Gas testing is **Mandatory** prior to work being undertaken in a process or hydrocarbon area that carries a risk to personnel or equipment from exposure to explosive, flammable, toxic or life threatening vapours.

Gas testing shall also be required in any other area where the above risks are considered to exist which are covered by the PDO Permit to Work or a 3rd Party compliant system.

**To ensure compliance to this Rule always undertake a Gas Test:**

- When entering a confined space
- Before and during normal working in a Process or Hydrocarbon Area
- When breaking containment on a process system
- When hot working in a Process or Hydrocarbon Area
- When operating diesel plant in a Process or Hydrocarbon Area
- Before allowing an authorised vehicle to enter a Process Area, and during its presence there.
- Whenever the atmosphere could be potentially hazardous or is unknown
- Where there is a suspected hydrocarbon or toxic gas leak
Conduct Gas Tests When Required - Clip

Internal:

External:
Conduct Gas Tests When Required

Key Roles & Responsibilities

<table>
<thead>
<tr>
<th>Role</th>
<th>Responsibility</th>
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<tr>
<td>Permit Applicant</td>
<td>• Define the gas testing requirements for the work</td>
</tr>
<tr>
<td>Responsible Supervisor</td>
<td>• Agree requirements of gas testing with the Permit Applicant</td>
</tr>
<tr>
<td>Area Authority</td>
<td>• Tick the gases to be tested for on PTW.</td>
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<tr>
<td>Authorised Gas Tester</td>
<td>• Indicate how often the test shall be repeated on PTW.</td>
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<td></td>
<td>• Comply with <em>PR-1172 Permit to Work System</em> regarding gas testing requirements and frequencies</td>
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<td></td>
<td>• Enter gas test results and frequency of further tests on PTW and Confined Space Entry Certificate / Additional Gas Test sheet (if applicable),</td>
</tr>
<tr>
<td>Permit Holder</td>
<td>• Agree gas test results</td>
</tr>
<tr>
<td></td>
<td>• Ensure compliance to gas testing requirements is adhered to</td>
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</table>
**Conduct Gas Tests When Required**

**Incident**

Incident Occurred 26 September 2006 - Entry to a large empty water tank
- No PTW
- **No gas test**
- No confined space entry permit or control

**Consequence - Potential Fatality**

**IMPORTANT:** Non-Process work can also present a hazardous situation i.e. Camp area sewage pits and the presence of methane gas from decomposition and natural waste.
Conduct Gas Tests When Required

Gas Testing Equipment

**Multigas Monitors** - Multigas monitors are capable of measuring a number of gases simultaneously with results displayed continuously. The gases monitored and displayed can include Flammable, Oxygen, Carbon Monoxide, Hydrogen Sulphide, and Carbon Dioxide. Audible and visual alarm is provided making the monitors suitable for deployment in the confined space or as perimeter guard for protection and warning.

**Explosimeter Monitors** - Explosimeter are provided to measure only ‘flammable’ gases. The monitor will provide a measurement of the immediate area from which the sample is taken. The instrument shall only be used by personnel who have undertaken the appropriate course.

**Detector Tubes** - Detector tubes are single ‘spot’ check devices for detection of gases in the direct vicinity of where the sample is taken. Different detector tubes are provided for different gases. In PDO the typical gas sampled for using detector tubes is H$_2$S and CO$_2$

**IMPORTANT:** The gas detector used to measure hydrocarbons in air cannot be used to measure hydrocarbons in an inert atmosphere which would be the case when the system, vessel or pipework has been gas freed with Nitrogen. ALWAYS ensure the detector used has the capability to measure the risk present.
Conduct Gas Tests When Required

Supervisor Tips

- Pose Question to your group
- Allow 5 minutes for discussion on each Question
- Summarize what you have heard before moving to the next Question
- Split big groups up into smaller discussion teams
- Take your time
- Encourage everyone to take part
- Look for real examples from your own workplace
- Find and use real examples of incidents related to this rule from your site
- Link the discussion to real work on site involving the people in the tool box talk
Conduct Gas Tests When Required

Generally who determines the requirement for Gas Testing:

a) Responsible Supervisor  [correct answer]
b) The Permit to Work Holder
c) The Area Authority
d) The Permit to Work Applicant
# Conduct Gas Tests When Required

**What is the main purpose of Gas Testing a Confined Space?**

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<tbody>
<tr>
<td>a)</td>
<td>To ensure that the atmosphere within the confined space will support life</td>
</tr>
<tr>
<td>b)</td>
<td>To determine the percentage of hydrocarbon vapour</td>
</tr>
<tr>
<td>c)</td>
<td>To determine if the atmosphere is explosive.</td>
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</table>
Conduct Gas Tests When Required

After gas freeing a Process Vessel with Nitrogen and before opening the vessel for ventilation and Confined Space entry what must the gas detector used for testing be capable of measuring?

a) Hydrocarbons in an air atmosphere

b) Hydrocarbons in an oxygen atmosphere

c) Hydrocarbons in an inert atmosphere **correct answer**

d) Does not matter because the vessel will be opened and ventilated