

Features

- Single adhesive for dissimilar/difficult substrates
- See-Cure color-change technology
- Ultra-Red® fluorescing technology
- LED-optimized chemistry (385 nm preferred)
- Four viscosity options available
- Improved aging performance

Benefits

- Reduce adhesive variations to simplify manufacturing
- Know it is in the right place - dispense blue for visual verification
- Know it is fully cured - transition to colorless for cure confirmation
- Bright red post cure QA inspection under low-intensity black light
- Go green! Lower energy use and eliminate bulb disposal, plus en-joy cooler cures, longer life, instant on/off, and more
- Increase design and manufacturing flexibility
- Retain bond strength longer for potential shelf life increases

215-CTH-UR-SC Series Catheter Adhesives

MD® 215-CTH-UR-SC series of LED-curable adhesives is designed for the bonding and assembly of next-generation catheter designs that use Nylon 12 and PEBA. The series is a next-generation option for applications requiring LED optimization and improved aging performance characteristics over older adhesive chemistries. Applications include tube joining, lumen sealing, balloon bonding, and guidewire bonding for diagnostic catheters, guiding catheters, and other drug delivery devices.

The adhesives are formulated with Encompass® technology, which combines Dymax patented See-Cure color-change and Ultra-Red® fluorescing technologies into one product. The 215-CTH-UR-SC series dispenses bright blue in color enabling confirmation of adhesive placement onto substrates. When the bond line receives a sufficient amount of UV/Visible light energy, the blue color disappears completely indicating the adhesive is fully cured.

The adhesives also fluoresce bright red under low-intensity "black" light (365 nm), contrasting well on plastics that naturally fluoresce blue in color, like PVC. The Ultra-Red® fluorescing technology enables manual or automated visual inspection of the adhesive bond-line or coated area. The 215-CTH-UR-SC series is in full compliance with the RoHS Directives 2015/863/EU and ISO 10993 biocompatibility.

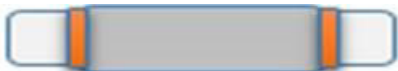
Specifications

Product Name	215-CTH-UR-SC	215-CTH-T-UR-SC	215-CTH-SV01-UR-SC	215-CTH-LV-UR-SC
Nominal Viscosity, cP (20 rpm)	18,000	6,000	1,100	450
Cured Mechanical Properties				
Durometer Hardness	D53	D50	D52	D52
Tensile at Break, psi	2.200	1.700	2.200	2.200
Elongation at Break, %	360%	260%	365%	380%
Modulus of Elasticity, psi	24.000	22.400	24.000	22.000
Substrates	ABS, PC, PET, PEBA, PVC, Nylon 12			

Points of Difference vs Competition

Cyanoacrylates (CAs)	Dymax Light-Cure Chemistries
Fixture and cure time are dependent on relative humidity and temperature where used , and can vary from summer to winter based on those factors but often takes 24+ hours to achieve full strength, even if handling strength is achieved in less time	Ability to cure on demand and cure fully within seconds , with no additional time needed or requirements for controlled temperature and humidity
Prone to causing blooming, crazing, and/or stress cracking on plastics	No crazing or cracking when cured with correct LED equipment
Not suited for many joint designs, typically only compatible with thin bond lines and do not work for many dissimilar substrates	215-CTH-UR-SC adhesives bond a wide range of similar or dissimilar substrates , including difficult-to-bond plastics, to meet advanced design needs with thick or thin bond line requirements.
Typically require refrigerated storage , adding to space requirements and electrical consumption, as well as adding process time at the start of the shift and relying on operators to return unused material	Basic room temperature storage with no special shipping or handling requirements. Ready for immediate use on demand for the duration of shelf life.

215-CTH-UR-SC Series Catheter Adhesives Specifications Comparison



Potential to replace CAs with a fillet or “edge bond” of 215-CTH-UR-SC series!

Worried about shadow areas? In some applications, a fillet with the 215-CTH-UR-SC series on the edge(s) of an opaque outer piece (as represented with the adhesive in orange on the left) can still give equal, or better, strength than a cyanoacrylate used for bonding the piece in place.

