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**Datasheet for the decision  
of 16 March 2010**

**Case Number:** T 0562/08 - 3.2.05

**Application Number:** 01901114.7

**Publication Number:** 1269057

**IPC:** F16L 11/08

**Language of the proceedings:** EN

**Title of invention:**

Flexible, armoured pipe and use of same

**Patentee:**

NKT Flexibles I/S

**Opponent:**

Technip France

**Headword:**

-

**Relevant legal provisions:**

EPC Art. 54

**Relevant legal provisions (EPC 1973):**

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**Keyword:**

"Admissibility of late filed submissions - no"  
"Novelty - yes"

**Decisions cited:**

-

**Catchword:**

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Case Number: T 0562/08 - 3.2.05

**D E C I S I O N**  
of the Technical Board of Appeal 3.2.05  
of 16 March 2010

**Appellant:**  
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**Decision under appeal:** Decision of the Opposition Division of the  
European Patent Office posted 29 February 2008  
revoking European patent No. 1269057 pursuant  
to Article 101(3)(b) EPC.

**Composition of the Board:**

**Chairman:** P. Michel  
**Members:** S. Bridge  
M. J. Vogel

## Summary of Facts and Submissions

- I. The appellant (patent proprietor) lodged an appeal against the decision of the Opposition Division revoking European patent No. 1 269 057 for lack of novelty (Articles 54 and 100(a) EPC).
- II. An opposition was filed against the patent as a whole based on Article 100(a) EPC (lack of novelty, Article 54 EPC, and lack of inventive step, Article 56 EPC).
- III. Oral proceedings were held before the Board of Appeal on 16 March 2010.
- IV. The appellant requested that the decision under appeal be set aside and the case be remitted to the opposition division for further processing on the basis of claim 1 of the main request filed during the opposition oral proceedings on 28 January 2008.
- V. The respondent (opponent) requested that the appeal be dismissed.
- VI. Independent claim 1 of the sole request reads as follows:

"1. Armoured flexible pipe comprising  
an inner liner (3),  
on the inside of which a carcass (1) is provided,  
while the outer side of the inner liner is surrounded  
by one or more layers of pressure (5,6) and  
tensile (7,8) armour,

which in turn is surrounded by one or more layers of thermally insulating bands, which are shielded from the surroundings by an outer sheath (9) forming a barrier against the ingress of fluids from the pipe surroundings

**characterized in that**

the armoured flexible pipe comprises a thermally insulating layer consisting of said thermally insulating bands, and the thermally insulating bands (10) are provided between the outer sheath (9) and the tensile armour (7,8), and are made of a homogeneous polymer or a homogeneous polymer mixture."

VII. The following documents are referred to in the present decision:

A1 "Recommended Practice for Flexible Pipe, API Recommended Practice 17B", 1 July 1998, 2nd edition, American Petroleum Institute;

A2 "Specification for Unbounded flexible Pipe, API Specification 17J", November 1999, 2nd edition, American Petroleum Institute.

VIII. The arguments of the appellant in the written and oral proceedings can be summarised as follows:

*Admissibility of late filed submissions*

The respondent's objections under Articles 123 and 84 EPC were already raised during the opposition proceedings. These issues had not been included in the response to the substantive appeal and were therefore late filed (Article 13 RPBA). Furthermore, no arguments

were presented concerning the reasons why the decision of the opposition division was not correct with respect to these issues.

On the contrary, the term "homogeneous" had both a basis in paragraph [0021] (A-publication) of the application as filed and was considered to be clear with reference to its usual dictionary definition as set out in the contested decision. In addition, the first feature of the characterising part of claim 1 of the sole request was to be understood as specifying that the thermally insulating layer consisted of the thermally insulating bands and of nothing else. This feature was therefore clear.

Therefore, the respondent's new objections of 16 February 2010 should not be admitted.

#### *Novelty*

The mutual cross references in documents A1 and A2 were too imprecise to disclose particular combinations of features and, furthermore, document A1 referred to a previous version of document A2. Instead, documents A1 and A2 should be considered as separate documents.

Although documents A1 and A2 contained recommendations concerning each kind of layer recited in claim 1 of the sole request, they did not disclose these in combination. The skilled person had to select a particular position, structure and material for the insulating layer. There were alternative possibilities for the position and the insulating layer need not necessarily have been applied in the form of insulating

bands. Similarly, even when document A1, table 11 (page 39) and note 1., disclosed the possibility of "solid material" for the insulating layer, this was not necessarily homogeneous. Therefore, the disclosure was not clear and unambiguous.

