

Diffusion film for LED lighting

# OptSaver™

## *L-series*

Energy efficient  
light diffusion

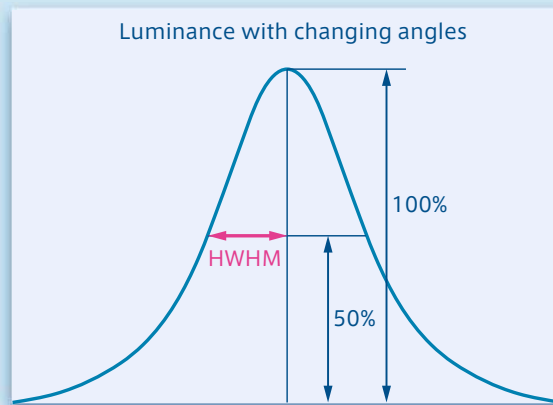
Wide range of illumination  
angles and hiding ratios  
for accurate light output

Thin and flexible roll material  
enables creative design  
and allows efficient  
production process.

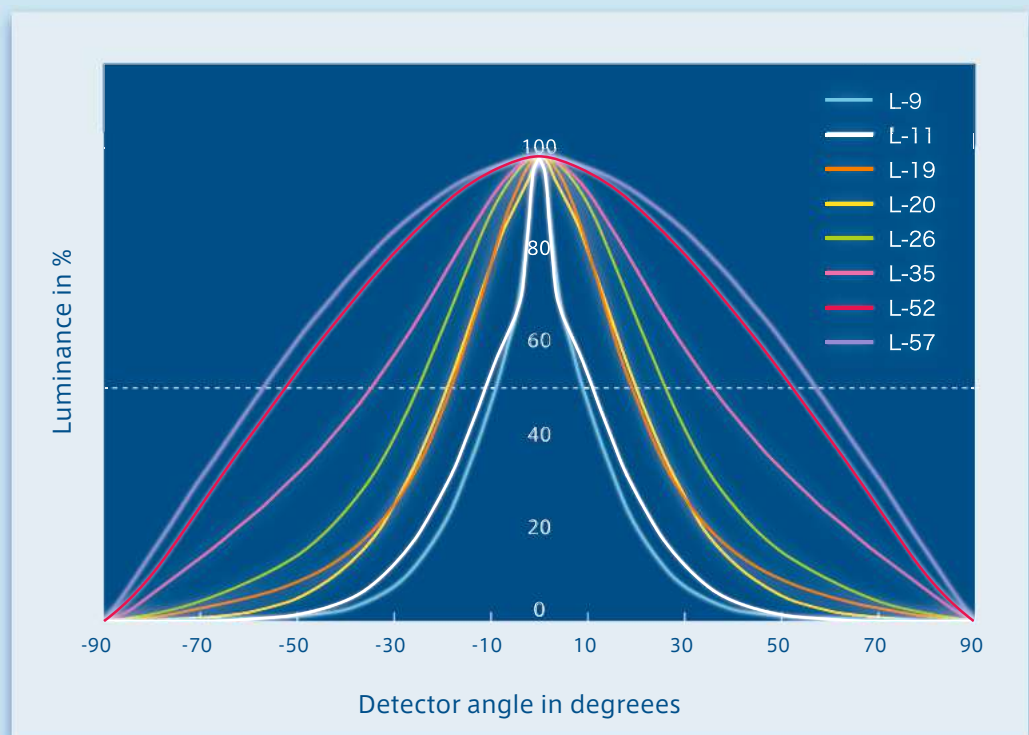
## Physical Properties

| Grade  | Base film thickness | Half width at half maximum * (HWHM) | Total light transmittance (Tt) | Haze   | Gloss |
|--------|---------------------|-------------------------------------|--------------------------------|--------|-------|
| L-9    | 100 $\mu\text{m}$   | 9°                                  | 99.0%                          | 93.5 % | 11.0  |
| L-11   | 100 $\mu\text{m}$   | 11°                                 | 99.0 %                         | 92.8 % | 9.2   |
| L-19   | 75 $\mu\text{m}$    | 19°                                 | 87.1 %                         | 96.0 % | 3.1   |
| L-20   | 100 $\mu\text{m}$   | 20°                                 | 99.0 %                         | 95.2 % | 6.4   |
| L-35   | 100 $\mu\text{m}$   | 35°                                 | 67.6 %                         | 95.6 % | 3.1   |
| PCL-52 | 250 $\mu\text{m}$   | 52°                                 | 67.6 %                         | 93.4 % | 1.4   |
| L-52   | 100 $\mu\text{m}$   | 52°                                 | 67.6 %                         | 93.4 % | 1.4   |
| L-57   | 100 $\mu\text{m}$   | 57°                                 | 60.0 %                         | 93.1 % | 1.5   |

\* HWHM: Illumination angle measured according to DIN5036



## Diffusion Angle

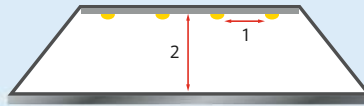


## Hiding Ratio

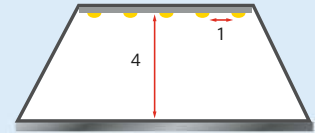
A low hiding ratio indicates efficient hot spot prevention and high diffusion. This allows to design compact luminaires without quality compromises. The wide range of our diffusion films allows you to fine tune the output characteristics.



