

ENGINEERING SPECIFICATION

Hyster-Yale Group, Inc. Title: BLACK PAINT (GLOSS 20 +/- 5 @ 60 DEGREES)	Document Control Number: HCE-116
Page 1 of 2 Document Author: Bob Downey	Effective Date: 01-Jan-2016 Revision No. 2016-01

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OBJECTIVE: To specify a lead and lead chromate free* black paint suitable for application over bare metal parts and where a paint film with high durability is required. Polyester Powder Coating and Polyester Full Bake Enamel are the only acceptable materials.

SCOPE: Paint per this specification may be used on HYG product.

Note: HCE-148 should be used to indicate the (black) color of various non-painted items such as labels, plastic components, etc.

Note: Specify HCE-51 when coatings other than or in addition to Polyester Powder Coating and Polyester Full Bake Enamel are allowed.

CITED: ASTM B117, Standard Practice for Operating Salt Spray (Fog) Apparatus
 ASTM D523, Standard Test Method for Specular Gloss
 ASTM D609, Preparation of Cold-Rolled Panels for Testing Paint, Varnish, Conversion Coatings, and Related Coating Products
 HCE-51, Black Paint (Gloss 20 +/- 5 @ 60 Degrees)
 HCE-145, Paint / Finish Functional Requirements
 HCE-148, Black Color

DEFINITIONS: *Lead Free - Paint must contain no added lead or chromates with contamination allowable up to 1 ppm as determined by analysis of the paint solids utilizing EPA method SW 6020 or equivalent.

REQUIREMENTS: Color

Color and color tolerance are per HCE-148 unless otherwise specified on the drawing.

Gloss

Specular gloss of 20 +/- 5 at 60° per ASTM D523. Gloss test shall be made on steel panels conforming to ASTM D609, Type 3 - Method A with a dry paint film thickness that satisfies the functional requirements of this specification.

Composition

The composition of the paint/finish is the responsibility of the vendor, but is limited by the following requirements:

- Materials used will be a Polyester Powder Coating or Polyester Full Baked Enamel. Epoxy Coatings are not acceptable.
- Paint/finish shall be free of lead*, lead chromate*, and other known toxins. The formulation and its intended application shall comply with all applicable safety and environmental regulations. Material Safety Data Sheet, Product Safety Data Sheet, or local equivalent must be supplied by paint vendor to using facility.

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- The paint vendor will report values for the following parameters. Report will be in writing to the procuring plant for each batch of paint.

Delta E value per HCE-148

Container Marking

Paint containers shipped to HYG plants must be marked clearly with the letters "HCE-116 BLACK PAINT – GLOSS 20 +/- 5", the vendor name and number, batch number and date of drumming. Vendor shall comply with all applicable packaging and labeling requirements.

Storage

Paint stored above 4°C (40°F) in unopened vendor containers for three months shall not settle, skin or gel enough to affect application or performance. Any settling or separation that does occur must be easily re-incorporated. Other "storage life" may be negotiated between vendor and a HYG plant.

Functional Requirements

Paint per this specification must comply with functional requirements in HCE-145 unless otherwise defined in this specification or on the drawing.

Salt Spray Resistance

After suitable cure, a diagonal scribe mark to bare metal shall be made across the side of the panel and then exposed to a 500 hour salt spray test per ASTM B117. A minimum of three test panels shall be exposed.

The rust shall creep no more than 3.2 mm (0.125 inches) on either side of the scribe line. No field blistering is permitted.

METHOD OF SPECIFYING:

HCE-116 BLACK PAINT