EASTMAN

DYMAX®

Joining forces

Dymax Corporation evaluated its light-curable medical device adhesives using various formulations of Eastman Tritan™ copolyester as substrates.

- Lap shear studies were conducted on clear formulations of Tritan (MX711, MX731, MX811) as well as opaque Tritan (MXF121).
- Lipid resistance testing was performed only with the clear formulations of Tritan.

Summary

The results summarized in the table show that Dymax adhesives provide good to excellent adhesion with application-matched formulations of Tritan:

- Aging samples generally had a positive impact on bond strength of the adhesives.
- Submersion in the Intralipid solution did not significantly impact the bond strength.

Lap shear testing

Clear and opaque samples were bonded with application-matched adhesives and bond strength was measured following (1) conditioning at room temperature; (2) 20-day dry heat conditioning to simulate ≥ 6 months aging.

Lipid resistance study

For random bonded clear samples, bond strength was tested after soaking in Intralipid® 20% (20% IV fat emulsion) for 48 and 96 hours. A control set was also tested.

Adhesion testing with formulations of Eastman Tritan™ copolyester

		LAP SHEAR TESTING		LIPID RESISTANCE		
		Room temp.	20-day aging at 55ºC	Control	48 hr soak	96 hr soak
Category	Adhesive	Avg max. load (lbf)		Avg max. load (lbf)		
Eastman Tritan™ copolyester MX711 adhesion study						
Needle bonding	1161-M	106.66	120.77	—	—	—
	1402-M	105.30	112.94	—	—	—
	1403-M	117.21	121.20	—	—	—
	1405M-T-UR-SC	105.48	107.29	—	—	—
Catheter bonding	209-CTH	112.60	114.57	—	—	—
	215-CTH-UR-SC	100.90	188.03	—	—	—
Plastic assembly	1121-M	129.83	140.42	130.24	133.38	126.83
	1161-M	106.66	120.77	120.51	108.70	101.53
	1180-M	120.14	112.43	106.34	103.18	110.51
Eastman Tritan™ copolyester MX731 adhesion study						
Needle bonding	1161-M	97.33	123.44	—	—	—
	1402-M	100.33	91.87	—	—	—
	1403-M	105.16	104.87	—	—	—
	1405M-T-UR-SC	92.71	92.86	—	—	—
Catheter bonding	209-CTH	87.86	90.95	—	—	—
	215-CTH-UR-SC	129.59	180.22	—	—	—
Plastic assembly	1121-M	132.79	129.16	98.42	100.89	86.02
	1161-M	97.33	123.44	100.54	93.33	88.59
	1180-M	84.38	90.53	95.70	100.03	94.42
Eastman Tritan™ copolyester MX811 adhesion study						
Needle bonding	1161-M	106.33	114.37	—	—	—
	1402-M	99.06	109.89	—	—	—
	1403-M	114.04	131.91	—	—	—
	1405M-T-UR-SC	113.68	113.16	—	—	—
Catheter bonding	209-CTH	114.20	124.45	—	—	—
	215-CTH-UR-SC	140.71	177.48	—	—	—
Plastic assembly	1121-M	117.51	133.33	129.56	115.24	89.89
	1161-M	106.33	114.37	123.43	102.06	105.30
	1180-M	104.04	99.92	110.65	104.64	103.81
Eastman Tritan™ copolyester MXF121 adhesion evaluation						
Needle bonding	1161-M	141.12	139.91	—	—	—
	1402-M	128.92	135.74	—	—	—
	1403-M	142.81	150.31	—	—	—
	1405M-T-UR-SC	123.22	121.64	—	—	—
Catheter bonding	209-CTH	152.55	150.46	—	—	—
	215-CTH-UR-SC	189.41	196.41	—	—	—
Plastic assembly	1121-M	131.36	150.83			
	1161-M	141.12	139.91	—	—	—
	1180-M	123.44	125.39	—	—	—
Airway management	112-MSK-UR-SC	128.83	138.31	—	—	—

Eastman TRITAN™
copolyester

CLEAR TRITAN ADVANTAGES

For clear fluid management components and blood contact devices, clear formulations of Tritan offer:

- Reduced cracking and breaking because of exceptional chemical resistance to oncology drugs and carriers, hospital disinfectants, plasticizers, bonding solvents, and adhesives
- No annealing required
- Nocolorshiftaftergamma/e-beamsterilization
- Free of BPA, halogens, and other chemicals of concern
- No black specks

OPAQUE TRITAN ADVANTAGES

For housings and enclosures for electronic medical devices, opaque formulations of Tritan offer:

- Durability (less cracking and breaking) after disinfection with a wide variety of hospital disinfectants
- Free of BPA, halogens, and other chemicals of concern
- True color match and retention
- UL 94 FR V-2 flammability rating

For details on these studies or complete information about clear and opaque formulations of Eastman Tritan™ copolyester, contact your Eastman representative.

DYMAX®

Dymax provides system solutions in which chemistry, material, and equipment work seamlessly together with maximum efficiency, giving our customers a competitive advantage they can't get anywhere else.

EASTMAN
The results of insight™

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