

WHITE PAPER: ULTRABOND HYB-2CC PERFORMANCE VERSUS ULTRABOND 365CC

By: Adhesives Technology Corp. (ATC) Engineering Department

Background



In 2015, Adhesives Technology Corporation launched ULTRABOND 365CC, which had the highest short term temperature resistance of any product on the market at the time. This, coupled with its fast cure time and overall high performance has made it a product of choice for engineers and contractors alike. Products like 365CC have redefined the category generally known as “acrylics” or “vinyl esters” over the last five years by using hybrid urethane chemistries to give overall bond strengths more similar to epoxy formulations while yielding benefits such as faster cure times and lower permissible installation temperatures. Historically, however, these added performance features have typically come with some downsides, namely non-standard mix ratios (3:1 or 5:1), short shelf lives (9 – 12 months) and increased moisture sensitivity.

Meet ATC’s second generation hybrid system, ULTRABOND HYB-2CC

Advancements we have made in adhesive anchoring over the last few years, specifically with the type of performance generated with the market leading epoxy formulation (ULTRABOND HS-1CC), has driven the need to leverage our experience with the introduction of ATC’s second generation hybrid anchoring adhesive, ULTRABOND HYB-2CC. With strength properties that are superior to 365CC in every respect, HYB-2CC also offers an industry standard mix ratio of 10:1, with an extended shelf life of 18 months, the ability to install anchors in water-filled holes and test data to allow calculation of development length for post-installed rebar connections.

Property		New HYB-2CC	365CC	Improvement
Building Code Evaluation Report		ESR-4535	ESR-3770	
Bond Strength Example - Uncracked Concrete , Threaded Rod With or Without Sustained Load, 122 °F Long-Term, 176 °F Short-Term	3/8"	2,600	1,523	Average Increase of 63%
	1/2"	2,415	1,436	
	5/8"	2,260	1,378	
	3/4"	2,140	1,334	
	7/8"	2,055	1,305	
	1"	2,000	1,276	
	1-1/4"	1,990	1,218	
Bond Strength Example - Cracked Concrete , Threaded Rod With or Without Sustained Load, 122 °F Long-Term, 176 °F Short-Term	3/8"	1,040	624	Average Increase of 72%
	1/2"	1,040	624	
	5/8"	1,110	624	
	3/4"	1,220	667	
	7/8"	1,210	667	
	1"	1,205	667	
	1-1/4"	1,145	754	
Short-Term Temperature - Maximum		320 °F	302 °F	18 °F
Long-Term (Creep) Temperature - Maximum		212 °F	194 °F	
Permissible Installation Conditions	Dry	Yes	Yes	Equivalent
	Water Saturated	Yes	Yes	
	Water-Filled	Yes	No	
Lower Installation Temperature		23 °F	5 °F	N/A
Upper Installation Temperature		104 °F	104 °F	Equivalent
Post-Installed Rebar Connections - Development Length		Yes	No	Added Application
Anchoring Data for Threaded Rod & Rebar - Fractional & Metric		Yes	Yes	Equivalent
Shelf Life		18 months	12 months	6 months
Mix Ratio		10:1	3:1	Upgrade to Standard
Cartridge Sizes		9 oz. & 28 oz.	20 oz.	for Rigid Cartridges



From a specification perspective, ULTRABOND HYB-2CC should be considered as superior and deemed an acceptable substitution for existing specifications of ULTRABOND 365CC. However, as with any design or substitution, the calculations should be verified given the individual and unique project parameters to confirm that HYB-2CC is a suitable alternative to 365CC prior to changing the specification. To facilitate these substitutions, 365CC will remain in ATC’s PRO ANCHOR DESIGN software for the remainder of 2020 while we transition our customers and existing projects over to ULTRABOND HYB-2CC.