KEEPER®

The Ultimate Antimicrobial Product for the Seafood Processing Industry.

Control microbial and enzymatic activity while promoting positive organoleptics and shelf life extension.

KEEPER® is an FDA approved [21 CFR 173.325] antimicrobial agent that is used to eliminate pathogens, extend shelf life and improve quality in seafood. KEEPER® is approved in water and ice that are used to rinse, wash, thaw, transport and store seafood.

• Meet the required efficacy without altering flavor
• Develop and maintain your reputation for quality products
• Gain confidence of USDA inspectors by using the most trusted antimicrobial intervention technology
• Integral component of your HACCP Plan

With Bio-Cide International’s patented delivery technology, KEEPER® allows you to use the same chemistry from ship to shore.

KEEPER® was developed by Bio-Cide International, the world-wide leader in acidified sodium chlorite antimicrobial technologies. Bio-Cide’s KEEPER® is activated at the time of use to produce the uniquely effective, food grade sanitizer, chlorine dioxide. When activated, KEEPER® is added during processing and transporting to wash or rinse water and ice.

KEEPER® Applications
Processing Aid-Rinse
Ship’s Hold: Storage Water and Ice
Scallop Whitener

Shelf Life Extension
Deodorizer

Use KEEPER® to Avoid Expensive Recalls.

The KEEPER® antimicrobial intervention program is simple to use and is highly effective against Salmonella, E. coli 0157:H7, Listeria and many other pathogens of concern. KEEPER® is trusted by inspectors as part of a successful HACCP Compliance program.

ANTIMICROBIAL EFFICACY OF KEEPER®

![Graph showing microbial efficacy comparison between Control and KEEPER® treatments.]

Microorganisms

Salmonella typhimurium
E.coli 0157:H7
Listeria monocytogenes
Campylobacter jejuni

Log Population

0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0

Exceptional Chemistry • Extraordinary People
www.bio-cide.com • 2650 Venture Drive, Norman, OK 73069
405.329.5556 • 405.329.2681 fax • 800.323.1398
Bio-Cide International is ISO 9001:2008 certified
 Activation

The active ingredient in KEEPER® is Acidified Sodium Chlorite that generates Chlorine Dioxide. To increase the speed of kill and efficacy of KEEPER®, the pH of the solution can be reduced with any Food Grade GRAS acid to acidify the Sodium Chlorite.

Activation may be accomplished manually in low volume as batch applications; or with BCI’s hands-free, low cost AANE™ unit (non-electric), the Wall Mount Activation System™, or the on-line activation system OLAS™ Ti that combines activation with injection into water streams on the fly.

---

**KEEPER® is the most effective, fast acting, broad-spectrum antimicrobial available.**

KEEPER® has been shown to be more effective than other common sanitizers including quaternary ammonia, Iodophors, Peracetic acid and sodium hypochlorite (chlorine). KEEPER® provides a comprehensive antimicrobial intervention program.

- Ultra high, broad spectrum antimicrobial activity
- Prevents formation of biofilm
- Low toxicity
- Low corrosion potential
- No chlorination or THM formation
- Effective over a broad pH range (1-10)
- FDA approved up to 50 ppm as sodium chlorite
- Can be used in water and ice
- Resists neutralization due to organic load
- No effect on organoleptic properties
- No effect on nutritional quality
- Only seafood consumed raw requires a potable water rinse
- Exempt from declaration on the food product label
- KOSHER certified
- Economical to use
- Can be used with automated delivery systems

---

**Concentration of Sanitizers Required**

for >5 log reduction of E.coli O157:H7 in 60 seconds

<table>
<thead>
<tr>
<th>Concentration (ppm)</th>
<th>Sanitizers</th>
</tr>
</thead>
<tbody>
<tr>
<td>650</td>
<td>KEEPER®</td>
</tr>
<tr>
<td>600</td>
<td>Octanoic acid, Decanoic acid, Citric acid &amp; Phosphoric acid</td>
</tr>
<tr>
<td>550</td>
<td>Peracetic acid, Dodecylbenzenesulfonic acid &amp; Phosphoric acid</td>
</tr>
<tr>
<td>500</td>
<td>Sodium hypochlorite</td>
</tr>
<tr>
<td>450</td>
<td></td>
</tr>
<tr>
<td>400</td>
<td></td>
</tr>
<tr>
<td>350</td>
<td></td>
</tr>
<tr>
<td>300</td>
<td></td>
</tr>
<tr>
<td>250</td>
<td></td>
</tr>
<tr>
<td>200</td>
<td></td>
</tr>
<tr>
<td>150</td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>