

TEC ACCESSORIES

Technical Bulletin

TEC Accessories Embrite™

Proprietary Glow-in-the-dark Material

Embrite™ is the cutting edge of resin-based, phosphorescent composite material available today. This proprietary material is manufactured only by TEC Accessories using a special process we have developed and refined to achieve the best possible performance. It is the brightest glow in the dark material available anywhere. If you want the absolute brightest glow material, choose Embrite™.

The method used to provide the desired glow effect is based on a charge/discharge cycle. You must first charge the Embrite™ material with light, which is then stored and slowly discharged over time. In order to achieve the best possible results from the material, please review the following tips regarding light exposure and charging times.

Charging the Embrite™ Material

The material itself charges most effectively when exposed to the UV portion of the light spectrum (between 10 and 400 nm). The broadband spectrum of sunlight does an excellent job as a charging source, as well as UV lights and CFL bulbs but the material will also absorb an appreciable charge when exposed to indoor ambient room light. Increased exposure time to a light source will increase the initial brightness of the glow and extend the time the material remains glowing. The brighter the charging source, the brighter the material will glow.

Embrite™ material that is charged in ordinary sunlight or room light for an extended period will have a noticeable glow when the lights are turned off. This glow will diminish gradually over the course of several hours until the energy it stored while charging is totally depleted. Although the glow intensity will fade considerably over a long duration of time, it is not uncommon to still see a recognizable glow after 8-12 hours (depending upon Embrite color), especially with dark-adapted vision in a completely dark environment. This charging and discharging cycle can be performed an infinite number of times. There is very little performance depreciation over the long-term life of Embrite™.

It is important to note however, that if you view the material in typical room light IT WILL NOT GLOW! It must be in a dark environment in order to see the glow effect. This may seem obvious, but the brighter the ambient light is, the lower the intensity of the Embrite™ glow. Conversely, the darker the ambient room light is, the brighter the glow effect will appear. If you view Embrite™ outside at night, it will not be as bright if you view it on a lighted city street as compared to a dark country road. These distinctions are important to clarify, in order to accurately represent your expectations of Embrite™

Surface Finish of Embrite™ Material

Embrite™ material is sold in various forms, including our standard glow fob product line, rectangular morale patches, and a variety of rod sizes and sheets for OEM applications. The material is formed using a cast mold

process and will generally have a smooth/polished surface finish or a molded textured surface on all cosmetic surfaces. We have optimized our manufacturing process to provide the finest uniformity and surface finish possible, however there may be small inclusions or scratches in the final product that are unavoidable during the manufacturing process. This will have no effect on the performance of the product and will not be visible during the glow effect.

Workability of Embrite™ Material

Embrite™ is a urethane resin-based material and is easily cut to desired lengths or shapes. You can use a standard hacksaw or machine tools to cut the material, which leaves a relatively smooth cut edge. It can be sanded to eliminate any rough edges or cuts, but you should avoid any modification to the finished, polished surfaces unless you plan to refinish them. If you wish to obtain a smooth, polished finish on the cut surface you can perform the following steps:

1. Make the initial cut
2. Wet sand the surface stepping through a series of sandpaper grades, starting with 400 grit and moving up to 2000 grit
3. Use a polishing compound to achieve a final polished surface. This can either be a product such as Promise Epoxy Polish or Novus 3, 2 and 1.
4. These steps can be performed manually, or with power equipment. However, care should be taken when using power tools to ensure you do not remove more material than desired. Although Embrite is a rigid material, it can be overworked from high speed equipment.

Any dust or material scrap resulting from cutting or modification can be easily discarded, as Embrite™ is non-toxic in its finished state. However, we do not recommend ingesting the material either orally or from breathing any dust created during the cutting process. We therefore suggest that you wear protective eyewear and avoid breathing any dust particles during the modification process. The use of a snug-fitting respirator with filter cartridges is highly recommended.

Performance Specifications

TEC Accessories manufactures various colors of Embrite™, each with its own level of glow performance. In bright light, the visible color is considered its “Daylight Color” and in a dark environment, properly charged, it will emit its “Glow Color”. The following chart references the colors as well as the average glow duration of each color. Please bear in mind that performance will vary depending upon how well the material is initially charged and the environment in which it is viewed. However, the values stated are a useful method to indicate the performance relationship between each color.

Embrite™			
Color	Daylight Color	Glow Color	Glow Duration
Green	Pale Green	Green	12+ Hours
Aqua	White	Aqua	12+ Hours
Lemon	Bright Yellow	Green	8-12 Hours
Lime	Bright Green	Green	8-12 Hours
Orange	Orange	Orange-Gold	6-8 Hours

It is also important to note that in general, the brighter the daylight color, the dimmer the glow color. Therefore, if you want the brightest glow possible, it would be best to choose our original green color which has the highest level of glow performance.

All of our Embrite™ material also contains a UV additive to slow down surface degradation and discoloration from exposure to the sun. Although surface breakdown cannot be completely eliminated, it is dramatically reduced to ensure the best possible longevity of Embrite™ when exposed to ultraviolet light.

Physical Specifications

Embrite™ material is a urethane resin composite that is molded into various forms. The following specifications apply to the finished material after it has been fully cured. Note that all Embrite™ material is fully cured when shipped from TEC Accessories.

- Shore hardness: 72D
- Tensile strength: 3,170 psi
- Flexural Strength: 3,690 psi
- Compressive Strength: 3,500 psi
- Heat Deflection Temperature: 120 Degrees F

Contact Information

If you have any questions regarding Embrite™ performance, material modifications, or safety issues, please contact:

TEC Accessories, Inc.
18540 E. San Tan Blvd. Ste 104
Queen Creek, AZ 85142
(520) 369-3402
sales@tecaccessories.com