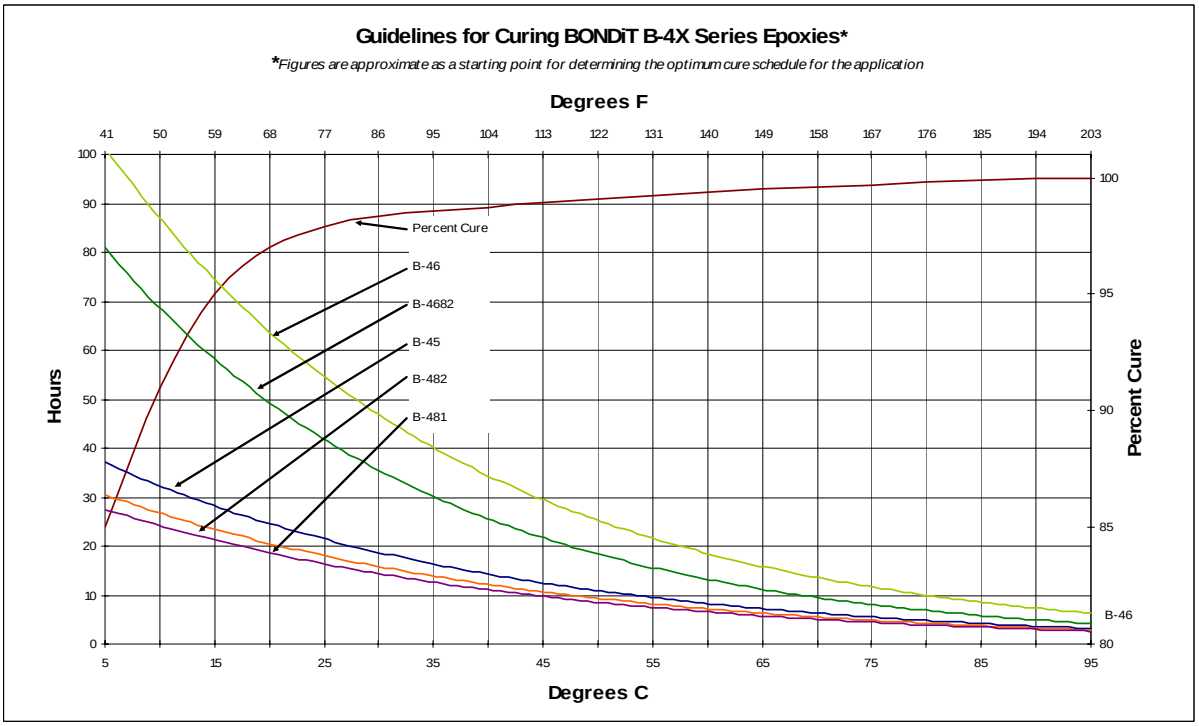


To interpret this chart keep in mind that 100% cure is relative to an arbitrary point in the crosslinking process. True one-hundred percent cure is never actually achieved; that is, every theoretically possible crosslink is completed.

Here the 100% point is established by a number of tests using the B-45TH product as the baseline: Differential Scanning Calorimetry (DSC) testing that indicated 98% reaction completion with 30 minutes ambient cure followed by 2 hours at 93°C; tensile and moisture absorption testing that indicated best mechanical an minimum moisture absorption properties are achieved with post cure of 93°C (200°F) for 3 hours, (see B-45TH Report of Properties). The other B-4X products are shown relative to that standard.

That however, may not relate directly to the particular application for which the product is being applied. Certain properties, such as chemical resistance, electrical properties, tensile strength, impact strength, elongation, durometer, tear and fatigue (toughness), and shear adhesion or peel adhesion may be uniquely emphasized by using different cure schedules, including a ramped schedule. The curing reaction is generally exponentially proportional to temperature. However, some chemical reactions during curing are favored at lower temperature compared to others that are encouraged by higher temperatures. As a result, a lower temp cure for longer time will tend to favor elongation, higher temperature cure favors crystallinity, and intermediate favors toughness. In addition, the B-481 and B-482 may be considered similar, B-45 somewhat unique in the middle, and B-4682 and B-46 as similar but with significantly different performance characteristics compared to the other B-4X products. When the products are modified with fillers for particular performance requirements such as electrical conductivity, the cure guideline still applies but will likely change some due to the added materials. See individual data sheets for details.

For most applications this guideline of time and temperature cure shown here will yield excellent results. It is highly advised that a test be made for all applications to confirm the desired results will be achieved prior to committing to production of final assembly. Note that the cured materials will continue to develop properties

for many days subsequent to following this guideline; in the case of B-481 only slightly, but significantly with B-46; the other B-4X products fall in between those two ends of the comparative scale.

