### SUMMARY AND EXPOSURE LIMITS

<table>
<thead>
<tr>
<th>Compound</th>
<th>Ethylene Oxide</th>
<th>Hydrogen Peroxide</th>
<th>Peractic Acid</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSHA 1 8hr/15min</td>
<td>1 ppm / 5 ppm</td>
<td>1 ppm / –</td>
<td>– / –</td>
</tr>
<tr>
<td>PEL 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACGIH 3 8hr/15min</td>
<td>1 ppm / –</td>
<td>1 ppm / –</td>
<td>– / 0.4 ppm</td>
</tr>
<tr>
<td>TLV 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HSE 5 8hr/15 WEL 6</td>
<td>5 ppm / –</td>
<td>1 ppm / 2 ppm</td>
<td>– / –</td>
</tr>
<tr>
<td>NIOSH 7 IDHL 8</td>
<td>800 ppm</td>
<td>75 ppm</td>
<td>n/a</td>
</tr>
</tbody>
</table>

**Cancer Status**

- IACR: Carcinogenic to Humans; ACGIH: Suspected Human Carcinogen
- IACR: Not Classifiable as to Carcinogenicity in Humans; ACGIH: Confirmed Animal Carcinogen with Unknown Relevance to Humans
- ACGIH: Not Classifiable as a Human Carcinogen

**Odor Threshold**

- 400 to 700 ppm
- Almost no odor
- 50 ppb

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**PERACETIC ACID**

- Peracetic acid is very corrosive and on contact can severely irritate and burn the skin and eyes.
- Inhalation of the vapor can irritate the nose and throat, cause coughing and/or shortness of breath.

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1 OSHA Occupational Safety and Health Administration
2 PEL Permissible Exposure Limit
3 ACGIH American Conference of Governmental Industrial Hygienists
4 TLV Threshold Limit Value
5 HSE Health, Safety, and the Environment, UK
6 WEL Workplace Exposure Limit
7 NIOSH National Institute for Occupational Safety and Health
8 IDLH Immediately Dangerous to Life and Health
• Greater exposure can cause a pulmonary edema with severe shortness of breath (medical emergency) and may affect liver and kidneys.

**HYDROGEN PEROXIDE**

• Hydrogen peroxide can be toxic if ingested, inhaled, or by contact with the skin or eyes.
• Inhalation of vapors from > 10% solutions may result in severe pulmonary irritation.
• Eye exposure to 3% hydrogen peroxide may result in pain and irritation, but severe injury is rare. More concentrated solution may result in ulceration or perforation of the cornea.
• Skin with concentrated solutions may cause severe skin burns with blisters.

**ETHYLENE OXIDE**

• Acute exposures to EtO gas may result in respiratory irritation and lung injury, headache, nausea, vomiting, diarrhea, shortness of breath, and cyanosis.
• Chronic exposure has been associated with the occurrence of cancer, reproductive effects, mutagenic changes, neurotoxicity, and sensitization.

IACR Classification of Carcinogens:
Group 1: carcinogenic to humans.
Group 2A: probably carcinogenic to humans.
Group 2B: possibly carcinogenic to humans.
Group 3: not classifiable as to carcinogenicity in humans.
Group 4: probably not carcinogenic to humans.

ACGIH Classification of Carcinogens:
A1) Confirmed human Carcinogen
A2) Suspected Human Carcinogen
A3) Confirmed Animal Carcinogen with Unknown Relevance to Humans
A4) Not Classifiable as a Human Carcinogen
A5) Not suspected as a Human Carcinogen