



Paul N. Gardner Company

X CUT GAUGE ADHESION

X Cut Adhesion Gauge
instructions on how to use for
adhesion testing.



Cross Hatch Dual Tool

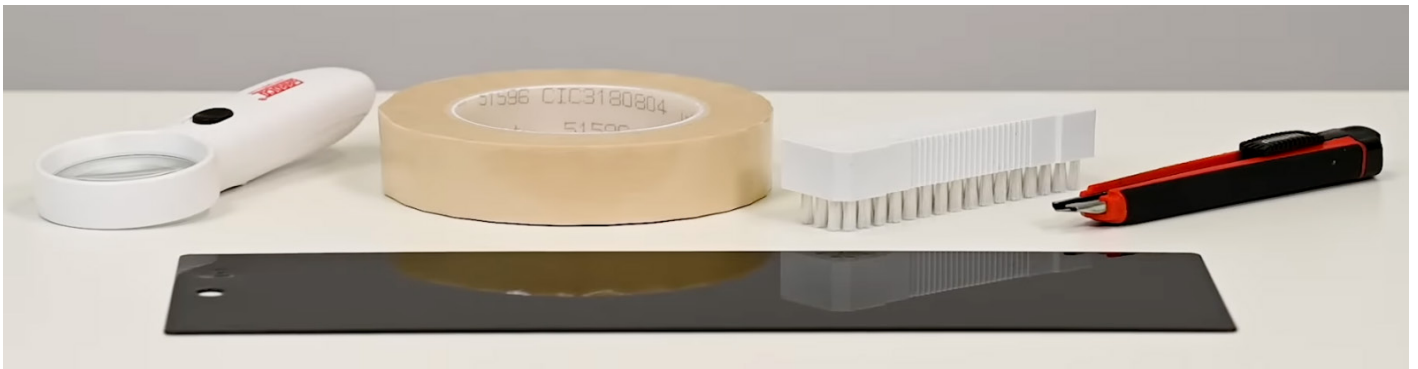


The X-Cut Adhesion Gauge assesses the adhesion of coating films by guiding a cutting tool through an X-shaped pattern, then evaluating coating removal according to ASTM rating criteria.

It is typically used on coating films greater than 5 mils and is designed for fast, practical adhesion checks in both the lab and the field.

Before You Begin

1. Prepare the test specimen as outlined in ASTM D3359 Method A or ASTM D6677 (see next page for chart references).
2. Choose a sample area that is clean, dry, and free of imperfections.
3. Make sure the coating can be cut through to the substrate in one steady motion.



Instructions for Use

1. Place the X-Cut gauge on the selected test area and align it so the X pattern marks the area to be cut.
2. Using a cutting tool, follow the X-shaped pattern on the gauge.
3. Cut through the coating to the substrate in one steady motion, using enough pressure to ensure the cut reaches the substrate.
4. Confirm that the cut reaches the substrate. If it does not, repeat the X-cut in a different location.
5. Apply pressure-sensitive tape over the X-cut area using controlled pressure so the tape makes good contact with the coating.
6. Remove the tape to assess whether the coating adhesion to the substrate is sufficient and observe the cut area for any adhesion failure.
7. Evaluate the results as indicated in ASTM D3359 Method A. If using ASTM D6677, refer to the performance evaluation chart for the rating scale.



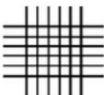
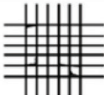
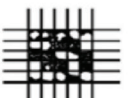
Classification of Adhesion Test

For ASTM D3359 Method A, compare the X-cut pattern to the classification chart to determine the amount of coating removal around the incision and intersection.

For ASTM D6677, use the numerical rating system from 10 to 0 to assess how difficult the coating is to remove from the substrate.

See the charts below for reference.

ASTM D3359 Method A

Classification	% Of Area Removed	Surface Of Cross-cut Area From Which Flaking Has Occurred For 6 Parallel Cuts & Adhesion Range By %
5B	0% None	
4B	Less than 5%	
3B	5-15%	
2B	15-35%	
1B	35-65%	
0B	Greater than 65%	

ASTM D6677

Classification		Surface of "X" - Cut from which flaking/peeling has occurred
5A	No peeling or removal	None
4A	Trace peeling or removal along incisions or at their intersection	
3A	Jagged removal along incisions up to 1/16" on either side	
2A	Jagged removal along most of incisions up to 1/8" on either side	
1A	Removal from most of the area of the X under the tape	
0A	Removal beyond the area of the X	

Rating	ASTM D6677 Rating System
10	Coating is extremely difficult to remove; fragments no larger than approximately 0.8 by 0.8 mm (1/32 in x 1/32 in.) removed with great difficulty.
8	Coating is difficult to remove; chips ranging from approximately 1.6 by 1.6 mm (1/16 by 1/16 in) to 3.2 by 3.2 mm (1/8 by 1/8 in.) can be removed with difficulty.
6	Coating is somewhat difficult to remove; chips ranging from approximately 3.2 by 3.2 mm (1/8 by 1/8 in.) to 6.3 by 6.3 mm (1/4 by 1/4 in.) can be removed with slight difficulty.
4	Coating is somewhat difficult to remove; chips in excess of 6.3 by 6.3 mm (1/4 by 1/4 in.) can be removed by exerting light pressure with the knife blade.
2	Coating is easily removed; once started with the knife blade, the coating can be grasped with ones fingers and easily peeled to a length of at least 6.3 mm (1/4 in.).
0	Coating can be easily peeled from the substrate to a length of greater than 6.3 mm (1/4 in.).