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Medicine & Dentistry...



Light-Cured Composite Restorative  
Sci-Pharm Catalog No. 50-10

TECHNICAL BULLETIN



**Visible Light-Cured Radio-Opaque Resin-Based Dental Restorative Material**

**INDICATIONS FOR USE:**

For use in Class III, IV, and V restorations and for limited use in Posterior occlusal restorations where aesthetics are of primary importance.

**CONTRAINDICATIONS:**

This product should not be used where patients have known hypersensitivity to methacrylate monomers. Do not apply on very sensitive teeth or in contact with the pulp.

**KIT CONTAINS:**

- Restorative in Five Shades, 25g (5g per Shade)
- Enamel Bonding Agent, 6g
- Enamel Conditioner/Etching Agent, 13cc
- Accessories and Instructions

**CAUTION**

Federal Law restricts this device to sale by or on the order of a dentist.



Cat. No. 50-10

**PHYSICAL PROPERTIES**

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Property	Specification	Sci-Pharm Results
Ambient Light Sensitivity	**Not less than 60 seconds	120 seconds
Depth of Cure	**Not less than 1.5 mm	3.38 mm
Flexural Strength	**Not less than 80 MPa	101.30 MPa
Water Sorption	**Not more than 40 µg/mm <sup>3</sup>	15.4 µg/mm <sup>3</sup>
Water Solubility	**Not more than 7.5 µg/mm <sup>3</sup>	3.44 µg/mm <sup>3</sup>
Shade	**Match standard closely and be evenly pigmented	Pass
Color Stability	**No more than slight color change	Complies
Compressive Strength	No specification	273 MPa (39,600 PSI)
Diametral Tensile Strength	No specification	39.7 MPa (5,760 PSI)
X-ray Opacity	**Equivalent to the same thickness of aluminum	Complies

**NOTE:** Table results are based on ADA (\*) and ISO (\*\*) testing and specifications.



For technical information, call or write:



**OUTSTANDING FEATURES OF THE MATERIAL**

- Exceeds the requirements of ISO specifications for composite restoratives
- High filler content contributes to low shrinkage, low water sorption, low coefficient of thermal expansion and good wear resistance
- Excellent X-ray opacity for future diagnosis
- Very good polishability
- Outstanding color stability
- Virtually non-existent oxygen inhibited layer
- Does not require refrigeration
- When used in conjunction with *CuRay® Dentin/Enamel Bonding Agent* (Cat. No. 50-120), "adhesive" Class V restorations can be made with minimum cavity preparation
- Broad shade selection for optimal color matching

**STORAGE AND SHELF-LIFE**

Store at temperatures not exceeding 75°F (24°C). When stored under such conditions, the material has a shelf-life of 2 years.

**Your CuRay-Fil® kit contains restorative pastes in the following shades:**

Shade Designation	Matches Shade Number of:		
Catalog No.	Trubyte/Bioform	Lumin/Vacuum	
Light	50-102	51,59	A1
Universal	50-103	65,66,67	A2
Gray/Brown	50-106	92,93	D3
Yellow/Brown	50-107	55,56,68	B3
Dark Brown	50-113	82	A4

**Additionally, the following shades are available as separate items:**

Shade Designation	Matches Shade Number of:		
Catalog No.	Trubyte/Bioform	Lumin/Vacuum	
Extra Light	50-101	59	B1
Light Yellow	50-105	52	B2
Light Gray	50-104	91	C1
Dark Gray	50-112	96	C4
Light Brown	50-114	69	A3
Medium Brown	50-115	77	A3.5

Quality Management System Certified to  
**ISO 13485:2016**

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### GENERAL INFORMATION

Sci-Pharm's *CuRay-Fil*® is composed of a blend of a fine X-ray opaque glass and sub-micron silica fillers. Such a combination allows for a high filler/resin ratio and provides excellent X-ray opacity without impairing polishability. Consequently, *CuRay-Fil*® offers the advantages of microfilled restoratives while retaining the superior properties of the highly-filled composites, including excellent mechanical properties, high filler concentration and low polymerization shrinkage. Due to its unique dense and resilient consistency, the handling of *CuRay-Fil*® bears some resemblance to amalgam. It can be condensed into a cavity against a mylar matrix band.

### CLINICAL PROCEDURES/INSTRUCTIONS FOR USE

Cavities are prepared in the conventional manner. In deep restorations, the use of calcium hydroxide base is recommended. Sealing the dentin with cavity varnishes compatible with composite restoratives, such as Sci-Pharm's *Universal Cavity Varnish* (Cat. No. 70-03) or *CuRay® Dentin/Enamel Bonding Agent* (Cat. No. 50-120), is recommended for providing better protection against marginal leakage and when post-operational tooth sensitivity may be expected; best marginal integrity is achieved by etching the enamel surrounding the cavity and applying Bonding Agent prior to inserting the restorative paste.

