INTRODUCTION

Hydrogen peroxide’s environmentally-compatible properties are of particular benefit in food applications: it decomposes into water and oxygen, leaves little or no residue and, unlike some other more traditional chemical disinfectants, does not form harmful byproducts. As a result of its antimicrobial performance, its ease of handling and its low dry residue, hydrogen peroxide is now the most widely accepted sterilant for aseptic packaging applications.

APPLICATIONS

INTEROX® AG Bath 35-SP Grade is a higher-purity aseptic packaging grade peroxide which is specially formulated with an improved performance stabilizer package for the bath-type aseptic packaging machines. The stabilizer system ensures that the hydrogen peroxide maintains excellent stability at the elevated temperatures found in the bath and is particularly useful for situations where machines are exhibiting poor bath performance. This increased stability serves to minimize the loss of hydrogen peroxide through decomposition, increases bath life, results in more efficient consumption rates and ensures consistent sterilization.

INTEROX® AG Bath 35-SP Grade is not recommended for use in spray or vaporization-type applications. For these uses INTEROX® AG Spray 35-S Grade, which has a lower residue level, is preferred.

INTEROX® AG Bath 35-SP Grade Hydrogen Peroxide is manufactured from INTEROX® AG Bath 35-S Grade Hydrogen Peroxide, which meets the requirements of 21 CFR 178.1005 (Hydrogen Peroxide Solution - Indirect Food Additives: Adjuvants, Production Aids, and Sanitizers). Additional ‘Food Grade’ (materials which meet the Food Chemicals Codex monograph analytical specifications) processing aids for use in specifically designated aseptic packaging machines are added to make the final product as delivered to you.

Section 21 CFR 178.1005 part (e) permits Hydrogen Peroxide (H₂O₂) that meets the specifications in the other paragraphs of 178.1005 may be used in combination with other processes to treat food contact surfaces to attain commercial sterility.

SPECIFICATIONS

Hydrogen peroxide is a clear, colorless liquid. Its density is slightly higher than that of water, and is miscible with water in all proportions. The following table gives typical values for the product.
INTEROX® AG BATH 35-SP GRADE HYDROGEN PEROXIDE

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SPECIFICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assay (% w/w)</td>
<td>35.0 – 36.0</td>
</tr>
<tr>
<td>Acidity (mg H₂SO₄/kg)</td>
<td>&lt;300</td>
</tr>
<tr>
<td>Apparent pH</td>
<td>2.0 – 3.2</td>
</tr>
<tr>
<td>Dry Residue, ppm</td>
<td>&lt;120</td>
</tr>
<tr>
<td>Conductivity, µS/cm</td>
<td>&gt;50</td>
</tr>
<tr>
<td>Chloride, ppm</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Total Phosphorous (as PO₄³⁻), ppm</td>
<td>&lt;80</td>
</tr>
<tr>
<td>Tin, ppm</td>
<td>&lt;0.5</td>
</tr>
<tr>
<td>Iron, ppm</td>
<td>&lt;0.2</td>
</tr>
<tr>
<td>Lead, ppm</td>
<td>&lt;0.2</td>
</tr>
</tbody>
</table>

AVAILABILITY

INTEROX® AG BATH 35-SP Grade Hydrogen Peroxide is available in 4,200-gallon bulk tanker truck, 330-gallon HDPE tote tank or 55-gallon HDPE drum quantities from our Solvay Chemicals’ Deer Park, Texas production facility. For more information, or to place an order, please contact Solvay Chemicals Customer Service at 1-800-443-2785.

STABILITY

INTEROX® AG BATH 35-SP Grade Hydrogen Peroxide loses less than 1% assay per year if stored in approved materials of construction, away from sources of direct heat and sunlight. Hydrogen peroxide decomposes exothermally to water and oxygen with no toxic residues. The decomposition is normally slow (<1% per year), but is accelerated by heat and decomposition catalysts, such as transition metals and their compounds, strong acids and strong alkalis.

