

## BioACTIVE-RESTORATIVE™ BioACTIVE-BASE/LINER™



### ACTIVA™ BioACTIVE Products

*Moisture Friendly • Triple Cure • Fluoride Releasing • Radiopaque*  
**Contains No Bisphenol A, No Bis-GMA, No BPA derivatives**

#### PRODUCT DESCRIPTION

ACTIVA BioACTIVE products are ionic composite resins that release more fluoride and are more bioactive than glass ionomers and traditional RMGIs. They are the first dental restoratives with a bioactive resin matrix, shock-absorbing resin component, and reactive ionomer glass fillers that mimic the physical and chemical properties of natural teeth.

ACTIVA BioACTIVE products are tougher than composites. Toughness, measured by deflection at break, is the ability of a strong, hard material to absorb stress without fracturing. ACTIVA incorporates a patented rubberized-resin that absorbs shock and compressive forces and is more fracture-resistant than traditional dental restorative materials.

ACTIVA bioactive products release calcium, phosphate and fluoride ions from the ionic resin and glass fillers into the oral environment, continuously recharge their ionic components, and actively participate in the ionic exchange with saliva and tooth structure that is essential for maintaining healthy teeth. ACTIVA reacts to the continuous pH changes in the oral environment to help fortify and recharge the ionic properties of saliva, teeth and the material itself. For this reason, ACTIVA can be called a “smart” material.

Unlike traditional materials that are hydrophobic, repel water, and are designed to be passive, ACTIVA is moisture friendly and plays a dynamic role in the mouth. Only moisture friendly materials that are partly water-based or have phases or zones with significant water content can react to changes in the ambient conditions and are capable of this dynamic behavior.<sup>1</sup>

ACTIVA contains water, yet the material has extremely low solubility. The ionic resin matrix facilitates the diffusion of calcium, phosphate and fluoride ions while still maintaining the excellent physical properties associated with resins and composites.

The resin matrix displays exceptional marginal integrity, sealing ability against bacterial leakage, and intimate adaptation to tooth structure.<sup>2,3</sup> It contains an acidic monomer with antimicrobial properties<sup>2,4,5</sup> that improves the interaction between the resin component and the glass ionomer and enhances the interaction with tooth structure.

ACTIVA BioACTIVE products are two-paste systems in automix syringes. They are triple cure formulas with three setting mechanisms: light cure, self-cure resin chemistry, and self-cure glass ionomer reaction. They contain no Bisphenol A, no Bis-GMA and no BPA derivatives.

#### References

1. McCabe JF, et al. Aust Dent J 2011 Jun;56Suppl 1:3-10.
2. Zmener O, Pameijer CH, et al. Submitted for publication Am J Dent.
3. Kane B, et al. Am J Dent 2009;22(2):89-91.
4. Sharma S, Kugel G. Contemporary Esthetics 2005;9(4):66-67.
5. Naorungroj S, et al. J Dent 2010.



**PULPDENT® Corporation**

80 Oakland Street • Watertown, MA 02472 • U.S.A.

Tel. (617) 926-6666 / (800) 343-4342 / Fax (617) 926-6262

pulpdent@pulpdent.com • www.pulpdent.com • www.activabioactive.com

## HOW TO USE THE AUTOMIX SYRINGE

1. Remove cap. If necessary bleed the syringe so that base and catalyst are at the orifice of the syringe barrels. Place a mixing tip on the automix syringe.
2. To ensure an even mix of base and catalyst, dispense 1-2 mm onto a pad and discard this material.
3. Dispense evenly mixed material directly onto the tooth or into the restoration.
4. Discard mixing tip. Recap syringe. Do not cross-contaminate base and catalyst.

## SLIGHTLY MOIST SURFACES DEFINED

Slightly moist tooth surfaces exhibit neither dryness nor pooling of water. Lightly dry and remove excess water with compressed air or a cotton pellet. Tooth surfaces should be shiny or glossy. Overly wet tooth surfaces will result in decreased bond strength. Ceramic, metal, resin desensitized, prehybridized and cured composite surfaces should be dry.

