

**Collector of Central Excise Vs. Cosmo Ferrites Ltd.**

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**Court :** Customs Excise and Service Tax Appellate Tribunal CESTAT Delhi

**Decided On :** Dec-22-1993

**Reported in :** (1994)(70)ELT613TriDel

**Appellant :** Collector of Central Excise

**Respondent :** Cosmo Ferrites Ltd.

**Judgement :**

1. This is a revenue appeal. In this appeal, the revenue has challenged the correctness of the order in appeal passed by the Collector (Appeals), Chandigarh. The Id. Collector (Appeals) has held that soft ferrites cannot be classified as parts of Electromagnetics and, therefore, are more appropriately classifiable as parts suitable for use solely or principally with apparatus of Heading No. 85.25 and 85.29.

2. The facts of the case are that the assessee are manufacturing power ferrites i.e. U-cores, B-cores, and Torroids which are used as parts of special purpose transformers and which are used as components in T.V.sets, computers and other electronic gadgets. The Soft Ferrites have no other general purpose or application. The assessee also manufacture Yoke Ring Cores which are directly used as parts and components of TV sets. They had claimed the classification of the said power ferrites under Heading 8504.0 i.e. as parts of transformers or, in the alternative, claimed classification under sub-heading 8529.00 as parts suitable for use solely or principally with apparatus falling under Headings 85.25 to 85.28. They had claimed that the Yoke Ring Cores would be correctly classifiable under chapter

Heading 8529.00 as the said parts are directly suitable for use solely or principally with apparatus falling under Headings 85.25 to 85.28. They have again claimed that the Yoke Ring Cores are not general purpose product. The question before the lower authorities was classification of soft ferrites.

3. The Asstt. Collector in the order-in-original rejected the assessee's claim for classification under sub-heading 8504.00 and 8529.00 on the ground that the soft ferrites articles are manufactured from Homogenous chymetric composition with predetermined iron content and micro-structure of uniform grains with smallest possible pores. The Asstt. Collector has recorded that first powder is prepared, then it is made into a compact material by pressing and then by subjecting it to firing or sintering, finished product is obtained in the form of rod if it is intended for use as pot cores and RM cores in leading coils, filters, inputs, out-put transformers or in form of E-Cores if required for in line powder transformers or in form of U-Cores when used in line powder transformers and driver transformers. While pot cores and RM cores are used in Telecommunication Industry, U & E Cores are used in TV Industry. Therefore, the Id. Asstt. Collector held that the items are nothing but parts of electromagnetics falling under Heading 8505.00 in view of the following other reasons given by him i.e.

(a) Note 2(a) of Section XVI on the classification of parts of machinery; (b) Electromagnetics are described in HSN Explanatory Notes under sub-heading 8505.00 as consisting essentially of a coil or wire wound around a core of soft-ferrite the passing of current in the coil confers magnetic property in the coil which can be used for attraction or repulsion.

(c) HSN Explanatory Notes under Heading 8505, pages 1340 and 1341 which provide, for classification of parts under Heading 8505 and only exclude Magnetic ferrite with a binder in the form of powder or pellet from the scope of the heading.

4. In this appeal, the Revenue has contended that the item is nothing but the parts of electromagnetics falling under sub-heading 8505.00 in view of Note 2(a) of Section XVI of the classification of parts and machinery. They are further relying on the HSN Explanatory Notes referred to by the Assistant Collector.

5. We have heard Shri K.K. Dutta, Id. JDR for the Revenue and Shri S.Ganesh, Id. Advocate for the assessee. Ld. JDR relied on Note 2(a) of Section XVI and on the HSN Explanatory Notes appearing at pages 1340 and 1341 and submitted that the order passed by the Asstt. Collector is required to be upheld.6. Ld. Advocate appearing for the assessee pointed out that Yoke ring is used in TV sets and it is referred to as Deflection Yoke and so also E-Cores and 'U'-Cores. On the other hand, pot/RM cores is used in Radio frequency and coil of transformers. He pointed out that the Department had first approved the classification and latter revised the same by issuing a show cause notice. He pointed out that the Technical Literature produced by the assesseees as well as the certificates issued by Experts and the understanding in the trade pertaining to these goods have not been referred to by the Asstt. Collector. The Id. Collector (Appeals) had examined the entire material produced by the assessee and had upheld the assessee's contention. He submitted that the components are in no way used for attraction or repulsion and hence not electro-magnetics. They are exclusively used in TV and radio sets and hence they have to be considered as parts of machinery falling under Headings 8425 to 8525.29. He pointed out that Heading 85.05 is not appropriate heading. The department had not produced any evidence to show that the components were parts of electromagnetics. The HSN Explanatory notes did not support the department as it did not show that the components were in a position to attract or repulse. Further, high frequency is also not found in these components and that there is no electro-magnetic effect. Relying on the ratio rendered in the case of Filtronics Ltd. v. Collector of Central Excise as reported in 1989 (43) E.L.T. 457, Ld. Advocate submitted that the ratio rendered in the said case would apply to the facts of the present case also. He pointed out that the Technical Literature had been produced by the Department on earlier occasions before approving classification and, therefore, the Deptts. reopening the issue on this aspect is not justified.

