RESISTANCE TO SOLVENTS

OF MARKING, MATERIALS AND FINISHES

ESCC Basic Specification No. 24800

ISSUE 1

October 2002

Document Custodian: European Space Agency - see https://escies.org

LEGAL DISCLAIMER AND COPYRIGHT

european space agency
agence spatiale européenne

Pages 1 to 5

RESISTANCE TO SOLVENTS

OF MARKING, MATERIALS AND FINISHES

ESA/SCC Basic Specification No. 24800

space components
coordination group

Issue/Rev.	Date	Approved by	
		SCCG Chairman	ESA Director General or his Deputy
Issue 2	January 1994		
Revision 'A'	May 1994		

DOCUMENTATION CHANGE NOTICE

Rev. Letter	Rev. Date	CHANGE Reference / Item	Approved DCR No.
		This issue supersedes Issue 1 and incorporates all modifications defined in Revision 'A' to Issue 1 and the following DCR's:-	
		Cover Page	None
		DCN	None
		Para. 3.2.1 : Alinea (c) deleted; alinea (d) changed to (c)	221088
		Para. 4 : 'Three' changed to 'two'; alinea (c) deleted	221088
'A'	May 1994	P1. Cover page	None
		P2. DCN	None
		P5. Para. 4 : First sentence changed	221105

TABLE OF CONTENTS

1. SCOPE

1.1 GENERAL

This specification defines the basic requirements applicable to the resistance to solvents of marking, materials and finishes for electrical, electronic and electro-mechanical components suitable for space application.

1.2 PURPOSE

The purpose of this test is to verify that the markings or colour-coding will not become illegible or discoloured on the component parts (including printed-wiring boards) when subjected to solvents (normally used to clean solder-flux, fingerprints and other contaminants from printed-wiring and terminal board assemblies, etc.). The solvents will not cause deleterious effects, or mechanical or electrical damage, or deterioration of the materials or finishes.

2. TERMS, DEFINITIONS, ABBREVIATIONS, SYMBOLS AND UNITS

The terms, definitions, abbreviations, symbols and units specified in ESA/SCC Basic Specification No. 21300 shall apply.

3. REQUIREMENTS

3.1 GENERAL

3.1.1 Formulation of Solvents

The formulation of solvents herein is considered typical and representative of the desired stringency as far as the usual coatings and markings are concerned.

3.1.2 Check for Conflicts

When this test is referenced, care shall be exercised to assure that conflicting requirements, as far as the properties of the specified finishes and markings are concerned, are not invoked.

3.2 MATERIALS

3.2.1 Solvent Solutions

The solvent solutions used in this test shall consist of the following:-

(a) Ethyl alcohol, 99.5% or 95% pure by volume.

(b) Isopropyl alcohol, 99% pure.

(c) De-ionised water at +40°C maximum may be used for certain fluxes. Items shall be thoroughly dried directly after the use of de-ionised water.

3.2.2 Vessel

The vessel shall be a container made of inert material and of sufficient size to permit complete immersion of the specimens in the solvent solutions specified in Para. 3.2.1.

3.2.3 Brush

The brush shall be a toothbrush with a handle made of a non-reactive material. The brush shall have three long rows of hard bristles, the free ends of which shall lie substantially in the same horizontal plane. The toothbrush shall be discarded at the completion of each test.

4. PROCEDURES

Unless otherwise specified in the relevant Generic Specification the specimens subjected to this test shall be divided into two groups with a minimum quantity of one component per group. Each group shall be individually subjected to one of the following procedures:-

(a) The first group shall be subjected to the solvent solution specified in Para. 3.2.1(a).

(b) The second group shall be subjected to the solvent solution specified in Para. 3.2.1(b).

The solution shall be maintained at a temperature of $+25 \pm 5$ °C.

The specimens shall be completely immersed for one minute in the specified solution contained in the vessel specified in Para. 3.2.2. Immediately following immersion, each specimen shall be brushed with normal hand pressure for ten strokes over all that area of the component which contains marking, with the brush specified in Para. 3.2.3. Immediately after brushing, the above procedure shall be repeated two additional times, for a total of three immersions followed by brushings. The brush stroke shall be directed in a forward direction, across the surface of the specimen being tested. After five minutes, the specimens shall be examined to determine the extent of any deterioration that has occurred.

Where a transparent, insulating sleeve covers the component body and protects the marking, the component Manufacturer may elect to conduct the permanence of marking test on the component body with the sleeve removed, and to separately test the sleeve material for resistance to deterioration caused by the solvent solutions.

In all cases where the component Manufacturer elects to test the marking with the sleeve removed, the complete test procedure and sequence, including the tests on the sleeve material, shall be fully defined in the Process Identification Document (P.I.D.).