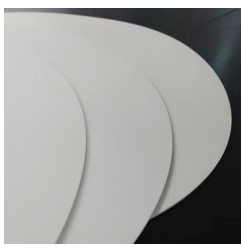
ELECTRONIC MATERIAL

APPLICATION GUIDE BOOK

CMP PAD MANUFACTURING (SILICA DISPERSION)



01 ▶ CMP PAD MANUFACTURING

1) As technology advances, semiconductors also need multi-layered and stacked structures to make more materials per unit area. However, if the plane of the semiconductor device is uneven, the number of stackable layers decreases and the performance decreases.

2) CMP (Chemical Mechanical Polishing) is a process to planarize the film of semiconductor wafer through polishing that combines chemical and mechanical elements.

3) CMP pad is a polishing pad that is the core of the CMP process. It is produced by dispersing abrasive ingredients such as fumed silica in a polymer such as polyol to make a basic product, and then molding the surface to suit the purpose.

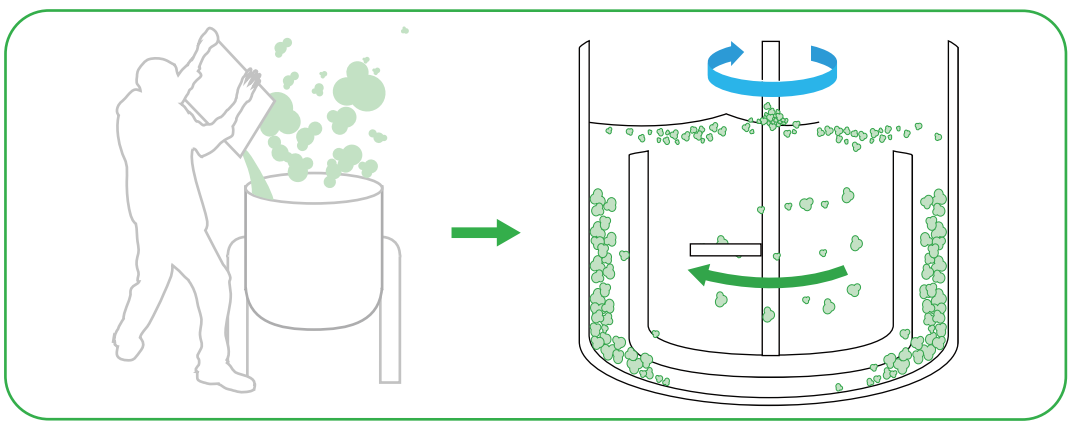
4) For CMP pads, polishing efficiency is determined by how well the polishing components are dispersed, so excellent dispersion and mixing processes are important.

02 Problems with existing processes

1) When using polyol as a polymer, the viscosity is high, so it is difficult to obtain homogeneous results with low-speed mixers such as ANCHOR MIXER or PADDLE MIXER.

2) Fumed Silica is a material with a very light specific gravity, and when it is directly put into the liquid, a lot of dust is blown out, so safety protective equipment such as a gas mask is essential for the respiratory safety of workers.
Also, because of this scattering dust, the contamination of the workplace is very serious, so it is difficult to put it in.

3) The above low-speed mixers may take several hours or days to obtain satisfactory dispersion results, resulting in decreased production efficiency. And finally, it can lead to deterioration of finished product performance.



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