Dahec Instrumentacion

Cross-Cut Tape Test

Instructions

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Materials

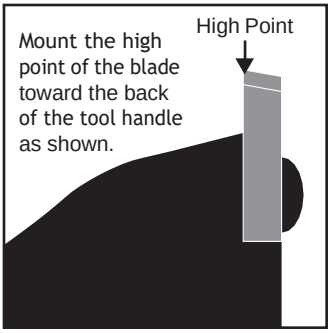
The Cross-Cut Kit by Precision Gage& Tool Company provides almost everything you need to perform Adhesion and Flexibility Tests to meetthe standards of ASTM Test method D-3359. In the kit, you'll find a blade, ablade holder/handle, a hex wrench for
changing blades, an extra clamp screw,a small flaking and cleaning brush, a lighted magnifier, and a roll of test tape.You'll also need a rubber eraser on theend of a pencil.

Test Specimens

In the field, you'll test the actual coated structure or article you want to evaluate. In the lab, you may applythe materials you're testing to panelsof the appropriate composition and surface conditions. Either way, the testing surface must be flat. You can check flatness with a straight edge such as a steel rule.

Procedure

1. Make sure your specimen is at room temperature (or other mutu- ally agreed upon temperature) andplaced on a firm base.
2. Select an area free of blemishes and minor surface imperfections. Under the illumination of the magnifier, use the cross-cut tool tomake parallel cuts as follows:
3. For dry film coatings of thicknessof 2.0 mils (50 µm) or less, use afine blade (1.0 mm spacing). For coatings having a dry film thick-ness between 2.0 mils (50 µm) and 5 mils (125 µm), choose a medium (1.5 mm spacing) or coarse (2.0 mm spacing) blade.



4. Make the first cut about 3/4 in. (20mm) long. Cut through the film to the substrate in one steady mo- tion, using just enough pressure toreach the substrate.
5. After making the cut, gently remove any detached flakes or ribbons from the film with your kit'sbrush.
6. Next, make a second cut at 90^0 toand centered on the original cuts to create a grid pattern in the film.
7. Brush the area again and inspect the cuts to make sure you've reached the substrate. If not, makeanother grid in a different location.
8. Remove two complete laps of your kit's test tape and discard. Remove an additional length at a steady rate(don't jerk it) and cut a piece about3 in. (75 mm) long.

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9. Place the center of the tape over the grid and smooth it into place. To make good contact with the film, rub the tape firmly with a pen-cil eraser. The color under the tapehelps you determine when you've made good contact.

10. Wait about 90 seconds, then remove the tape. Seize the free end and quickly (without jerking) pull it back upon itself as close aspossible to a 180^0 angle.

11. Using the kit's illuminated magni- fier, inspect the grid area for coat-ing removal. Rate the coating's adhesion according to the Clas- sification scale below; **see back for illustrated Classification of Results table.**

5B The edges of the cuts are com- pletely smooth; none of the coatingon the grid squares is detached.

4B Small flakes have detached at intersections, affecting no more than approximately 5% of the area.

3B Small flakes have detached along edges and at intersections of cuts. Approximately 5 to 15% of the grid is affected.

2B The coating has flaked alongthe edges and on parts of the squares. Approximately 15 to 35%of the grid is affected.

1B The coating has flaked in long strips along the cut edges, andwhole squares have detached. Approximately 35 to 65% of thegrid is affected.

0B Flaking is worse than Grade 1B.

Report Report the number of tests, their mean and range, and where the failure occurred—i.e., between the first coat and substrate, between the first and second coat, etc. Note the substrate used, the type of coating and the methodof cure.

If the adhesion strength of the tape has been determined in accordance with Test Methods D 1000[1] or D 3330[2],report the results with the adhesion ratings. Otherwise, report the specifictape used.

Precision and Bias Use the following criteria to judge theacceptability of your results.

Repeatability— If adhesion is uniformover the surface being tested, results obtained for two measurements by the same operator should not differ bymore than one rating category.

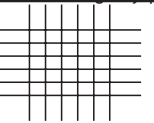
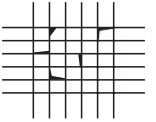
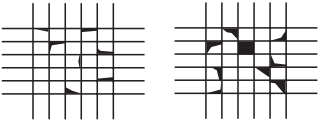
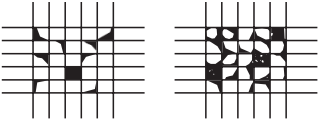
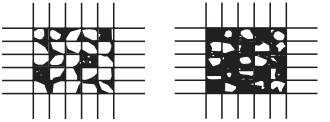
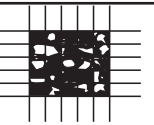
Reproducibility— Test results obtainedby different operators (each the mean of two measurements) should not differby more than two rating categories.

Bias cannot be established for these test methods.

[1] D 1000 Test Methods for Pressure-Sensitive Adhesive-Coated Tapes Used for Electrical and Electronic Applications; *Annual Book of ASTMStandards, Vol. 10.01.*

[2] D 3330 Test Method for Peel Adhe-sion of Pressure-Sensitive Tape for 180^0 Angle; *Annual Book of ASTM Standards, Vol. 15.09.*

Classification of Results

Classification for percentage removed	Surface of crosscut area (six each horizontal and vertical parallel cuts) where flaking of area has occurred: adhesion range by percent.*
5B — 0% None	
4B — Less than 5%	
3B — 5% to 15%	
2B — 15% to 35%	
1B — 35% to 65%	
0B — Greater than 65%	

*For illustration purposes only.

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Tape used in the ASTM D3359 Measuring Adhesion by Tape Test –November, 2010

Permacel 99 tape, used prior to May, 2010 in the Precision Gage & Tool Cross Cut Tape Test Kit to perform the ASTM D3359 Measuring Adhesion by Tape Test, has been discontinued by its manufacturer. In place of Permacel 99 tape, Precision Gage & Tool will continue to serve it's customers by offering 51596 tape manufactured
by Interpolymer Group. Experience in the field indicates that 51596 tape has similar properties to the tapes previously recommended for the
ASTM D3359 test; however, customers are advised that the ASTM has not completed laboratory testing of tapes to replace Permacell 99 tape. Users should report in their documentation any differences in the results using 51596 tape compared to past results.
We would appreciate any user feedback on experiences with 51596 tape.

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