



(ASTM D3359)

If a coating is to fulfill its function of protecting or decorating a substrate, it must adhere to it for the expected service life. Because the substrate and its surface preparation (or lack of it) have a drastic effect on the adhesion of coatings, a method to evaluate adhesion of a coating to different substrates or surface treatments, or of different coatings to the same substrate and treatment, is of considerable usefulness in the industry.

The tape test method is a quick identifier as to whether a coating has adhered to the substrate. The tape test can also be performed on coatings that have been immersed in a fluid.

There are two methods described in the ASTM Specification;

Test Method A

- An X-cut is made through the film with a carbide tip tool to the substrate.
- Pressure-sensitive tape is applied over the cut.
- Tape is smoothed into place by using a pencil eraser over the area of the incisions.
- Tape is removed by pulling it off rapidly back over itself as close to an angle of 180°.
- Adhesion is assessed on a 0 to 5 scale.

Test Method B*

- A crosshatch pattern is made through the film to the substrate.
- Detached flakes of coating are removed by brushing with a soft brush.
- Pressure-sensitive tape is applied over the crosshatch cut.
- Tape is smoothed into place by using a pencil eraser over the area of the incisions.
- Tape is removed by pulling it off rapidly back over itself as close to an angle of 180°.
- Adhesion is assessed on a 0 to 5 scale.

* Method B is not considered to be suitable for coatings thicker than 5 mils.

Example: ASTM D3359 adhesion testing on a Powder Coating TDS Sheet:

Film Thickness (ASTM D)	2.0 – 3.0 mil
Gloss 60°angle (ASTM D-523-89)	95+%
Hardness (ASTM D-3363-92A)	2H
Flexibility (ASTM D-522)	1/8 inch
Adhesion (ASTM D-3359-95A)	5b (100%)
Impact Direct/Indirect (ASTM D-2794-93)	160/160 inch-lb.
Exterior Durability	Good
Salt Spray (ASTM B117)	1,000Hrs+ < 3mm
Specific Gravity	1.29±0.03