1:1 Ratio  
Strong diffusion



1:2 Ratio  
Medium diffusion



1:4 Ratio  
Low diffusion

## Hiding Ratio Examples

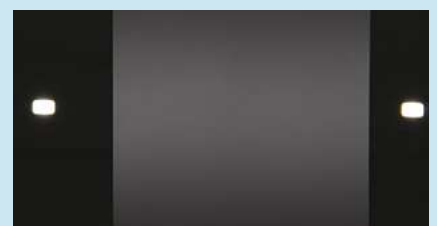
| Grade        | L-9  | L-11 | L-19 | L-20 | L-35 | PCL-52 | L-52 | L-57  |
|--------------|------|------|------|------|------|--------|------|-------|
| Hiding ratio | 1:12 | 1:12 | 1:3  | 1:7  | 1:2  | 1:3    | 1:3  | 1:1.2 |

Grade L-9 Hiding ratio 1:12



LED Light Source

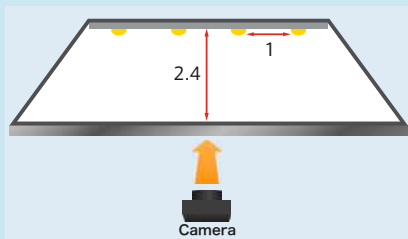
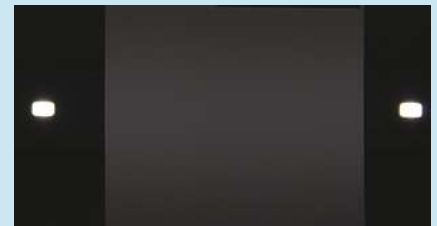
Grade L-35 Hiding ratio 1:2



Grade L-11 Hiding ratio 1:12

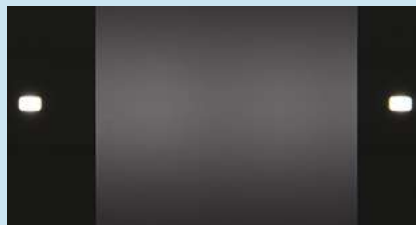


Grade PCL-52 Hiding ratio 1:3

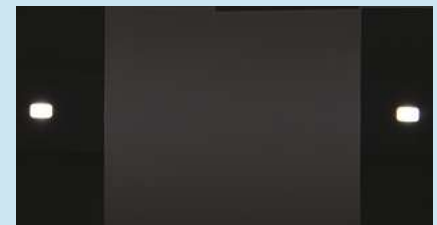


Test configuration

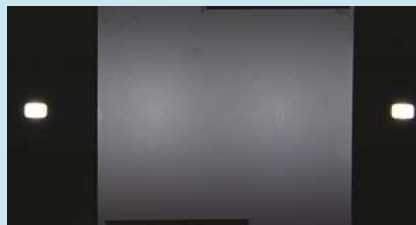
Grade L-19 Hiding ratio 1:3



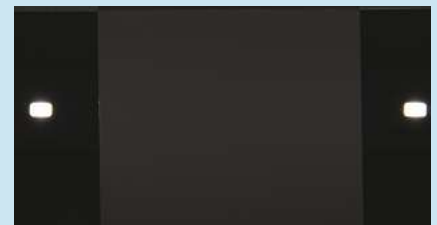
Grade L-52 Hiding ratio 1:3



Grade L-20 Hiding ratio 1:7



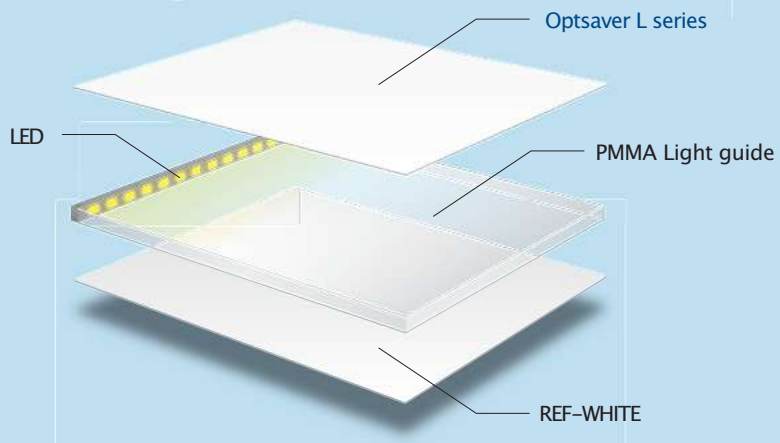
Grade L-57 Hiding ratio 1:1.2



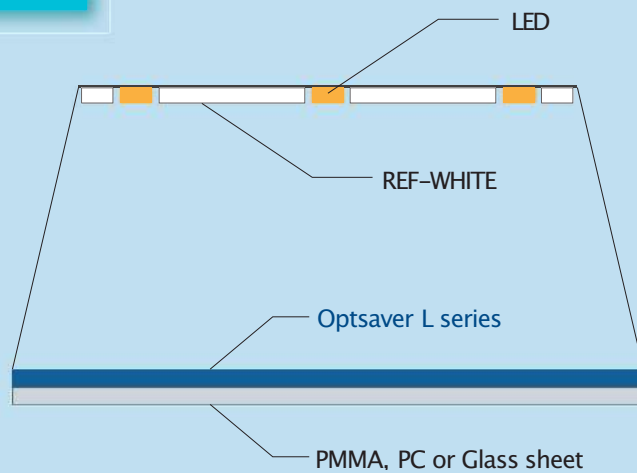
## REF-WHITE

| Product Type | Thickness<br>(Total Thickness) | Spectral Reflection Factor |       |       | Gloss |
|--------------|--------------------------------|----------------------------|-------|-------|-------|
|              |                                | 450nm                      | 550nm | 650nm |       |
| RW125        | 125                            | 94%                        | 93%   | 92%   | 69.3  |
| E6SR         | 188                            | 97%                        | 96%   | 95%   | 23.5  |

### Edge lighting



### Direct illumination



The values listed in this catalog are measured values and not guaranteed values.  
Note that the contents listed herein are subject to modification without prior notice.

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