Bond Strength and Aging Performance

215-CTH-LV-UR-SC vs. Competitor Adhesive

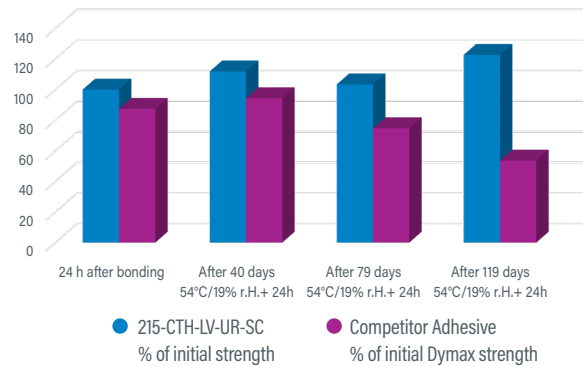
Tube set assemblies were evaluated for their initial bond strength and bond strength after accelerated aging. The tube sets were assembled using 215-CTH-LV-UR-SC (viscosity of 200-500 cP) and a top competitor adhesive (viscosity of 300-800 cP). Adhesive was dispensed using a Dymax SD-100 syringe dispenser with a 21 gauge tip and then cured with a Dymax BlueWave® MX-150 PrimeCure® with a 3-pole lightguide at ~ 1,3 W/cm² for 12 seconds.

Testing: Pull testing was performed using a Zwick Tensile Testing Machine using an initial force of 44 N at a pull rate of 25,4 mm/min. ASTM F1980 was followed.

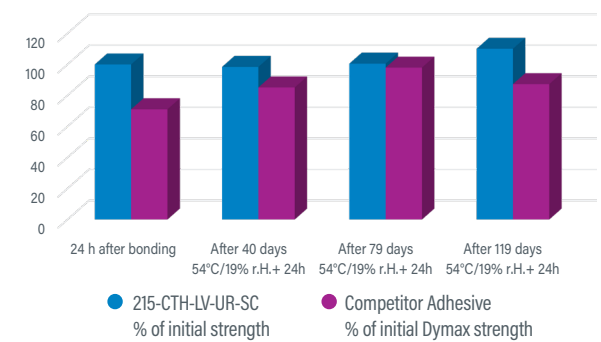


Accelerated aging = Simulated aging	
40 days = 1 year	79 days = 2 years 119 days = 3 years

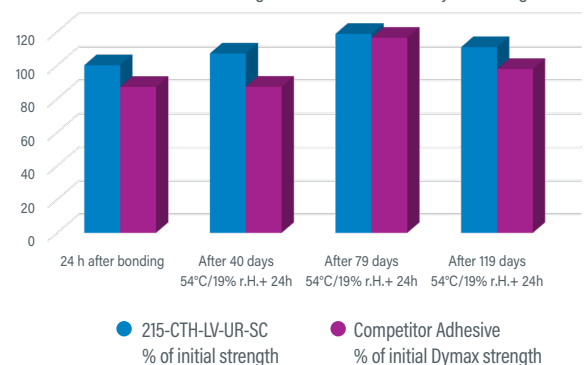
PEBAX 55D Tube / PC Connector	% of Initial Strength	
	215-CTH-LV-UR-SC	Competitor
24 h After Bonding (Control)	100%	Lower by 10%
40 days 54°C/19% r.H.+ 24h	111,8%	108,0%
79 days 54°C/19% r.H.+ 24h	103,3%	85,5%
119 days 54°C/19% r.H.+ 24h	122,6%	61,3%



PEBAX 72D Tube / PC Connector	% of Initial Strength	
	215-CTH-LV-UR-SC	Competitor
24 h After Bonding (Control)	100%	Lower by 30%
40 days 54°C/19% r.H.+ 24h	98,4%	119,8%
79 days 54°C/19% r.H.+ 24h	100,5%	137,8%
119 days 54°C/19% r.H.+ 24h	110,1%	122,8%



