

When M-Bond 200 Adhesive Won't Adhere

M-Bond 200 cyanoacrylate adhesive is an excellent general-purpose strain gage adhesive for short-term use. Additionally, M-Bond 200 is a popular adhesive because of its ease of application and fast cure. When the installation procedures outlined in Instruction Bulletin B-127, Strain Gage Installation with M-Bond 200 Adhesive, are followed, high-quality installations are usually attainable on most structural materials. However, here are a few sources of problems which can adversely affect the installations:

1. Low humidity will prolong the curing time. Under these conditions, apply pressure for 3 to 5 minutes. Do not remove the handling tape for at least 10 minutes.
2. High humidity will accelerate the cure time. Thick glue-lines often result because adhesive flow is restricted by rapid polymerization. Install gages immediately following surface preparation to minimize condensation. Eliminate any residual condensation on the specimen surface by warming with a heat gun before gage installation.
3. Low specimen temperature will prolong the curing time. Warm the surface to 70 to 80 °F (20 to 30 °C) with a heat gun before gage installation.
4. Acidic surfaces (like those on wood) can prevent cyanoacrylate adhesives from curing. Ideally, the surface pH should be within the range of 7 to 7.5. M-Prep Neutralizer 5A should be used, if possible, to eliminate surface acidity.
5. Alkaline surfaces can cause embrittlement of M-Bond 200. Avoid long-term applications on rock, concrete, and other similar materials. (Use M-Bond AE-10 epoxy adhesive whenever possible.).
6. Vapors from spilled M-Prep Neutralizer 5A may react with the adhesive and cause the gage to come up with the handling tape! Any noticeable odor may indicate a potential source of bonding problems.
7. Failure to release the handling tape after wipe-through can cause voids in the glue-line. This results when the gage is accidentally lifted from the specimen surface before thumb pressure is applied.
8. Coarse surfaces will reduce the strain transmission capabilities of M-Bond 200 because it is not designed as a gap-filling adhesive. Variations in surface texture of more than 0.006 in (0.15 mm) are likely to cause the gage to be bonded only to the surface peaks.
9. Failure of the adhesive to meet elongation specifications can be caused by any of the above due to premature loss of bond. Remember that open-faced gages will retain bond integrity to higher strain levels than will encapsulated gages because they generate lower shear stresses in the glue-line.

M-Bond 200 cyanoacrylate adhesive is successfully used in thousands of strain gage applications every year, and the problems described above are both unusual and infrequent. Should you encounter any circumstance when M-Bond 200 (or any other Micro-Measurements strain gage adhesive, for that matter) fails to properly adhere, don't hesitate to contact our Applications Engineering Department for assistance.