Therefore, the subject-matter of claim 1 of the sole request was new.

IX. The arguments of the respondent in the written and oral proceedings can be summarised as follows:

*Admissibility of late filed submissions*

The arguments presented by the appellant relied particularly on the following features of claim 1 of the sole request:

- "comprises a thermally insulating layer consisting of said thermally insulating bands", and
- "homogeneous polymer or a homogeneous polymer mixture".

The meaning of these features is therefore essential, but is not clear for the following reasons:

- The discussion of the prior art in paragraph [0010] of the patent in suit confirmed that known insulation consisted of layers of thermally insulating bands. It was therefore not clear what distinction was being made in claim 1 of the sole request when claiming "a thermally insulating

layer consisting of said thermally insulating bands".

- Polymer mixtures may contain polymers which do not readily mix so that the resulting mixture is a "vinaigrette"-like emulsion. It was not clear whether such mixtures should be considered homogeneous in the sense of claim 1 of the sole request, particularly, as the patent in suit did not contain any examples of polymer mixtures.

Therefore, the objections of 16 February 2010 were relevant and should be admitted into the proceedings.

#### *Novelty*

Even though document A1 referred to the previous version of document A2, the skilled person would have used the most up to date versions of each, which at the time of the priority of the patent in suit were documents A1 and A2 on file.

Documents A1 and A2 together defined the recommended practice in the field of armoured flexible pipes and would therefore have been read in combination by the skilled person.

Table 1 with footnote 5 on page 11 of document A1 disclosed all the layers set out in claim 1 of the sole request. Table 11 with footnote 1 on page 39 of document A1 disclosed that the insulation may be PP, PVC, PU in the form of a solid material. This implied that the insulation was made of a homogeneous polymer or a homogeneous polymer mixture. Section 10.2.1.5

disclosed that tape winding machines were used for applying insulation layers. Therefore all features of claim 1 of the sole request were known from document A1 with the exception of the exact location of the insulating layer.

Document A2, either considered as a document referenced by document A1, or as proof of the general knowledge of the person skilled in the art of armoured flexible pipes, disclosed that the usual location of the insulating layer was between the outer sheath and the tensile armour (section 3.1.25, page 4). Therefore all features of claim 1 of the sole request were known from document A1 in combination with either document A2 or with the general knowledge of the person skilled in the art.

Alternatively, table 6 on page 11 of document A2 disclosed the basic layer structure of an armoured flexible pipe without an insulating layer but with an "internal carcass". The layers themselves were as set out in the definitions of section 3 on pages 3 and 4 where the additional insulating layer was also defined (section 3.1.25). In addition, the structure of the insulating layer was defined in terms of a "profiled insulation strip" in sections 7.5 and 7.5.2.1 (page 28). The insulation material was further set out on page 20 in section 6.2.2 "Polymer Materials" with PVC being given as an example in section 6.2.2.3. In consequence, the most usual mode of realisation corresponded to the features of claim 1 of the sole request which was therefore known from document A2 alone.



Therefore, the subject-matter of claim 1 of the sole request lacked novelty.

## **Reasons for the Decision**

### 1. Admissibility of late filed submissions

The additional objections filed 16 February 2010 were not mentioned in the response to the grounds of appeal and furthermore were not substantiated.

The late filed submission merely made reference to objections under Article 84 EPC presented in writing during the opposition proceedings. These objections were already dealt with in the decision of the opposition division. No additional arguments were presented as to why this decision should be deemed incorrect.

It was suggested on behalf of the appellant that the feature "the armoured flexible pipe comprises a thermally insulating layer consists of said thermally insulating bands" of claim 1 of the sole request should be understood as specifying that the thermally insulating layer consists of the thermally insulating bands and of nothing else. The Board cannot accept this argument, because the use of the term "comprises" does not rule out the presence of further insulating layers. Instead this feature serves to relate the insulating bands to the term "insulating layer". As such, this is not unclear.

Similarly, the argument suggested on behalf of the respondent with respect to the discussion of the prior art in paragraph [0010] of the patent in suit (B-publication) only relates to the correct placement of features with respect to the drafting of the claim in the two part form (Rule 43(1) EPC) but does not give rise to a lack of clarity of the feature concerned.

