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Designation: ~~C1520 – 02 (Reapproved 2015)$^{\varepsilon 1}$~~ C1520 – 20

Standard Guide for Paintability of Latex Sealants[1]

This standard is issued under the fixed designation C1520; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

~~ε^1 NOTE—Duplicate wording was deleted in 18.1 in July 2015.~~

1. Scope

1.1 This guide describes the practical considerations that may be used to determine the compatibility of a paint or coating to be applied over a latex sealant or caulk. It evaluates the appearance and not the performance characteristics of the coated or painted joint.

1.2 The committee with jurisdiction over this standard is not aware of any comparable standards published by other organizations.

1.3 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate ~~safety~~ safety, health, and ~~health~~environmental practices and determine the applicability of regulatory ~~requirements~~limitations prior to use.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

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2. Referenced Documents

2.1 *ASTM Standards:*[2]

C717 Terminology of Building Seals and Sealants

D1729 Practice for Visual Appraisal of Colors and Color Differences of Diffusely-Illuminated Opaque Materials

D2244 Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates

E284 Terminology of Appearance

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3. Terminology

3.1 *Definitions*—Refer to Terminology C717 for definitions of the following term(s) used in this guide: compatibility, cure, joint, latex sealant. Refer to Terminology E284 for definitions of the following term(s) used in this guide: gloss.

3.2 *color change*—a change in either the observed (see Practice D1729) or measured color (see ~~Test Method~~ Practice D2244) of a substance.

3.3 *cracking*—a failure resulting in a discontinuous film (of paint) or bead (of sealant).

4. Summary of Practice

4.1 This guide reviews many of the issues concerning the compatibility of latex sealants with paint. While the focus of this guide is on latex sealants, the paint or coating may be of any composition.

5. Significance and Use

5.1 The intent of this guide is to provide the reader with information concerning possible reasons for paint failures where the paint is used over a latex sealant.

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[1] This guide is under the jurisdiction of ASTM Committee C24 on Building Seals and Sealants and is the direct responsibility of Subcommittee C24.10 on Specifications, Guides and Practices.

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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.

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CONSIDERATIONS

6. Temperature

6.1 Since standard testing is usually performed at "room temperature," about ~~22°C,~~23°C, this would be considered the ideal temperature for application and curing. As the temperature deviates from this ideal, the "science" of drying changes in ~~as much as~~ that lower temperature results in slower drying and ~~faster drying occurs at elevated temperatures.~~higher temperature results in faster drying.

7. Percent Relative Humidity

7.1 In waterborne sealants, the humidity directly affects the ~~ability of the system to lose water.~~ retained water in the material. Standard testing is typically ~~done~~performed at 50 % RH, which allows for an acceptable water evaporation rate. Temperature and humidity variations in climatic regions, and fluctuations ~~through~~ occurring during the application and ~~cure will have significant impacts.~~cure, will affect the cure and sealant performance.

8. Type of Paint

8.1 The type of paint applied to the sealant has an effect on how well ~~it~~ the paint may ~~handle~~accommodate dimensional changes, adhere to the sealant, or dry during the curing of the sealant. Paints made from more flexible resins (low Tg) with low pigment volume content (PVC) (PVC << CPVC) will withstand the most ~~change while~~ dimensional change, while paints made with a hard resin (high Tg) ~~at~~ with a high PVC will be ~~the least forgiving.~~ less tolerant of dimensional changes. Broadly speaking, high gloss, interior paints represent the former, while interior flat paints represent the latter.

9. Type of Sealant

9.1 The sealant will have an effect on the adhesion of the paint film, the degree of change in geometry of the paint film, and changes in paint color and ~~gloss. However, generally speaking,~~ gloss; however, these changes are difficult to quantify by the type and quality of the sealant.

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10. Cure Time

10.1 The degree of sealant cure may affect ~~the time to paint,~~ when the paint can be applied, the compatibility of the applied paint with the sealant, and the dry time of the applied paint. An uncured sealant may react with the paint ingredients. Cracking of the paint film may occur when the ~~sealant~~paint is ~~painted~~applied before curing of the sealant bead is complete due to subsequent shrinkage of the underlying sealant. Additionally, migration of sealant components to the sealant bead surface may affect the paint adhesion.

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11. Sealant Geometry/Tooling

11.1 Use of a sealant backing material ~~usually helps to~~ may decrease sealant cracking and thereby ~~also usually~~ decrease paint failure.

12. Method of Paint Application

12.1 The manner in which the paint is applied, ~~that is, roller,~~ (roller, brush or ~~sprayer,~~sprayer) may affect the thickness of the paint ~~that is initially applied.~~ application. Some rollers and brushes, especially ~~low cost~~ low-cost applicators, may lose bristles or leave brush strokes or surface irregularities in the paint film, which may promote premature failures.

13. Substrate Effects

13.1 The porosity, composition and cleanliness of the substrate affect the cure of both sealant and paint. A more porous substrate will wick ~~away~~ water or solvent and shorten the paint curing period. A substrate to which is difficult to ~~adhere to substrate, or one~~ adhere, or a substrate that consists of material containing low molecular weight oils, plasticizers, etc., will affect film formation and wetting, and may induce gloss and color change.

14. Type of Construction

14.1 ~~This affects~~ The structure's design and type of construction may affect the substrates and ~~amount~~quantity of movement ~~that a paint/sealant system may be subjected to.~~to which the sealant and paint may be subjected.

15. Lot to Lot Variation

15.1 ~~A number of~~ Several factors contribute to ~~lot to lot variation in both sealants and paints. Whenever changing either,~~ both sealant and paint lot variations. When a change of material lots occurs, it may be prudent to test the sealant/paint compatibility.