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**Test method for the measurement
of moisture diffusivity and water solubility in
organic materials used in integrated circuits**

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JEDEC STANDARD

Test Method for the Measurement of Moisture Diffusivity and Water Solubility in Organic Materials Used in Integrated Circuits

JESD22-A120

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JEDEC SOLID STATE TECHNOLOGY ASSOCIATION



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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TEST METHOD FOR THE MEASUREMENT OF MOISTURE DIFFUSIVITY AND WATER SOLUBILITY IN ORGANIC MATERIALS USED IN INTEGRATED CIRCUITS

FOREWORD

A PAS is a technical specification not fulfilling the requirements for a standard, but made available to the public and established in an organization operating under given procedures.

IEC-PAS 62307 was submitted by the JEDEC and has been processed by IEC technical committee 47: Semiconductor devices.

The text of this PAS is based on the following document:

This PAS was approved for publication by the P-members of the committee concerned as indicated in the following document:

Draft PAS	Report on voting
47/1595/PAS	47/1608/RV/D

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NOTE DIN 53495 has been withdrawn and replaced by DIN EN ISO 62:1999-08.

Standard Test Method for the Measurement of Moisture Diffusivity and Water Solubility in Organic Materials Used in Integrated Circuits

(From JEDEC Board Ballot JCB-00-62, formulated under the cognizance of the JC-14.1 Subcommittee on Reliability Test Methods for Packaged Devices)

1 Scope

This specification details the procedures for the measurement of characteristic bulk material properties of moisture diffusivity and water solubility in organic materials used in the packaging of IC components. These two material properties are important parameters for the effective reliability performance of plastic packaged ICs after exposure to moisture and subjected to high temperature solder reflow.

This test method outlines the requirements necessary for the measurement of water sorption properties of organic materials used in the packaging of IC components.

2 Reference documents

ASTM standard D570-98, "Standard Test Method for Water Absorption of Plastics".

SEMI G66-96, "Test Method for the Measurement of Water Absorption Characteristics for Semiconductor Plastic Molding Compounds".

DIN 53495, "Determination of water absorption". 62307:2002

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3 Apparatus

- 3.1 Analytical balance capable of a resolution of either 0.00001g or 0.001% of sample weight.
- 3.2 High temperature oven capable of maintaining uniform temperatures from 100 °C – 250 °C ±2 °C.
- 3.3 Temperature / humidity chamber(s) capable of maintaining temperatures of 30 °C - 85 °C and relative humidities from 60%RH – 85%RH. Within the chamber working area, temperature tolerance must be ±2 °C and the RH tolerance must be ±3%RH.
- 3.4 Perforated stainless steel trays or wire mesh baskets used for holding samples and for placement into ovens.
- 3.5 Large aluminum plate or disk used for heat sink capability.
- 3.6 Desiccator for holding dry samples.