



GUIDELINES FOR CUT EDGE QUALITY

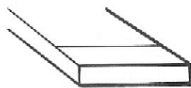
The as-cut quality of glass edges is the single most important factor affecting the edge strength of glass. Poor cut-edge quality can reduce the glass edge strength by 50% or even more, depending on the severity of the edge damage resulting from poor cutting techniques.

Glass edge quality, and the resulting glass edge strength, is particularly critical to the performance of the glass under thermal loading, and in applications where one or more edges is not supported (such as butt-glazing).

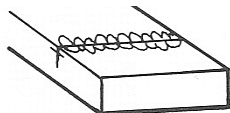
PPG is pleased to offer these Guidelines for Cut Edge Quality, including the representative pictures on page 2. The pictures can be used for comparative purposes to provide a relative judgement of cut edge quality.

Some Terminology

Score: The furrow made by the glass cutting tool.



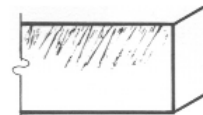
Wings: Glass flakes originating on each side of the score. They may fly out under excessive cutting wheel pressure.



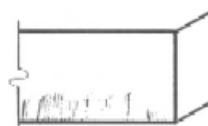
Convolutions: Smooth rolling surfaces on the glass edge - not a weakening factor.



Shark Teeth: Dagger-like imperfections which start from the score surface. The edge strength and resulting potential for glass breakage increases as the depth, roughness, and number of shark teeth increases.



Serration Hackle: Edge imperfections, usually perpendicular to glass surface, which occur at surface opposite the score. The edge strength and resulting potential for glass breakage increases as the density and depth increases.



Flare: Sharp protrusion at junction of the edge and glass surface. Susceptible to further damage

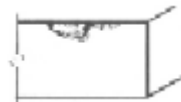


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Bevel: An edge that is not perpendicular to the glass surfaces.



Flake Chips: Smooth shallow chips.



V-chips: Rough, penetrating chips.



Acceptable Clean-Cut Edges may have:

- ✓ Score, if wings do not fly out.
- ✓ Convolutions
- ✓ Serration Hackle, only within 6-inches of the corners.
- ✓ Flare or Bevel, if not more than 1/32-inch on 1/8-inch or thinner glass and 1/16-inch on thicker glass. Flare is not allowed where setting blocks contact the glass.
- ✓ Chips, only within 8-inches of corners and if not longer than 1/4-inch across and not deeper than 1/2 the glass thickness.
- ✓ Run lines, if smooth and rolling.
- ✓ Frost/Rubble, a fine grain effect that is typical on the cut edge.

Borderline Edges may have all the defects acceptable for clean-cut edges plus:

- ✓ Shark Teeth, if penetration does not exceed 1/2 the glass thickness.
- ✓ Serration Hackle, if not deep or dense and if spalling is not present.
- ✓ Chips, if not larger than 1/4" across and not deeper than 1/2 the glass thickness.

Some Glass Cutting Best Practices

- ✓ Good housekeeping – keep area, tabletop, and equipment clean.
- ✓ Use the proper wheel for the glass thickness being cut.
- ✓ Ensure that a good quality, sharp wheel is being used.
- ✓ If cutting fluid is used, use quality fluids in the proper quantity.
- ✓ Keep cutting bridge properly aligned.
- ✓ Use proper score pressure.
- ✓ Use proper breakout procedures.

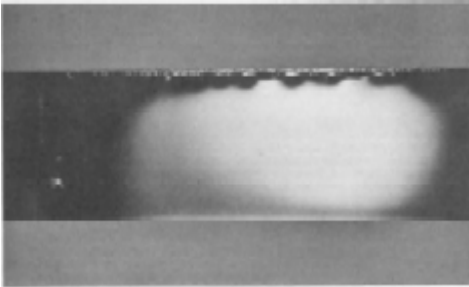
Guidelines Poster

PPG Customers are invited to request a 24" x 38" poster from their account manager. The poster is intended for display in the cutting work area as a visual reference.

