附件四、技術說明表

氧化鈰球狀粉體製備技術

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市場及需求:
本技術係關於一種使用於化學機械研磨(Chemical-Mechanical Polishing, CMP)的材料。化學機械研磨為半導體製程中重要技術，而該研磨過程中需要特殊陶瓷粉體，其形貌及大小需精確控制，以提高半導體製程之良率。

技術摘要(含成果):
本技術利用特殊聚合物材料及溶劑進行反應，可合成型態均一且具有球型型態之氧化鈰粉體，並具有粒徑分佈均勻以及分散性良好等優點。相較於市面粒徑較大且型態不均之氧化鈰粉體，透過本技術合成之氧化鈰粉體，可避免研磨晶片及研磨表面損傷，有效進行研磨。本製程粉體適合應用於半導體 STI (Shallow trench isolation)製程上。

優勢:

透過此聚合體技術可合成粒徑分佈均勻、分散性良好、型態均一且具球型之氧化鈰粉體，避免研磨時造成研磨晶片及物體表面受損。

競爭產品:
既往氧化鈰粉體粒徑粗大、型態不均勻、且容易團聚，會造成晶片刮傷，且降低半導體製程良率。

專利現況:
(1)本技術將申請中華民國專利。
(2)本技術團隊教授具有研究陶瓷材料二十年以上經驗。
(3)本研究團隊具有二十年以上研究粉體材料經驗。
(4)本技術團隊教授為本校特聘教授，並獲得多次國科會傑出研究獎。

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Preparation technology of spherical cerium oxide powders

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Market Needs:

This technology is related to a kind of materials used in Chemical-Mechanical Polishing (CMP) process. CMP process is an important technology used in the semiconductor process. In this process, special ceramic powders with well-controlled morphology and sizes are required for increasing the yield of the processes.

Our Technology:

This technology utilizes special polymer reactants and specific solvent to prepare cerium oxide with uniform and spherical morphology. The prepared powders have uniform particle size distribution and good dispersion ability. The powders synthesized by this technology can avoid the surface damage of the objects as well as wafers and can polish the objects effectively. The prepared cerium oxide powder can be applied to STI (Shallow trench isolation) process.

Strength:

This technology using polymer can synthesize cerium oxide powders with uniform size, good dispersion, and uniform as well as spherical morphology. The prepared powders can reduce the damage of the wafers and objects during polishing.

Competing Products:

The previous cerium oxide has large particle sizes, non-uniform morphology, agglomeration problems. This kind of particles will case the damage of the wafers and reduce the yield of production.

Intellectual Properties:

(1)This technology will be filed as a patent in our country.

(2) The professor in the research team has studied ceramic materials for more than twenty years.

(3) The research team has studied phosphors materials for more than ten years.

(4) The professor in the research team is a distinguished professor at NTU, and has obtained many rewards from NSC.

Contact (do not need to fill out):

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