Description:
Crown Drill-Shield™ is a high-performance, non-toxic hydrochloric acid corrosion inhibitor custom formulated to be a safer and more environmentally friendly alternative for use in the oil and gas industry.

Advantages & Benefits:
- **Effective High Temperature Inhibition**
  - Proven protection in HCl and organic acid blends up to 300°F (149°C)
  - Compatible with intensifiers
  - Effective across a wide range of steel alloys including N-80, P110 and 304SS

- **Cost Effective and Reliable**
  - Provides outstanding protection at concentrations as low as 0.2%, depending on acid type, strength and down-hole temperature
  - Crown offers a single product solution for protection up to 275°F (149°C) Intensifiers available for higher temperature requirements
  - Produces extremely stable dispersion in acid solutions for maximum effectiveness
  - Product remains stable, even at low temperatures, with no mixing required

- **Responsible Chemistry**
  - 100% all-organic formulation
  - Non-toxic for reduced environmental impact

- **Drill-Shield™ Contains:**
  - NO propargyl alcohol or derivatives (toxic, readily absorbed into skin)
  - NO phenol or alkylphenol surfactants (toxic, environmentally hazardous)
  - NO quinoline (non-biodegradable, possible toxin, carcinogen, mutagen)
  - NO heavy metal salts, arsenic or antimony (poisonous)
  - NO heavy aromatics (aquatic biotoxin, possible carcinogen)

Crown Technology, Inc. has been the industry leader in acid inhibitor technology and steel corrosion products since 1946
Drill-Shield™

Performance Data

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Drill-Shield™ Conc. (% v/v)</th>
<th>Drill-Shield™ Concentration (gals per thousand)</th>
<th>Crown DSI Intensifier (gals per thousand)</th>
<th>Corrosion Rate (lb/ft²)</th>
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<tbody>
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<td>225°F</td>
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<td>1%</td>
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<td>0.051</td>
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<tr>
<td></td>
<td>1%</td>
<td>10</td>
<td>-</td>
<td>0.039</td>
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<tr>
<td></td>
<td>2%</td>
<td>20</td>
<td>-</td>
<td>0.024</td>
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<tr>
<td>275°F</td>
<td>1%</td>
<td>10</td>
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<td>0.086</td>
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<td>1%</td>
<td>10</td>
<td>5</td>
<td>0.039</td>
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<tr>
<td></td>
<td>2%</td>
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<td>3%</td>
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<tr>
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<td>3%</td>
<td>30</td>
<td>5</td>
<td>0.073</td>
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</table>

**Test Conditions:**
- All tests performed in 15% w/v HCl for 6 hours @ 150 psi
- Concentrations based on gallons of additive per 1000 gallons of acid mix
- Test specimens prepared from actual N-80 production pipe:
  C(0.42%), Mn(0.96%), Mo(0.18%), Cr(1.06%), Cu(0.17%), P(0.10%), Si(0.27%), Ni(0.12%)

**Typical Properties:**
- Appearance ........ Clear, yellow/orange liquid
- Odor ............... Mild
- Solubility in Water . . Miscible
- Specific Gravity . . . 0.86 – 0.94
- Freeze Point ........ -58°F (-50°C)
- Flash point .......... 68°F (20°C)
- Packaging ........... Drums/Totes/Bulk

**Usage:** Please contact your Crown Technical representative for recommended concentration ranges specific to your application.

**Call Us Today 1-800-432-0045**

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