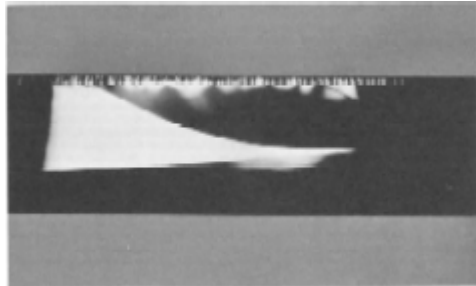


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Acceptable Clean Cut Edges



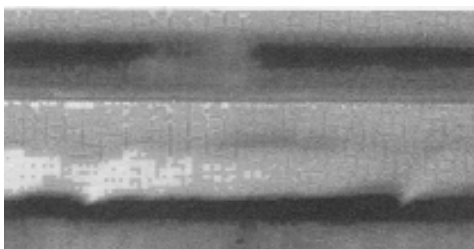
IDEAL



ACCEPTABLE - Convolutions

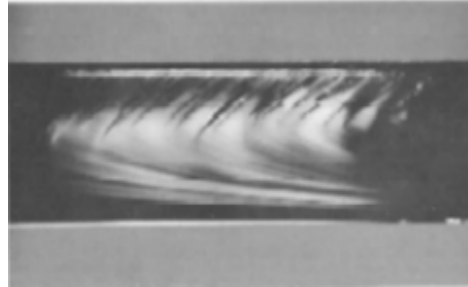


ACCEPTABLE - Run Lines

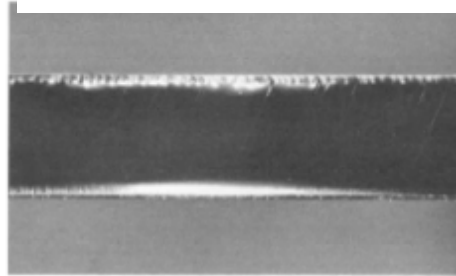


ACCEPTABLE - Frost/Rubble

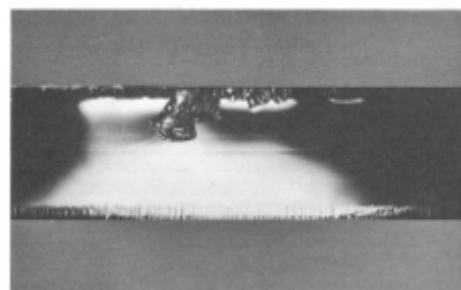
Borderline Edges



BORDERLINE - Shark Teeth



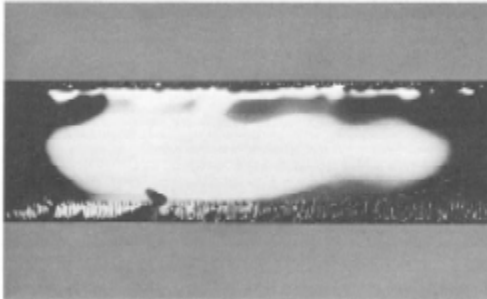
BORDERLINE - Light Serration Hackle



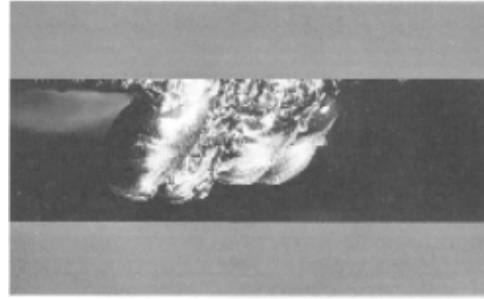
BORDERLINE - Light Serration Hackle Chips



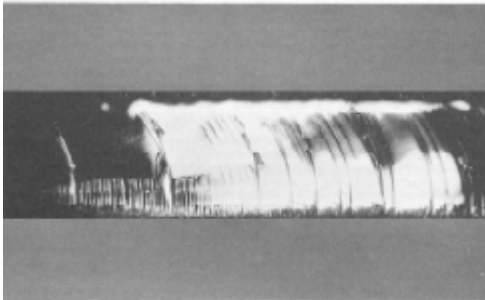
UNACCEPTABLE EDGES



**UNACCEPTABLE –
Deep Serration Hackle
Deep Shark Teeth**



UNACCEPTABLE – Impact Damage



**UNACCEPTABLE –
Serration Hackle with Spalls**

This document is intended to inform and assist the reader in the application, use, and maintenance of PPG Flat Glass products. Actual performance and results can vary depending on the circumstances. **PPG makes no warranty or guarantee as to the results to be obtained from the use of all or any portion of the information provided herein, and hereby disclaims any liability for personal injury, property damage, product insufficiency, or any other damages of any kind or nature arising from the reader's use of the information contained herein.**



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HISTORY TABLE		
ITEM	DATE	DESCRIPTION
Original Publication	10/1982	TSR-130
Revision #1	1/4/2002	Excerpts from TSR-130 to TD-119