Biocide Solutions for Paints and Coatings

Dow Biocides gives your products the competitive edge with our diverse portfolio of biocides for use in paints and coatings applications in three key areas:

IN-CAN PRESERVATION:
Our CANGUARD™ and DOWICIL™ portfolio of preservatives and antimicrobials can help prevent microbial growth in finished products that lead to gas formation, loss of viscosity, poor stability and foul odors. Key actives in these product ranges include BIT and CMIT/MIT.

DRY FILM PRESERVATIVES:
Our FILMGUARD™ portfolio of fungicides can help prevent mold growth on unfinished surfaces. Key actives in this product range include OIT and IPBC.

INDUSTRIAL HYGIENE:
For bacterial problems in manufacturing environments, DOWICIL™ QR-20 antimicrobial is the global leader for quick and economic clean-up of the source of contamination, helping to avoid costly shutdowns or production delays. In addition to our products, our leading-edge industrial hygiene process and plant audits are led by our technical team of experts in this application area.

Our qualified sales and technical experts around the world are available to help you optimize the use of biocides to control microbial problems before they occur, specific to your individual requirements.

Through the use of TAUNOVATES® high-throughput microbial testing, Dow Biocides can help to quickly and efficiently establish the most effective concentration of biocide or combination of biocides needed for your particular formulation.

As a global leader in biocides, we are ready to help you solve your most demanding hygiene and formulation challenges. For additional information, please visit our website www.dowbiocides.com, or contact your local Dow Biocides representative.

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Form Number: 253-01480 07/27/07 TCG
Guide to biocides for paints and coatings

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Physical State</th>
<th>pH range</th>
<th>Typical Use Levels</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOWICIL™ 75 Preservative</td>
<td>liquid</td>
<td>7-11</td>
<td>1000-2000 ppm</td>
<td>Strong spectrum bactericide, cost effective</td>
</tr>
<tr>
<td>DOWICIL™ 96 Antifungal</td>
<td>aqueous suspension</td>
<td>2-12</td>
<td>500-1500 ppm</td>
<td>Low odor, high purity, non-metallic</td>
</tr>
<tr>
<td>DOWICIL™ 96 Antimicrobial</td>
<td>clear liquid</td>
<td>&gt;12</td>
<td>80-500 ppm a.i.</td>
<td>Excellent thermal stability, non-formaldehyde releaser</td>
</tr>
<tr>
<td>FILMGUARD™ IPBC Fungicidal Agent</td>
<td>solid/liquid</td>
<td>2-10</td>
<td>0.1 - 0.8% a.i.</td>
<td>Powerful synergy-optimized protection</td>
</tr>
<tr>
<td>GATTNER color</td>
<td>white powder</td>
<td>2-12</td>
<td>max. 5</td>
<td>Extremely water-soluble</td>
</tr>
<tr>
<td>CANGUARD CM + DOWICIL 75</td>
<td>clear liquid</td>
<td>7-12</td>
<td>80-500 ppm a.i.</td>
<td>Strong synergy with DOWICIL 75</td>
</tr>
<tr>
<td>CANGUARD™ BIT + DOWICIL™ 75</td>
<td>clear liquid</td>
<td>2-12</td>
<td>100-500 ppm a.i.</td>
<td>Powerful synergies with CANGUARD CM/75</td>
</tr>
<tr>
<td>CANGUARD™ BIT + DOWICIL™ 96</td>
<td>clear liquid</td>
<td>2-12</td>
<td>100-500 ppm a.i.</td>
<td>Powerful synergies with DOWICIL 96</td>
</tr>
<tr>
<td>BIOBAN™ BP Preservative</td>
<td>white powder</td>
<td>2-12</td>
<td>100-500 ppm a.i.</td>
<td>Powerful synergies with BIOBAN CS-1135</td>
</tr>
</tbody>
</table>


Using TAUNOVATE™ high-throughput microbial testing capabilities at our biocides customer application centers around the globe, our qualified microbiologists can help optimize the best ratio of biocides for your formulations.

Our technical team has utilized their expertise to develop a range of synergistic combinations of biocides. – biocides that when used in an optimized combination ratio, provide the highest product performance than when used individually. Combinations allow more flexibility than blends to adapt biocide use to individual formulations and needs.

