

iBalance[®]

*Vitamin E Polyethylene
Tibial Bearing Inserts*



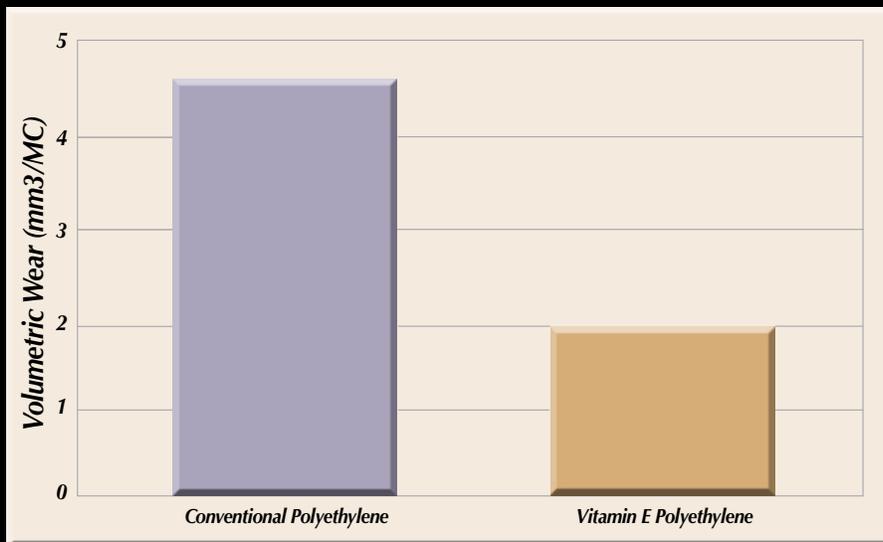
Arthrex[®] 

An ideal polyethylene bearing surface in a total knee combines low wear, resistance to long-term oxidation and maintenance of the native mechanical properties of the material. Arthrex® has developed a Vitamin E polyethylene material that meets these demands and is optimized for performance in a total knee environment.

- **GUR 1020E UHMWPE Polymer** – Proven molecular weight material with incorporated antioxidant providing the basis for a stable, low wear bearing surface^{1,2,3,4}
- **Manufacturing Process** – Cold irradiation, mechanical annealing process elicits high levels of crosslinking at a 7.5 mRad dose while minimizing free radicals² and maintaining mechanical properties^{3,4} of the polyethylene
- **Vitamin E Antioxidant** – Vitamin E is blended with the polyethylene in the raw material state, ensuring a homogenous dispersion of the antioxidant throughout the final polyethylene bearing. The antioxidant acts to bind any free radicals within the highly crosslinked material, reducing the risk of oxidation of the material over the life of the implant²

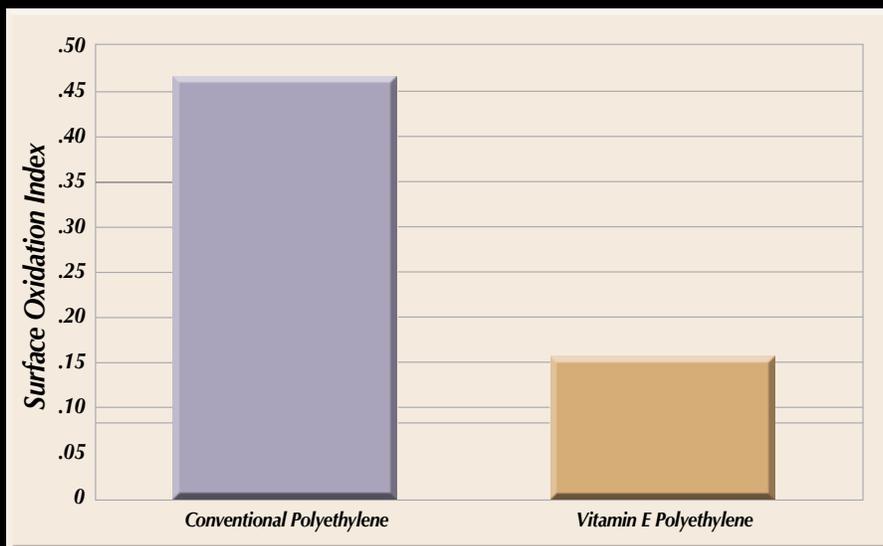


Arthrex Vitamin E polyethylene is available in Posterior Stabilized, Cruciate Retaining and CR Plus configurations. All three options are offered in 1 mm increment thicknesses from 8 mm–14 mm.



Proven Wear Reduction

Arthrex® Vitamin E polyethylene has been thoroughly tested and has shown a 57% reduction in wear particulate versus conventional polyethylene¹.



Less Oxidation

In accelerated aging analysis, the Vitamin E polyethylene material showed a significant reduction in surface oxidation versus conventional polyethylene².

Maintenance of Mechanical Properties

The Arthrex Vitamin E polyethylene material was subjected to multiple tests to ensure the mechanical properties of the material were maintained after the cross-linking step was applied.

PS Post Fatigue Strength

The post of the PS Vitamin E polyethylene survived being stressed to 209N for 10 million cycles and a subsequent ultimate load of 2,053N³. Results were similar to comparative tests on conventional polyethylene.

Shear and Material Fatigue

The Vitamin E polyethylene was loaded to 540N and subjected to substantial shear and deep flexion forces. The Vitamin E material performed in a similar manner to conventional polyethylene when subjected to the same loads and forces⁴.

1. APT 2788, *Material Characterization of Vitamin E vs Gamma Sterilized Material*
2. APT 2853, *Accelerated Aging Testing of UHMWPE*
3. *Dynamic and Static Cantilever Bending Testing of the Arthrex iBalance TKA with Arthrex Vitamin E Cross-linked Polyethylene System*, March 2015
4. APT 2852, *Knee Bearing Endurance and Deformation Under High Flexion*, February 2016



View U.S. patent information at www.arthrex.com/corporate/virtual-patent-marking