

## **Licensing and Technology Transfer Opportunity**

### **Title of Technology Available:**

A novel flexible splinting material for stabilizing mobile/fractured teeth

### **Brief Description of Invention:**

The process of splinting involves the use of a ligature wire or fiber splint that is cut according to the desired length of the teeth to be splinted. Two non-mobile teeth on either side of the mobile teeth need to be included in the splint. The fiber/ligature wire is then adapted on the polished and acid etched teeth to check for stabilization. If properly adapted the material is stabilized (one tooth at one time using a composite restoration. The wire/fiber is placed either on the lingual side by making a groove and held into position with composite or bonded externally on the tooth surface using a composite resin. The main drawback of using conventional splinting technique is that it is multistep and tedious process that demands precise adaptation of the splint. Many a times, the adaptation of the ligature wires or splints is difficult on teeth that are rotated or tipped. Moreover, it's a time consuming process that requires the clinician to adapt and bond one tooth with the composite adhesive before progressing to the other tooth. The adaptation is difficult even with the fiber splint. Moreover additional composite splint is required to secure the fiber onto the tooth surface. No technique or apparatus has been developed that allow clinician to directly adapt and place the splint along with the adhesive onto the tooth structure.

The present innovation is novel splinting material that allows clinicians to place the splint in the desired direction without adjustment and favor the placement of splint without the need to placing any additional composite or adhesive. Flexidont splint is the name chosen for the novel splinting material that delivers a thin layer of the flowable splint material onto the tooth surface.

### **Brief Background of Invention:**

A periodontal splint is an appliance designed to immobilize and stabilize mobile teeth for promoting healing, chewing and providing comfort to the patient. The conventional splinting techniques consume a lot of chair-side time, as the splint material are difficult to manipulate and adapt. The clinician has to adapt the splinting material (wire /fiber) according to the contour tooth of the teeth along with the placement to the composite to secure the splint for stabilization. There is an urgent need to simplify this splinting process by delivering the splinting material and adhesive composite resin at the same time in the desired direction. The present invention aims to develop a novel photo-activated splint material that automatically adopts onto the tooth without any need for additional composite placement and adjustment. The fiber splint is impregnated with an adhesive resin and delivered through an especially designed delivery system as described below

### **Describe the final product:**

The splint comprises of the uniquely designed one piece splinting with fiber along with adhesive composite resin. The splint material is delivered through a delivery system consisting of uniquely designed syringe. The length of splint material is 10.0 mm and diameter is 3-5 mm

### **Technological Domain (Keywords):**

- Biomedical devices
- Dentistry
- Dental Material
- Dental Splint

**Proof of Concept:**

India is one of the fastest growing dental markets in the world. The amount of geriatric patient is constantly rising. Therefore, the need to stabilize the mobile teeth will rise tremendously. The [Centers for Disease Control and Prevention \(CDC\)](#) has estimated that 47.2% of the total population above the age of 65 years globally suffers from some kind of periodontal disease. Thus, with the rise in periodontal diseases globally, the need to use periodontal splint would grow exponentially in near future. The splint would be helpful for stabilizing the avulsed or fractured teeth in children and adult after a fall or a road traffic accident. It can be used for temporary stabilization of pontic before the final prosthesis is ready. A periodontal splint is an appliance designed to immobilize and stabilize mobile teeth for promoting healing, chewing and providing comfort to the patient. The conventional splinting techniques consume a lot of chair-side time, as the splint material is difficult to manipulate and adapt. The clinician has to adapt the splinting material (wire /fiber) according to the contour of the teeth along with the placement of the composite to secure the splint for stabilization. There is an urgent need to simplify this splinting process by delivering the splinting material and adhesive composite resin at the same time in the desired direction. The present invention aims to develop a novel photo-activated splint material that automatically adapts onto the tooth without any need for additional composite placement and adjustment. The fiber splint is impregnated with an adhesive resin and delivered through an especially designed delivery system as described below.

**Stage of Development:**

Ideation/Prototype/Advanced Prototype/Ready to Market technology: Ideation/prototype

**Provide Information on Competitors who manufacture and/or sell similar products: NA****What are the unique advantages your innovation has compared to the competition:**

- First prototype that integrates all components of splinting procedure.
- Decrease in packaging costs
- Can be sold at a more affordable price
- Easy to use
- Flexible.

**A few potential companies who might be interested in this technology:**

International Companies:

- DENTSPLY
- 3M
- Confident
- GC

Local Companies:

- Venus Safety and Health Pvt. Ltd.
- Sterimed Medical Devices Pvt. Ltd

**Intellectual Property Status: Indian Patent application with number filed in (mention year)**

Status: Applied for Patent in 2017 May

Patent/Design No. (India): 201741011878 [filed with FormulateIP, Bangalore]

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