TPE Tube / PVC Connector	% of Initial Strength	
	215-CTH-LV-UR-SC	Competitor
24 h After Bonding (Control)	100%	Lower by 10%
40 days 54°C/19% r.H.+ 24h	107,0%	100,1%
79 days 54°C/19% r.H.+ 24h	118,7%	133,6%
119 days 54°C/19% r.H.+ 24h	110,8%	112,2%



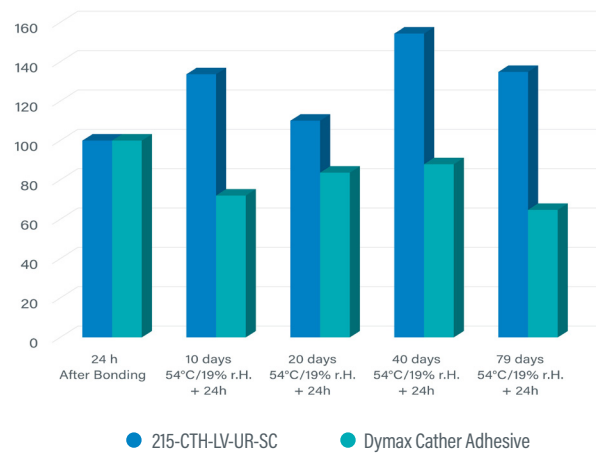
215-CTH-LV-UR-SC vs. Older Dymax Catheter Adhesive

Lap shear testing was performed using PC/PC and PEBA/PC combinations with an 3,2 mm (0.125") overlap. They were assembled using 215-CTH-LV-UR-SC (viscosity of 200-500 cP) and an older Dymax catheter adhesive (viscosity of 400-600 cP). The adhesives were manually dispensed with a syringe and plunger and cured with a Dymax BlueWave® LED Flood with PrimeCure® Array at ~200 mW/cm² for 30 seconds.

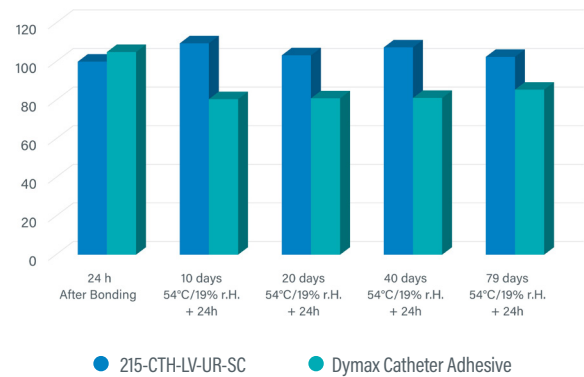
Testing: Pull testing was performed using an Instron Model 33R 4467 with a load cell of 200 lb. and a pull rate of 12,7 mm/min (0,5"/min). ASTM F1980 was followed.

Accelerated aging = Simulated aging	
10 days = 3 months	20 days = 6 months 40 days = 1 year 79 days = 2 years

PEBA 72D / PC Lap Shear	% of Initial Strength	
	215-CTH-LV-UR-SC	Dymax Catheter Adhesive
24 h After Bonding	100%	Equal initial strength (within 1%)
10 days 54°C/19% r.H.+ 24h	133,7%	72,1%
20 days 54°C/19% r.H.+ 24h	110,1%	83,7%
40 days 54°C/19% r.H.+ 24h	154,4%	88,0%
79 days 54°C/19% r.H.+ 24h	134,9%	64,8%



PC / PC Lap Shear	% of Initial Strength	
	215-CTH-LV-UR-SC	Dymax Catheter Adhesive
24 h After Bonding	100%	5% higher initial strength
10 days 54°C/19% r.H.+ 24h	109,5%	80,6%
20 days 54°C/19% r.H.+ 24h	103,3%	81,0%
40 days 54°C/19% r.H.+ 24h	107,4%	81,2%
79 days 54°C/19% r.H.+ 24h	102,5%	85,5%



