



HARMONIZED SYSTEM
COMMITTEE

NC0708E1
(+ Annexes I and II)

-
31st Session
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O. Eng.

Brussels, 24 March 2003.

CLASSIFICATION OF NATURAL SODIUM SULPHATE

(Item IX. 3 on Agenda)

I. BACKGROUND

1. The Secretariat received a letter dated 26 July 2002 from the **Turkish** Administration with regard to the classification of "natural sodium sulphate". The Secretariat also received a letter dated 1 August 2002 from the **Russian** Administration on the same subject. The product at issue is the subject of a dispute between the **Turkish** and the **Russian** Customs Administrations. The Secretariat, by its letter of 4 September 2002, informed the two administrations that on the basis of Article 10 of the HS Convention, the administrations concerned should endeavour to reach agreement among themselves before referring the question to the Harmonized System Committee.
2. The Secretariat received another letter from the **Turkish** Administration on 22 October 2002 asking it to submit the HS classification of the product in question to the Harmonized System Committee. With respect to this request, the Secretariat suggested to **Russia** that due to the technical nature of this question, before examination by the HS Committee, this issue should be sent to the Scientific Sub-Committee at its January 2003 Session. However, the Secretariat received no reply from the **Russian** Administration by the deadline for the submission of this question to the Sub-Committee.
3. The Secretariat, in its letter of 10 January 2003, proposed to **Turkey** that since the Scientific Sub-Committee normally meets only once a year, this issue should be submitted directly to the HS Committee at its 31st Session. This proposal was agreed by **Turkey** and the Secretariat informed **Russia** to that effect. Comments on this issue from the **Turkish** and **Russian** Administrations are set out in Annexes I and II, respectively.

Note : Shaded parts will be removed when documents are placed on the WCO documentation database available to the public.

File No. 2959

II. SECRETARIAT COMMENTS

4. The product contains more than 98.5% by weight (not less than 99.4% according to **Russia** and 98.5% or 99.68% according to **Turkey**) of natural sodium sulphates.
5. According to the production process presented by **Turkey** and **Russia**, the product in question is obtained by melting, centrifuging and drying mirabilite which occurs through natural crystallisation from brine influenced by low temperature in winter (around -40 °C). The Secretariat would like to note that the production process does not involve any chemical process.
6. According to **Russia**, the processes of melting, centrifuging and drying are not recrystallisation processes and the structure of the product is not changed. It should therefore be classified in heading 25.30. On the other hand, **Turkey** is of the view that the structure of the product is being changed by recrystallisation through the processes of melting, centrifuging and drying and that the product should be classified in heading 28.31.
7. The Secretariat agrees with **Turkey** and **Russia** that heading 25.30 and heading 28.33 merit consideration for the classification of the product at issue.
8. Heading 25.30 covers mineral substances not elsewhere specified or included. According to Note 1 to Chapter 25, except where their context or Note 4 to Chapter 25 otherwise require, the headings of this Chapter (25) cover only products which are in the crude state or which have been washed, crushed, ground, powdered, levigated, sifted, screened, concentrated by flotation, magnetic separation or other mechanical or physical process (except crystallisation). Therefore, crystallisation is not allowed with regard to the products of Chapter 25. The corresponding General Explanatory Note on page 210 states that "minerals which have been **otherwise** processed (e.g., purified by re-crystallisation, ... etc.) **generally fall in later Chapters** (for example, **Chapter 28** ...).
9. Heading 28.33 includes sodium sulphates. The exclusion reference in the Explanatory Note to heading 28.33, Item (A)(1)(a), second paragraph, on page 311 reads "Natural sodium sulphate (glauberite, polyhalite, bloedite, astrakhanite) are excluded (**heading 25.30**)".
10. The question for consideration is therefore whether or not the product under consideration should be regarded as natural sodium sulphate falling in heading 25.30. In that context, whether natural crystallisation as mentioned above is not allowed in Chapter 25 by virtue of Note 1 to that Chapter should be considered. Whether the melting, centrifuging and drying processes as mentioned above are a re-crystallisation process which is not allowed in Chapter 25 by virtue of Note 1 to that Chapter should also be considered.