## CONTRAINDICATIONS

Not indicated for direct placement on the exposed pulp. See instructions for use.

## ACTIVA™ BioACTIVE-RESTORATIVE™ INSTRUCTIONS FOR USE

Recommended as a bioactive filling material for pits, root surface cavities, and Class I, II, III and V, restorations where there is no pulpal involvement.

1. Isolate and prepare tooth to receive a restoration. In Class V lesions, bevel or undercut enamel.
2. Place appropriate pulp protection, if indicated.
3. Etch prepared tooth surfaces for 5 seconds with Etch-Rite 38% phosphoric acid etching gel, rinse well and lightly dry. Leave tooth surfaces slightly moist. Do not desiccate the tooth.
4. In non-retentive restorations, such as Class V lesions, a bonding agent is recommended.
5. Place a mix tip on the ACTIVA syringe. To ensure an even mix of base and catalyst, dispense 1-2mm of material onto a mixing pad and discard this material.
6. ACTIVA BioACTIVE-RESTORATIVE is a dentin and enamel replacement material. Apply ACTIVA in increments of up to 4mm, light curing for 20 seconds between each layer. Self-cure setting time is 2 minutes. Finish and polish in the usual manner.
7. ACTIVA can also be used with both open and closed sandwich techniques using your preferred adhesive and composite bonding system.

## ACTIVA™ BioACTIVE-BASE/LINER™ INSTRUCTIONS FOR USE

Recommended as a bioactive base and liner for Class I, II, III and V restorations where there is no pulpal involvement, and for use with all composite and amalgam restorations.

1. Isolate and prepare tooth to receive a restoration.
2. Place appropriate pulp protection, if indicated.
3. Etching is not required. Leave tooth surfaces slightly moist. Do not desiccate the tooth.
4. Place a mix tip on the ACTIVA syringe. To ensure an even mix of base and catalyst, dispense 1-2 mm of material onto a mixing pad and discard this material.
5. Open Sandwich Technique: Apply ACTIVA BioACTIVE-BASE/LINER to prepared surfaces and extend to the enamel-cavo surface margin. Light cure for 20 seconds or self-cure for 2 minutes. Continue with step 7.
6. Closed Sandwich Technique: Do not extend the material over the enamel margins. Light cure for 20 seconds or self-cure for 2 minutes.
7. Complete the restoration with ACTIVA BioACTIVE-RESTORATIVE, or restore with your preferred adhesive and composite bonding system. Finish and polish as usual.

PHYSICAL PROPERTIES	RESTORATIVE	BASE/LINER
Light cure setting time:	20 seconds	20 seconds
Depth of light cure:	4 mm	4 mm
Self-cure setting time at 37° C:	2 minutes	2 minutes
Percentage filler by weight:	56%	45%
Percentage reactive glass filler by weight:	21.8%	19.3%
Fluoride release 1 day:	230 ppm	360 ppm
Fluoride release 28 days (cumulative):	940 ppm	1,300 ppm
Flexural strength:	102 MPa/14,790 Psi	86 MPa /12,470 Psi
Flexural modulus:	4.3 GPa	3.7 GPa
Compressive strength:	280 MPa /40,600 Psi	226 MPa /32,770 Psi
Diametral tensile strength:	42 MPa /6090 Psi	37 MPa / 5365 Psi
Water sorption (1 week):	1.65%	2.30%
Polymerization shrinkage:	1.7%	N/A
Film thickness:	N/A	11 microns

## STORAGE AND HANDLING

- Store tightly sealed in original container at cool room temperature. Avoid direct light, extremes of temperature, contamination and sources of ignition.
- Shelf life of unopened product: 2 years from date of manufacture.
- Re-cap immediately after use.

**Note:** Multi-dose syringes should either be encased in a fresh protective barrier for each patient or cleaned and disinfected between patients, as appropriate.