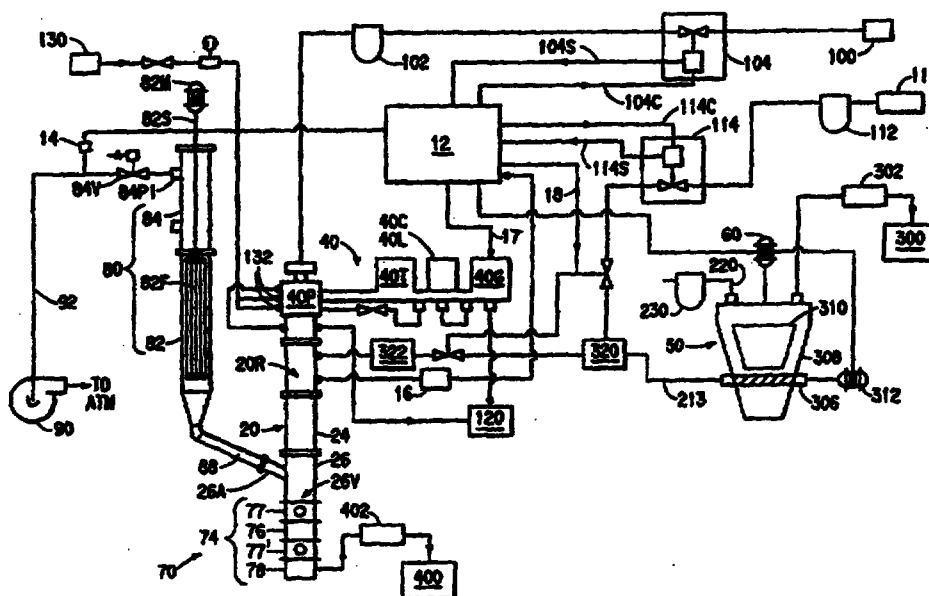




## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| (51) International Patent Classification 6 :<br><b>C09C 3/04, C09B 67/00, C09D 7/12, B01J 19/08</b>                                                                                                                                                                                                                                                                                                                                                                    |  | A1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | (11) International Publication Number: <b>WO 97/29156</b>      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | (43) International Publication Date: 14 August 1997 (14.08.97) |
| (21) International Application Number: <b>PCT/US97/01629</b>                                                                                                                                                                                                                                                                                                                                                                                                           |  | DE 19711 (US). LEVASE, Laurence, J. [US/US]; 490 Brinton Lake Road, Thornton, PA 19373 (US). LIN, Tyan-Jeen [US/US]; 910 Rotherfield Lane, Chadds Ford, PA 19317 (US). YEH, An-Gong [US/US]; 6 Madonna Lane, Broomall, PA 19008 (US). HARDING, Thomas, William [US/US]; 1312 Quincy Drive, Wilmington, DE 19803 (US).<br><br>(74) Agent: COSTELLO, James, A.; E.I. du Pont de Nemours and Company, Legal/Patent Records Center, 1007 Market Street, Wilmington, DE 19898 (US).<br><br>(81) Designated States: BR, CA, JP, KR, MX, <del>SG</del> US, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). |                                                                |
| (22) International Filing Date: <b>6 February 1997 (06.02.97)</b>                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                |
| (30) Priority Data:<br><b>08/595,970</b> <b>6 February 1996 (06.02.96)</b> <b>US</b>                                                                                                                                                                                                                                                                                                                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                |
| (60) Parent Application or Grant<br>(63) Related by Continuation<br>US<br>Filed on <b>08/595,970 (CIP)</b><br><b>6 February 1996 (06.02.96)</b>                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                |
| (71) Applicant (for all designated States except US): <b>E.I. DU PONT DE NEMOURS AND COMPANY [US/US]; 1007 Market Street, Wilmington, DE 19898 (US).</b>                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                |
| (72) Inventors; and<br>(75) Inventors/Applicants (for US only): <b>BELL, Timothy, Allan [US/US]; 4806 Mermaid Boulevard, Wilmington, DE 19808 (US). BEST, Wronald, Scott [US/US]; 408 Greenwood Drive, Wilmington, DE 19808 (US). CHOUINARD, Michael, Patrick [US/US]; 2426 Calf Run Drive, Wilmington, DE 19808 (US). HERMAN, Paul, Francis [US/US]; 4 Vireo Circle, Newark, DE 19711 (US). HOHMAN, James, Lewis, Jr. [US/US]; 535 Upper Pike Creek Road, Newark,</b> |  | Published<br>With international search report.<br>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.<br><br>See PFS.                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                |

(54) Title: TREATMENT OF DEAGGLOMERATED PARTICLES WITH PLASMA-ACTIVATED SPECIES



## (57) Abstract

A method for treating the surface of substantially each deagglomerated particle of an array of easily agglomerated particles by contacting deagglomerated particles with a plasma-activated gas species and modifying the surfaces of the deagglomerated particles to aid subsequent incorporation of the particles into a matrix composition; the module for deagglomerating and dispersing the particles into the plasma-activated gas; the apparatus that comprises the deagglomeration module (322) and a reaction chamber (20) in which the particles are treated with the plasma-activated gas; the method for deagglomerating particles that may reagglomerate after plasma treatment; and a color composition containing plasma-treated pigment particles.