Natural sodium sulphate

11. Under the 1937 Geneva Nomenclature, both natural sodium sulphate, falling in HS heading 25.30, and sodium sulphates, falling in HS heading 28.33, were classified in Chapter 28, which also basically corresponds to HS Chapter 28.
12. The European Customs Union Study Group at its 4th Session (Doc. 828F/5) discussed the introduction of a new exclusion with respect to natural sodium sulphate in Chapter 28. As a result of the discussions, the Explanatory Note to heading 28.38 under 1955 CCCN contained a new exclusion with respect to natural sodium sulphate. Since then,

natural sodium sulphate has been transferred to Chapter 25 the scope of which is basically the same as Chapter 25 of the current Harmonized System. However, the background information on this amendment is no longer available in the Secretariat.

13. According to Ullmann's Encyclopedia of Industrial Chemistry, 6th ed. 2001 Electronic Release, SODIUM AND SODIUM ALLOYS-Occurrence, industrially important naturally occurring sodium compounds include mirabilite (sodium sulfate). It also states that "anhydrous sodium sulfate occurs naturally as thenardite, sometimes in high purity, and Glauber's salt occurs as mirabilite, $\text{Na}_2\text{SO}_4 \cdot 10\text{H}_2\text{O}$ ". It should be noted that Glauber's salt appears in the Explanatory Note to heading 28.33.
14. The Encyclopedia of Chemical Industry, KIRK-OTHMER, 4th ed. Volume 22, states that "Sodium sulfate made from mirabilite, thenardite, or naturally occurring brine is called natural sodium sulfate".

Crystallisation

15. According to technical literature (Hawley's Condensed Chemical Dictionary, 12 ed., in page 327), industrially, crystallisation is used as a means of purifying materials by evaporation and solidification.
16. Other literature also states that the principle of the crystallisation process is to cool the solution to $< 20\text{ }^\circ\text{C}$, causing Glauber's salt, $\text{Na}_2\text{SO}_4 \cdot 10\text{H}_2\text{O}$, to crystallise (Ullmann's Encyclopedia of Industrial Chemistry, 6th Edition, 2001 Electronic Release, SODIUM SULFATES-Sodium Sulfate, 1.3.1 Crystallisation and Calcination).
17. According to the Encyclopedia of the Chemical Industry, KIRK-OTHMER, 4th ed. Volume 22, page 406, the manufacturing process of the product at issue is introduced as one of the natural Na_2SO_4 processing methods. Glauber's salt can be converted to anhydrous sodium sulfate by simply drying in rotary kilns.
18. The matter relating to the exclusion reference with regard to crystallisation/purification in Note 1 to Chapter 25 was discussed by the European Customs Union Study Group at its 4th Session (Doc. 1007) in November 1952. According to the Study Group, the reason why crystallisation is excluded from the process allowed in Note 1 to Chapter 25 is as follows :

"If crystallisation were allowed this would bring within the scope of the Chapter highly purified mineral substances such as natural boric acid or natural sodium sesquicarbonate hydrate which are more appropriate to Chapter 28".
19. Based on paragraphs 11 to 14 above, it is not clear whether mirabilite and thenardite themselves would be regarded as natural sodium sulphates falling in heading 25.30. According to paragraph 18 above, crystallisation, whether occurring naturally or industrially, is not allowed in Chapter 25. On that basis, the product in question would be classifiable in heading 28.33. In this regard, it should be noted that as mentioned in paragraph 13 above, Glauber's salt, which appears in the Explanatory Note to heading 28.33, is used as a synonym of mirabilite.
20. However, one may argue that crystallisation as mentioned above relates to industrial crystallisation only since naturally occurring crystallisation would involve unexpected impurities or residues which should be eliminated at a later stage by re-crystallisation or other processes.

