Cardinal’s 4400-Series is a quality, quick dry, single component solvent-borne alkyd enamel formulated in high gloss and conforms to VOC requirements. This product is designed for a variety of metallic substrates including: cold and hot rolled steel, galvanized steel, aluminum and can be used direct to metal for interior surfaces.

**Typical Uses:**
- Heavy equipment
- Utility trailers
- Farm Equipment
- Waste management equipment
- Ornamental iron work

**Benefits:**
- Fast dry
- Good gloss retention
- Good color retention
- Single component
- RoHS / WEEE compliant

**Cured Film Properties:**
Unless otherwise indicated, testing conducted on 4409-08 gloss black at 2.0 mils DFT (Dry Film Thickness) over 20 gauge Bonderite 1000 test panel, cured 7 days air dried in ambient room temperature (78°F).

<table>
<thead>
<tr>
<th>Test</th>
<th>Method</th>
<th>Parameters</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adhesion</td>
<td>ASTM D3359</td>
<td>Cross-hatch tape</td>
<td>No loss</td>
</tr>
<tr>
<td>Impact</td>
<td>ASTM D2794</td>
<td>Direct</td>
<td>60 in. lbs.</td>
</tr>
<tr>
<td>Flexibility:</td>
<td>ASTM D1737</td>
<td>1/4&quot; mandrel</td>
<td>Pass</td>
</tr>
<tr>
<td>Hardness</td>
<td>ASTM D3363</td>
<td>Pencil</td>
<td>HB – F</td>
</tr>
<tr>
<td>Salt Spray</td>
<td>ASTM B117</td>
<td>250 hrs. 95°, 5% salt solution</td>
<td>Less than 1/8&quot; creepage</td>
</tr>
<tr>
<td>Solvent Resistance</td>
<td>ASTM D4752</td>
<td>MEK 100 rubs</td>
<td>Softens but recovers</td>
</tr>
<tr>
<td>Chemical &amp; Stain Resistance</td>
<td>ASTM D1308</td>
<td>A: Anti-freeze, motor oil, diesel, hydraulic fluid, gasoline, automatic transmission fluid.</td>
<td>No effect</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B: Brake fluid</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>C: No effect</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>D: Discolored &amp; softened</td>
<td></td>
</tr>
</tbody>
</table>

**Repair or Refinishing:** Clean surface to be repainted, remove dirt, grease, oil, and all other contaminants. Abrade surface if necessary. Tack surface clean. For exterior applications – prime any bare metal with 4360-73687 Gray alkyd primer. Apply top coat.

**Surface Preparation and Priming:** The most important steps in a successful coating process are cleaning, pretreatment and priming. The following is a brief outline of some basics for unpainted substrates. It is not intended to be all-inclusive. For more information on your particular application contact Cardinal.

**Cleaning the substrate:** All surfaces to be coated, must be free of dirt, grease, oil, oxidation, mill scale, and all other contaminants. The surface must be thoroughly dry before painting. Air quality regulations have limited the allowable emissions from cleaning operations.

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**Type:** Alkyd polymer.

**Components:** One.

**Colors:** Full range including metallics.

**Gloss:** High, semi gloss and flat.

**Coverage:** At 1.0 mil DFT.
- 585 ft²/gal. at 100% transfer efficiency (TE)
- 380 ft²/gal. at 65% TE

Calculation: 1604 ft²/gal x % volume solids x TE ÷ DFT

**VOC Mixed:** (as supplied)
- 340 grams/liter = 2.75 lbs/gal excluding exempt solvents
- 207 grams/liter = 1.68 lbs/gal including exempt solvents

**Volume Solids:** 38%

**Flash Point:** 40°F TCC

**Shelf Life:** 1 year from date of manufacture in factory sealed container.

**Application:** Thoroughly stir or agitate paint before applying. Brushing, rolling and dipping are not recommended. See Surface Preparation And Priming section for further instructions.

