first 2 weeks. This could have been due to the DrieRite® becoming saturated with water vapor. Oven storage at 100°C was initially effective but after 3 weeks of storage it too was the same-as or worse-than initial interference. N_2 storage with DrieRite® and 100°C appeared to be the least effective at removing interference, but this sample showed the most initial interference of the three BPs tested and was clearly the most consistent across the study period. Degassing of the N_2 storage sample removed the large interference bands but not the C-H stretching associated with the surfactant (3900-3600 cm^{-1}). Though there was substantial difference in the initial interference of the three samples, it is reasonable to conclude that using an air tight container with desiccant and purged with dry N_2 gas is the best storage method to preserve freshly prepared BP sorbents.

A potential limitation of the present work is the variability between each BP. Due to the fabrication method used (i.e. suspension and vacuum filtration), SWNTs are not necessarily deposited uniformly across the membrane filter, meaning that the thickness may vary across the material. Therefore, there is a potential for spectral differences across a single BP, based on the region of the BP measured.

4 Conclusion

This study set out to identify if FTIR could be used to quickly evaluate surfactant removal from buckypapers prepared from a surfactant aided SWNT suspension. FTIR analysis was able to capture a decrease in surfactant after heat treatment, as indicated by the reduction of signal between 3900 and 3600 cm^{-1}. However, heat treatment seems to have caused a permanent increase in the absorption spectra that largely resembles the removable interference in non-heat-treated samples. This heat treatment absorption obscures surfactant absorption at 2900 cm^{-1} which leaves the less specific hydrocarbon stretches from 3900-3600 cm^{-1} to be used as the indicator of surfactant presence. FTIR analysis was suitable as a fast, qualitative check to confirm surfactant removal, but could not provide quantitative results correlated to previous studies. Along with determining the removal of surfactants, this study was able to determine that storage of BPs in an airtight jar with desiccant, and purging with dry N_2 gas, is a satisfactory way to store freshly prepared or regenerated BP samples.

Conflicts of Interest. There are no conflicts to declare.

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