Mixtures of immiscible polymers forming a "vinaigrette"-like emulsion suggested on behalf of the respondent do not fall under the dictionary definition of "homogeneous". This definition was already introduced during the opposition proceedings and reads "consist[] of parts all of the same kind; uniform". A "vinaigrette"-like mixture of immiscible polymers is neither uniform, nor does it consist of parts which are all of the same kind. In addition, the absence of specific examples of polymer mixtures does not in itself justify an objection of lack of clarity, since the skilled person is familiar with polymers and with the term "homogeneous".

Therefore, the alleged lack of clarity of the term "homogeneous polymer mixtures" has not been demonstrated (Article 84 EPC).

Furthermore, a basis for the introduction of the amendments "homogeneous" and "the armoured flexible pipe comprises a thermally insulating layer consists of said thermally insulating bands" into claim 1 of the sole request can be found in the application at page 5, lines 13 to 22 (WO-publication). Therefore, the requirements of Article 123(2) EPC are satisfied.

The Board cannot exercise its discretion in favour of a party which, while already having had the opportunity to pursue all objections in the response to the grounds of appeal, now seeks to re-introduce additional objections already raised during the opposition proceedings at this late stage. The respondent's new submissions would, if admitted into the proceedings, either merely repeat issues already decided during the opposition proceedings, or amend the respondent's case by raising new issues which the Board and the appellant could not reasonably be expected to deal with without an adjournment of the oral proceedings. Accordingly they should not be admitted into the proceedings pursuant to Article 13(1) RPBA.

The respondent's submissions of 16 February 2010 are therefore not admitted into the proceedings.

2. Novelty

Document A1 is a recommended practice providing guidelines for the design, analysis, manufacture, testing, installation and operation of flexible pipes and flexible pipe systems (page 1, section 1.1).

Document A2 is a specification defining the technical requirements for safe, dimensionally and functionally interchangeable flexible pipes that are designed and manufactured to uniform standards and criteria (page 1, section 1.1.1).

Documents A1 and A2 are the result of a standardisation effort supported technically and financially by "an international consortium of oil companies, flexible

pipe manufacturers, regulatory authorities and contractors" ("FOREWORD", page iii in both documents A1 and A2). Both documents therefore contain the kind of information normally associated with the common general knowledge of the person skilled in the art of armoured flexible pipes, especially when such pipes are used for the extraction, transport or refining of mineral oil, gas or related fluids (patent in suit, column 2, lines 6 to 11 and claim 5).

Document A1 begins by stating that it supplements API Specification 17J, i.e. document A2 (page 1, section 1.1) and document A2 also refers back to API Recommended Practice 17B, i.e. document A1 (page 1, section 1.1.2). Paragraph 1. of section 2 of document A1 indicates that document A1 is actually referring to an earlier, December 1996, version of document A2.

However, the Board considers that given the prescriptive nature of recommended practice documents such as documents A1 and A2, the person skilled in the art of such armoured flexible pipes would have to use the most up to date versions of each. At the time of the priority of the patent in suit these were documents A1 and A2 presently on file.

Document A1 repeatedly contains further references to document A2 in particular contexts: for example, in the context of "Materials", section 6.1.1, document A1 refers to section 6 of document A2 and in section 7.2.4.1, document A1 refers to document A2 in the context of minimum requirements for the use of thermal insulating layers. Documents A1 and A2 are

therefore intended to be used together and include sufficient cross references, such that a skilled person becoming aware of either one of documents A1 and A2 would necessarily also be directed to the other.

## 2.1 Document A1

Document A1 contains a general description of unbonded flexible pipes (section 4.3.1, page 10 and figure 6, page 13) as well as a classification of flexible pipes in terms of three distinct families and typical variations within these standard pipe design families (section 4.3.2.1 and table 1, page 11).

Both "Product Family III" (table 1, page 11) and the "Unbonded Flexible Pipe" of figure 6 disclose the same sequence of layers as claim 1 of the main request with the exception of the thermally insulating layer. The "typical variation" within family III further set out in note 5 of table 1 specifies that thermal insulation is added to the pipe. Similarly, section 7.2.4.1 (page 46) indicates that thermal layers *may* be added to the flexible pipe.

The skilled person starting from "Product Family III" (table 1, page 11) or from the "Unbonded Flexible Pipe" of figure 6, would therefore have to make a first decision to choose a flexible pipe with an insulating layer.

