

RESISTANCE TO SCRATCHING**Application**

This procedure is used to determine the resistance to scratching on surfaces of plastic or other materials under standard conditions.

Apparatus Required**Mechanically Driven Scratch Apparatus**

Apparatus is a movable sledge with five metal fingers - 250 mm long, one end fixed, the other end of fingers are supplied with interchangeable scratch pins (steel balls, highly polished, 7.0 +/- 0.2 mm or 1.0 +/- 0.1 mm diameter). The pins are loaded with different weights exerting the following standard forces on the surface of test material:

Scratch finger No.	1	7.0 N
	2	6.0 N
	3	4.5 N
	4	3.0 N
	5	2.0 N

Note: If necessary it is possible to move/change the weight(s) on the scratch finger(s) so that force(s) can be differentiated.

The complete apparatus should be purchased from the following:

Toolmakers Dept. NZ/MF-172, Ford-Werke AG
Postfach 60 40 02
D-50725 Koeln
West Germany
Phone: 221-90-15841
Fax: 221-90-16691

Spring Balance

10 N maximum or functionally equivalent electronic force transducer

Date	Action	Revisions
2001 09 24	Revised	Editorial – no technical change A. Cockman
1995 05 10		

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Viewing Cabinet

As described in FLTM BI 109-01

Stop Watch - with analog display

Injection Molding Equipment

Demag D 100 or equivalent, with Ford Test Tool or equivalent, with specified grain insert and with electronic control (NC 2 or equivalent) to produce consistent molding conditions.

Evaluation Camera

Sony XC-77CE monochrome camera or equivalent.

Electronic Plotter Station Including Software Package*

Seescan 512 Satellite Image Analyzer with a real time clock, Monitor, Seescan Custom II Lighting Unit including ND8 filter, software "Scratch Assessment System, Version 1v00", or equivalent software.

Source: Seescan Plc, Unit 9
25 Gwydir Street
Cambridge CB1 2LG
United Kingdom

Samples for Visual Evaluation

Flat, recommended size 200 x 150 mm; smaller samples are acceptable if extracted from finished parts.

Samples for Instrumental Evaluation by Using Image Analysis Technique

Test plaques, approx 200 x 150 mm size, produced on a central sample tool only by using optional molding conditions.

Conditioning and Test Conditions

All test values indicated herein are based on material conditioned in a controlled atmosphere of 23 +/- 2 °C and 50 +/- 5 % relative humidity for not less than 24 h prior to testing and tested under the same conditions unless otherwise specified.

Procedure

1. Install the specified scratch pins, 1.0 or 7.0 mm diameter balls as specified by the relevant engineering document, under the fingers.

Note: For instrumental evaluation by using Image Analysis Technique: only 1.0 mm diameter balls are allowed.