

# The importance of proper light curing

There are several clinical challenges dentists encounter if they choose an inadequate curing light or apply inappropriate light curing techniques, including weak adhesion and compromised physical and chemical properties of the restorative material. In fact, studies revealed that more than 37% of composite restorations are insufficiently cured.<sup>1</sup> This will likely have a negative impact on the longevity of the restoration.

The following guidelines are based on the Consensus Statements on Light Curing<sup>2</sup> (Northern Light Meetings, Halifax) and are intended to help you achieve more predictable and reliable outcomes.

## Shining a light on curing

Not all lights are created equal

**Be aware of the key performance indicators:** Make sure your light delivers a minimum of 500 mW/cm<sup>2</sup> in standard mode. Be cautious when using high output lights (above 2000 mW/cm<sup>2</sup>) that advocate very short exposure times (e.g. 1-5 seconds).

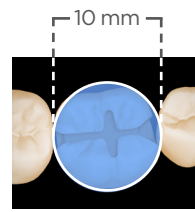
- SmartLite® Pro: ~1250 mW/cm<sup>2</sup> over the entire curing area



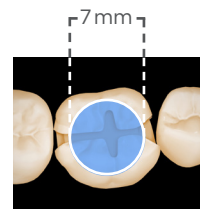
**Maximise coverage.** Choose a light with a uniform output that covers as much of the restoration as possible. If the light tip is smaller than the restoration, use overlapping exposures.

- SmartLite® Pro: Large active curing area of 10 mm diameter

SmartLite® Pro

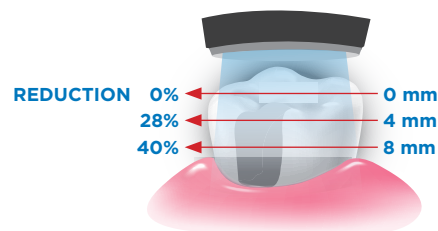


Competitor



**Cure over distance.** Select a light that offers the least reduction in irradiance as distance from the tip increases.

- SmartLite® Pro: Collimated beam for reliable curing over larger distances



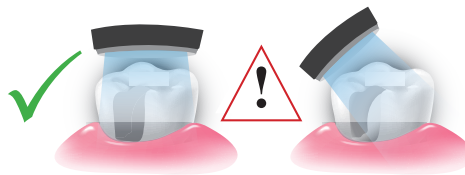
## How to properly light cure

Before getting started, be sure to:

- Use eye protection
- Watch position of curing light

**Inspect and clean.** First make sure the light is free of defects and debris. Apply barrier sleeve to protect lens and handpiece from gross contamination.

**Place light.** Position light as close as possible (without touching) and with tip parallel to the surface of the restoration.



**Double check.** Light cure restoration for recommended time. Follow the resin manufacturer's curing table.



<sup>1</sup>Boksman L, Santos GC. Principles of Light Curing. Inside Dentistry 2012; 8: Issue 3.

<sup>2</sup>Price R., Light Curing Guidelines for Practitioners: A Consensus Statement from the 2014 Symposium on Light Curing in Dentistry, Dalhousie University, Halifax, Canada, J Can Dent Assoc 2014;80:e61.

<sup>3</sup>Strassler H., Oxman J., Rueggeberg F., What should you look for in a curing light? CDAessentials, 2015;3(6):30-3.

<sup>4</sup>Price R., Guidelines For Using Bulk Fill Resin Composites, CDAessentials 2017;4:39.

# Curing time chart

Knowing the right curing time for the material used in the restoration can be the difference between restoration success and failure. The below chart outlines the appropriate curing time for Dentsply Sirona restorative materials when cured with SmartLite® Pro Curing Light (Cure Tip).

## SmartLite® Pro Modular LED Curing Light

## Material curing guide

Material shade	Curing time(s)	Material shade	Curing time(s)	Material shade	Curing time(s)
<b>SDR® flow+</b>		<b>Spectra® ST flow<sup>3</sup></b>		<b>Prime&amp;Bond® Adhesives<sup>4</sup></b>	
<b>4 mm*</b>	<b>10 20</b>	<b>2 mm*</b>	<b>10 20</b>		
A1	● ●	A1	● ●		<b>10 20</b>
A2	● ●	A2	● ●		● ●
A3	● ●	A3	● ●		
Universal	● ●	A3.5	● ●		
<b>Spectra® ST<sup>1</sup></b>				<b>Calibra® Cements<sup>5</sup></b>	
<b>2 mm*</b>	<b>10 20</b>				<b>max. 5</b>
A1	● ●				
A2	● ●				
A3	● ●				
A3.5	● ●				
A4	● ●				
BW	● ●				
<b>Spectra® ST Effects<sup>2</sup></b>		<b>FluoroCore® 2+/ core-X® flow</b>			
<b>2 mm*</b>	<b>10 20</b>	<b>3 mm*</b>	<b>10 20</b>		
D1	● ●	Tooth Colour	● ●		
D3	● ●	Blue Colour	● ●		
E1	● ●				
<b>QuiXfil® /QuixX®</b>					
<b>4 mm*</b>	<b>10 20</b>				
Universal	● ●				

**Tack curing only** ● (max. 5 seconds per surface)

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