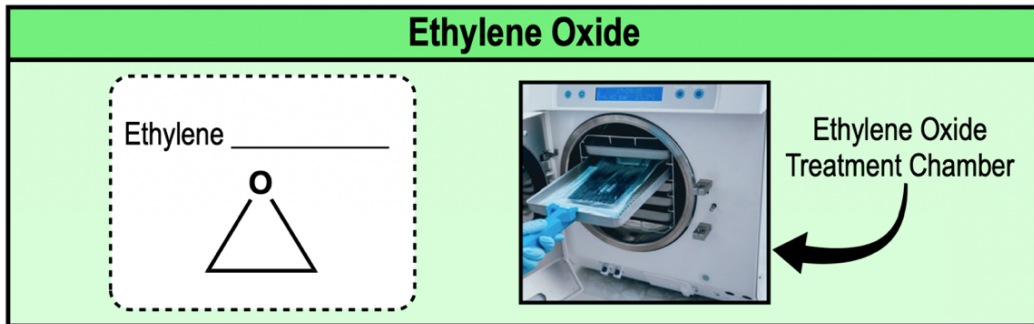


CONCEPT: CHEMICAL GASES: ETHYLENE OXIDE, OZONE, & FORMALDEHYDE

Ethylene Oxide

- **Ethylene Oxide:** highly flammable gas *sterilizer* that kills _____ microbes BUT requires a *long* treatment time.
 - Potentially _____ & must be removed from sterilized material after treatment with forced air.
 - Sterilization is in a special chamber to control *temperature, humidity, & _____* which affect it.

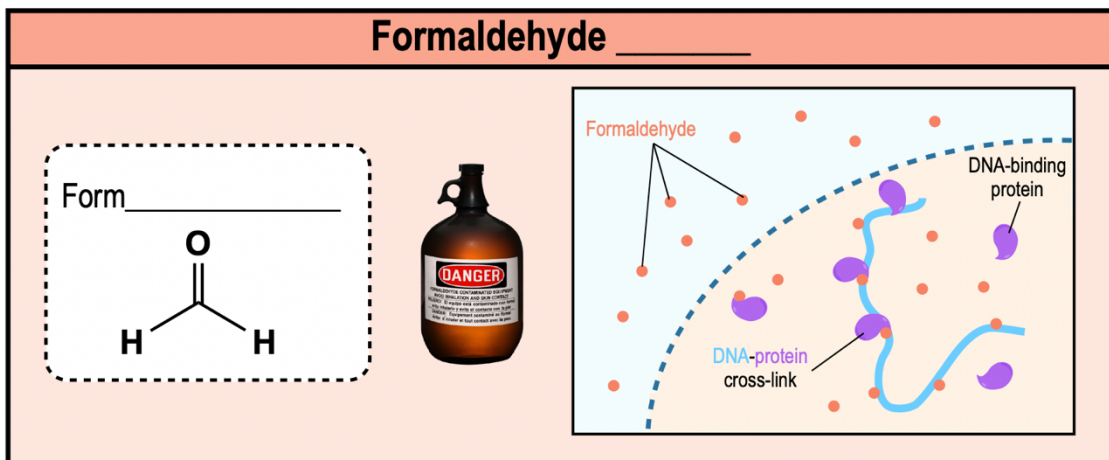


PRACTICE: Ethylene oxide is gas that:

- Requires special conditions when being used.
- Is potentially carcinogenic.
- Is used as a 37% aqueous solution.
- Is effective against all microorganisms except endospores and viruses.
- A and B.

Formaldehyde Gas

- **Formaldehyde** _____: colorless, strong-smelling aldehyde in a gas form that is made by oxidizing methanol (CH_2O).
 - Used as a *disinfectant* at a 3% dilution & a _____ in a concentrated form of 37% solution.
 - Commonly available in a 37% *aqueous* solution called _____.
 - Kills microbes by causing _____-DNA cross-linking which damages DNA & denatures proteins.



CONCEPT: GAS CHEMICALS: ETHYLENE OXIDE, OZONE, & FORMALDEHYDE

PRACTICE: _____ is the commercially available form of formaldehyde in a 37% aqueous solution.

- a) Aldehyde.
- b) Formalin.
- c) Methanol.
- d) Hydrogen Peroxide.

Ozone

● **Ozone (O_3):** an _____ form of oxygen that is a strong oxidizing agent.

- ☐ Ozone is highly reactive & can form free radicals that can cause cell _____.
- ☐ Because ozone decomposes quickly, it must be generated on-site with a generator.
- ☐ Often used as an alternative to _____ for disinfecting drinking water.

Ozone		
<div style="border: 1px dashed black; padding: 10px; text-align: center;"><p>Ozone (_____)</p></div>		 <p>Ozone Generator</p>

PRACTICE: Which of the following statements about ozone is FALSE?

- a) It can be used to disinfect drinking water.
- b) It is a strong oxidizing agent.
- c) It causes cell lysis when free radicals form in water.
- d) It is a surfactant.