

First Grade Field Non-Conformity Identification

ZODIAQ[®] Quartz Surfaces



Document Purpose:

DuPont is fully committed to the quality of its products and services. This document will identify non-conformities that may appear in product when received from our manufacturing facilities. The document is a reference document only and is not indicative of the normal quality or consistency of products. Using this reference guide, distributors, fabricators and installers can inspect slabs prior to fabrication as required by the Zodiaq[®] Z-1 document. In addition, this document will be used as a resource for field inspections as a part of any warranty claim or dispute resolution. Although some of the non-conformities arise during manufacture, non-conformities may be created during handling or installation, the focus of this document is on non-conformities arising during manufacture.

Who Uses This Document:

This procedure is for use by DuPont and trained personnel of DuPont Authorized Distributors, Fabricators, Installers, and Service Agents during any inspections before and after fabrication, before and after installation and for field inspections.

Slab Grading:

This grading system separates a slab into four equal quadrants where each quadrant is individually inspected for compliance to this procedure. All first grade slabs have at least three quadrants that conform to Table-1 below. If there is a defective quadrant, the defects are highlighted.

Color Categories:

Zodiaq[®] colors can be separated into different categories based on their overall appearance:

- Monochromatic color scheme, are single color products.
- Polychromatic color scheme, are multiple color products.
- Okite[®] Collection colors have a non-directional veining effect.

Similar blemishes have different degrees of acceptability for each of these categories (based on visibility). Therefore, blemish size and frequency limits have been defined based on color category.

Okite[®] Collection Product Description:

These colors have a non-directional movement or veining effect.

The amount of the movement or veining effect is random from color to color, slab to slab and within a slab. The movement or veining effect is not considered a blotch or defect. Such variation is considered normal, and within specification.

Due to the randomness of the veining effect some samples may not capture the overall aesthetic.

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Table-1 First Grade Field Non Conformities

| Blemish | Color Category | | Field Spec | Quantity / Disposition | |
|--|-----------------------------------|---------------|--|--|---------------------------|
| Blotch | Monochromatic & Okite® Collection | | Max 15 mm (0.6 in.) | 1 or more per quadrant = non-conforming quadrant | |
| | Polychromatic | | Max 24 mm (1.0 in.) | | |
| Contaminant | All | Low Contrast | Max 10 mm (0.4 in.) | | |
| | | High Contrast | Max 8 mm (0.3 in.) | | |
| Backside Ridge | All | | Max 2.0 mm (0.1 in.) depth | | |
| Polishing Mark | All | | Max 150 mm (6.0 in.) | | |
| Scratch | All | | Max 50 mm (2.0 in.) | | |
| Topside - Void, Hole, Surface Crack, Missing Material | All | | 1 mm (0.05 in.) - 5 mm (0.2 in.) | | Allow up to 10 per slab |
| Backside - Void, Hole, Surface Crack, Missing Material | All | | Max 5 mm (0.2 in.) | | Allow up to 10 per slab |
| Pitting (pinhole) | All | | 0.5 mm (0.02 in.) – 1 mm (0.05 in.) | | Allow up to 3 per sq. ft. |
| Fissure | All | | See Descriptive Text | All = Unacceptable | |
| Gloss | All | | > 42 units (avg. of 5) | | |
| Thickness | All | | 2 cm = 18.5 – 20.5 mm (0.7-0.8 in.) 3 cm = 28.5 – 30.5 mm (1.1-1.2 in.) | Acceptable | |
| Warp | All | | < 3 mm (0.1 in.) over 1524 mm (60 in.) | | |
| Slab Size | All | | 1321 mm x 2997 mm (52 in. x 118 in.) CA 1397 mm x 3048 mm (55 in. x 120 in.) CM | Acceptable | |

Definition of terms:

Blotch: A blotch is an area lacking quartz crystals or having excess pigment pools. There are two basic types of blotches, monochromatic and polychromatic. A monochromatic blotch occurs in monochromatic colors (the slab matrix contains fine quartz particles only) and a polychromatic blotch occurs in polychromatic colors (the slab matrix contains a mixture of quartz particle sizes).

Contaminant: A contaminant can be a contrasting stone not belonging to the product, a pigment drip, metal, wood, etc... of significantly different appearance compared to the colors in the basic slab pattern. A contaminant is not part of the standard color formula.

Backside Ridge: A visible ridge resulting from the calibration of the backside of the slab.

Polishing Mark: A polishing mark is a wide semi-circular scratch or streak of haze or discoloration.

Scratch: A scratch is caused by unusual abrasion on the surface of the slab, usually resulting in a white line of physical width and depth.

Void: A void is a small area of inadequate pigment/resin saturation around a quartz particle. A void will generally exhibit discoloration and surface roughness.

Surface Crack: A surface crack is a long line of inadequate resin saturation around the quartz particles. Surface cracks generally exhibit discoloration and roughness.

Backside Roughness: Backside roughness includes valleys, pits, and other similar voids.

Pitting: A pit is defined as very small pinhole on the surface that visually extends into the material.

Fissure: A fissure is a crack that appears as a jagged line that can usually be seen on both sides of the slab. A fissure will usually originate at the edge of the slab. A fissure is not acceptable if there is concern about a section of the slab breaking.

Gloss: Gloss is the measure of light reflectivity or shine (at a 60 degree angle). The average gloss level is defined as the average of five gloss readings taken at 5 equal distances across the slab.

Thickness: A slab is produced within a nominal thickness (gauge) limit.

Warp: The amount of curvature (concave or convex) over a distance in linear feet.

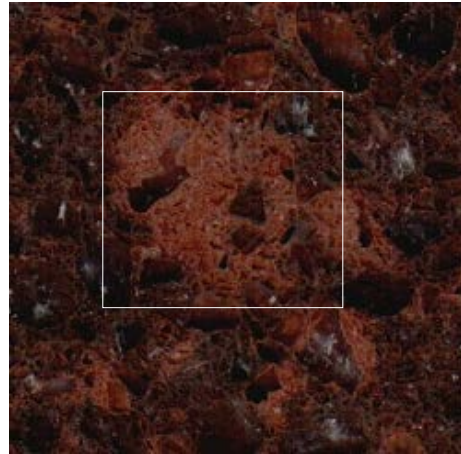
Slab Size: Slab dimensions that define usable material.

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Photographs of Defect Types:



Monochromatic Blotch



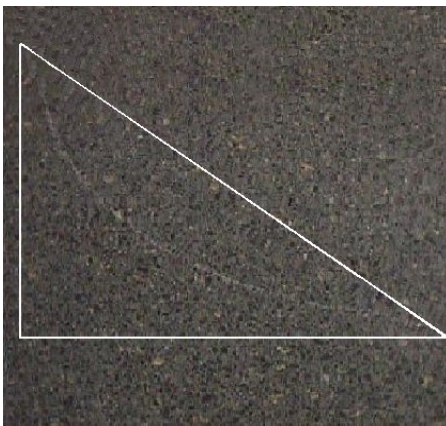
Polychromatic Blotch



Contamination



Fissure



Polishing Arc



Surface Crack

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Okite Collection (veining effect)

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Quadrant Inspection