7. We have carefully considered the submissions made by both the sides and have perused the replies and the literature produced by the assessee in this case. The contesting Headings 8525.00 to 8529.00 is reproduced herein below: "8525.00 Transmission apparatus for radio telephony, radio-telegraphy, radio broadcasting or television, whether or not incorporating reception apparatus or

sound, recording or reproducing apparatus; television cameras.

8526.00 Radar apparatus, radio navigational aid apparatus and radio remote control apparatus.

8527.00 Reception apparatus for radio-telephony, radio-telegraphy or radio-broadcasting, whether or not combined, in the same housing, with sound recording or reproducing apparatus or a clock.

8528.00 Television receivers (including video monitors and video projectors), whether or not combined in the same housing, with radio broadcast receivers or sound or video recording or reproducing apparatus.

8529.00 Parts suitable for use solely or principally with the apparatus of heading Nos. 85.25 to 85.28." "Subject to Note 1 to this Section, Note 1 to Chapter 84 and to Note 1 to Chapter 85, parts of machines (not being parts of the articles of Heading No. 85.44, 85.45, 45.46 or 85.47) are to be classified according to the following rules: (a) parts which are goods included in any of the headings of Chapter 84 or Chapter 85 (other than Heading Nos. 84.85 and 85.48) are in all cases to be classified in their respective headings." 8. The assesses in their write-up on soft ferrite components have stated that soft-ferrite components are transformer cores used at high frequency having application in TV, Computer and Defence Equipments. It is stated that at high frequency, the magnetic losses and eddy current losses contribute to over-heating and correspondingly large size of magnetic cores is required for dissipation. So, the synthetic cores was invented in the transformers at the high frequency application reducing magnetic losses drastically thereby reaching the desired level of miniaturisation. For almost over a decade, soft ferrite components which is an import substitution product for electronic Industry, have been getting manufactured within our country by various manufacturers.

It is stated that Chandigarh Excise Collectorate technically evaluated thoroughly and decided to classify all power ferrites i.e. U & E Cores under Heading 8504 being cores of transformers and Yoke Rings used in TV receiver Deflection Components under Heading 8529.00. It is stated by them that the end-application

is always the criteria for classifying the goods in Excise. As per end-application of Soft Ferrite Components, they are not used as electro-magnetics for the purpose of attraction or repulsion. The end-use of all power ferrites i.e. U & E Cores Components is high frequency transformer cores and for Yoke Rings as parts of Deflection Components for TV Receiver equipment i.e. on Picture Tube. All Electrical Application in electrical transformer, motor etc. tends to be electro-magnetic and for all electrical apparatus technical principle is based upon electro-magnetics itself.

Even on Iron Nail if current is passed it makes it to become electro-magnetic which can be used for attraction and repulsion. Hence, calling Soft Ferrite Components as parts of electro-magnetic is technically wrong. The assessee has produced in support of their contention Technical Literature and a certificate from Shri N.R. Nair, General Manager (Components) of Central Electronics Ltd. In this certificate he has stated as follows: "What are electro-magnets? Electro-magnets are current dependent devices. The field created is proportional to square number of turns of the current flowing through. The Magnetic field created becomes mainly dependent for any fixed coil based on the strength of the current. For an ideal electro-magnet it is better to have a DC current, which means that the current flowing in one direction you get a magnetic field in a corresponding direction. Now, you start changing the DC current into an AC current, the magnetic field created goes on oscillating, depending on the frequency of change of the current. If the frequency goes on increasing from the normal 50 Hz onwards in KHz or MHz, the entire effect of an electro-magnet is lost. As a Magnet it is supposed to lift/attract a body and this property cannot be expected of a electro-magnet when a high frequency current passes through it. Hence, it is no more an electro-magnet.

