CASE NO. 3687/2000

IN THE HIGH COURT OF SOUTH AFRICA

NATAL PROVINCIAL DIVISION

In the matter between

ENGINEERED LININGS (PROPRIETARY) LIMITED	Applicant
and	
THE MINISTER OF FINANCE	First Respondent
THE COMMISSIONER OF CUSTOMS AND EXCISE	Second Respondent

Delivered :
5 September 2001

J U D G M E N T

LEVINSOHN J :

These motion proceedings are in the nature of an appeal against a determination made by the second respondent in terms of section 47(9)(a)(i) of the Customs and Excise Act, No. 91 of 1964 ("the Act"). The second respondent had held that certain material imported into South Africa for the purposes of assessing import duty fell within tariff heading **3920.20.90**. The applicant contends that the material in question in fact fell to be determined under tariff heading **3920.20.20**. If the applicant is correct in this it will have been imported into the country duty free and the amount of duty assessed by the second respondent, namely, R834 489,60, will fall away.

The applicant carries on business as a specialist supplier of geosynthetic liners

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which includes flexible **polypropylene.** These geosynthetic liners are used as lining material in dams and landfill sites. SGS Geosystems Limited, a company in the United Kingdom, is the manufacturer of flexible polypropylene sheets, the imported material in question. According to the applicant's deponent this material is "far more flexible than traditional lining materials and this allows the liners to accommodate subsidence and unevenness in dams and landfill sites without tearing or leaking". Because the applicant found that this material was ideally suited for various landfill and dam projects in RSA it began importing same into the country from 1995. In 1998 the applicant applied to the second respondent for the determination in question and which as mentioned above is the subject matter of this appeal.

It is convenient at this stage to record that the appeal in question was noted out of time and this gave rise to a constitutional challenge against the sections in the Act which deal with time limits. When the matter was called counsel announced that the second respondent was no longer taking the point that this appeal was time-barred. Accordingly, the way is now clear to consider the merits of the appeal.

Tariff heading **39.20** of Schedule 1/Part 1/Section 7/Chapter 39 of the Customs and Excise tariff reads as follows :

"**39.20**		**Other plates, sheets, film, foil and strip, Of plastics, non-cellular and not re-inforced, laminated, supported or similarly combined with other materials:**
3920.10		Of polymers of ethylene
3920.20		Of polymers of propylene
--		
	.20	**Biaxially oriented (excluding that of a thickness exceeding 0,012 mm but not**

exceeding 0,06 mm, not heat shrinkable)

.90 **Other."**

It is common cause that the material imported is "flexible polypropylene sheets" and that it falls under the general tariff heading of 39.20. It is also not in dispute that it is "of polymers of propylene under tariff heading 3920.20. Nor is it in dispute that the sheets in question exceed a thickness of ,06 mm. The essence of the dispute is whether the material is "**biaxially oriented**". The expert evidence put before me reveals that the issue as to whether the material is biaxially oriented is a controversial one. At the outset counsel for the second respondent has submitted that this appeal must be referred for the hearing of oral evidence inasmuch as there is on the papers an irreconcilable dispute among the experts which is incapable of being decided on affidavit. Counsel for the applicant however submits that this is not so and that if the expert evidence adduced by the respondent is subjected to detailed analysis it will emerge that the product is indeed "biaxially oriented". Thus adopting the approach set forth by Corbett JA (as he then was) in *Plascon-Evans Paints Ltd v van Riebeeck Paints (Pty) Ltd* 1984 (3) SA 623 AD at 635 C he contends that the issues herein can be decided on the affidavits.

The correct approach to determine the correct tariff classification is set forth in *International Business Machines SA (Pty) Ltd v Commissioner for Customs and Excise* 1985 (4) SA 852 (A) where Nicholas AJA (as he then was) said at 863 G

> "Classification as between headings is a three-stage process : first, interpretation - the ascertainment of the meaning of the words used in the headings (and relative section and chapter notes) which may be relevant to the classification of the goods concerned; second, consideration of the nature and characteristics of those goods; and third, the selection of the heading which is most appropriate to such goods."

