

Appendix 4

Reading the Draeger Oil Impactor and Chemical Reagent Tubes

Oil Impactor

The Oil Impactor's protective seal must be kept in place for the duration of the test and only removed after the test has been completed.

With a standard measurement range of 0.1 to 1.0 mg/m³ the Impactor has a limit of detection of 0.05 mg/m³. The Impactor can detect all mineral and synthetic oils, it features a series of 3 horizontal lines, each formed by a series of precision manufactured nozzles. These horizontal lines of nozzles are calibrated to a different concentration of oil. When air is passed through these nozzles any oil present in the air is deposited on the glass plate prior to the air being exhausted by vents around its circumference, this allows the user to easily and quickly identify minute quantities of oil.

For tests that pass with an oil concentration of less than 0.05mg/m³, the screen will remain blank. For tests above that read as follows:

The bottom line represents an oil concentration of 0.1 mg/m³. When the oil deposited forms a continuous line then the concentration is in excess of 0.1 mg/m³. The middle line represents a concentration of 0.5 mg/m³, again when the oil deposited forms a continuous line the concentration is in excess of 0.5 mg/m³. The top line represents a concentration of 1.0 mg/m³, again when this forms a continuous line the concentration is in excess of 1.0 mg/m³.



Pass -
greater
than
0.05mg/m³
but less
than
0.1mg/m³



Pass -
greater
than
0.1mg/m³
but less
than
0.5mg/m³



Fail - greater
than
0.5mg/m³
but less than
1.0mg/m³



Fail -
greater
than
1.0mg/m³

Each pack of tubes has its own instruction leaflet but the following notes should help you take readings after the tests have been completed.

Each tube has an expiry date which is located on the back of its storage box.

Oil (67 28371)

REQUIREMENT - THE AIR SHOULD HAVE A MAXIMUM OIL CONTENT OF 0.5 MG/M³ AND SHOULD BE WITHOUT SIGNIFICANT ODOUR OR TASTE.

1. Using the Tube Tip Cutter, place the ampoule section in the platform at the bottom. Note: Make sure the tube is against the back wall of the cutter. Line up the black dot nearest the end of the tube with dot on the cutter.



2. With one hand holding the cutter, the other holding the tube and with your thumb against the base of the cutter, apply pressure to the tube, this should break the inner tube.



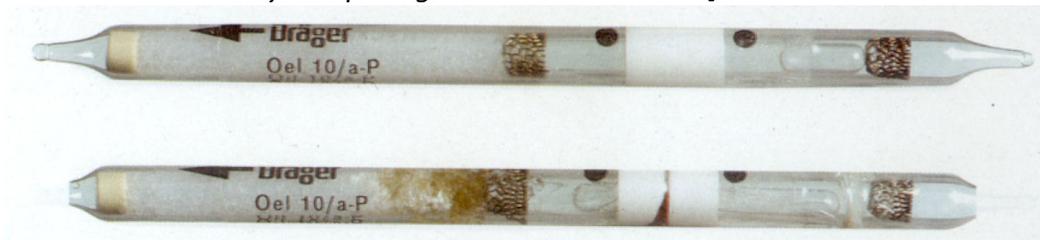
3. Place your used detector tubes in the F2154 Travel Container, until they can be disposed of properly as "sharps" or glass.



Ensure the oil tube is kept vertical throughout this process.

Satisfactory test: - The white crystals will turn translucent and show at worst a slight discoloration.

Failed test: - (Mineral oil) - The white crystals will show a light brown or darker discoloration.
- (Synthetic oil) - The white crystals will show a yellow discoloration [Note: best seen by comparing with an unused tube].



Water (H₂O) (67 28531)

REQUIREMENTS	<ul style="list-style-type: none">- FOR AIRLINES BELOW 40 BAR THE PRESSURE DEWPOINT TO BE 5°C BELOW THE LIKELY LOWEST TEMPERATURE. WHERE THE LIKELY LOWEST TEMPERATURE IS NOT KNOWN THE PRESSURE DEWPOINT SHOULD NOT EXCEED -11°C.- FOR HIGH-PRESSURE CYLINDERS THE FOLLOWING UPPER LIMITS APPLY: - 40 TO 200 BAR = 50MG/M³, ABOVE 200BAR = 35MG/M³- FOR HIGH-PRESSURE CYLINDER CHARGING COMPRESSORS THE UPPER LIMIT = 25MG/M³
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A reddish brown discoloration will show the extent of the water content, which is read from the scale printed on the tube in mg/m³.

When using the 50-2000 range setting, the tube reading is multiplied by a factor of 10, i.e. a tube reading of 150mg/m³ becomes 1500mg/m³. To establish the pressure dewpoint refer to the graph on the back of the Safe-Air Tester Result Sheet.



Carbon Dioxide (CO₂) (67 28521)

REQUIREMENT - MAXIMUM READING OF 500 PPM.

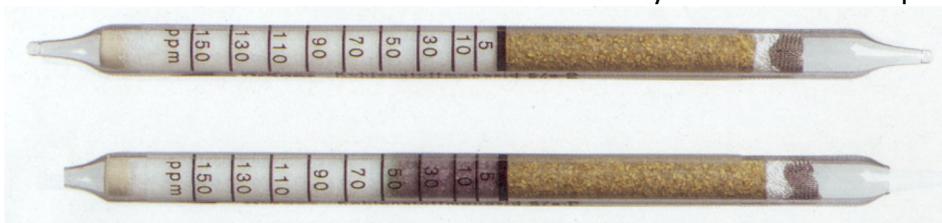
The media in the detector tube will discolour to show the presence of carbon dioxide. The total length of the discoloration read from the printed scale at that point is a measure of the concentration in parts per million.



Carbon Monoxide (CO) (67 28511)

REQUIREMENT - MAXIMUM READING OF 5 PPM.

The media will discolour to show the presence of carbon monoxide in the air sample. The total length of the discoloration is the measure of concentration read directly from the scale in parts per million.



Disposal of Draeger-Tubes

When Draeger tubes have been used, or unopened tubes have exceeded their expiry date, they should be disposed of using one of the following methods:

Used Tubes

Submerge the tube(s) in a beaker or metal container filled with water and allow to soak for 24 hours. Treat the residual water in accordance with local authority waste regulations (some tube aqueous waste may require neutralisation prior to disposal). Place the tubes in a “sharps” or glass bin wearing protective gloves and safety spectacles. Dispose of the bin via the company’s normal industrial waste disposal method(s) i.e. landfill or incineration.

OR

Place the tubes in a “sharps” or glass bin wearing protective gloves and safety spectacles. Dispose of the bin via the company’s normal hazardous waste disposal method(s) i.e. landfill or incineration.

OR

Place the tubes in a “sharps” or glass bin wearing protective gloves and safety spectacles. Dispose of the container via incineration.

Unused Tubes

Open the Draeger tube at both ends using the special tube opener or the cutter on the hand pump. Break any ampoules where applicable. Dispose of the tubes as stated in Methods 1, 2 or 3.

NOTE: *As an alternative a local authority approved waste disposal contractor can be employed to collect used and unused tubes from site and dispose of them in a safe manner.*