



US 20130168885A1

(19) **United States**

(12) **Patent Application Publication**  
**OMIATEK et al.**

(10) **Pub. No.: US 2013/0168885 A1**

(43) **Pub. Date: Jul. 4, 2013**

(54) **DEVICE AND METHOD FOR FORMATION OF VESICLES**

**Publication Classification**

(71) Applicants: **DONNA M. OMIATEK**, Rockville, MD (US); **RENEE R. HOOD**, College Park, MD (US); **FRANCISCO JAVIER ATENCIA-FERNANDEZ**, Madrid (ES); **DON L. DEVOE**, College Park, MD (US); **WYATT N. VREELAND**, Washington, DC (US)

(51) **Int. Cl.**  
**B01J 13/00** (2006.01)  
(52) **U.S. Cl.**  
CPC ..... **B01J 13/00** (2013.01)  
USPC ..... **264/4.1; 425/71**

(72) Inventors: **DONNA M. OMIATEK**, Rockville, MD (US); **RENEE R. HOOD**, College Park, MD (US); **FRANCISCO JAVIER ATENCIA-FERNANDEZ**, Madrid (ES); **DON L. DEVOE**, College Park, MD (US); **WYATT N. VREELAND**, Washington, DC (US)

(57) **ABSTRACT**

A device and method for the formation of vesicles is disclosed herein. The device comprises a fluid introduction zone and a vesicle formation zone. The fluid introduction zone comprises a first inlet and a second inlet configured and disposed to provide parallel flow of an outer flow stream, flowing from the first inlet, sheathing an inner flow stream, flowing from the second inlet. The vesicle formation zone is configured and disposed to receive the parallel flow of the outer flow stream sheathing the inner flow stream and configured for a controlled and substantially uniform dispersion of an organic material, flowing in the inner flow stream, at a plane perpendicular to the vesicle formation zone.

(21) Appl. No.: **13/733,882**

(22) Filed: **Jan. 3, 2013**

**Related U.S. Application Data**

(60) Provisional application No. 61/582,846, filed on Jan. 4, 2012.