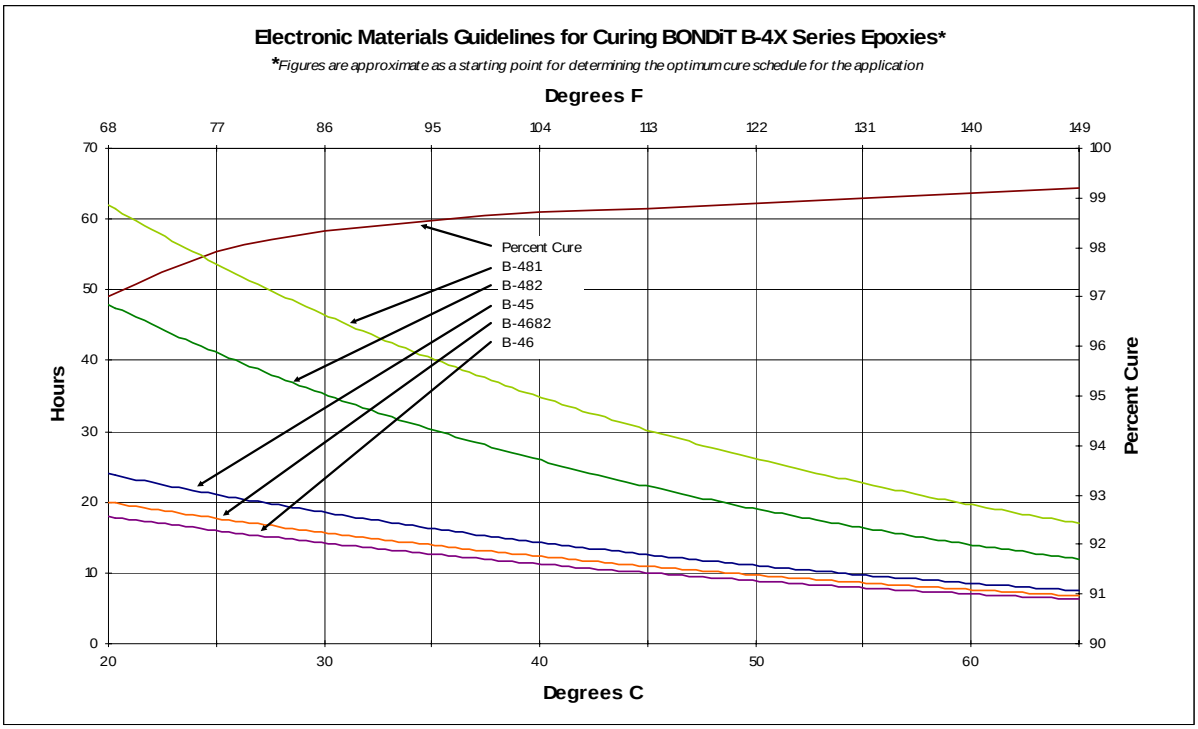
In the case for adhesive properties, lower (room temperature) cure produces higher tack at the interface and tends to emphasize peel strength, while higher cure temperature, such as 150°C will emphasize crystallinity, shear strength and cohesive chemical reaction to substrates, with a sacrifice of peel and impact strength. A balance (93°C) between the temperature extremes will yield a balance in both shear and peel adhesion properties, while tending to favor material toughness.

Generally, best chemical resistance is correlate with highest crosslinking and crystallinity. BONDiT B-481 will handle temperatures to 200°C and provide best chemical resistance due to its higher crosslinked structure compared to the other B-4X products. Normally however, cures above 150°C are not recommended, as material degradation will begin to occur about 175°C for B-45, B-4682 and B-46. An exception to that would be using B-45TH within an electrical connection under shrink tubing: the B-45TH will cure fully and bond to the polyolefin tubing and wire insulation under the heat of shrinking the tubing over the electrical junction, and provide an excellent environmentally resistant and high voltage seal.

For electrical potting applications the tailoring of the cure schedule may be particularly important to preserve integrity of the system. For instance, low durometer and high elongation may be desired to optimize resistance to mechanical and thermal shock loads on the electronics. In such a case selection of B-46, B-4682, or B-45 would all be good choices at lower cure temperatures.

In another case maximum chemical resistance or mechanical strength may be desired. Using B-481, B-482 or B-45 with higher cure temperatures will offer the best results.

Or perhaps production processes may drive the cure schedule choice. A quick set may be achieved with a short exposure to higher heat followed by room temperature curing to aid in assembly applications that require continuous, moderate speed through put. At the end of assembly the unit may be post cured to achieve design requirements.



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