See also *Secretary for Customs and Excise v Thomas Barlow & Sons Ltd* 1970 (2) SA 660 AD at 676 B where Trollip J said :

> "It can be gathered from all the aforegoing that the primary task in classifying particular goods is to ascertain the meaning of the relevant headings and section and chapter notes, but, in performing that task, one should also use the Brussels Notes for guidance especially in difficult and doubtful cases ...."

"The term "biaxially oriented" is a scientific term and is manifestly used in a special technical sense. It is permissible to lead evidence as to the meaning of the term in the particular industry. As was stated in *R v Lipschitz* 1945 CPD 276 at 280 :

> "The Court may be guided by expert evidence as to the meaning of certain words which really are technical words in certain circles; the evidence as to the meaning those words bear in those circles. If those words relate to an industry I take it there can be evidence as to what those words are taken to mean in industrial circles, in the absence, of course, of a definition in the determination."

See also *R v Eastern Transvaal Industries Ltd* 1955 (1) SA 122 TPD at 125.

John Anthony Coulson, a chemist in the employ of SGS Geosystems Ltd, the manufacturer of the material in question, gave expert testimony on behalf of the applicant. He said that the term "biaxially oriented" has a specific meaning in the plastics industry and relied on a definition set forth in the South African Plastics Institute Training Board's booklet on plastic language. According to this orientation is defined as follows :

> "Orientation is stretching the material by pulling (cold drawing) so that the molecules are lined up. In the film blowing process, the film is usually orientated in two directions (bi-axially). The first direction of orientation is in the direction of production in nip rolls. The second is in the size of the bubble (blow-up ratio)."

Coulson also refers to a work called *Geotextiles and Geomembranes Manual* by T. S. Ingold as follows :

"If the polymer is stretched in the melt, or in sold form above its final operating temperature, the molecular chains become aligned in the direction of stretch, Figure 2.5. This alignment or molecular orientation can be permanent if, still under stress, the material is cooled to its operating temperature. If drawn in two orthgonal directions, within the plane of the geosynthetic, the material is said to be biaxially oriented."

Coulson also says that orientation can arise in the extrusion process. He refers to this as "machine direction orientation". He says that this occurs when the molten polymer is pulled away from the die at a speed greater than it is exiting the die. Transverse direction orientation occurs when the polymer is extruded from a circular die and is blown up or pressurized from below. Coulson refers to a work by Fred Struve wherein the author says

"Sheet made on a circular die machine generally has very evenly balanced orientation."

Coulson then goes on to apply these principles to the material in question. He says that the sheets in question are manufactured from polypropylene pellets made by an international supplier of polymer plastics. Coulson then explains how the sheets in question are manufactured. Molten polymer is pumped through a radial die extruder. Air is pumped from below causing the liquid polymer to form a tube as it is being drawn vertically up the length of the machine. He says

"The polymer is thus drawn vertically (in the so-called *'machine direction'*) and pressurized horizontally (in the so-called *'transverse direction'*) by the chilled air as it exits the die. The circumference of the tube is greater than the circumference of the die from which it is exiting."

According to Coulson this process, that is to say, using the radial die blow extrusion

results in the sheets being biaxially oriented.

Walter Wilhelm Focke, a registered professional engineer and currently the director of the Institute of Applied Materials at the University of Pretoria, expressed the opinion that the sample of the applicant's material which was submitted is not biaxially oriented, either in terms of its actual structuring or in terms of the accepted technical and commercial meaning of the term "biaxially oriented polypropylene". He further expressed the opinion that the process utilised by SGS Geosystems as described by Coulson in his affidavit would be unable to produce biaxially oriented polypropylene. Focke also makes the point that in the case of blown polypropylene films there will always be a measure of biaxial orientation but he says that type of biaxial orientation could not have been contemplated by the framers of the tariff. He says that the technical term biaxial polypropylene is used for thin polypropylene films where large orientation is deliberately imparted to achieve specific property improvements. The term is not used for ordinary film. It also has a measure of adventitious (by which I understand accidental or fortuitous) orientation. Focke then goes on to make an important statement in his affidavit which I think should be quoted in full :-

> "The manufacturing process alone cannot determine whether, for the purposes of distinguishing between "biaxially oriented polymers of propylene" and "other polymers of propylene", a specific sample is biaxially oriented or not. To that extent, the definitions and description relied upon by Coulson are not applicable. Contrary to what Coulson says, it is the specifications determined upon testing which determine whether or not a product is biaxially oriented. It is significant, I respectfully submit, that Coulson never stated that the product in question has been shown on testing to be capable of being stretched in both directions."

