



CLEARWELD®



ADAPTING LASER WELDING TO YOUR IDEAS

Clearweld coatings are solutions that are used to enable the laser welding of thermoplastic substrates. They contain infrared absorbing materials designed for operating in the 940-1100nm wavelength range. Clearweld coatings form thin, uniform layers of the absorbing materials onto the plastic. If infrared energy is applied to the area that has been coated, the Clearweld material will absorb this energy and convert it to heat. This results in a localized melting of the plastic and the formation of a weld. Since most plastics will not absorb infrared energy, only the areas where the Clearweld coating has been applied will melt and form a weld.

Nomenclature:

- LD100 series is recommended for the 940-1000nm wavelength range; LD200 series is recommended for the 1064 or 1090nm wavelengths
- LD110 and LD210-MOP based, LD120 and LD220-Acetone based, LD130 and LD230-MEK based, LD140 and LD240-ethanol based
- Concentration from lowest to highest A<B<F<C

Applying Tips

- The acetone and MEK coatings provide faster drying times than ethanol and MOP coatings.
- Ethanol coatings generally have less coloration than acetone and MEK.
- The coating should be applied as evenly as possible to ensure consistent welding results.

Welding Tips

1. Selecting the correct welding parameters will help achieve the application requirements. The parameters include energy density, clamping pressure and absorbing additive concentration. These weld parameters act in combination so that if one is changed typically at least one other has to be changed to achieve the same results.
2. Intimate contact is essential during the heating of the two substrates. To obtain the intimate contact, clamping pressure is required. The amount of clamping pressure used depends on the materials being used and their surface conditions. A press fit may eliminate the need for external clamping pressure.

3. The surfaces in the weld area should be smooth and clean. A matte surface can be welded but the irregularity may result in reduced weld strength. The surfaces should also be parallel to ensure complete contact between the substrates.
4. For semi-crystalline materials, the thickness of the top substrate may be limited because it may cause the laser energy to scatter. This may cause surface melting or burning. This may necessitate higher power to achieve welds.

Handling

1. Uniform pressure should be used when applying the coating to achieve the most consistent welds
2. Keep the lid on the marker when not in use
3. Store the marker in a cool dry place and avoid exposure to heat.
4. The shelf life of a Clearweld marker is 3 months.
5. Do not use marker if there is visible indication of damage or contamination.



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