CHMI-24-05: Bond Strength Impact from Partially Cured Substrates

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This project investigates how partial curing of composite materials affects the strength and reliability of adhesive bonds. Traditional full-cure processes can lead to inconsistent bonding due to thermal stresses and material degradation, especially in complex structures. By exploring multi-stage curing strategies, the CHMI team aims to improve bond performance and reduce manufacturing cycle times. The research includes fabricating and testing composite samples under different curing and surface preparation conditions, with a focus on understanding how these variables influence fracture toughness. The findings could lead to more efficient and reliable bonding methods for advanced composite structures used in aerospace and other high-performance applications.