- Class I:** Etch the enamel surrounding the cavity with Enamel Conditioner for one minute. Wash and dry. Apply Bonding Agent over the enamel margins and cure for 10 seconds. Place restorative material with a tapping movement and cure. In very deep cavities, curing in more than one layer may be required.
- Class III:** The use of a mylar strip is recommended for interproximal separation and as a matrix. Use of Bonding Agent in the manner described above prior to placing the restorative is mandatory.
- Class IV:** The use of a Bonding Agent over etched enamel is a necessary step in this kind of restoration. To provide adequate bonding strength, a relatively large area of enamel should be etched and primed with Bonding Agent. For this reason, butt joints are generally not recommended. Greatly improved retention is achieved by extending the bonding area 2 - 3 mm around the fracture.

Retention may also be increased by beveling or tapering the adjacent enamel, or by making small undercuts on the lingual side of the tooth. Also, an application of *CuRay® Dentin/Enamel Bonding Agent* over the exposed dentin is highly recommended. In some situations, the use of pins placed in the dentin may be necessary. The use of crown forms should be restricted to very thin and transparent types.

A typical Class IV restoration procedure consists of the following steps:

1. Prophylaxis of the tooth (or teeth) to be restored. Operational preparation of the enamel for better crown form acceptance may follow.
2. Prefitting of the crown form, if used.
3. Application of Enamel and (optionally) Dentin Conditioners to the area to be bonded, followed in one minute by washing and drying.
4. Application of Bonding Agent to the etched enamel and conditioned dentin, followed by curing for 10 seconds.
5. Application of restorative and curing.
5. Finishing.

**Class V:** After cavity preparation, fill the cavity with restorative paste, place the mylar matrix, and cure. On heavily discolored teeth, application of Sci-Pharm's *CuRay-Match® Universal Opaquer* (Cat. No. 50-224 B) prior to application of *CuRay-Fil*® will improve the aesthetics of the restoration. If minimum cavity preparation is desired, apply *CuRay® Dentin/Enamel Bonding Agent* (Cat. No. 50-120), prior to placement of the restorative, on dentin and enamel margins in a manner described in the instructions for this product.

A simple experiment may help determine the depth of cure obtainable with your instrument. Cut about 8 mm of plastic tubing or drinking straw of 4 - 6 mm internal diameter and fill with restorative paste. Place in a vertical position and irradiate with your light for the period of time expected to produce the desired depth of cure. Cut the side walls of the tube and remove the material. Using a sharp blade, remove all uncured portion of the material from the bottom and measure the thickness of the cured layer.

RECOMMENDED CURING TIME (WITH CONVENTIONAL CURING INSTRUMENTS)		
Shades	Depth Of Cure	Curing Time*
Extra Light, Light, Light Gray and Light Yellow	3 mm	30 seconds
	3 mm - 7 mm	40-60 seconds
Universal, Gray/Brown, Light Brown	2 mm	30 seconds
	4.5 mm	60 seconds
Dark Gray, Medium Brown and Dark Brown	1.5 mm	30 seconds
	3.5 mm	60 seconds
*With Optilux 500 curing light (by Demetron Corp.) or equivalent		

### HELPFUL HINTS

**DISPENSING:** *CuRay-Fil*® is packaged in a syringe with a snap-off cap. Dispense the material by turning the screw clock-wise. Slow turning is recommended in order to avoid waste. Remove the material dispensed at the tip of the syringe and turn back the screw (counter-clockwise) in order to suck back the excess. Replace the cap.

**ENAMEL CONDITIONER:** After drying, the properly conditioned (etched) area should have a chalky-white appearance. Highly mineralized teeth may require an additional two-minute etching to obtain this effect.

**CAUTION:** Avoid contact of Enamel Conditioner with soft tissue or dentin. If accidental spill occurs, wash immediately.

**BONDING AGENT:** The material sets leaving a very thin layer of uncured liquid on the surface which should not be wiped off. This layer will provide better adhesion to the restorative applied thereafter.

**OPAQUING PASTE:** On heavily discolored teeth, the application of an opaque, masking layer is recommended. The opaquing paste has a lighter, more fluid consistency. A thin layer should be applied, preferably with a disposable brush, over the discolored area, cured for 20 seconds and followed with the application of the restorative. Order Sci-Pharm's *CuRay-Match® Universal Opaquer* (Cat. No. 50-224 B).

**INSTRUMENTS:** For handling convenience, the use of teflon instruments for placing the restorative into the cavity is recommended. Place the restorative using short tapping strokes. Avoid spatulating.

**MYLAR STRIP:** Whenever possible, cure through a mylar strip to obtain maximum surface smoothness and time savings.

**FINISHING:** Finish in conventional manner using your favorite abrasive for composites. For best results, follow with polishing using Polishing Paste for composite restoratives, such as Sci-Pharm's *Luster®* (Cat. No 50-05).