

Application Note

UV Blocking Glass Benefits for Dental Curing Lights

Dental curing lights utilize coated glass filters, such as a UV blocking glass, to selectively emit specific bands of light. These curing lights are used to polymerize dental composites, sealants and cements that are often used to help repair or replace tooth material.

During the tooth repair or replacement process, these composites are applied to the damaged area and sculpted to resemble the missing portion of tooth. At this point the Dental curing light tool is positioned and activated to emit the precise band of light that causes the composites to polymerize and harden. Afterward, other tools are used to grind, scrape and polish the material so that it properly resembles the original tooth.

Originally, when these dental curing lights were invented, they were designed to emit UV light which interacted with the composites used at that time in order to polymerize them. Over the years since then it was discovered that there are composites which react to blue light in much the same way. Due to health concerns that go along with UV exposure to vulnerable tissue in the mouth, this new method was implemented.

In the original design, the dental curing light utilized coated glass filters that would selectively reflect some of the light emitted from the lamp contained within the device. When these optical filters are properly angled and sufficient venting is utilized in the device, the desired band of light is directed toward the emission end of the tool and the undesired bands are directed away so that they do not interfere with the application. In the original design a UV blocking glass was used to direct the desired UV band toward the emission end of the tool. In the current designs for these devices it is likely that a UV blocking glass is used to direct the harmful UV radiation away from the emission end of the tool.

Another difficulty discovered through the use of these tools is the incredible amount of heat generated by the lamp itself, but also by the composite material undergoing polymerization. In some rapid curing systems it has been noticed by dental professionals that the polymerization process alone generates enough heat to be uncomfortable to the patient and sometimes it is enough to damage surrounding tissue. One way to limit the amount of heat exposure the tissue is experiencing is to utilize a UV blocking glass with an IR reflecting hot mirror. In combination with a band pass filter, the device would emit far less energy and the vulnerable tissue in the mouth would be less likely to over-heat and become damaged.

Through utilization of UV blocking glass filters, dental curing lights have made it much easier for dental professionals to provide realistic tooth repair and replacement solutions to their clients.

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Glass Fabrication



Coating Deposition



CNC Machining



Strengthening - Chemical & Heat



Screen Printing of Graphics



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