Pacific Northwest NATIONAL LABORATORY

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Battelle Number(s):

11619-E, 12088-E, 12112-E, 12357-E, 12827-E, 13062-B

Patent(s) Issued

Available for licensing in all fields

Available Technologies

Low K Materials for Advanced Semiconductors

SUMMARY

PNNL has developed a robust portfolio of technology for the synthesis and processing of porous low k materials for use in semiconductor applications.

The portfolio includes methods of synthesizing the materials using a surfactant-templated approach, the materials themselves, methods of treating the materials to improve their k value and elastic modulus, and apparatus for dehydroxylating the materials. Development of the materials was assisted through a CRADA with SEMATECH executed in 1998.

In repeated laboratory experiments, PNNL staff have demonstrated the ability to consistently achieve a k value of less than 2.2 for the materials, while maintaining an elastic modulus greater than 3.5.

U.S. DEPARTMENT OF ENERGY

Patents & Intellectual Property

- Patent #: 5,645,891
- Patent #: 5,922,299
- Patent #: 6,326,326
- Patent #: 6,329,017
- Patent #: 6,383,466
- Patent #: 6,548,113

Technology Portfolio(s)

- Materials Synthesis and Functionalization

Potential Industry Applications

- Chemicals

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