

MULTIVER
GLASS

DEFECTS IN GLASS

DATA SHEET / Quebec

Version 2.0

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MULTIVER
Cutting edge of the glass industry



LIST OF DEFECTS IN GLASS

- ▶ **BUBBLES** / Gas inclusions in any glass. These inclusions are almost always brilliant in appearance. The term bubble is applied to all such inclusions larger than 1.0 mm in maximum dimension. The term small bubble refers to size between 1.0 and 2.5 mm (see Seeds).
- ▶ **CORDS** / (see Ream) Heavy strings incorporated in the sheet rather than on the surface, occurring without any regularity of direction and appearing to be of considerable thickness.
- ▶ **CRUSH** / A lightly pitted area resulting in a dull grey appearance over the region.
- ▶ **DIGS** / Deep, short scratches.
- ▶ **DIRT** / A small particle of foreign matter imbedded in the glass surface.
- ▶ **FINISH** / See Process surface defects.
- ▶ **FIRE CRACKS** / Small cracks penetrating the surface of the glass usually in the shape of short hooked crescents.
- ▶ **GASEOUS INCLUSIONS** / Round or elongated bubbles in the glass.
- ▶ **HEAVY SEEDS** / A condition in which the fine and coarse seeds are very numerous, such as four or more to the square centimetre.
- ▶ **KNOT** / A transparent area of incompletely assimilated glass having an irregular knotty or tangled appearance.



LIST OF DEFECTS IN GLASS (CONT.)

- ▶ **LINES** / Fine cords or strings, usually on the surface of sheet glass. Waves that extend continuously across the sheet, so that the reflection from the surface appears as a line or series of lines extending either the full width or a considerable distance across the sheet.

- ▶ **OPEN GASEOUS INCLUSIONS** / Bubbles at the surface of glass that are open, leaving a cavity in the finished surface.

- ▶ **PROCESS SURFACE DEFECTS** / Very fine surface defects remaining on the surfaces of plate glass from the grinding and polishing process, consisting of fine pits and cracks that are denoted as finish; when this condition is visible, it is called short finish. Slight surface defects that originate in the process; these can be small particles of foreign materials on either surface or slight defects in the bottom (float) surface.

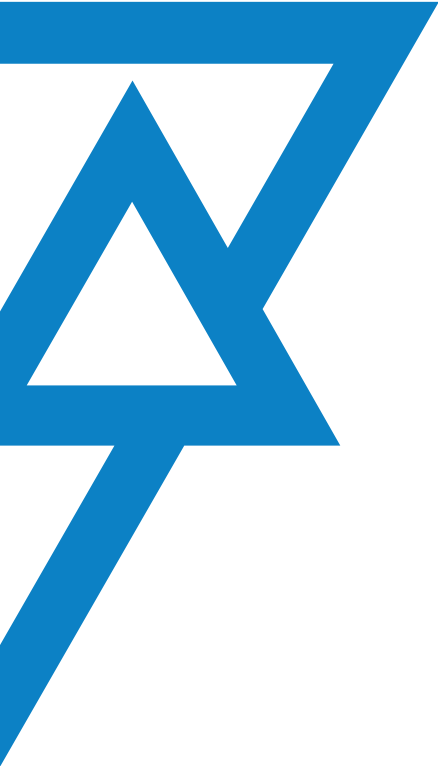
- ▶ **REAM** / (see Cords) Inclusions within the glass, or layers or strings of glass, that are not homogeneous with the main body of the glass. Heterogeneous area of glass incorporated in the sheet resulting in a wavy appearance

- ▶ **RUBS** / Abrasion of the glass surfaces producing a frosted appearance. A rub differs from a scratch in having appreciable width.

- ▶ **SAND HOLES** / Rough spots on the polished surface, produced during coarse grinding, that fine grinding did not remove later owing, to some extent, to coarse grains of grinding sand becoming mixed with finer grades.



LIST OF DEFECTS IN GLASS (CONT.)