In case a permanent magnetic material is subjected to such a field even that permanent magnet loses its magnetic properties. Rather it gets demagnetized. Hence, it becomes very clear when we are dealing with higher frequency electric fields or still higher frequency RF fields or microwave frequency signals, the question of electro-magnet effect coming into a core material is ruled out. From the above, it becomes imperative that we have to deal with a class of material which can respond to this high frequency fields and when any material, as pointed out

earlier, responds to such a field it is not the electro-magnet properties that is what is expected of it.

But it is the increase in the inductive property which the material can contribute and respond to that higher frequency for concentrating the RF field is one criteria and the other is at the said conditions the energy which we are dealing with, being of a very very low nature should not get lost. In this operation, which means the property which we are looking at in this class of material - Soft Ferrite - is its ability in creating higher impedance with very low losses and the ability to respond to the higher frequencies. Hence, soft ferrites are a class of materials which meets these requirements. To have an idea of the frequencies of operation it can operate from KHz to MHz to GHz also. For each frequency the composition of the materials may differ but basically they are soft ferrites. Similarly, as far as the ability to increase the impedance is a factor depending on the permeability of these materials at the different frequencies of operation. This also varies from 10 to 10000. The losses due to the material properties have to be low. They come down from 5 to 100 parts per million.

These are only to illustrate the entire different properties of the Soft ferrites which are in no way, normal electro-magnetic properties.

These do find applications in TVs, Telecommunications, line transformers, matching transformers, chokes, band pass filters, high frequency transformers for power supplies etc. etc. In all these applications, the properties and the end-products are based on the abovesaid material properties, which is in no way an electro-magnet property." Philips India has also given a letter of technical certificate dated 12-1-1991 which is as follows: "(a) The Ferrite Yoke Ring used on deflection yokes is a component dedicated to T.V. manufacture (it is a part of T.V. Receiver equipment).

(c) U & E Cores made of soft ferrite are also used in T.V. in various low power high frequency transformers like L.O.T., L.D.T., E.H.T." Another technical certificate dated 2-1-1991 issued by JCT Electronics Ltd., certifies as follows: "We certify that Colour Picture Tube manufactured by us comprises of Deflection Yoke Ring mounted on the back neck of CPT. This deflection component is made of Soft

Ferrite and is wound with copper wire before mounting on CPT. It is used to deflect the picture signal Vertically and Horizontally on TV Screen through CPT. Moreover, this component is specially dedicated to TV Deflections.

The main characteristics of this core are Flux Density, Permeability, Coersive Force, Residual Flux Density, Resistivity.

Hence, Soft Ferrite Core, whose shape is like Yoke Ring, is parts of T.V. Receiver equipment principally. This component can only be used in T.V. Receiver." Music Nest which is a Deflection & Wound Components Division has also issued a certificate in these terms: "We are pleased to inform you that we have been using your Soft Ferrites i.e., EE Cores and UU Cores. We use these Ferrite Cores in manufacturing High frequency Transformers viz. SMPS Transformers, LOT/FBT/EHT, Pulse Transformers, Matching Transformers etc.

We are aware that these Ferrite Cores are classified by their main characteristics i.e. Permeability, Flux density, Power loss, Coercive force, Mechanical dimensions etc. Moreover, as the Transformers manufactured by us use the Cores in pairs, it is suggested that you should supply these in perfectly matched pairs." M.G. Electronics Pvt. Ltd., has also issued another certificate which is quoted below: "We certify that high frequency transformers manufactured by us comprises of UU type of cores. These cores are made of soft ferrite and is wound with copper wire. The cores are always used in pairs only. These high frequency transformers are used in LOT's of TV receivers.

The main characteristics of these cores are permeability, flux density, power loss, coercive force.

Hence soft ferrite core, whose shape is like UU is part of TV receiver equipment principally".

9. The Ld. Advocate also relied on the order-in-Appeal No. 124/91 issued by the Collector (Appeals), New Delhi on this very issue. Ld.