Hydrogen peroxide is also decomposed by a number of organic and inorganic oxidizable substances. Metals such as iron, copper, chromium, nickel, other non-ferrous metals and their salts and oxides have a strong, catalytically decomposing effect on hydrogen peroxide. During decomposition, large quantities of oxygen can form, posing a fire danger if the product comes into contact with combustible materials.

Detailed information on this topic can be found in our Safety and Handling brochure and in our Safety Data Sheet which can be downloaded from our web site at www.solvaychemicals.us.

Aseptic packaging systems constructed of stainless steel must be passivated before contact with hydrogen peroxide. This process further stabilizes hydrogen peroxide, reduces the rate of metallic leaching and slows the formation of residue. Contact your Solvay Chemicals’ representative for additional information about proper passivation of stainless steel surfaces.
IDENTIFICATION

Hydrogen Peroxide \( \text{H}_2\text{O}_2 \)
Molecular Weight 34
CAS Number 7722-84-1

STORAGE AND HANDLING

- Store hydrogen peroxide in the original vented container, upright, in a cool, ventilated area where it is protected from damage, or in bulk storage tanks made from approved alloys of stainless steel.
- Do not store other chemicals, fuels, or combustible materials near hydrogen peroxide.
- Never return unused hydrogen peroxide to the storage container.
- When empty, rinse all peroxide containers thoroughly with clean water before discarding.
- Use only approved material for pumps, piping, and hoses.

SAFETY

- Persons working with hydrogen peroxide should be familiar with personal protective equipment, first aid measures and the proper safety and handling procedures. Consult the Safety Data Sheet (SDS) for appropriate information.
- Prevent accidental decomposition by keeping the product free of contaminants.
- Prevent fires by avoiding accidental spills. Water is the preferred method for extinguishing fires in which hydrogen peroxide is present.
- Spills and leaks should be contained, diluted with copious amounts of water and disposed of in compliance with local regulations.
- Hydrogen peroxide storage or handling areas should be equipped with a safety shower, an eyewash station, and a water hose.

FIRST AID

In case of product splashing into the eyes and face, treat eyes first.

- **Eye contact:** Flush eyes immediately with water for at least 15 minutes. Call a physician.
- **Skin contact:** Immediately flush skin with water while removing contaminated clothing and shoes. Call a physician if irritation persists.
- **Inhalation:** Remove the victim from the contaminated area to fresh air. Call a physician in case of respiratory symptoms.
- **Ingestion:** Drink large quantities of water and do not induce vomiting. Consult with a physician immediately in all cases.

**Danger:** Hydrogen peroxide solutions are strong oxidizers and corrosive to the eyes, mucous membranes and skin. Consult the SDS for the appropriate Personal Protective Equipment to wear when handling hydrogen peroxide. In case of contact with the eyes, skin or clothing, flush with large amounts of water for 15 minutes. Product in contact with combustible materials may cause fires.
Before using, read Safety Data Sheet (SDS) for this chemical.

Solvay Chemicals, Inc.
24-hour Emergency Phone Number – 800-424-9300 (CHEMTREC®)

To our actual knowledge, the information contained herein is accurate as of the date of this document. However, neither Solvay Chemicals, Inc., nor any of its affiliates, makes any warranty, express or implied, or accepts any liability in connection with this information or its use. This information is for use by technically skilled persons at their own discretion and risk and does not relate to the use of this product in combination with any other substance or any other process. This is not a license under any patent or other proprietary right. The user alone must finally determine suitability of any information or material for any contemplated use in compliance with applicable law, the manner of use and whether any patents are infringed. This information gives typical properties only and is not to be used for specification purposes. Solvay Chemicals, Inc. reserves the right to make additions, deletions or modifications to the information at any time without prior notification.

Trademarks: Trademarks and/or other Solvay Chemicals, Inc. products referenced herein are either trademarks or registered trademarks of Solvay Chemicals, Inc. or its affiliates, unless otherwise indicated.

Before using, read the Safety Data Sheet (SDS) for the chemical.