Focke then goes on to deal with Coulson's description of the extrusion process. He says that this set up is unsuitable for producing biaxial orientated polypropylene film. He

says that the blow up ratio is very small in that the bubble diameter is only marginally larger than the die diameter which, according to him, means that the film would have very little orientation in the transverse direction although the upward pulling would impart a degree of orientation in the longitudinal direction. Finally, Focke makes the point that the sample in question is undoubtedly a "sheet" and he could find no evidence in the literature for the existence of a biaxially orientated polypropylene sheet. Focke annexed a report to his affidavit and I shall return to specific features thereof when I evaluate the evidence in this case.

The second expert who testified on behalf of the second respondent was Witold Victor Titow, a scientist residing in the United Kingdom. Titow sought to give an answer to the question as to what is the proper meaning of "orientation' in polymeric materials and products as well as the question whether the term "biaxially oriented" is limited to plastic films. He said the following :

> "A plastic product such as a film, sheet, or moulding, consists of, or contains as its principal constituent, a polymer (in some cases a blend of polymers). In this context, the terms 'oriented' and 'orientation' used in their proper sense relate to the directional alignment of certain submicroscopic elements in the polymer, considered in relation to a chosen frame of reference. In a polymeric film or sheeting the frame of reference may be the longitudinal direction of the product (the so-called 'machine direction' in which the film or sheet moves as it is being produced), or the direction at right angles to it (the so-called 'transverse direction'), or both, or it can be the plane of the film or sheet. The structural elements of the polymer whose alignment in relation to the frame of reference is most often considered and determined in orientation studies on polymeric materials and products are the long, chain-like molecules ('molecular chains') which are the basic chemical structural units of the polymer, and - in the case of the so-called 'semi-crystalline' polymers (of which

polypropylene is one example) - also the crystallites, that is regions within the polymer in which adjacent sections of several polymer chains are locked into a regular, three-dimensional array by inter-molecular forces. Thus in a polypropylene film or sheet, uniaxial orientation - properly interpreted - implies a degree of preferential line-up of the molecular chains or/and of stated axes of the crystallites (usually the so-called C-axes) in a particular direction; this direction will in practice normally be the longitudinal or the transverse direction of the film or sheet. Varying degree of such uniaxial orientation in polypropylene film or sheet can be effected by varying the extent of the stretch applied in the direction of the desired uniaxial orientation. Thus unidirectional (uniaxial) stretching does in fact result in uniaxial orientation of the polymer. **By a rather superficial analogy, stretching in two mutually perpendicular directions (in practice usually the longitudinal and the transverse direction) is often referred to as 'biaxial orientation', and the film or sheet so stretched as 'biaxially oriented'."** (My emphasis).

Titow also deals with the difference between a sheet and a film and says : -

"However, there is no strictly defined, universally accepted numerical thickness value demarcating film from sheet : this is recognised by both the above terminology standards ...."

Dealing with the difference in meaning between the terms "biaxially oriented" and "biaxially balanced" the deponent says :-

"The term 'biaxially oriented' is often applied in industrial usage as well as in technical literature to plastics film or sheeting which has been stretched in two mutually perpendicular directions. The stretch can be imparted either in the course of production or thereafter. The two stretch directions are most often the longitudinal (machine) direction of the sheet or film and the direction at right angles to it (the transverse direction). For reasons outlined in paragraph 5 above, a more accurate term would be 'biaxially stretched', because the molecular orientation of the sheet or film resulting from biaxial stretching is not biaxial. (My emphasis).

"In biaxial stretching, the extent of stretch in one of the two directions may be greater than that in the other direction. Such imbalance may be effected deliberately (as eg in certain types of heat-shrink film) or it may be due to the normal characteristics of the production process. In the former case the difference between the two degrees of stretch can be substantial, resulting *inter alia* in significant differences between some properties of the film or sheet - notably the tensile strength and extensibility - as measured in the two directions of stretch. In the kind of unbalanced biaxial stretch that can sometimes arise naturally in a production process, the stretch in both directions is normally quite small and may have relatively little effect on the service properties of the product : this is an effect of the kind referred to in Prof. Focke's comments as 'adventitious orientation'.

