SEMI D67-0212
TEST METHODS FOR ANTIFOULING PROPERTY AND CHEMICAL RESISTANCE OF FPD POLARIZING FILMS AND ITS MATERIALS

This Standard was technically approved by the Flat Panel Display – Materials & Components Global Technical Committee. This edition was approved for publication by the global Audits and Reviews Subcommittee on December 24, 2011. Available at www.semiviews.org and www.semi.org in February 2012.

1 Purpose

1.1 This Standard establishes test methods for the antifouling property and chemical resistance of FPD polarizing films and its related materials.

1.2 These test methods can be applied in research and development, quality control and manufacturing. These test methods are also useful for research and development as well as applicability assessment of cleaning agents for the surface of FPDs.

2 Scope

2.1 This Document encompasses the test methods for antifouling property and resistance to chemical reagents of the FPD polarizing films and its related materials, and simulating performance in the potential end use environments and manufacturing processes.

2.2 Chemical reagents may include acids, alkalis, solvents, alcohols, lubricants, cleaning agents, marker pens, foods, cosmetics or any material that may come in contact with the test material.

2.3 Fingerprint fouling is beyond the scope of this Standard.

NOTICE: SEMI Standards and Safety Guidelines do not purport to address all safety issues associated with their use. It is the responsibility of the users of the Documents to establish appropriate safety and health practices, and determine the applicability of regulatory or other limitations prior to use.

3 Referenced Standards and Documents

3.1 None.

4 Terminology

4.1 *Definitions*

4.1.1 *antifouling* — the process of removing or preventing the adhesion of contamination such as smear, smudge, grime and blot.

5 Ambient Temperature and Humidity

5.1 For these tests, the ambient temperature shall be 23 ± 5°C and the ambient humidity shall be 50% ± 20% RH.

6 Samples

6.1 Sample specimens of a polarizing film or its related materials shall be attached to a clean glass plate so as to prevent the presence of gaps or open spaces.

6.2 At least two replicate sample specimens are required for each test case. When several samples are tested, the replicate sample specimens shall not be consecutively tested. For example, samples A, B and C could be tested in a non-consecutive order such as A, B, C, A, B, C; however, it shall not be tested in the order A, A, B, B, C, C.

6.3 Reference samples are recommended to be included in every test to track the consistency of the test methods as well as monitor unintended changes in the test conditions.

SUPERSEDED

Documents Document Sharing Hub
Full document details: SEMI D67-0212

7 Test Procedures of Chemical Resistance

7.1 *General*

7.1.1 This Standard stipulates the following test methods for chemical resistance.

7.1.2 *Method A* — Rubbing with fabric soaked in chemical reagent.

7.1.2.1 *Method A-1* — Delicate rubbing with fabric soaked in chemical reagent.

7.1.2.2 *Method A-2* — Strong scrubbing with fabric soaked in chemical reagent (scrubbing simulates wiping for cleaning).

7.1.3 *Method B* — Static application and deposition of a chemical reagent droplet on the sample specimen.

NOTE 1: Personal protective equipment consisting of eye gear and hand gloves must be used to prevent damage to eyes and skin. If the chemical reagent comes in contact with your eyes, immediately rinse them with water. Adequate ventilation must be provided when volatile solvent is used.

7.2 *Chemical Reagents*

7.2.1 Chemical reagents shall be selected from those used in the end use environments of FPD, the actual use of FPD and the manufacturing process of FPD. The typical chemical reagents simulating indoor and outdoor uses are demonstrated in Tables 1 and 2, respectively. Note that other chemical reagents may also be used. The following information about the chemical reagents shall be reported:

7.2.1.1 Chemical composition, concentration, or product name and the manufacturer,

7.2.1.2 Serial number (if any) and manufacturing date and/or expiration date for use (if known).

7.2.2 These reagents shall be stored under controlled environmental conditions, otherwise these could deteriorate and falsify the test results.

Table 1 Typical Chemical Reagents Simulating the Indoor End Use Environment of FPD

Chemical Reagents	*Concentration*
Ethanol	100%
Isopropyl alcohol	100%
Acetic acid	10%
Ammonia water	2%
Solvent for cleaning spray#1	
Neutral detergent#2	
Hand cream#3	
Beverage (Coffee, cola)	

#1 The typical product for solvent for cleaning spray is IP Solvent™ (Idemitsu Kosan Co., Ltd.).

#2 The typical product for Neutral detergent is Mama Lemon™ (Lion Co., Ltd.).

#3 The typical product for hand cream is Nivea Creme™ (Kao Co., Ltd.).

Table 2 Typical Chemical Reagents Simulating the Outdoor End Use Environment of FPD

Chemical Reagents	*Concentration*
Saline water	
Gasoline (petrol)	
Engine oil	

SUPERSEDED

Documents
Document Sharing Hub
Full document details: SEMI D67-0212