



TECHNOLOGIES, INC.

The Art & Science Of Wastewater Treatment

TEST FOR DETERMINATION OF SUSCEPTIBILITY OF SEPARATION OF OIL FROM WATER IN A GRAVITY TYPE COALESCING OIL/WATER SEPARATOR

1.0 SCOPE

This method describes a procedure for determining the feasibility of removing suspended and dispersed oil from effluent wastewater by means of a gravity type, coalescing oil/water separator designed on the principal of gravity-differential separation and stokes law.

1.1 DEFINITION

The susceptibility of separation test procedure and subsequent analysis will illustrate the effectiveness of gravity type coalescing oil/water separation methods on your wastewater sample.

1.2 OUTLINE OF TEST METHOD

A sample of the wastewater stream, taken under conditions of minimum agitation, is allowed to settle at the stream temperature for "X" minutes. The settled solids are withdrawn from the bottom. The surface oil layer is NOT disturbed while the oil content of the remaining water is determined.

1.3 TEST APPARATUS

The apparatus used to determine susceptibility of separation is a globe-shaped separator funnel with a capacity of approximately 6 liters.

1.4 SAMPLING PROCEDURE

A sample of the wastewater is taken under conditions of minimum agitation. The sampling point should be as close as possible to the point of the proposed separator's influent. If you wish to locate the source of substances that might interfere with oil/water separation, independent tests should be conducted at the point of confluence of the suspected stream. All tests should be conducted immediately after the sample is taken, in accordance with 1.5.

1.5 TEST PROCEDURE

Place the separator funnel, with the wastewater sample, into a bath maintained at a constant temperature within 2 degrees F of the stream temperature and allow the sample to settle for 1/2 "X" minutes under static conditions. Rotate the funnel gently to facilitate the collection of settled solids, or heavy oil, in the bottom of the funnel cone. Return the funnel to the bath and allow the sample to settle for an additional 1/2 "X" minutes.

At the end of the "X" minute settling period, carefully withdraw all the accumulated sludge and sediment, including the lower interface, and either analyze them or discard them. Then, without disturbing the surface oil layer remove an appropriate amount of sample water from near the bottom of the vessel and have the sample tested for oil content per an accepted EPA test method.

Draw a sample from the test vessel at each of the time intervals given in the table below. This series of tests will illustrate the apparent behavior of the oil droplets in the given sample. When a treatment goal is reached at a particular time interval the corresponding droplet size is noted and is used to calculate oil/water separator sizing and projected surface area of coalescing media.

1.6 VALUE OF "X"

The duration of the test will vary depending on the smallest oil droplet size you wish to separate from the water phase. "X" below represents the test duration, in minutes, for the removal of all oil droplets greater than or equal to the micron diameter listed.

The test, as outlined, is based on oil the specific gravity of .85. The value of "X" will vary as the specific gravity changes. Please consult the factory for details.

"X"	MICRON DIAMETER
12 minutes	60 microns and greater
18 minutes	50 microns and greater
29 minutes	40 microns and greater
51 minutes	30 microns and greater
116 minutes	20 microns and greater