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CHARTERED PATENT AGENTS
TRADE MARK AGENTS
EUROPEAN PATENT ATTORNEYS

RICHARD C. MARTIN, M.A., CANTAB.
DAVID C. WOODCRAFT, B.Sc., (CHEM)
ERIC E. BARNARD, C.ENG., M.I.E.E., C.DIP.A.P.
GRAHAM F. MATTHEWS, B.A., C.ENG., F.I.E.E.
JOHN F. SYMONDS, LL.B., SOLICITOR
JOHN H. BLAKE, B.Sc., (CHEM)
HUGH R. WRIGHT, M.A., OXON.
PETER C. SANDERS, B.Sc.
H. NICHOLAS MATTHEWS, M.INST. T.M.A.
DONALD J. ATTFIELD, B.Sc., C.CHEM., M.R.S.C.

OFFICE MANAGER - A. J. JELLY
ACCOUNTS - MRS C. OLSINIA

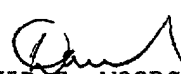
Mr. David J. Gould
E.I. DU PONT DE NEMOURS AND COMPANY
Legal Department, Patent Records Center
1007 Market Street
Wilmington, Delaware 19898
U.S.A.

Dear David,

European Patent Application No. 87 303 681.8
Your reference : CH-1371

Thank you for your letter dated January 8, 1990. I have accordingly filed a supplementary amendment in the EPO and enclose copies, together with copies of added method claims 9 and 10. If you have any comments on the added method claims, please let me know. In the meantime, I enclose our account in this matter.

Yours sincerely,


DAVID C. WOODCRAFT

Encls:

TELEX 267541
TELEPHONES (01) 242 9631
FACSIMILE (01) 831 0586
LDX 318

HIGH HOLBORN HOUSE
52/54, HIGH HOLBORN
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N 30965

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CH-1371

YOUR REF

D.J. Gould
The European Patent Office
Erhardstrasse 27
D-8000 Munchen 2
Federal Republic of Germany

18 January 1990

Dear Sirs,

European Patent Application No. 87 303 681.8
E. I. DU PONT DE NEMOURS AND COMPANY

I refer to my letter dated 21 December 1989, and now request the opportunity of adding the attached new claims to the above application. The attached new claims are process claims which are supported by page 4, line 25 to page 5, line 16. These claims are patentably distinguished from the prior art cited in the Communication dated 20 September 1989 for the same reasons as given in my letter dated 21 December 1989.

Yours faithfully,

DAVID C. WOODCRAFT
BROOKES & MARTIN

Encls:

TUNBRIDGE WELLS: 1 BOYNE PARK, TUNBRIDGE WELLS, KENT, TN4 8EL. TEL. (0892) 510600 TELEX 957078 FACSIMILE (0892) 510666
BIRMINGHAM: PRUDENTIAL BUILDINGS 5 ST. PHILIP'S PLACE BIRMINGHAM, B3 2AF. TEL. (021) 236 6262 TELEX 335381 FACSIMILE (021) 2001473
MUNICH: 15 ZWEIFRUCKENSTRASSE, 8000 MUNICH 22. TEL. (069) 22 20 10

N 30965.01

DUP050449562

9. A method of producing coated TiO_2 pigment particles which comprises (a) forming an aqueous slurry containing 200 to 450 grams per litre of TiO_2 and having a pH at which cerium ions will remain in solution, (b) adding sufficient cerium salt to provide a cerium ion concentration in the slurry of 0.05 to 2% by weight of TiO_2 , (c) adding a sufficient quantity of a source of borate or polyfunctional organic acid anions to provide a concentration of said anions of from 100 to 300% of the cerium ion concentration thereby causing the cerium ions to precipitate onto the surfaces of the TiO_2 particles in association with the said borate or polyfunctional organic acid anions and (d) depositing an alumina or silica-alumina coating on the treated TiO_2 particles.

10. A method according to claim 9 wherein in step (d) alumina is precipitated onto the treated TiO_2 particles by adding enough sodium aluminate to the slurry to provide a concentration of about 2 to 8% by weight of the TiO_2 and adjusting the pH to within the range of 6 to 9 during the precipitation step.

N 30965.02

DUP050449565

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EUROPEAN PATENT ATTORNEYS

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B. I. DU PONT DE NEMOURS AND COMPANY
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Wilmington, Delaware 19898
U.S.A.

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HIGH HOLBORN HOUSE
52/54, HIGH HOLBORN
LONDON, WC1V 6SE
VAT REG. NO 232 2736 86
DATE & TAX POINT

DCW/VSW

18 January 1990

INVOICE No. 69280

European Patent Application No. 87303681.8
Your reference : CH-1371

to: Preparing and filing supplementary amendment
with additional claims in the above
application and reporting to you

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DUP050449566

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EUROPEAN PATENT ATTORNEYS

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E.I. Du Pont de Nemours and Company,
Legal Depart., Patent Records Center,
1007 Market Street,
Wilmington,
Delaware, 19898,
U.S.A.

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HIGH HOLBORN HOUSE
52/54, HIGH HOLBORN
LONDON, WC1V 6SE

VAT REG. NO 232 2736 86
DATE & TAX POINT

21 December 1989

INVOICE No. 68846

European Patent Application No. 87303681.8
Your reference : CH 1371

to: Reporting first official action with our
letter dated September 28 1989,
noting your comments, studying prior
art, preferring and filing amendment
and response and reporting to you

US\$ 473

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N 30965.04

DUP050449568

Barnard, U.S. Patent 4,239,548, discloses pigments having inner coatings comprising cerium and phosphate radicals and outer coatings comprising aluminum and phosphate radicals and optionally hydrous alumina.

Jacobson, U.S. Patent 4,460,655, describes pigments of TiO_2 particles associated with compounds selected from the group consisting of $\text{Na}_7\text{Ce}_6\text{F}_{31}$, $\text{K}_7\text{Ce}_6\text{F}_{31}$, $\text{Li}_7\text{Ce}_6\text{F}_{31}$, and $(\text{NH}_4)_7\text{Ce}_6\text{F}_{31}$.

Jacobson, U.S. Patent 4,461,810, discloses pigments of TiO_2 particles, the surfaces of which are associated with cerium cations and sulfate, phosphate, or silicate anions. The particles are also provided with an outer coating of alumina.

Newland et al., U.S. Patent 4,022,632, describes TiO_2 pigments treated with carboxylate salts of cobalt, cerium or manganese.

Bramekamp, U.S. Patent 3,506,466, discloses TiO_2 pigment particles coated with inorganic oxides, where the inorganic oxide bears on its surface an amine salt of an oxycarboxylic acid selected from the group consisting of lactic, citric, malic, tartaric and glycolic acids.

GB-A-1580882 describes a method of making a coated inorganic pigment which performs adequately in terms of gloss and dispersibility both organic and aqueous-based paint media. The inorganic pigment particles, which are preferably TiO_2 are coated with alumina and then contacted with one or more organic hydroxy acids or salts or with a water-soluble reaction product of one or more di- or polyhydric alcohols and one or more di- or poly-basic organic hydroxy acids.

It has now been found that pigments of TiO_2 particles treated with cerium cations in association with certain polyfunctional water-soluble acid anions or borate ions, and then topcoated with alumina, exhibit excellent lightfastness, gloss and dispersion characteristics.

N 30965.05

DUP050449572

SUMMARY OF THE INVENTION

The present invention provides a pigment consisting essentially of rutile TiO_2 particles bearing coatings of alumina or alumina-silica, the particle surfaces having associated therewith 0.05-2%, by weight of the TiO_2 , of cerium cations and an associated