

**Self-Assembly of Carbon Nanotubes via Ethanol Chemical Vapor Deposition for the Synthesis of Gas Chromatography**

**Author(s):**

Hussain, CM (Hussain, Chaudhery Mustansar)<sup>1</sup>; Saridara, C (Saridara, Chutarat)<sup>1,2</sup>; Mitra, S (Mitra, Somenath)<sup>1</sup>

**Source:**

ANALYTICAL CHEMISTRY **Volume:** 82 **Issue:** 12 **Pages:** 5184-5188 **DOI:**

10.1021/ac100428m **Published:** JUN 15 2010

**Abstract:**

The synthesis of the gas chromatography stationary phase by molecular self-assembly of carbon nanotubes (CNTs) via a novel ethanol chemical vapor deposition process is presented. A major advantage is that ethanol was found to be an excellent carbon source that generated highly pure multiwalled carbon nanotubes with very little non-tubular carbon impurities. The nanotubes were not vertically aligned but lay flat out on the column surface in a randomly distributed configuration. The CNT phase was able to separate a wide range of organic compounds with diverse polarity and volatility, where the number of plates per meter ranged from 900 to 1280. It also showed classical chromatographic behavior and good precision.

**Addresses:**

1. New Jersey Inst Technol, Dept Chem & Environm Sci, Newark, NJ 07102 USA
2. Rajamangala Univ Technol, Dept Chem, Fac Sci & Technol, Thanyaburi, Thailand

แหล่งอ้างอิง [Web of Science](#)