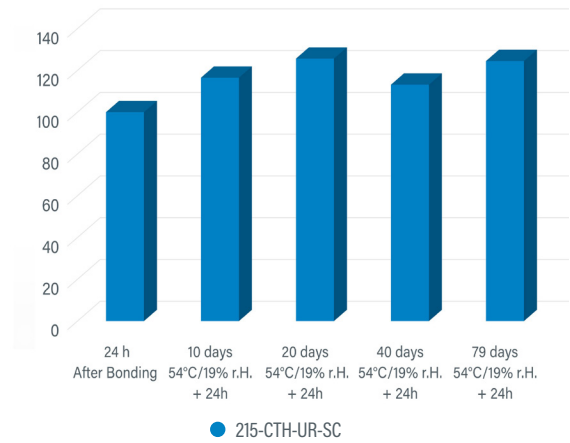
215-CTH-UR-SC Aging Results

Lap shear testing was performed using laps of Nylon 12 and PC with an 3,2 mm (0,125") overlap. They were assembled using 215-CTH-UR-SC (viscosity of 14.000-22.000 cP). The adhesive was manually dispensed with a syringe and plunger and cured with a Dymax BlueWave® LED Flood with PrimeCure® Array at ~200 mW/cm² for 30 seconds.

Testing: Pull testing was performed using an Instron Model 33R 4467 with a load cell of 200 lb. and a pull rate of 12,7 mm/min (0,5"/min). ASTM F1980 was followed.

Accelerated aging = Simulated aging			
10 days = 3 months	20 days = 6 months	40 days = 1 year	79 days = 2 years

Nylon 12 / PC	% of Initial Strength	
	215-CTH-UR-SC	
24 h After Bonding (Control)	100%	
10 days 54°C/19% r.H.+ 24h	116,5%	
20 days 54°C/19% r.H.+ 24h	125,6%	
40 days 54°C/19% r.H.+ 24h	113,2%	
79 days 54°C/19% r.H.+ 24h	124,5%	

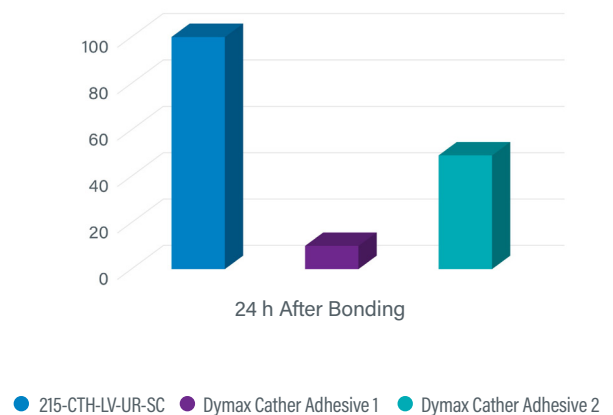


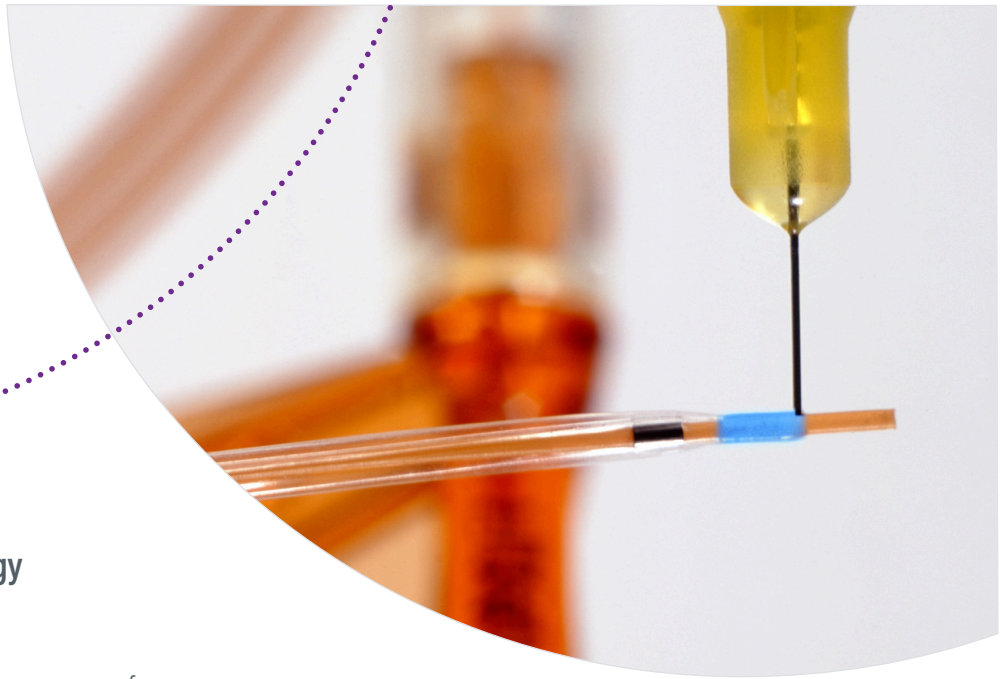
215-CTH-UR-SC vs. Older Dymax Catheter Adhesives

