







The interlaminar shear strengths obtained in the three point bending test comparison is shown in figure 8 , shows that the ILSS of the VARTM with modified interface with rich resin zone composite is higher than that of the VARTM with nanofibers composite, VARTM without nanofibers , Hand molding without nanofiber and Hand molding with nanofibers.

Due to presence of the nylon 66 nanofibers at interface the load transfer is easily done without matrix failure.

**Table1: SBS test results for Hand Molding**

Sr. No	Sample	Thick ness (mm)	Width (mm)	Load (N)	SBS (MPa)	Avg SBS (MPa)
1	H-SBS Neat1	3.45	6.93	750	23.52	23.50
2	H-SBS Neat2	3.48	6.99	765	23.58	
3	H-SBS Neat3	3.48	6.99	771	22.77	
4	H-SBS Neat4	3.48	6.97	769	23.77	
5	H-SBS Neat5	3.47	6.99	771	23.84	
6	H-SBS Nano1 (1%)	3.81	7.65	1010	25.98	26.06
7	H-SBS Nano2 (1%)	3.85	7.74	1040	26.17	
8	H-SBS Nano3 (1%)	3.85	7.73	1033	26.03	
9	H-SBS Nano3 (1%)	3.83	7.70	1021	25.96	
10	H-SBS Nano3 (1%)	3.82	7.69	1025	26.16	

H-SBS Neat –Hand molded coupons without nanofibers

H-SBS Nano –Hand molded coupons with nanofibers

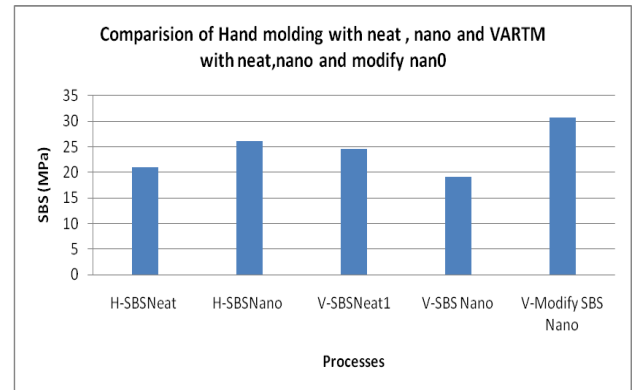
**Table 2: SBS test results for VARTM for 1200nm nanofiber**

Sr. No	Sample	Thickness (mm)	Width (mm)	Load (N)	SBS (MPa)	Avg SBS (MPa)
1	V-SBS Neat1	3.30	7.52	750.68	22.68	23.34
2	V-SBS Neat2	3.29	7.50	766.15	23.28	
3	V-SBS Neat3	3.29	7.53	780	23.61	
4	V-SBS Neat4	3.28	7.50	778	23.71	
5	V-SBS Neat5	3.27	7.49	765	23.42	
6	V-SBS Nano1(1%)	3.63	7.52	753.62	20.70	19.04
7	V-SBS Nano2(1%)	3.54	7.51	678.16	19.31	
8	V-SBS Nano3(1%)	3.50	7.50	677	19.34	
9	V-SBS Nano4(1%)	3.51	7.48	665	18.99	
10	V-SBS Nano5	3.55	7.53	600.74	16.85	
11	V-Modify SBS Nano1(1%)	3.56	7.51	950.45	26.66	27.18
12	V-Modify SBS Nano2(1%)	3.55	7.53	966.78	27.12	
13	V-Modify SBS Nano3(1%)	3.56	7.51	975	27.24	
14	V-Modify SBS Nano4(1%)	3.54	7.48	970	27.47	
15	V-Modify SBS Nano5(1%)	3.55	7.50	973	27.40	

V-SBS Neat –VARTM molded coupons without nanofibers

V-SBS Nano –VARTM molded coupons with nanofibers

V-Modify SBS Nano – Modified VARTM molded coupons with nanofibers



**Figure 9: Comparison of VARTM and hand molding results for SBS**

## 5. Conclusion

- The effect of electrospun nanofibers (ENFs) on interlaminar shear strength of plain weave woven glass fiber reinforced epoxy composites was investigated with hand molding, VARTM and Modified VARTM. Modified VARTM enhanced interlaminar shear strength of glass fiber composites.
- With introducing up to 1 %wt. of nanofibers nylon 66 at interface have shown up to 9.8% increase in the interlaminar shear strength compared to unmodified case of for hand molding.
- Enhancement of 14.12 % ILSS with modified VARTM compared to neat VARTM.

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