Study on CMP Defects Failure Mechanism from the Viewpoint of Cleaner Module Design

Ji Chul Yang - Senior Member of Technical Staff GLOBALFOUNDRIES

CMP (Chemical Mechanical Planarization) defects are always one of top yield detractors in IC (Integrated Circuits) device since CMP processes have been applied in the semiconductor process. New structures and materials in under 1xnm device are more challenging and difficult for CMP process to meet device requirement with current level of defects. In addition, CMP process needs to control or contain not only the number of defects but also defect size in accordance with shrinking speed. In this talk, fundamental study of CMP cleaner defect will be introduced and discussed. It will be mainly focused to elucidate defect generation phenomena on the cleaner design perspective. There is several CMP cleaning module such as brushing, jet spraying, mega-sonic tank and dryers. It will be discussed about each cleaning module’s cleaning efficiency with different kinds of defects. In addition, DFM(Design for Manufacturing) for CMP cleaning defect will be discussed in this talk.

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