T_B = 4 \times V_K / Q_w \times 60$  minutes (though at least 15 minutes) plus the test period  $T_P$ , which is 5 minutes.

$T_B = 18$  minutes. **Oil is added for 18 minutes + 5 minutes, i.e. a total of 23 minutes.**

In the period  $T_P$ , samples are taken from the outlet directly to



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the sample bottle in the **first** minute after  $T_B$ , and then a further 4 samples at 1-minute intervals.

The 5 samples are analysed separately, and the test results given as the arithmetic calculated mean value.

**Total quantity of oil: 20700 ml**

Sample glass no.	280111	280112	280113	280114	280115
Test/minutes	19	20	21	22	23

#### Results from analysis

Sample label	Variable	Result	Unit	Method used
Sample glass 280111	Total hydrocarbon	3.8	mg/l	EN 858-1, 2002
Sample glass 280112	Total hydrocarbon	4.3	mg/l	EN 858-1, 2002
Sample glass 280113	Total hydrocarbon	3.5	mg/l	EN 858-1, 2002
Sample glass 280114	Total hydrocarbon	3.8	mg/l	EN 858-1, 2002
Sample glass 280115	Total hydrocarbon	4.2	mg/l	EN 858-1, 2002
<b>Arithmetic mean</b>	<b>Total hydrocarbon</b>	<b>3.9</b>	<b>mg/l</b>	

#### 6.6.1

##### Marking

The separator is marked. The manufacturer has stated that operating and maintenance instructions are enclosed with the separator on delivery. This has not been checked.

#### 9.2

##### Conformity of the test separator with the submitted drawings

The conformity of the test separator with the manufacturer's construction drawings has been controlled. The main dimensions tally with the manufacturer's drawing.

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*Supplement 2: Picture of the oil separator in a manhole, NS3, class 1*

