

PROCEDURE TO SCRIBE COATINGS AND MEASURE CREEPBAC AND CORROSION PROPAGATION

Application

This method covers the scribing of coatings on rigid surfaces to expose the base metal using a handheld tool. After corrosion testing, the method for measuring the amount of corrosion propagation and coating delamination from the scribed line is described.

Apparatus Required

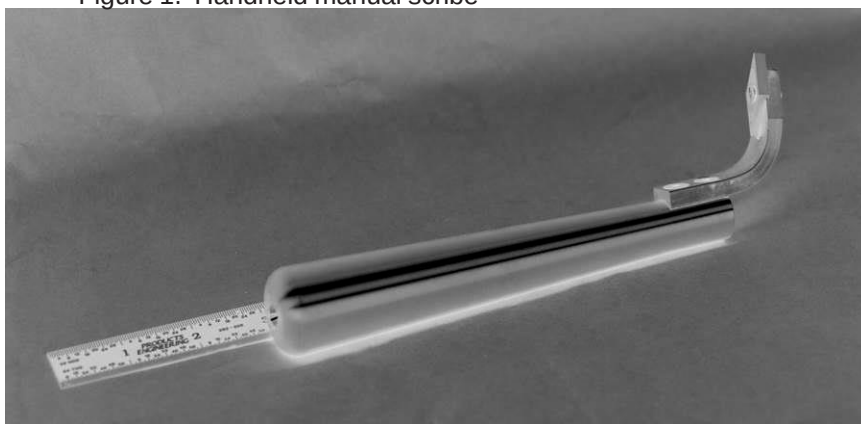
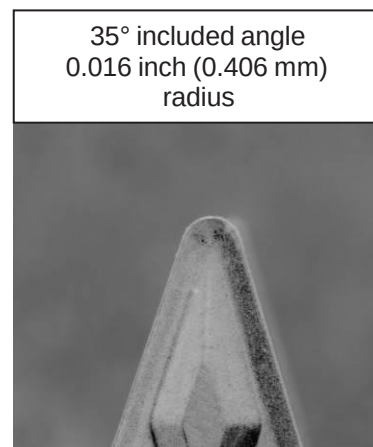
Scribing Tool

A replaceable carbide cutting tip is mounted to a custom made handle, Figure 1. This scribe tip is a V shaped carbide turning insert manufactured by Valenite having part number VBGT 331 PF3 VP9610. The diamond shaped tip has a 35° angle with a 0.016 inch radius.

Note 1: Limited trials on e-coated steel panels found the tip to expose a 0.2 – 0.25 mm width of substrate with medium pressure.

Note 2: There are several types of cutting tips available in the industry as specified by different specifications. No attempt has been made to compare results to this cutting tip.

Figure 1. Handheld manual scribe



Maintenance: Tool shall be inspected for wear and breakage before each test. Wear can also be evaluated by scribing a painted panel and evaluating the width of the scribe line compared to a new tip. Damaged or worn scribes shall be replaced.

Ruler / Scale, 1 mm divisions. Two needed.

Straight Edge

Date	Action	Revisions	Rev. 02
2017 05 03	Revised	Added reporting requirement/table	K. Redlin, NA
2015 10 09	Revised	Added photos	A. Wedepohl, NA
2011 07 14	Activated		J. LaDuke, NA

Scribing Procedure

1. The scribing tool shall be applied so the cutting edge is at an 80° angle in the scribe line direction and 90° with the plane of the panel. See Figure 3 and Figure 4 respectively.

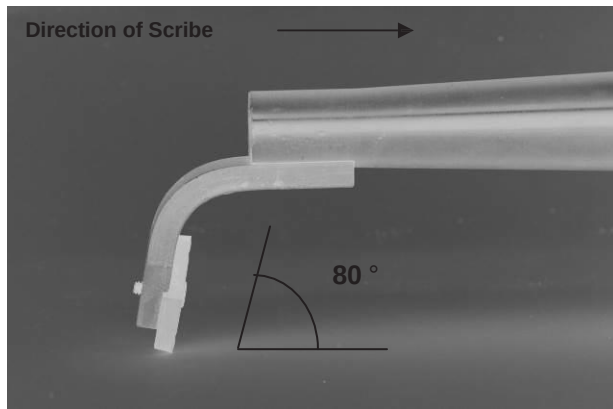


Figure 3

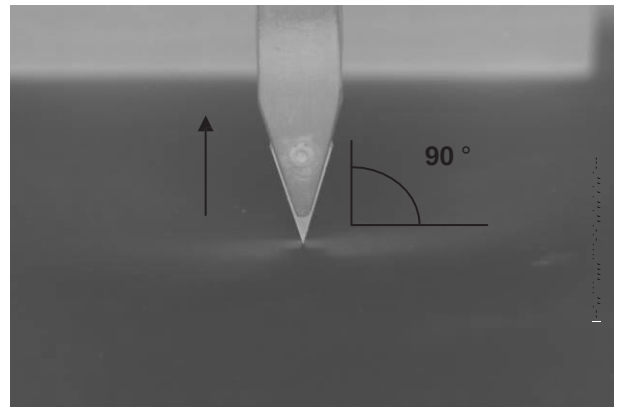


Figure 4

2. For part testing, a horizontal scribed line is required.
3. For test panel testing, a diagonal line may be included with a horizontal line when requested. These lines should be made as outlined on Figure 5.
4. Using a straightedge, scribe a line between 70 mm and 80 to 100 mm in length. If scribing on a curved surface, use a flexible straightedge and maintain the scribe angles to the best of ones ability.

The scribe must extend down to the substrate. Multiple passes over the same line may be required, especially for thick coatings. In some cases it helps to apply minimal pressure on the first scribe to avoid fracture and chatter of the paint system surrounding the line. Metal shavings are a good visible indicator that the substrate has been reached. For zinc coatings on steels (with or without paint) a minimum of three passes is recommended to reach the substrate. If in doubt, use magnification to visually inspect the scribe to determine if the substrate has been reached.

5. Wipe away the loose coating debris with a cloth and verify that the scribe is free of metal burrs.
6. Measure the width of the scribe in the substrate under low magnification and record the values.
7. Unless otherwise indicated, by the corrosion test procedure, the flat panel is intended to be oriented $15^\circ \pm 5^\circ$ from the vertical with the scribe lines facing upward.