Shrinkage properties of PDMS molding by manufacturing condition

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PDMS (polydimethylsiloxane) is the high molecular elastic materials and used in making microcircuit for semiconductor and electronic product. PDMS allows uniform contact with the board surface and easy separation from the board surface after forming the circuit because of low surface energy, as well as high gas permeability and efficient solvent absorption. This study was intended to monitor the shrinkage of PDMS molding depending on content of hardener, setting temperature and addition of nano-particles. When the content of hardener varied at a range of 4.8~16.7%, shrinkage of molding also varied 0.4~1.9%. When a setting temperature varied 50~90℃ while the ratio of hardener to PDMS was fixed at 1/10, shrinkage varied 1.1~1.4%. ITO(Indium tin oxide) was used as nano particle additives. When the content of nano particle was increased 0.5~5wt% in terms of the total weight of PDMS and the hardener, shrinkage appeared to have been decreased 1.1~0.8%.