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The Effect of Epoxy Molding Compound Floor Life to Reliability Performance and mold ability for QFN Package

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This research studied about an epoxy molding compound (EMC) floor life to reliability performance of integrated circuit (IC) package. Molding is the process for protecting the die of IC package form mechanical and chemical reaction from external environment by shaping EMC. From normal manufacturing process, the EMC is stored in the frozen at 5 C and left at around room temperature for aging time or floor life before molding process. The EMC floor life effect to its properties and reliability performance of IC package. Therefore, this work interested in varied the floor life of EMC before molding process to analyze properties of EMC such as spiral flow length, gelation time, and viscosity. In experiment, the floor life of EMC were varied to check the effect of its property to reliability performance. The EMC floor life were varied from 0 hours to 60 hours with a step of 12 hours and observed wire sweep, incomplete EMC, and delamination inside the packages for 3x3, 5x5 and 8x8 mm2 of QFN packages. The evaluation showed about clearly effect of EMC floor life to IC packaging reliability. EMC floor life is not any concern for EMC property, moldabilty, and reliability from 0 hours to 48 hours for molding process of 3x3,5x5 and 8x8 mm2 QFN packaging manufacturing.

Keywords: Integrated circuit (IC) packaging, epoxy molding compound (EMC), molding compound floor life, gelation time

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