"A biaxially balanced film or sheet is one which has been stretched to the same degree in each of the two mutually perpendicular directions. In an ideal case, such balance of stretch would be expected to result in the corresponding virtual identity of properties - especially tensile strength and extensibility - as measured in the two directions. In practice the properties are balanced within a certain margin." (My emphasis).

Titow then goes on to consider the SABS report and it at this stage convenient if I interpose a brief summary of what that report contains. It is dated the 1st June 1999 and was a report compiled at the request of the second respondent. The Bureau was asked to determine the composition and tariff classification of the sample submitted. The following observations were made in paragraph 3 of the report. The sample was not heat-shrinkable. The tensile strength in the machine and transverse directions were virtually the same (19 and 16 mpa). The report refers to a textbook which states that "the double-bubble process may be used to produce biaxially oriented films - primarily propylene. This process is generally limited to a final film thickness of less than 24 μm The author of the report concludes

"We can only state that this film sample is biaxially balanced, and if it was stretched, the stretch was roughly similar in the two directions. The reference values that we could obtain for the tensile strength of biaxially oriented films do not apply to films of more than 75 μm in thickness."

Returning to Titow's evidence the deponent commenting on paragraph 3 of the SABS report says that a nearly 19% difference in the tensile strengths measured respectively in the machine and transverse directions of a sheet (19 - 16 = 1,1875) as indicative of some preferential orientation in the direction of the higher strength. Titow concluded that :

"I note that the values of retraction found in both the machine and the transverse directions of the sheeting that the test temperature of 120° are low : this indicates a low degree of original stretch. I agree with both the finding of the CSIR report and the relevant comment by Professor Focke that the shrinkage at 170° C (at which the crystallites in the polymer would be melting) indicates a significant preferential unidirectional (uniaxial) rather than two-directional (biaxial) stretch in the sheeting."

I turn now to evaluate and weigh the expert evidence. To set the stage for this I must perforce remove some of the misconceptions which appear to have bedevilled the second respondent's approach to the determination. In its letter dated the 22nd March 2000 the second respondent recorded as follows :

"In the absence of an accepted international testing method to establish that the product in question is biaxially oriented polypropylene, this office has no choice but to disregard the subheading catering for that commodity, for classification purposes, in this instant."

This of course is a misdirection. The tariff heading is a piece of legislation and must be interpreted and applied like any other forms of legislation. The question before the second respondent was and remains whether the product is biaxially oriented. The second respondent was required to determine whether the material had the scientific attributes of

being "biaxially oriented" or not. One cannot ignore the legislation simply because second respondent was not aware of any "international testing method".

In a subsequent letter dated the 26th June 2000 the second respondent records that biaxially oriented polypropylene refers to polypropylene which has been extruded into thin flexible film or sheets. It refers to

> "thin glossy film (thickness approximately 0,0178 mm to 0,28 mm) and resembles regenerated cellulose. This material is used for packing foodstuffs and for wrapping cigarette packets etc.
>
> "The whole purpose of bi-axial orientation is to impart strength to thin plastic sheets. This is achieved by stretching the plastic in the longitudinal and transverse direction."

The second respondent then goes on to say that the imported product is far too thick to test in accordance with the established test methods.

Here again I am afraid the second respondent misdirected itself. There is no warrant for the assumption that the concept of biaxial orientation cannot apply to sheets as opposed to film. The tariff heading itself proclaims that "sheets" are capable of being biaxially oriented. The second respondent's expert Titow in his evidence recognises the difference between a sheet and a film. He also significantly recognises that sheeting can be biaxially oriented : -

> "With direction reference to the question of put to me (see 2(a)(i) above) I can say that the kind of orientation present in biaxially stretched ("biaxially oriented") film **and sheeting** (my emphasis) is found - sometimes in even higher degrees - also in other plastic products, for example, in stretch-blow molded bottles and other containers, in certain kinds of tubing and sleeving shrinkable by heating, and in such products as trays and tubs and the like produced by thermoforming from a sheet."

In my view Titow's evidence establishes that it is a misconception to categorise films only as being biaxially oriented. The thicker version of polypropylene can have this characteristic as well. It also casts doubt on Focke's evidence taken from his report to the effect that

> "Sheet is usually defined as thicker than 0,25 mm; anything thinner is classed as film. **No evidence was found in the literature for the existence of BOPP sheet.** (My emphasis).

