

# What's Special About EPO-TEK® UV Curing Epoxies

## Benefits of an epoxy-based UV curing adhesive system



### Excellent adhesion and reliability

- Due to the **epoxy backbone** (rather than acrylate backbone)

### Low shrinkage

- Average shrinkage is approximately 1-5% (acrylate is typically 10-15%)
- Low shrinkage leads to low internal stress aiding adhesion

### Not subject to oxygen inhibition

- Cationic photoinitiators are not quenched by oxygen

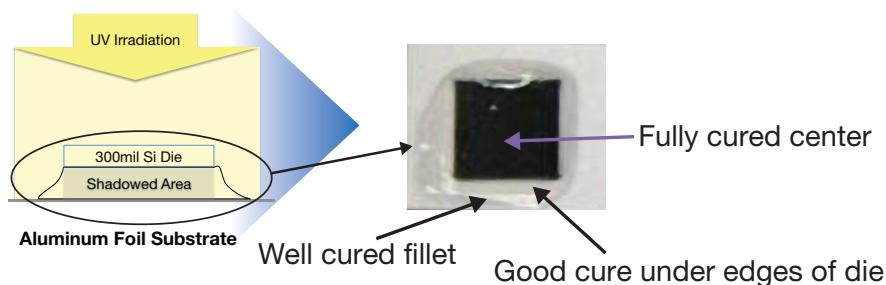
### Capable of “Dark” Cure

- Cation creates the “living polymer” and continues to be active in the absence of UV light
- Enables a small degree of curing in areas never seen by the UV light, for a limited distance

### Most are thermally post-curable

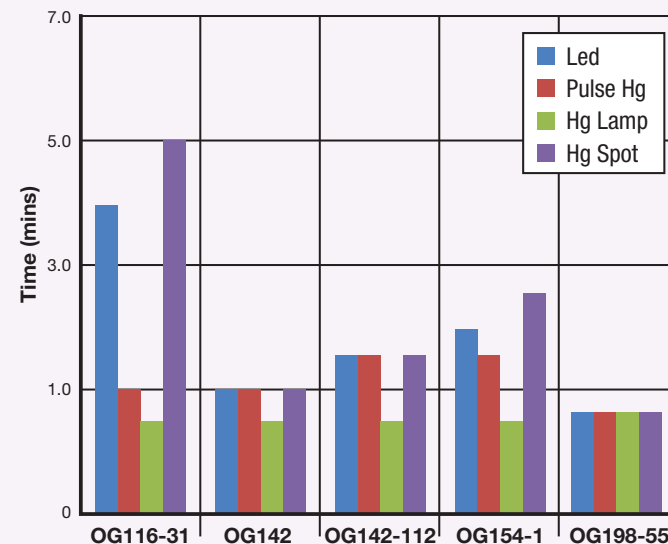
- Greater degree of conversion than UV cure alone (*Initial UV cure is required for best thermal post cure results*)

### Effect after UV cure with a thermal post cure on shadowed areas



*Shadow curing is often critical to designs where access to UV light is limited*

### Epoxy UVs can be cured in ≤ 1 minute\*



For complete listing of UV products visit [EPO-TEK.com](http://EPO-TEK.com)

### \*With proper optimization through:

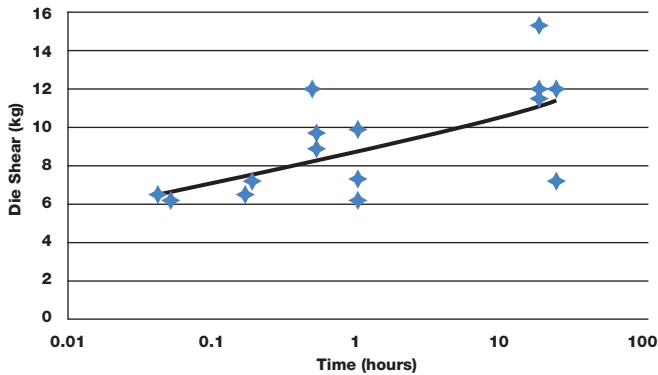
- UV lamp selection
- Using a UV source that generates heat
- Warming the formulation or substrate before application
- Down stream thermal curing following UV exposure-*May also improve water resistance*



Innovative Epoxy Adhesive Solutions for Over 45 Years™

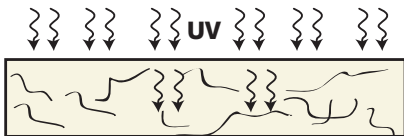
# Additional Epoxy UV Benefits

## Die Shear Increases Over Time\*



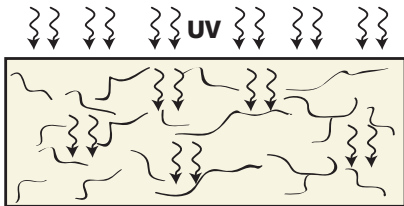
\*Above test results for OG116-31 show a die shear increase over time after 30 second UV cure. This type of result is representative of the EPO-TEK® epoxy-based UV line.

## Both Thin And Thick Sections Can Be Cured With Epoxy UV's



### Thin Section

UV passes easily through highly mobile polymer chains, *cures well.*



### Thick Section

Using a lower intensity, longer wave length and longer cure time, *a good cure can be achieved.*



For additional information, please visit us at: [www.epotek.com](http://www.epotek.com), or email our Technical Services Group at: [techserv@epotek.com](mailto:techserv@epotek.com)  
 Epoxy Technology Inc. 14 Fortune Drive, Billerica, MA 01821  
 Tel: 978-667-3805 Fax: 978-663-9782 [epotek.com](http://epotek.com)

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## Selecting Best UV Lamps/Cure Time

| Product   | 365nm Flood LED | Pulsed Hg Lamp | F Style Hg Flood Cure | F Style Hg Spot Cure |
|-----------|-----------------|----------------|-----------------------|----------------------|
| OG116     | **              | ***            | ****                  | **                   |
| OG116-31  | ***             | ****           | ****                  | **                   |
| OG142     | ****            | ****           | ****                  | ****                 |
| OG142-112 | ***             | ***            | ****                  | ***                  |
| OG142-87  | ***             | ****           | ****                  | ***                  |
| OG142-95  | ***             | ****           | ****                  | ***                  |
| OG146-178 | ****            | ****           | ****                  | ****                 |
| OG154-1   | ***             | ***            | ****                  | ***                  |
| OG159-2   | ****            | ****           | ****                  | ****                 |
| OG198-54  | ****            | ****           | ****                  | ****                 |
| OG198-55  | ****            | ****           | ****                  | ****                 |
| UJ1190    | ◆               | ***            | ****                  | ◆                    |
| OG146-104 | ****            | ****           | ****                  | ****                 |
| OG178     | *               | ***            | ****                  | ◆                    |

|                  |    |     |     |     |     |    |      |   |     |   |
|------------------|----|-----|-----|-----|-----|----|------|---|-----|---|
| Cure Time (min): | <1 | *** | 1-3 | *** | 3-5 | ** | 5-10 | * | >10 | ◆ |
|------------------|----|-----|-----|-----|-----|----|------|---|-----|---|



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