Uniquely designed high jetness carbon blacks enable excellent color performance and dispersability.

**EMPEROR 1600** and **EMPEROR 1200** premium carbon black pigments feature exceptional color performance and processability. **EMPEROR 1600** carbon black is designed for solvent-based applications and delivers deep black color with a blue undertone. **EMPEROR 1200** carbon black provides excellent color performance and hiding power. Both products disperse easily and enable up to a 50% reduction in dispersant loading.

**Key applications**

**EMPEROR 1600** and **EMPEROR 1200** carbon blacks provide excellent color performance, a key requirement in a range of applications, including:

- **Electronic Coatings**
- **Automotive Refinish**
- **Decorative Coatings**
- **Automotive Basecoats**
- **Wood Coatings**
- **Furniture Coatings**

**EXCELLENT COLOR PERFORMANCE**

**EMPEROR 1600** and **EMPEROR 1200** carbon blacks deliver exceptional jetness and blue undertone when compared to competitive products across a range of formulations.

<table>
<thead>
<tr>
<th>Mc value (summarizes jetness (L-value) and undertone (a-value and b-value))</th>
<th>L-value: indicates darkness (lower is darker)</th>
<th>b-value: indicates blue undertone (lower is bluer)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EMPEROR 1600</strong></td>
<td>309</td>
<td>1.8</td>
</tr>
<tr>
<td><strong>MONARCH 1300</strong></td>
<td>305</td>
<td>1.3</td>
</tr>
<tr>
<td><strong>EMPEROR 1200</strong></td>
<td>289</td>
<td>0.8</td>
</tr>
<tr>
<td><strong>Competitor</strong></td>
<td>261</td>
<td>-0.3</td>
</tr>
</tbody>
</table>

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<td>295</td>
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<tr>
<td>290</td>
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<tr>
<td>285</td>
</tr>
<tr>
<td>280</td>
</tr>
</tbody>
</table>

In a typical polyester CAB blend coating, **EMPEROR 1600** carbon black enables excellent color performance, followed by **MONARCH 1300** and **EMPEROR 1200** carbon blacks.

Formulation details: polyester/CAB resin blend.
- Mc is the color dependent black value and was developed by K. Lippok-Lohmer. Mc is strongly correlated with the human perception of increased jetness.
- \( Mc = 100 \cdot \frac{\log(Xn/X)-\log(Zn/Z)+\log(Yn/y)}{\log(Xn/X)+\log(Zn/Z)+\log(Yn/y)} \)
EMPEROR® 1600 AND EMPEROR 1200 CARBON BLACKS

PRODUCT GUIDE

Achieving jet black color often means utilizing carbon black pigments that are extremely difficult to work with. In comparison to competitive products, our EMPEROR 1200 and 1600 products can enable higher carbon black loading in the millbase and reduce the amount of dispersant required to stabilize the pigment, all with more than 3x the bulk density of competitive products, reducing dust contamination in processing and improving industrial hygiene.

EASE OF USE

Pre-mix

EMPEROR 1200 and 1600 carbon blacks enable reduced milling time and reduced dispersant loading, both of which reduce overall cost. The following steps should be taken in the pre-mix step to realize this benefit.

- Soak pigments before pre-mix to facilitate mixing
- Pre-mix at high speed (>1000 rpm) until homogeneous

Millbase formulation

EMPEROR 1200 and 1600 carbon blacks enable reduced dispersant loading and increased CB loading in the millbase compared to the leading competition. Excess dispersing aid in the final formulation can result in higher total formulation cost and poor color performance. Low millbase viscosity may result in poor carbon black dispersion quality.

- Typical dispersant loading for other carbon blacks is 20% - 50% by weight of carbon black. EMPEROR 1600 and 1200 carbon blacks can reduce dispersant loading by up to 50%
- Increase carbon black loading to at least 10% to achieve millbase viscosity of 65-75 KU

Finish formulation

- Pre-mix the masterbatch letdown under good agitation
- Post add the millbase to the masterbatch letdown under good agitation
- Mix under good agitation until homogeneous solution is achieved

Milling

When compared to competitive products, EMPEROR 1200 and 1600 carbon blacks typically require half the milling time.

- Pre-mix and then mix while pumping into mill

SOFTBEAD™ TECHNOLOGY

EMPEROR 1600 and 1200 carbon blacks feature our proprietary Softbead™ technology. Softbead technology enables products to disperse as easily as powder-form carbon blacks while also improving industrial hygiene by reducing dust levels associated with the transport and processing of traditional powder-form carbon black. These new pigments also wet-out more quickly and are easier to convey than standard powders.

We suggest reducing the dispersant loading in most formulations by up to 50%.

Detailed application and formulation guides are available at cabotcorp.com or through your Cabot representative.

CABOT

cabotcorp.com

Technical Support
North America: 1 800 462 2313
South America: +55 11 2144 6400
Europe: +371 6705 0700
Asia Pacific: +86 21 5175 8800

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