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HARMONIZED SYSTEM
REVIEW SUB-COMMITTEE
-
28th Session
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NR0409E1
+ Annexes I and II

O. Eng.

Brussels, 23 June 2003.

POSSIBLE AMENDMENT OF HEADING 28.23 WITH REGARD TO TITANIUM DIOXIDE

(PROPOSAL BY THE EC)

(Item III.A.8 on Agenda)

Reference documents :

37.456 (RSC/7)
37.650, Annex II (RSC/7 – Report)
NR0388E1 (RSC/27)
NR0400E3, Annex D/13 (RSC/27 – Report)
NR0448B1 (RSC/28)

I. BACKGROUND

1. At its 27th Session, the HS Review Sub-Committee examined a proposal by the EC concerning the possible amendment of heading 28.23 with regard to titanium dioxide.

2. The EC Delegate began his explanation of the proposal by noting that titanium dioxide was not specifically mentioned in the text of heading 28.23, despite the fact that it was almost the only commodity of that heading which was of any significance in trade. About 90 % of the world production of titanium dioxide was used for making pigments. To this end it had to be specially treated, as mentioned in paragraph 2 of Doc. NR0388E1, and this treatment should be reflected in the HS Nomenclature in order to clarify the classification of these products. He noted, in this context, that the proposal by the EC was simply aimed at clarifying the scope of heading 28.23, without changing it.

3. He further stated that in order to provide greater legal security for the trade, the EC was of the view that an amendment should be introduced at legal level, in addition to Explanatory Notes amendments. He was open to considering the possibilities envisaged by the Secretariat, including a new legal Note. He agreed with the Secretariat's comments in paragraphs 16 to 18 of Doc. NR0388E1 and preferred the insertion of a concentration limit for substances by which titanium dioxide could be treated in the text of heading 28.23, rather than to use the expression "very small amounts", which could be difficult to interpret.

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4. Consequently, he modified the proposed EC text for heading 28.23 to read “Titanium oxides, including titanium dioxide treated by adding not more than [3 % by weight] of calcination salts”. He noted that this text could serve as a basis for further discussion at the next session.

5. Certain other delegates supported the proposal, in principle, and were also in favour of an amendment at legal level. They expressed the wish to continue to study the matter during the intersession and to consult with industry and their technical services, especially with regard to the proposed concentration limit for calcination salts, their function in the product and whether the expression “whether or not” should be inserted before the word “treated” in the new text of heading 28.23.

6. The Director explained that in order to achieve the stated objective of clarifying the scope of heading 28.23, the Secretariat had a preference for a new legal Note and could prepare a draft during the intersession. At the same time, as an interim measure, an Explanatory Notes amendment could be put forward by corrigendum. In view of the technical nature of the matter and the fact that the Scientific Sub-Committee would not meet before January 2004, the Sub-Committee should re-examine this issue at its next session and decide at that time whether to obtain the views of the Scientific Sub-Committee with regard to technical aspects of the issue.

7. The Sub-Committee agreed with this approach. There was also general agreement in the Sub-Committee to maintain the EC proposal regarding the possible amendment of the text of heading 28.23 (as modified by the EC during the meeting) and to discuss it further at the next session. The Secretariat was finally instructed to prepare a draft of a new legal Note clarifying the scope of heading 28.23 and new Explanatory Notes, for examination by the Sub-Committee at its next session.

II. SECRETARIAT COMMENTS

8. As an alternative to the EC proposal to amend the text of heading 28.23 (as modified at the 27th Session of the Review Sub-Committee) and acting on the Sub-Committee’s instructions, the Secretariat has prepared a draft of a new Note 5 to Chapter 28 clarifying the scope of heading 28.23. The French text of heading 28.23 has been corrected on the basis of Doc. NR0448B1 in order to align it on the corresponding English text. These possible amendments to the Nomenclature, to be made by Article 16 procedure, are set out in Annex I to this document.

9. Since titanium dioxide is not the only commodity which is covered by heading 28.23, in the introductory part of the proposed new Note 5 to Chapter 28, the Secretariat has suggested the use of the expression “heading 28.23 covers, *inter alia*, titanium dioxide”.