Lap shear testing was performed using laps of Nylon 12 and PC with an 3,2 mm (0,125") overlap. They were assembled using 215-CTH-UR-SC (viscosity of 14.000-22.000 cP), a Dymax catheter adhesive (viscosity 400-600), and a second Dymax catheter adhesive (viscosity 150-300). The adhesives were manually dispensed with a syringe and plunger and then cured using a two-stage cure. They were first fixtured using a Dymax BlueWave® 200 at ~800 mW/cm² for 5 sec. and then cured with a Dymax 5000-EC flood lamp at ~200 mW/cm² for 30 sec.

Testing: Pull testing was performed using an Instron Model 33R 4467 with a load cell of 200 lb. and a pull rate of 2,7 mm/min (0,5"/min).

Nylon 12 / PC	% of Initial Strength		
	215-CTH-UR-SC	Dymax Catheter Adhesive 1	Dymax Catheter Adhesive 2
24 h After Bonding	100%	Lower by 90%	Lower by 51%





See-Cure Color-Change Technology

Benefits

- Easy visual validation of cure without the expense of purchasing and maintaining specialized equipment
- Production-proven technology
- No additional employee training needed
- No language translation needed for cure confirmation

See-Cure Study Example

- Cure studies should be done in the true application with the actual intensities experienced at the bond and using the true equipment, including relevant wavelength
- Once the sample is fully transitioned, cure is complete – there should be no amount of blue remaining as shown below
- If a shorter cure time is needed, higher intensity can be used but will still need to be revalidated

	1 sec	2.5 sec	5 sec	7.5 sec	10 sec	12.5 sec	15 sec	30 sec	45 sec	60 sec
5 W/cm ²										
10 W/cm ²										
15 W/cm ²										

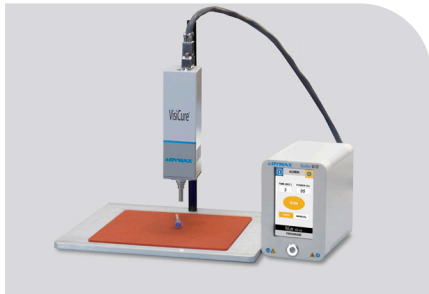
Notes:

- Intensity is at the tip of the lightguide, not at the cure surface
- Cure was done with 385 nm LED (BlueWave® MX-150)

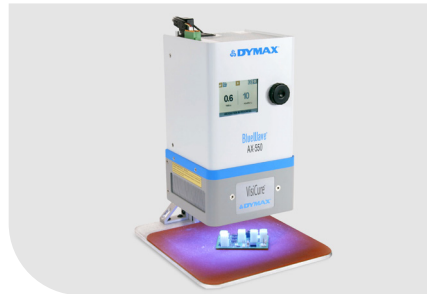
Light-Curing Equipment

The 215-CTH-UR-SC adhesive line is optimized to cure with Dymax UV LED light-curing systems. UV LED light-curing systems provide many benefits over traditional broad-spectrum curing systems, including:

- Electrical efficiency
- Instant on-off
- Long service life
- No bulb change-over or inventory
- No mercury and ozone safety concerns, including mercury bulb disposal
- No UV-B/UV-C irradiation
- Narrow wavelength minimizes thermal rise



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