**Viscosity:** 15 – 25" seconds, #2 Zahn cup at 78°F. Will vary depending on color.

**Recoat:** After 4 hours.

**Recommended DFT:** 1.5 – 2.5 mils (depending on color)

**Cure:**
- **Air Dry**
  - Tack free: 20 min.
  - Dry to handle: 60 min.
  - Full cure: 7 days

**Equipment:** Most air quality regulations require the paint application transfer efficiency to be 65% or better. This generally means using electrostatic or high volume low pressure (HVLP) spray guns. Otherwise, conventional pressure feed, airless or air assisted airless spray equipment can be used. Air supply lines need water and oil traps.

**Clean-up:** Clean up should be done as soon as possible. The drier the paint, the more resistant it is to clean up. Air quality regulations may limit allowable emissions from cleaning operations.

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For Industrial Use Only Not For Residential Use

(Continued on page 2)
Steel — A phosphate chemical conversion coating is highly recommended. When this is not possible, a vinyl acid wash pretreatment primer is recommended such as Cardinal’s 4860 series primers.

Aluminum — A chemical conversion coating is highly recommended. When this is not possible, a vinyl acid wash pretreatment primer is recommended such as Cardinal’s 4860 series primers.

Galvanized — Remove all white rust, Cardinal’s W-303-A surface preparation solution improves adhesion.

**PRIMER SELECTION:**

<table>
<thead>
<tr>
<th>PRODUCT NO.</th>
<th>DESCRIPTION</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>4360-73687</td>
<td>2.3# VOC Gray Primer</td>
<td>Improve corrosion resistance</td>
</tr>
</tbody>
</table>

**RELATED PRODUCTS:**

<table>
<thead>
<tr>
<th>PRODUCT NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>SB-05</td>
<td>Fast exempt reducer and gun cleaner</td>
</tr>
<tr>
<td>HP-439</td>
<td>Medium exempt reducer</td>
</tr>
</tbody>
</table>

**TROUBLE SHOOTING:**

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>CAUSE</th>
<th>REMEDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not drying</td>
<td>Too heavy – film thickness</td>
<td>Lower fluid pressure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Spray multiple coats</td>
</tr>
<tr>
<td>Craters</td>
<td>Surface tension</td>
<td>Add 1/2 oz./gal. of J-3081</td>
</tr>
<tr>
<td>Fish-eyes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wrinkling</td>
<td>Recoat too soon</td>
<td>Lengthen recoat window</td>
</tr>
</tbody>
</table>

**PRODUCT LIMITATIONS:**

- Do not recoat prior to four hours. Temperature, humidity or film thickness may change recoat times.
- Do not apply below 50°F.

**SAFETY:** Refer to the product’s Material Safety Data Sheet (MSDS) for complete safety information. Contains organic solvents. Use with adequate ventilation. Do not breathe vapors or spray mists. If component TLVs are exceeded, a NIOSH approved air supplied respirator is advised. See MSDS for TLV information.

Contents are FLAMMABLE. Keep from heat, sparks or open flame. Allergic reactions are possible. Avoid use by persons with respiratory problems. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling.

**FIRST AID:**

*Eye contact:* flush immediately with plenty of water for at least 15 min. and get medical attention.

*Skin contact:* wash thoroughly with soap and water for 5 minutes.

*If swallowed:* do not induce vomiting, get medical attention immediately.

**PRODUCT IDENTIFICATION**

4 4 0 9 – E 0 3 3 8 9  (example)

- Color number
- Gloss: 0 = flat; 1 = 10°; 2 = 20° . . . etc.; 70° - 90°+ = high gloss

Special: e.g., 2 = metallic; 3 = cardtex; 4 = texture; 6 = primer; 7 = clear

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IMPORTANT: Warranty and Disclaimer — The performance characteristics of these products vary according to product application, operating conditions, materials applied to or with and use. Since these factors can affect results, we strongly recommend that you make your own test to determine to your satisfaction whether the product is of acceptable quality, has not been affected by storage or transport and is suitable for your particular purpose under your own operation conditions prior to using any product in full scale production. Seller warrants the products to be free from defects in materials and workmanship. SUCH WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. No representative of ours has authority to waive or change this provision, which applies to all sales of these products.