10. Furthermore, as stated in paragraphs 7 and 8 to Doc. NR0388E1, there are two principal routes for the manufacture of raw pigmentary titanium dioxide : the sulphate and chloride processes. Calcination occurs only in the sulphate process. Prior to calcination, inorganic compounds (generally transition element oxides) are added in quantities of less than 3 % by weight. In the text proposed by the EC, the limit of [3 % by weight] of calcination salts remains in square brackets. The EC may therefore wish to explain whether the aim of its proposal is to clarify the additions of inorganic oxides in the sulphate process only or to cover the two manufacturing processes by the proposed amendment.

11. Technical literature consulted by the Secretariat does not refer to the additions at issue as “calcination salts”. First, in Ullmann’s Encyclopaedia of Industrial Chemistry, this stage of the sulphate manufacturing process is referred to as “doping of the titanium oxide hydrate” or “treatment of the hydrate”. In another step, the doped hydrate is subjected to calcination.

12. Secondly, in the flow diagram for the manufacture of titanium dioxide pigments reproduced in the Kirk-Othmer Encyclopaedia of Chemical Technology (Vol.24, page 245), these additions are referred to as “inorganic additions for crystal growth control”. The Secretariat therefore has some doubts about the use of the term “calcination salts” in the proposed text.

13. In the chloride process, in which the calcination step does not occur, aluminium chloride or other chlorides (phosphorus trichloride and silicon tetrachloride) are added prior to the burning of titanium tetrachloride with oxygen. Ullmann’s Encyclopaedia refers to additions up to 5 mol % of aluminium chloride in this manufacturing step (see paragraph 9 of Doc. NR0388E1).

14. In the light of the information above, the Secretariat has drafted a new Note 5 to Chapter 28 proposing separate limits for the inorganic additions under the two manufacturing methods.

15. The calcination step and the burning of titanium tetrachloride with oxygen are unique processes for the first stage of the sulphate and chloride manufacture of pigmentary titanium dioxide, respectively. At the later stage of the manufacturing process (so called surface treatment or after treatment), which is common for titanium dioxide obtained by the sulphate or chloride process, calcination may occur as a part of pigment finishing or obtaining dense surface coatings. This manufacturing step is, however, already reflected in the current Explanatory Note to heading 28.23 (the first two sentences of the present fourth paragraph on page 299) as not allowed in Chapter 28, and the classification of surface-treated titanium dioxide is directed to heading 32.06.

16. In this connection, the Secretariat leaves it to the Sub-Committee to decide whether a reference to particular manufacturing processes (sulphate and chloride) should be indicated in Note 5 to Chapter 28 or in the Explanatory Notes only. The respective parts of the text in Annex I to this document have therefore been placed in square brackets.

17. With regard to the purpose of the inorganic additions, Ullmann’s Encyclopaedia states that the burning of titanium tetrachloride with oxygen or the calcination of titanium dioxide hydrolysates produces either anatase or rutile pigments, depending on the doping and lattice stabilisation. The whiteness (lightness and hue) of titanium dioxide pigments depends primarily on the crystalline modification, the purity and the particle size of TiO_2. Any transition elements present in the crystal structure have an adverse effect on the whiteness, consequently manufacturing conditions are of the utmost importance. Moreover, empirical stabilisation processes for improving lightfastness and weather resistance have been developed, e.g., doping with zinc or aluminium prior to calcination.

18. The Secretariat has also prepared a draft Explanatory Note amendment to heading 28.23 to be made by corrigendum, which is set out in Annex II to this document. The proposal of the EC regarding the Explanatory Notes amendment (see paragraph 4 to Doc. NR0388E1) is reproduced as one option and the Secretariat has also drafted an alternative text taking into account the technical details indicated in paragraph 17 above.

19. In conclusion, the Secretariat would ask the Sub-Committee to express its views on the following points :

(i) whether the text of heading 28.23 should be amended in order to clarify the classification of titanium dioxide, as proposed by the EC, or whether a new legal Note to Chapter 28 would be preferable for this purpose;

(ii) whether, such a legal amendment should refer to particular manufacturing processes of titanium dioxide or whether a reference to manufacturing processes in the Explanatory Notes only would be sufficient;

(iii) whether the proposed concentration limits for additions of inorganic compounds would be acceptable;

(iv) whether the Sub-Committee wishes to obtain the views of the Scientific Sub-Committee with regard to the technical aspects of the issue.

III. CONCLUSION

20. The Sub-Committee is invited to examine the possible amendments to the Nomenclature with regard to titanium dioxide and the draft Explanatory Notes amendments, as set out in Annexes I and II to this document, taking into account the Secretariat's comments and alternative proposals.

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