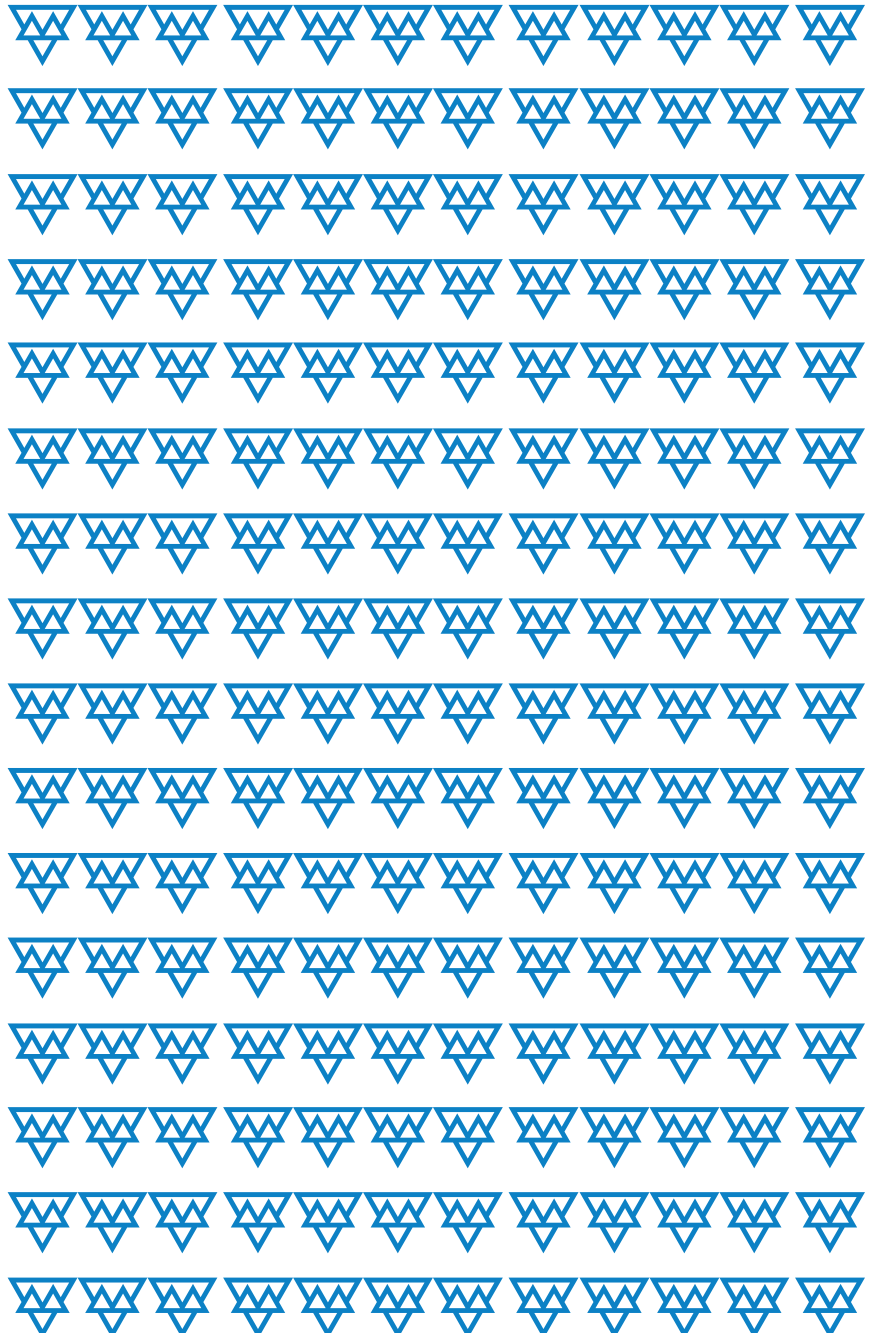


- ▶ **SCRATCHES** / Any marking or tearing of the surface appearing as though it had been done by either a sharp or rough instrument. Scratches occur on glass in all degrees from various accidental causes. Block reek is a chain-like scratch produced in polishing. A runner-cut is a curved scratch caused by grinding. A sleek is a hairline scratch. A crush or rub is a surface scratch or series of small scratches generally caused by handling.
- ▶ **SEEDS** / Minute bubbles less than 1.0 mm in diameter. Fine seeds are visible only upon close inspection, usually appearing as small specks, and are an inherent defect in the best quality of plate glass. Seeds about 1.0 mm in diameter are usually considered coarse seeds.
- ▶ **SHORT FINISH** / (see Process surface defects) Insufficient polish or lack of brilliancy; improperly finished surface that has the appearance of being slightly pitted and wavy when the surface is viewed in reflected light. These indentations, which are slight, have a polished rather than ground surface, but the general effect is a slight dulling of the surface. Poor polish is usually caused by improper grinding.
- ▶ **SKIM** / Streaks of dense seed with accompanying small bubbles.
- ▶ **SLEEK** / A fine scratchlike mark having smooth boundaries, usually produced by a foreign particle in the polishing operation.
- ▶ **STONES** / Any opaque or partially melted particle of rock, clay or batch ingredient embedded in the glass.



LIST OF DEFECTS IN GLASS (CONT.)

- ▶ **STRINGS /** (see Ream) Wavy, transparent lines appearing as though a thread of glass had been incorporated into the sheet.
- ▶ **WAVE /** Defects resulting from irregularities of the surfaces of glass making object viewed at varying angles appear wavy or bent.





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