Kalama® and Purox® Benzoates for Paints & Coatings

Purox® B Benzoic Acid
- Building block and chain terminator in alkyd synthesis
- Inhibitor for corrosion and flash rust

Purox® S Sodium Benzoate
Kalama® Sodium Benzoate
Inhibitors for corrosion and flash rust

Kalama® Benzyl Alcohol
Solvent in epoxy resins and paint strippers

Kalama® Benzaldehyde
- Non-reactive diluent for high gloss
- Building block for benzyl amine, benzoin

Purox® B Benzoic Acid
Benzoic acid is a key raw material in the production of alkyd resins to control viscosity and enhance desirable characteristics in the final alkyd coating film, including gloss, adhesion, hardness, and chemical resistance, particularly resistance to alkaline substances. It is also used as an additive for effective corrosion inhibition.

The high quality of Purox B Flakes offers improved chemical characteristics, low odor and color, and high efficiency. It is easy to use and incorporate, with low agglomeration tendency. It dissolves very well in solvents such as xylene.

Purox® S and Kalama® Sodium Benzoates
Sodium benzoate effectively inhibits corrosion and flash rust in waterborne systems at low concentrations. It may also reduce fouling by reducing the tendency of rust and scale to dislodge from corroded surfaces and does not cause foaming in these applications.

Kalama® Benzyl Alcohol
Benzy alcohol is a solvent, co-solvent, or non-reactive diluent used in coatings to reduce viscosity, ensure processability at lower temperatures, and increase film flexibility. It is widely used in epoxy resins for coatings and also has the potential to compatibilize aminic hardeners with the epoxy.

<table>
<thead>
<tr>
<th>Control</th>
<th>0.15% Purox® S Sodium Benzoate</th>
<th>0.1% Purox® B Benzoic Acid</th>
</tr>
</thead>
</table>

- Sodium benzoate and benzoic acid sufficiently inhibit flash rust at 0.1% of the total formula.

40 PVC acrylic, direct-to-metal primer on steel substrate
Purox S dissolved in water used for letdown
Purox B added as a 12% solution in 10% NH₄OH

Orders and Inquiries:
+1 360-954-7100 (Americas) or +31 181-249224 (EMEA)
kalama@emeraldmaterials.com
### Product Form Odor & Color Assay

<table>
<thead>
<tr>
<th>Product</th>
<th>Form</th>
<th>Odor &amp; Color</th>
<th>Assay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purox® B Benzoic Acid</td>
<td>White flakes</td>
<td>Virtually odorless and colorless at typical use levels</td>
<td>≥ 99.9% minimum</td>
</tr>
<tr>
<td>Purox® S Sodium Benzoate</td>
<td>White grains</td>
<td>Virtually odorless and colorless at typical use levels</td>
<td>≥ 99.9% minimum</td>
</tr>
<tr>
<td>Kalama® Sodium Benzoate</td>
<td>Dense granules, powder, or extruded dust free</td>
<td>Virtually odorless and colorless at typical use levels</td>
<td>≥ 99.0% minimum</td>
</tr>
<tr>
<td>Kalama® Benzyl Alcohol</td>
<td>Liquid</td>
<td>Virtually colorless, faintly aromatic</td>
<td>≥ 99.9% minimum</td>
</tr>
<tr>
<td>Kalama® Benzaldehyde</td>
<td>Liquid</td>
<td>Virtually colorless, characteristic odor (almond-like)</td>
<td>≥ 99.5% minimum</td>
</tr>
</tbody>
</table>

**Emerald Kalama Chemical** is the leading global producer of benzoic acid, using the highest industry standards at Emerald’s operations in the U.S. and Europe. We have been a trusted supplier to the coatings industry for many years, providing a wide range of high performance, low-VOC additives, extensive formulation expertise, and global service from our world-scale, backward integrated operations.

Emerald also provides Kalama® VITROFLEX® and K-FLEX® plasticizers and coalescents for a wide range of coatings, adhesives, and sealants and MODULAST® urethane-grade modifiers.

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