



Testing of Pipelife oil separator in a manhole, NS3, class 2

Test report

File number: 349397-2/2010

Carried out for:
Pipelife Nederland B.V.

Nederland

Key words: Sewer, oil separator, environmental requirements

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Number of pages: 3
Number of supplements: 2

Taastrup, 10th of March 2010

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1. Test

1.1. Test separator

The oil separator is build in a manhole, nominal size NS 3, class 2. There was no sludge trap combined to the separator.

All materials are HDPE, except for the chamber itself which is PP and all the metals part which 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 27.4 mg/l in the discharge. The separator can be placed in class II (maximum 100 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 10th, 2010

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Supplement 1: Test result

6.2

Materials

All materials are HDPE, except for the chamber itself which is PP and all the metals part which is 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.	280121	280122	280123	280124	280125
Test/minutes	19	20	21	22	23

Results from analysis

Sample label	Variable	Result	Unit	Method used
Sample glass 280121	Total hydrocarbon	29	mg/l	EN 858-1, 2002
Sample glass 280122	Total hydrocarbon	24	mg/l	EN 858-1, 2002
Sample glass 280123	Total hydrocarbon	23	mg/l	EN 858-1, 2002
Sample glass 280124	Total hydrocarbon	29	mg/l	EN 858-1, 2002
Sample glass 280125	Total hydrocarbon	32	mg/l	EN 858-1, 2002
Arithmetic mean	Total hydrocarbon	27	mg/l	

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 2