21. The Secretariat would leave it to the Committee to decide this point.
22. It may also be argued that based on paragraph 18 above, highly purified mineral substances should be excluded from Chapter 25 and since the purity of the product in question is above 98.5% by weight, it should be classified in Chapter 28. The Nomenclature and the Explanatory Notes to Chapter 25 make no reference with regard to the purity levels. In this context, the Harmonized System is silent with respect to the demarcation line between natural sodium sulphate of heading 25.30 and disodium sulphate (Na_2SO_4) of heading 28.33.
23. The Secretariat considers that purity criteria should be considered on a case by case basis. In the case at issue, the product's purity is above 98.5% by weight and classification in heading 28.33 may be appropriate. This is supported by the fact that impure forms of disodium sulphate (90-99% purity), generally obtained as by-products of various manufacturing processes, are often described as "salt cake" and classified in heading 28.33 (See the Explanatory Note to heading 28.33, Item (A)(1)(a)).
24. As regards the melting, centrifuging and drying process mentioned above, Turkey considers that it is a re-crystallisation process and, referring to the dissolution curve of sodium sulphate, states that the structure of the product is changed between mirabilite and the final product.
25. The Secretariat notes that although many different methods are available for crystallisation, crystals can be grown from the liquid (solution or melt) or vapour phase (Ullmann's Encyclopedia of Industrial Chemistry, 6th Edition, 2001 Electronic Release, CRYSTALLIZATION AND PRECIPATION-Introduction). In this case, the Secretariat notes that the starting materials are simply melted and dried and the production process does not involve the liquid or vapour phase. If so, this process would not involve a crystallisation process that falls within the scope of the term "crystallisation" as set out in Note 1 to Chapter 25.
26. On the other hand, as mentioned in paragraph 17 above, drying in rotary kilns converts Glauber's salt to anhydrous sodium sulphates. Turkey is invited to clarify whether it is referring to such a process in the context of the change of the structure of the products mentioned in paragraph 6 above or other technical aspects.

III. CONCLUSION

27. The Committee is invited to examine the classification of the product in question, taking into account the comments of the Administrations of Turkey and Russia and of the Secretariat above.

Product containing more than 98.5% by weight of natural sodium sulphate, obtained from mirabilite or thenardite via melting, drying and centrifugal processes.
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COMMENTS FROM TURKEY

Letter of 26 July 2002

In this classification dispute, the patterns were analysed by some different laboratories and results of the chemical analyses of the product are as follows :

1. Result of Laboratory analysis No.1

Sodium sulphate	98.5 %
Non-dissolvable in water	lower than 0.1 %
Sodium chloride	0.18 %
Quantity of water	lower than 0.1 %
PH value of the solution (%1)	6.1 %
PH value of the solution (%15)	7.8 – 9.22 %

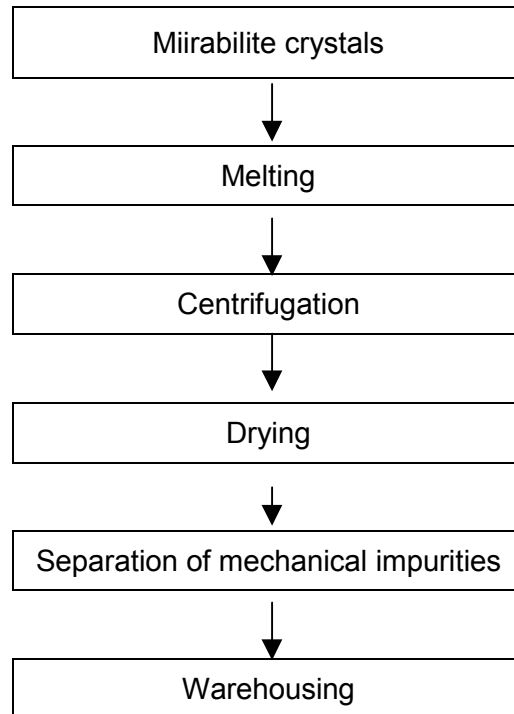
2. Result of Laboratory analysis No.2

Sodium sulphate (Na ₂ SO ₄)	99.68 %
Moisture	0.07 %
Chloride (as NaCl)	0.08 %
Non-dissolvable in water	0.08 %
Iron	19 PPM (MAM-ICP)

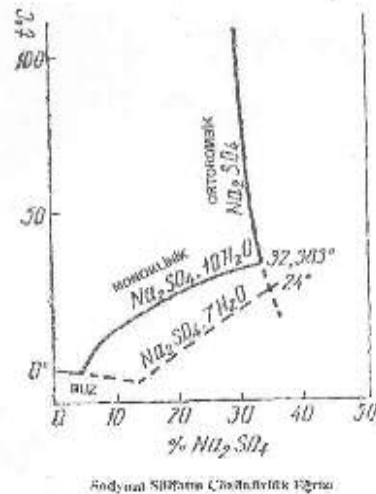
In this framework, there are some hesitations on the classification of these products, since the importing firm claims that the products at issue should be classified in subheading 2530.90 as a "Natural sodium sulphate". The firm leans their claims on that the product has not been subjected to crystallisation, so the structure of the product have not been changed. The firm also claims that natural sodium sulphate in this matter is obtained from the lakebed, so this product is obtained by natural crystallisation because of the low temperature in winter.

