

KEYNOTE PRESENTATIONS

BIOGRAPHY

Dr. Rajan Ambat is currently Professor of Corrosion and Surface Engineering at Department of Mechanical Engineering, Technical University of Denmark. He is also the Manager for the Centre for Electronic Corrosion/CreCon Industrial Consortium at DTU. Climatic reliability of Electronics is a major research activity in his group in close collaboration with a number of major European industries including Danfoss, Vestas, Grundfos, Bosch, and Eltek. Various research activities on climatic reliability include material, component, PCBA, and device level issues and mitigation methods. He is also the Chairman for the Working Party on Corrosion reliability of electronic devices under European Federation of Corrosion. He is also part of the editorial board of corrosion journals.



OVERVIEW OF HUMIDITY DRIVEN RELIABILITY ISSUES OF ELECTRONICS

Rajan Ambat

Centre for electronic corrosion, Department of Mechanical Engineering,
Technical University of Denmark

Electronic control units, power modules, and consumer electronics are used today in a wide variety of varying climatic conditions. Varying external climatic conditions of temperature and humidity can cause an uncontrolled local climate inside the device enclosure. Uncontrolled humidity together with number of other factors including the presence of hygroscopic contamination resulting from the PCBA manufacturing process can introduce deviation from desired functionality or even intermittent or permanent failure of the device. Additional factors are the miniaturization and high density packing combined with the use of several materials, which can undergo electrochemical corrosion in presence of water film formed due to humidity exposure and bias conditions on the PCBA surface. Aim of this paper is to provide an overview of the humidity driven reliability issues on electronics.

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