



ENGINEERING MATERIAL SPECIFICATION

Material Name

Specification Number

HEAT TREATED SAFETY GLASS, TINTED AND WITH COATING

DELTA SK-M28G9500-A

1. SCOPE

The material defined by this specification is a uniformly heat treated and tinted silicate safety glass (float) with a partial coating and a continuous opaque edge zone coating applied to the inner surface of the glass by the screen process.

2. APPLICATION

This specification was originally released for material used for tilting roofs.

3. REQUIREMENTS

3.1 STATISTICAL PROCESS

Suppliers must conform to the requirements of Ford Quality System Standard Q-101. A mutually acceptable Control Plan as described therein is required for material/source approval. Appropriate statistical tools must be used to analyze process/product data so that variation in the final product is continuously reduced.

3.2 APPEARANCE

Color of glass and coating as well as pattern and area of coating shall be as specified on Engineering Drawing respectively in accordance with master sample approved by Design.

3.3 SHAPE

3.3.1 Flat Glass

When measured with the glass in a free state on a plane surface, warp shall not accumulate to more than 0.8 mm per 300 mm edge length based on the major dimension.

3.3.2 Curved Glass

For bent glass and according to shape a maximum overall warp along the edges shall be specified on Engineering Drawing.

Date	Release No.	Released
1994 12 06		Revised and Retyped, was 11 pages
1987 03 03	B/036756 TP	Retyped on new form, Added 3.17.7, 3.17.7.1
1975 12 23	SM/EQ 8013 TP	Released

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3.4 GLASS-GRADING (See Engineering drawing)

For the purpose of inspection to this specification, tilting roof glass is divided into three zones or grading areas. These areas are designated 'A', the entire partially coated glass areas, and 'B', the continuously opaque coated edge zone area, and 'C', the concealed, uncoated edge zone area.

3.5 INSPECTION METHODS FOR IMPERFECTIONS

The glass shall be examined by an approved method equivalent to looking through the glass into the diffused light of a clear sky without any direct sun or close background. The observer's eye shall be on a level with the center and looking perpendicular through the glass at arm's length.

3.6 GLASS AND COATING IMPERFECTIONS

Imperfections listed below are maximum permissible unless otherwise specified under 3.6.2. No one piece of glass shall contain all of these imperfections and those present shall be scattered such so they do not affect the function of the glass.

3.6.1 Definition of Imperfections

3.6.1.1 Glass Imperfections

Bubbles:

Clear, round or elliptical shaped gaseous inclusion.

Open Bubbles:

A bubble on the surface of the glass which has been broken into during handling or fabrication.

Bull's Eye:

Hollow spots in the glass surface caused by excessive scratch polishing.

Hair Crack:

Small surface cracks, caused by local temperature differentials and by contact with cool objects.

Cullet Chips:

Glass particles (chivers) fused to the surface.

Digs:

Deep short scratches.

Mold Marks:

Slight trough shaped indentations, imprinted on the glass during bending and tempering operations.

**Pot Lines:**

Very fine straight lines on the surface of the glass sheeting.

Ream:

Regions of different composition within any glass mass. Bands of striae are commonly referred to as ream.

Rubs:

Areas of fine scratches marring the surface of the glass, caused by contact with glass or other substance, leaving a defect on the surface of a milky appearance. Light rubs will transmit light and are grayish in appearance.

Scratches:

Any marking or scoring of the surface produced in manufacturing or handling, appearing as though it were done by a sharp or rough instrument (imperfections caused by transportation or handling coarse, rough, and deep).

Scum:

A floating layer of unmelted material (usually silica) on the molten glass surface (unhomogeneity).

Seed:

Minute bubbles less than 0.8 mm diameter.

Stain:

The leaching, etching or discoloration of the surface of a piece of glass by moisture condensed between two pieces of glass or between glass and some other substance (staining, leaching and impression of paper).

Stones:

Opaque foreign matter in the glass which may be refractory unmelted batch or devitrified glass.

Strings:

A straight drawn outline, usually caused from slow solution of a large grain of sand or foreign matter (unhomogeneity).

Striae:

Regions of different composition within any glass mass (unhomogeneity).

Bloom:

An iridescence which sometimes appears on the surface of heat treated float glass.

**Wave:**

Undulations in the glass mass over a certain region running parallel with the direction of draw.

Tong Marks:

Indentations, extending along one edge of the glass caused by grips used to support the glass in the tempering process.

3.6.1.2 Coating Imperfections**Small Spot Defects:**

Spot defects in the coated area (transparent, uncoated spot), or spot defects in the uncoated area (opaque, coated spot).

Cloudy Printing:

Variations in transmission.

Sully Border of Printing:

Caused by movements during the process of printing or supplementary blurring.

Notched Border of Printing:

Notched (jagged) border of the printed area.

3.6.2 Manufacturing Imperfections - Tolerances**Type**

(see 3.6.1.1.)

Area 'A' and 'B'**Bubbles:**

2 each of max 0.8 mm dia and 1 of max 1.5 dia in area 'A', and 2 of max 1.5 mm dia and 4 of max 0.8 mm dia in area 'B' at a min separation of 100 mm.

Open Bubbles:

Permitted 2 up to 1 dia at a min separation of 100 mm.

Bull's Eye:

Permitted, provided they do not affect the function of the glass and are hardly visible by inspection method 3.5.

Hair Crack:

Not permitted in area 'A', 'B', and 'C'.

Cullet Chips:

Permitted, if not visible by inspection method 3.5.