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Erhardstrasse 27  
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5 January 1990

Dear Sirs,

European Patent Application No. 87 303 682.6  
E. I. DU PONT DE NEMOURS AND COMPANY

I refer to the official letter dated 12 October 1989 and file herewith amended copies of the claims in triplicate.

It is noted that the Examiner has reviewed the prior art and agrees that the various prior art has already been acknowledged in the application. It is also noted that the Examiner shares the applicants' view that the present claims define a pigment and a method for its production which meets the requirements of Articles 54 and 56 EPC.

With regard to paragraph 2 of the official action, the claims are intended to include materials in the coatings such as alumina which is conventionally added in order to improve processing properties. In this connection, the Examiner's attention is directed to page 5, line 29, to page 6, line 7, and to page 6, lines 31 to 36. In order to make it clear that the coatings may contain other components, the term "comprising" has been substituted for the term "consisting essentially of", for example, in line 2 of claim 2.

Yours faithfully,

DAVID C. WOODCRAFT  
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CLAIMS

1. A pigment comprising rutile  $\text{TiO}_2$  particles bearing coatings comprising  $\text{SiO}_2$  and  $\text{B}_2\text{O}_3$ .

2. A pigment according to claim 1, wherein the  $\text{TiO}_2$  particles have coatings comprising from 60-98 percent by weight  $\text{SiO}_2$  and 0.5-30 percent by weight  $\text{B}_2\text{O}_3$  based on coating weight.

3. A pigment according to claim 2, wherein the  $\text{TiO}_2$  particles have coatings comprising from 80-90 percent by weight  $\text{SiO}_2$  and 2-20 percent by weight  $\text{B}_2\text{O}_3$ , based on coating weight.

4. A pigment according to claim 3, wherein the  $\text{TiO}_2$  particles have  $\text{SiO}_2/\text{B}_2\text{O}_3$  coatings constituting 2-10% of the total pigment weight.

5. A pigment according to claim 4, wherein the  $\text{TiO}_2$  particles have  $\text{SiO}_2/\text{B}_2\text{O}_3$  coatings constituting 4-8% of the total pigment weight.

6. A pigment according to any one of the preceding claims, wherein the  $\text{TiO}_2$  particles have outer coatings of alumina constituting 0.5-5% of the total weight of the particles.

7. A pigment according to claim 6, wherein the  $\text{TiO}_2$  particles have outer coatings of alumina constituting 1-4% of the total weight of the particles.

8. A process for preparing  $\text{TiO}_2$  particles bearing coatings of borica-modified silica, comprising:

(a) forming an aqueous slurry of rutile  $\text{TiO}_2$  at a temperature from about  $65^\circ$  to about  $90^\circ\text{C}$ ;

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(b) adjusting pH of the slurry to the range 7-10.5;

(c) adding a predetermined quantity of a solution comprising  $\text{Na}_2\text{SiO}_3$  and  $\text{B}_2\text{O}_3$ , under conditions which maintain silicate and boria ions in solution;

(d) gradually lowering pH of the slurry to about 7.5-8.5 by addition of acid, thereby depositing a coating of silica and boria; and

(e) curing the resulting coated pigment at a temperature of from about  $65^\circ\text{C}$  to about  $90^\circ\text{C}$  for a period of at least 15 minutes.

9. A process according to claim 8, wherein sufficient  $\text{Na}_2\text{SiO}_3$  and  $\text{B}_2\text{O}_3$  are added in step (c) to provide a coating comprising from 60-98 percent by weight  $\text{SiO}_2$  and 0.5-30 percent by weight  $\text{B}_2\text{O}_3$  based on coating weight.

10. A process according to claim 9, wherein sufficient  $\text{Na}_2\text{SiO}_3$  and  $\text{B}_2\text{O}_3$  are added in step (c) to provide a coating comprising from 80-90 percent by weight  $\text{SiO}_2$  and 2-20 percent by weight  $\text{B}_2\text{O}_3$ , based on coating weight.

11. A process according to claim 10, wherein sufficient  $\text{Na}_2\text{SiO}_3$  and  $\text{B}_2\text{O}_3$  are added in step (c) to provide a  $\text{SiO}_2/\text{B}_2\text{O}_3$  coating constituting 0.5-10% of the total pigment weight.

12. A process according to claim 11, wherein sufficient  $\text{Na}_2\text{SiO}_3$  and  $\text{B}_2\text{O}_3$  are added in step (c) to provide a  $\text{SiO}_2/\text{B}_2\text{O}_3$  coating constituting 4-8% of the total pigment weight.