Post treatment of CNTs for the crosslinking

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Carbon nanotube (CNT) is considered one of the promising materials for nanotechnology because of its superior properties such as conductivity, mechanical strength. But, many researchers struggled to get simultaneously strong and long CNTs for more extensive applications. So recently, carbon nanotube yarns which are provided by twisting each CNT strand have gotten much attention because they are able to open opportunity for long, continuous CNT. To improve mechanical strength of CNT yarns, cross-linking process which is one of the post-treatment processes is introduced. In this presentation, as a previous step for CNT yarn cross-linking, cross-linking multi wall carbon nanotube (MWNT) is studied. For chemically connecting between CNT strands, esterification is used due to carboxyl group is easily introduced by acid treatment. Thus, by reaction between carboxyl group on nanotube surface and long chain diols, cross-linked MWNT is achieved.