

How to Create CNT Thin Films with NanoIntegris CNTs in Aqueous Solution

USE THESE INSTRUCTIONS IF:

You want to create CNT thin films from our aqueous solutions

Required Equipment:

- Vacuum filtration system

Required Materials/ Chemicals:

- CNT aqueous solution
- Acetone (or Methanol)
- Water (DI or DI nanopure)

INSTRUCTIONS

1. Mix 1 part off-the-shelf NanoIntegris CNT solution with 1-2 parts acetone (if using methanol, a minimum of 2 parts is needed) in order to precipitate nanotubes out of solution.
2. Allow solution to sit for 2-10 hours (overnight is preferable). A notable separation of phases should be observed when complete.
3. Prepare vacuum filtration system
 - a. For Acetone-based samples, 0.45 μ m pore size, Nylon filter paper is recommended.
 - b. Filter paper diameter will depend upon mass of nanotubes (<1mg ; 13mm, 2-15mg; 47mm, 15-30mg; 90mm)
4. Pour precipitated nanotube solution into vacuum filtration system.
 - a. Allow all liquid to elute, ensuring nanotubes are removed from side walls with squirt bottle of DI water or Acetone.
 - b. Allow to stabilize for 15 minutes
5. Rinse the settled sample with DI or DI nanopure water (preferable), allowing all liquid to elute before adding additional water.
NOTE: The initial volume of water to add will be dependent upon the filter diameter (13mm; 20mL, 47mm; 250mL, 90mm; 1L)
6. Add solvent (acetone or methanol) to finalize precipitation.
NOTE: Volume is again filter-diameter-dependent (13mm; 5mL, 47mm; 25mL, 90mm; 100mL)
7. Repeat steps 5 and 6.
8. Allow filtered sample to dry, under vacuum, for 15 minutes.
9. Power-down vacuum filtration system and remove filter paper. Gently remove nanotubes from filter paper (scraping should not be required if the filter paper diameter to nanotube mass ratio was ideal).