NICKEL BORON (NiB) Solution

aveni is the leading developer and supplier of chemistries and processes for the semiconductor and electronics industries.

With 60 patents on its NiB growth and activation, the company's Actra/Nexl product can metalize on any kind of dimension and extend the industry standard of layers from 250+ layers on a single wafer (3D NAND only). The key is the very thin scale (sub 0.1 micron). aveni is the only company on the market today that can offer this new technology, and is poised to dramatically impact global wafer production.

PRODUCT HIGHLIGHT

Actra/Nexl	
Application	3D NAND for Memory
Product Description	Actra is a palladium-based activation chemistry dedicated to electroless solutions. Nexl is a nickel boron electroless chemistry advantageously replacing the outdated ALD/CVD tungsten technology.
Advantages	Actra is specifically designed to activate any kind of non-conductive substrates, preserving their integrity, and preparing the surface for Nexl.

Actra/Nexl

- ✓ **Void-free** *Bottom-up fill of word lines*
- ✓ **Extendable** *ELD process*
- ✓ **Pure metal** *Fluorine-free*
- ✓ **Improved gate resistance** *No diffusion barrier required*
- ✓ **Simplified CMP** *Only one material to remove*
- ✓ **High thermal stability** *Up to 800˚C*
- ✓ **Cost effective solution** *Wet approach*

For more information, visit www.aveni.com
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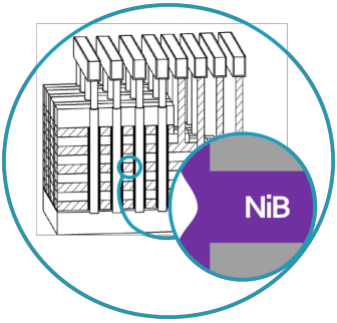
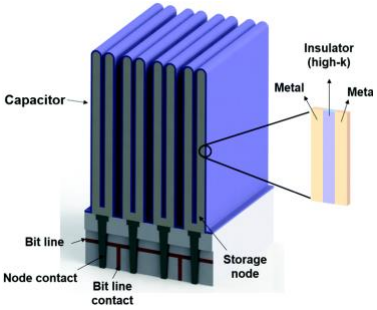
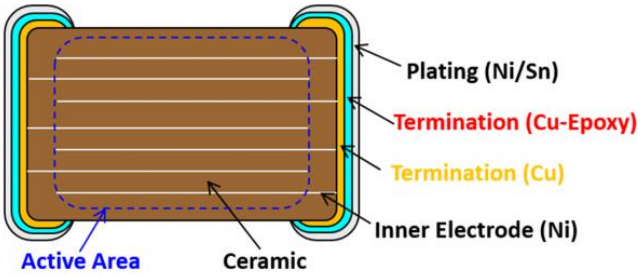
3D NAND



DRAM Capacitor



Multi-Layers Ceramic Capacitor (MLCC)



Marzouk, M. (2021). Design choices for MLCC multilayer ceramic capacitors. photograph. Retrieved from https://www.eenewseurope.com/news/design-choices-mlcc.

Textiles

Snoeck, W. (2017). Wikipedia. photograph. Retrieved from https://en.wikipedia.org/wiki/Metallic_fiber.