On the other hand, our administration considers that on the basis of the following "Scheme of sodium sulphate obtaining" and dissolution curve of sodium sulphate, the product at issue should be classified in subheading 2833.11, since the structure of the product is being changed by recrystallisation.

- SCHEME OF SODIUM SULPHATE OBTAINING



- DISSOLUTION CURVE OF SODIUM SULPHATE



Letter of 22 October 2002

Regarding the Harmonized System Explanatory Note of Note 1 to the Chapter 25, the products that should be classified in Chapter 25 could be in crude state or could have been washed (even with chemical substances eliminating the impurities without changing the structure of the product) or gone under mechanical or physical processes. But if the products crystallise, then they shouldn't be classified in Chapter 25.

As the importer firm stated in their letter addressed to us; the product is washed and it takes water inside during this process and after it is dried, it is inevitable for the product to crystallise. So it seems like there is contradiction between the terms "have been washed" and "except crystallisation" of Note 1 to Chapter 25. Or the term "crystallisation" mentioned in the Chapter Note may refer to a different process other than we understood. It is thought that those terms mentioned above need to be explained clearly and it must be clarified if sodium sulphate should be classified in Chapter 25 even after it crystallised following the washing process.

Considering these circumstances, our administration kindly requests that the question regarding the classification of "Sodium Sulphate" – either in subheading 2530.90 or 2833.11 – should be discussed in the forthcoming session of the Harmonized System Committee and that the terms "have been washed" and "except crystallisation" of Note 1 to Chapter 25 should be revised or explained clearly as they seem like contradicting.

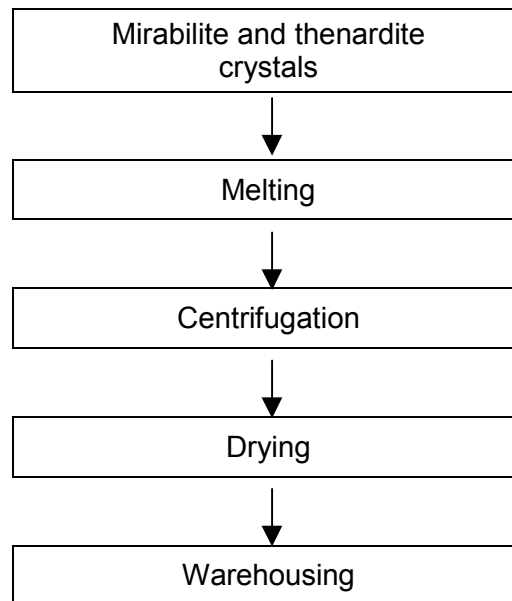
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COMMENTS FROM RUSSIA

The natural sodium sulphate in question is a high quality environmentally safe product with mass share of sodium sulphate (Na₂SO₄) not less than 99.4 %.

The product at issue has been using geotechnological method of sodium sulphate production for the whole period of its production activity. The essence of this method is natural crystallisation of mirabilite from the brine influenced by low temperature in winter (up to 40 degree Celsius below Zero) of Kuchuk Lake (Altai region, Russia).

Sodium sulphate production is as follows :



Melting equipment is used in the technological production for the purpose to seed up natural melting process of mirabilite. Technological temperature used in the melting equipment completely depends on the volume of production and varies from 35 to 60 degree Celsius. The melting process of mirabilite and water separation procedure mostly happen on the lakeside before the product is sent to the production. This happens because of the fact that the melting temperature of mirabilite is 17 degrees Celsius while in summer the air temperature is often more than 30 degrees Celsius. Because of this reason the transfers from mirabilite into thenardite take place. The annual quantity of thenardite formed naturally at the lake is more than 150,000 tons.

The technology of sodium sulphate extraction and production of the product at issue does not have anything in common with the technology of sodium sulphates produced by chemical methods, which is used for by-products of chromium product, production of rayon, organic synthesis process and etc. Besides this, it is very easy to distinguish the synthetic products from the natural one because the synthetic products contain inevitable acid residua or heavy metals depending on their production. At the same time, synthetic products have lower pH level than natural one. All these differences can be recognised by laboratory analysis.