Ask us about your specific requirements and allow our team to work with you to optimize, synergize and provide the best use of biocides available for your application.

Our TAUNOVATE high-throughput microbial testing is available in our fully-equipped, state-of-the-art laboratories around the world including our headquarters and research & development (R&D) expertise center in Buffalo Grove, IL, USA; Horgen, Switzerland; Singapore; Shanghai, China; Sao Paolo, Brazil; Dubai, United Arab Emirates†; Mumbai, India†; Tokyo, Japan†; and Guangzhou, China†.

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<table>
<thead>
<tr>
<th>Product Name</th>
<th>Water Miscible</th>
<th>Oil Soluble</th>
<th>Antifungal</th>
<th>Effective in Combinations</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOBAN® RP Preservative</td>
<td>pH range: 7</td>
<td>Typical line: 300 ppm a.i. Physical State: clear liquid/white powder</td>
<td></td>
<td></td>
<td>Low color</td>
</tr>
<tr>
<td>BIOBAN CS-11S Preservative</td>
<td>pH range: 7</td>
<td>Typical line: 188-308 ppm Physical State: clear liquid</td>
<td></td>
<td></td>
<td>Aids in moisture inhibition</td>
</tr>
<tr>
<td>CARSAKID® BIT Preservative</td>
<td>pH range: 2-12</td>
<td>Typical line: 86-088 ppm a.i. Physical State: dry powder/clear liquid/aqueous suspension</td>
<td></td>
<td></td>
<td>Non-formaldehyde releaser</td>
</tr>
<tr>
<td>CARSAKID CM Preservative</td>
<td></td>
<td>Typical line: 14 - 16 ppm a.i. Physical State: clear liquid</td>
<td></td>
<td></td>
<td>Low volatile</td>
</tr>
<tr>
<td>CARSAKID ULTRA BIT Preservative</td>
<td></td>
<td>Typical line: 98-004 ppm a.i. Physical State: white powder/Salt tolerant</td>
<td></td>
<td></td>
<td>High purity, low color, broad spectrum use</td>
</tr>
<tr>
<td>DOWICIL™ 35 Preservative</td>
<td>pH range: 7-9</td>
<td>Typical line: 350 - 1500 ppm Physical State: white powder/metal - soluble large</td>
<td></td>
<td></td>
<td>Non-ionic</td>
</tr>
<tr>
<td>DOWICIL™ 96 Antifouling</td>
<td>pH range: 3-7</td>
<td>Typical line: 180-308 ppm Physical State: clear liquid</td>
<td></td>
<td></td>
<td>Low color</td>
</tr>
<tr>
<td>DOWICIL 84-38 Antifouling</td>
<td>pH range: 3-6</td>
<td>Typical line: 180-280 ppm Physical State: clear liquid</td>
<td></td>
<td></td>
<td>No tolerance issues in most applications</td>
</tr>
<tr>
<td>FLUMICON® DIF Fungicidal/Algaecidic Agent</td>
<td>pH range: 3-10</td>
<td>Typical line: 21 - 80 ppm a.i. Physical State: yellowish</td>
<td></td>
<td></td>
<td>Broad spectrum fungicide</td>
</tr>
<tr>
<td>FLUMICON® DIF Metalocide</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Broad spectrum fungicide</td>
</tr>
<tr>
<td>CANGUARD™ BIT + DOWICIL™ 75 Combination</td>
<td>pH range: 2-12</td>
<td></td>
<td></td>
<td></td>
<td>Powerful synergy-optimized protection</td>
</tr>
<tr>
<td>CANGUARD™ BIT + DOWICIL™ 96 Combination</td>
<td>pH range: 2-12</td>
<td></td>
<td></td>
<td></td>
<td>Powerful synergy-optimized protection</td>
</tr>
<tr>
<td>CANGUARD CM + DOWICIL™ 75 Combination</td>
<td>pH range: 2-12</td>
<td></td>
<td></td>
<td></td>
<td>Strong synergy</td>
</tr>
</tbody>
</table>
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Product Name | Physical State | pH range | Potency | Comments
---|---|---|---|---
Gartner color: max. 5 | Physical State: clear liquid | pH range: 7-11 | Typical Use Levels: 1000-2500 ppm | Broad spectrum bactericide/


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