



Standard Specification for Appearance of Electroplated Plastic Surfaces¹

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1. Scope

1.1 This specification limits the amounts and types of visual defects that can be tolerated on decoratively electroplated surfaces of plastic products. The quantity of defects permitted shall be specified by the purchaser.

2. Referenced Documents

2.1 *ASTM Standards*:²

B 374 Terminology Relating to Electroplating

D 883 Terminology Relating to Plastics

3. Terminology

3.1 *Definitions*—See Terminology **B 374** for terms relating to electroplating. For terms not relating to electroplating, see Terminology **D 883**.

4. Classification of Surfaces

4.1 The appearance of surfaces will be separately evaluated depending on the prominence of the surface under conditions of ordinary use.

4.1.1 *Surface A*—The surface that appears most prominent to the observer, or most likely to be noticed at first glance.

4.1.2 *Surface B*—The surface (usually adjacent to Surface A) which is somewhat less prominent to the observer.

4.1.3 *Surface C*—The surface not readily seen by the observer except at an angle, or by special observation.

4.1.4 *Surface D*—The surface not visible to the observer under conditions of normal use.

5. Significance and Use

5.1 Where electroplated plastics are used for decorative purposes, the appearance after plating is important. This standard provides a means of evaluating the appearance of the substrate and the coating.

6. Method of Evaluation

6.1 The part under test shall be evaluated in the same relative position as it will normally be viewed under usual conditions of use.

6.2 After proper positioning, the part under test shall be evaluated at a distance of not less than 600 mm nor more than 900 mm from the observer, using diffused daylight-type fluorescent lighting or 1500 to 1600 lm/m² at the surface of the part being inspected.

6.3 The observer shall have 20/20 vision at a distance of 600 to 900 mm, corrected with eyeglasses if necessary.

7. Appearance Guide

7.1 **Table 1** limits the extent to which various defects are acceptable on each of the four surface classifications described in Section 4.

7.2 In **Table 1** the term “some” assumes that the defects cited are not outstanding, too numerous, or located too closely together. The specific number of defects permitted, and their spacing, shall be specified by the purchaser. The term “no” indicates that the defect cited is not normally acceptable. The term “yes” indicates that the defect cited is normally acceptable.

8. Keywords

8.1 appearance; electroplated plastic

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.



TABLE 1 Evaluation of Appearance of Electroplated Plastic Surfaces

Defect	Surface			
	A	B	C	D
Cold shot ^A	no	no	some	yes
Ejection marks ^A	no	no	yes	yes
Flash ^A	no	no	no	no
Gate mark ^A	no ^B	some	yes	yes
Parting time ^A	no ^B	some	yes	yes
Sink marks ^C	no ^B	no ^B	yes	yes
Splay ^A	no	no	some	yes
Weld line ^A	no ^B	some	yes	yes
Burnt deposit ^C	no	no	some	some
Cracks ^C	no	no	no	no ^D
Peeling ^C	no	no	no	no ^D
Pits ^C	no	no	some	yes
Roughness ^C	no	no	some	yes
Scratches, nicks ^C	no	some	some	yes
Staining ^{C,E}	no	no	some	yes
Voids ^C	no	no	some	yes
Blisters ^F	no	no	no	no ^D
Visible intermediate deposits ^F	no	no	no	some ^G
Off color ^F	no	no	some	yes
Rack mark ^F	no	no	no	yes
Stardusting ^F	no	no	some	yes

^A These defects arise primarily in the plastic-molding operation.

^B Existence of these defects should be noted and resolved prior to tool manufacture. A change of design may be required.

^C These defects arise in either the plastic-molding or electroplating operation.

^D Blisters, or peeling, or cracks in the gate area or in the electroplating-rack contact area may be acceptable if the given area is covered or otherwise hidden after assembly.

^E Not removable by wiping or cleaning.

^F These defects arise primarily in the electroplating operation.

^G May occur at rack contacts or low current-density areas.

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