Collector has relied on the following portion in support of his contention. As the order of the Collector (Appeals) referred to the Technical Literature which is helpful

for I our understanding, the discussion made in para 6 is reproduced below: "6. An electro-magnet as is commonly known, utilises the basic concept of magnetic effect of an electric current. Hans Christian Oersted, Professor of Physics at Copenhagen in Denmark, was the first to discover the connection between electric current & magnetism. In the famous experiment performed by him in the year 1820, he had only a compass needle a length of a wire, a battery and a switch. The circuit was set parallel to the magnetic needle. When the key is not inserted, the wire & the needle are both pointing North-South. The moment the key is inserted the magnetic needle swings to a new position. When the current is reversed the needle also deflects in the opposite direction. It was realised that the deflection of the needle is due to the magnetic field and not due to any electric field. What is then an electro-magnet? As per the book Standard Handbook for Electrical Engineers - by FINK & CARROLL, published by McGraw Hill Book Company, Sec. 5-15, Electro-magnet - The basic form of an electro-magnet is a conducting coil, termed a solenoid. The conductor is usually round magnet wire, but the conductor cross-section may be square or rectangular. The length of the coil, as well as the shape of its cross section, is determined by the application. The mechanical forces of all forms of electromagnets are due to the tendency of the electro-magnet to move so as to possess the greatest linkage of electric current & magnetic flux i.e, the maximum self inductance. Two solenoids mutually attract or repel one another, depending on their relative polarities. This type of operation is very inefficient and is seldom used in practice. Magnetic material (iron or steel) introduced into the field created by the energised coil, improve performance by several orders of magnitude. I find that in theory, an energised coil can itself constitute an electro-magnet since it produces the magnetic effect consequent upon flow of electric current through the coil. Introduction of a magnetic like iron & steel into such a field is however needed in actual practice to improve the performance.

Thus while the material placed in the field should be magnetically as soft as possible to give a high magnetisation in a small applied field, the choice of special ferro-magnetic materials however depends on the actual purpose and use to which the device is finally to be put. In the book 'Modern Magnetism', Fourth Edition, by L.F. Bates, published by Cambridge University Press, it has been

reported on pages 71-72 as follows--'Ferro-magnetic materials may for practical purposes be divided roughly into three classes viz. those with high values of the maximum induction in moderate fields, those which high initials and maximum permeabilities and those with pronounced hysteresis and high coercive forces. The first class is suitable for the construction of electro-magnets, the second for the transformers, loading coils, etc. of communications engineer, and the third for the manufacture of permanent magnets". From the above, it is evident that the nature of the ferro-magnetic materials is different in an electro-magnet from the materials required to be put for use in transformer, loading coils etc. and for construction of permanent magnets. Thus, the expression 'soft ferrites' are essentially and necessarily a component of an electro-magnet. In Bate's Book *ibid*, it is further indicated that while a solenoid is extremely valuable for producing uniform fields it is seldom used for the production of fields greater than 1000 oersteds. For the production of fields greater than 1000 oersteds ferro-magnetics materials in the form of permanent or electro-magnets are normally used. Therefore, when a ferro-magnetic material (like soft ferrites) is not so designed as to make the device an electro-magnet or a permanent magnet, such ferrites or material cannot be logically taken as a component of electro-magnet or a permanent magnet as the case may be. In other words while all electro-magnets do have a 'soft ferrite' as a core in practice the reverse principle that is, all soft ferrites should only be suitable for and hence components of electro-magnets, is not true".

10. On a deep consideration of this technical literature, it is very clear that the components, in question, are not electro-magnetics as it does not have the capability to attract or repulse a property which identifies with magnets. This property may be present but that by itself it will not make the components as parts of electro-magnetics.

The reason being that these components are being used as a final device for which it is made as a component part in TV, Radio, Radar, Radio Navigational Equipment and Radio Reception Apparatus for the purpose of deflection Yokes, low Power, High Frequency transformer. Therefore, from the reading of the entire literature and the certificate produced by the assessee, it is very clear that the

components in question are not parts of electro-magnetics and their classification under 8505.00 is not appropriate. The classification adopted by the Ld. Collector (Appeals) under Tariff sub-heading 8529.00 is more appropriate and requires to be upheld. The reliance by the Revenue on Note 2(a) of Section XVI is not appropriate and also HSN Explanatory Notes. In the results, the appeal is rejected.

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