The next important step in the enquiry is to determine the meaning of the term "oriented", and then the phrase "biaxially oriented".

The plastics training institute training manual gives a clear definition of the term "oriented". It means pulling the material by stretching. This occurs in the film blowing process. If in this process there are two directions of orientation, namely direction of production of the rolls and secondly the size of the bubble (blow-up ratio). Titow concedes rather significantly that stretching in two mutually perpendicular directions (in practice usually the longitudinal and the transverse direction is often referred to as "biaxial orientation". He goes on to say that the use of such terms is "quite common". From a purely chemical point of view this common usage of the term may strictly speaking be incorrect inasmuch as highly specialised X-ray spectrographic analysis has demonstrated that it is a pronounced uniplanar orientation of the crystallites which accounts for the physical properties of the biaxially stretched product. Nonetheless, notwithstanding his reservations about whether it is the correct terminology, Titow recognises that the term "biaxially oriented" is used synonymously with "biaxially stretched". This conclusion is reinforced in the passages from his report which I have quoted above. ...

In my view Titow's understanding of the term "biaxially oriented" is not different from firstly, the definition set forth in the **Encyclopaedia Britannica** quoted in the applicant's founding affidavit as follows :

> "The flow through a die in extrusion always results in some orientation of the polymer molecules. Orientation may be increased by drawing - that is pulling on the extradite in the direction of polymer flow or in some other direction either before or after partial solidification. In the blow extrusion process, polymer molecules are orientated around the circumference of the bag as well as along its length, resulting in a biaxially oriented structure that often has superior mechanical properties over the unoriented material."
>
> And, secondly, the definition quoted by Coulson to which I have already referred.

There is an apparent controversy on these papers whether the essential characteristics of a product are, as it were, created in the manufacturing process or whether one detects only from post-manufacture analysis whether it has the particular characteristic such as, for example, in the present case, of being biaxially oriented.

As mentioned above in the quoted passage Focke took the view that it is the specifications determined on testing that decide the question whether a product is biaxially oriented or not and he criticises Coulson for not subjecting his product to a test which would indicate that the product could be stretched in both directions.

However, in his report Focke says

> "Processing therefore influences the resulting conformations in the final product and thus ultimate polymer properties. This is termed structuring of the material."

Focke says further that the manufacturing process described by Coulson shows that the blow-up ratio is small which means that the diameter of the bubble created in the extrusion process is only marginally larger than the diameter of the die. According to him

the resultant film will have very little orientation in the transverse direction. He concedes however that the upward pull would impart a degree of orientation in the longitudinal direction.

Coulson's retort to this is in his replying affidavit is that in the SGS Geosystems equipment the die diameter is 1,8 m and the bubble diameter is 2,0 m which results in a transverse orientation of 11% which he states is not high but is nonetheless a significant orientation.

In my view the second respondent's witnesses, especially Titow, do not at the end of the day dispute the applicant's evidence that the material is stretched in two directions and this is "biaxial orientation" as defined in the plastics industry.

According to the report of the SABS the sample of the material analysed showed that it was "biaxially balanced". I quote from the report :

> "We can only state that this film sample is biaxially balanced, and if it was stretched, the stretch was roughly similar in the two directions. The reference values that we could obtain for the tensile strength of biaxially oriented films do not apply to films of more than 75 μm in thickness."

Even if it were not biaxially balanced this would matter not, in my opinion. There is no requirement in the tariff heading or in the classification itself that the term "biaxially oriented" means equally oriented in both the longitudinal and transverse direction.

In the result, I am satisfied that the material is biaxially oriented and falls to be classified as such. Accordingly the applicant is entitled to the following order :

1. The determination made by second respondent on 25th August 1999 (and annexed to the affidavit of Johannes Du Toit Viljoen as annexure "JV4") :

   1.1 is set aside;

1.2 is corrected by substituting therefor a determination to the effect that the flexible polypropylene sheets imported by applicant fall under tariff heading 3090.20.20 in Chapter 39 of Schedule 1 to the Customs and Excise Act, No. 91 of 1964.

2. Second respondent is ordered to pay the costs of this application, such costs to include the costs consequent upon the employment of two counsel.