

## Ultaire™ AKP

**Dentivera™ milling discs** are made from Ultaire™ AKP, an innovative high-performance polymer specifically formulated for dental applications. Ultaire™ AKP bridges the gap between metal removable partial dentures (RPDs) and those made with polymers that merely meet minimum requirements. Based on clinical data and material properties, Ultaire™ AKP is an exciting new material for RPDs. **Discover why.**

Trait	Why is it Important?	Ultaire™ AKP
<b>Aesthetics</b> (How does it look, taste, and feel?)	Patients care a lot about appearance and aesthetics.	Can be tooth/gingival colored, is lightweight, no metallic taste
<b>Flexural Strength, MPa</b> (At what point does the material yield or break?)	The flexural strength needs to be high enough to withstand loading and not break – and to avoid permanent deformation during mastication.	148 MPa
<b>Elastic Modulus, MPa</b> (How resistant is the material to deformation? How stiff is the material?)	An RPD needs an appropriately high elastic modulus to ensure that stresses encountered during biting and mastication don't cause permanent RPD deformation – without being too high (or stiff) that it becomes difficult to insert or remove the denture.	3500 MPa
<b>Impact Strength, kJ/m<sup>2</sup></b> (How strong or resilient is the material?)	When an RPD is dropped, it can lead to fracture. An RPD that is strong or resilient enough to withstand impact is preferred.	Charpy impact dry and conditioned in water at 37° C for 7 days: As molded: 9 kJ/m <sup>2</sup> Post-conditioning: 10.2 kJ/m <sup>2</sup>
<b>Biocompatibility</b> (Is it safe to put in the body?)	Only safe, biocompatible materials can be used within the body.	No delayed dermal contact sensitization, nonirritant, nonmutagenic to multiple strains of Salmonella and E. Coli, nonmutagenic in mouse lymphoma forward gene mutation assay, does not induce micronuclei, no cell lysis or systemic toxicity, nonpyrogenic, and does not leach in water, ethanol, or hexane <sup>1</sup>

## Testing Methodologies for Ulaire™ AKP

- Flexural strength and elastic modulus: followed ASTM D790 and D638 standards.
- Charpy impact strength: ISO 179 machined from ISO bars with and without conditioning (after 1 week of distilled water storage at 37°C). Notch the specimens before conditioning.

### References

1. Solvay data on file.

**For more detailed information**  
**[www.solvaydental360.com](http://www.solvaydental360.com)**



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