Section 7.2.4.1 of document A2 contains a reference to document A2 for the "minimum requirements for the use of thermal insulating layers". However, it is not clear exactly what additional features from document A2 are

being referred by this reference, as document A2 does not contain a section specifically concerned with such minimum requirements for the use of thermal insulating layers. Furthermore, even if the skilled person consulted document A2 as a result of this generic reference, the location of the insulating layer within the pipe would not be expected to form part of such "minimum requirements for the use of thermal insulating layers". In consequence, this reference does not specifically direct the skilled person to section 3.1.25 of document A2 which merely defines the term "insulation layer".

However, when the skilled person consults document A2 because the information contained therein forms part of his common general knowledge, section 3.1.25 of document A2 merely indicates that "the [insulation] layer is usually located between the outer tensile armour layer and the outer sheath". This formulation makes clear that this location of the insulation layer is not mandatory and that the insulation layer may in fact be located elsewhere in the pipe. It follows that the skilled person has to exercise a choice in terms of selecting a location for the insulation layer.

To summarise: the location of the thermal insulation within the pipe is not specified in the description of the armoured flexible pipe provided in document A1. Even when document A2 is consulted, the thermal insulation is not necessarily located between the outer sheath and the tensile armour.

Thus even when document A1 is read in combination with document A2, the location of the thermal insulation is

not directly and unambiguously disclosed. Already for this reason alone, the subject-matter of claim 1 is new with respect to document A1 either singly or in combination with document A2.

Similarly, according to document A1, table 11 (page 39) and note 1., the structure of the polymer material used for "the insulation may be solid material, foam or syntactic foam". Again, the skilled person would have to make a choice in favour of "solid material" which, furthermore, may or may not itself be homogeneous, as demonstrated by the above example of mixtures of immiscible polymers forming a non-homogeneous "vinaigrette"-like emulsion. The feature of claim 1 that the insulating bands are made of homogeneous polymer or a homogeneous polymer mixture therefore does not follow directly and unambiguously from the disclosure of document A1. For this reason also, the subject-matter of claim 1 is new.

## 2.2 Document A2

It was suggested on behalf of the respondent that section 5.3 (pages 11 to 14), table 6 (page 11) of document A2 discloses a sequence of layers, which are further defined in section 3.1 "Definitions" (pages 3 to 5) and in sections 6.2.2.3 (page 20) and 7.5.2 (page 28) for the insulation layer.

Although document A2 makes various statements about each of the kinds of layers mentioned in claim 1 of the sole request, there is no explicit indication of a particular sequence of layers being prescribed. This is not altogether surprising given that the purpose of

document A2 is the use of uniform standards and criteria in the design and manufacture of flexible pipes (Section 1.1.1, page 1). A further indication in this sense arises from the fact that document A2 requires "a layer by layer description of the pipe" be included in the Design Report for the pipe (page 31, section 8.4.1).

Furthermore, even if the skilled person were to consider the layers presented in table 6 as specifying a particular sequence of layers, the thermal insulation layer is not included in that table.

Finally, when considering document A2 as a whole, the presence of some of the layers is not always required: for example, a flexible pipe meeting the requirements set out in document A2 may lack a pressure armour layer (page 30, section 7.8.3) and the thermal insulation is also not always required (page 38, left hand column, first question in the section "THERMAL INSULATION").

In addition, the sequence of layers in the pipe may differ from that set out in claim 1 of the sole request: for example, the carcass may be formed over the internal pressure sheath (page 26, section 7.2.2.3, last sentence).

Section 6.2.2.3 (page 20: "If PVC is used as the insulation material ...") only considers the possibility of using PVC for the insulation layer. The skilled person therefore has to make a choice in favour of this particular material. Furthermore, even if chosen, there is nothing to indicate in which form the PVC is used, i.e. whether it is homogeneous or not. The



feature "a homogeneous polymer or polymer mixture" is therefore not clearly and unambiguously disclosed.

In consequence, document A2, considered on its own, does not clearly and unambiguously disclose the subject-matter of claim 1 of the sole request.

2.3 The other documents cited in the appeal proceedings do not go beyond the disclosure of documents A1 and A2.

2.4 Therefore, the subject-matter of claim 1 of the sole request is new (Article 54 EPC).

3. Remittal to the first instance

The opposition division has not yet had the opportunity to consider the question of whether or not the subject-matter of claim 1 according to the sole request involves an inventive step.

It is accordingly considered appropriate in accordance with Article 111(1) EPC to remit the case to the first instance for further prosecution.

**Order**

**For these reasons it is decided that:**

1. The decision under appeal is set aside.
2. The case is remitted to the first instance for further prosecution.

The Registrar:

The Chairman:

D. Meyfarth

P. Michel