

## EMPLOYEE TRAINING RECORD

**TRAINING TITLE**      **Confined Spaces - Hazards - Oxygen Deficient Atmospheres and Oxygen Deficiency Symptoms**

### KEY TEACHING POINTS

**DEFICIENT ATMOSPHERES**

- Any oxygen level below 19.5% is deficient, and it is common in spaces with little or no ventilation.
- Common causes of oxygen deficiency include:
  - Displacement - The introduction of other gases into the space may displace the oxygen.
  - Bacterial action - The decomposition (rotting) of organic matter can use available oxygen.
  - Oxidation - Whenever metals oxidize (rust) they absorb oxygen.
  - Combustion - Burning, welding, heating, or cutting within a confined space uses great quantities of oxygen.
  - Absorption - Some materials (such as wet activated carbon) will absorb oxygen.

**OXYGEN DEFICIENCY SYMPTOMS**

- Symptoms of oxygen deficiency appear when the level drops below 19.5%.
- As the level of oxygen falls you suffer:
  - A loss of coordination. This can impede self-rescue.
  - An increase in pulse and respiration.
  - Impaired judgement.

<u>Percent of Oxygen</u>	<u>Symptoms</u>
19.5%	Minimum permissible level
15-19%	Possible impaired coordination
12-14%	Respiratory/pulse increase, impaired judgement/coordination
10-12%	Further increase in respiration/pulse
8-10%	Fainting, nausea, vomiting, blue lips
6-8%	4-5 minutes - recovery with treatment 6 minutes - 50% mortality 8 minutes - 100% mortality
0-6%	Coma in 40 seconds or less

### TEST

QUESTION	ANSWERS	
	TRUE	FALSE
1. Oxygen deficiency can impede self-rescue.		
2. Any oxygen below 19.5% is considered deficient.		
3. Bacteria can not displace oxygen.		
4. Oxygen deficiency can cause increased pulse and respiration.		
5. Oxygen deficiency cannot kill.		
<b>EMPLOYEE'S NAME</b>	<b>EMPLOYEE'S SIGNATURE</b>	<b>DATE</b>
<b>INSTRUCTOR'S NAME</b>	<b>INSTRUCTOR'S SIGNATURE</b>	<b>DATE</b>

1. True 2. True 3. False 4. True 5. False