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**Datasheet for the decision  
of 8 June 2010**

**Case Number:** T 0595/08 - 3.3.01

**Application Number:** 03761993.9

**Publication Number:** 1532125

**IPC:** C07D 301/10

**Language of the proceedings:** EN

**Title of invention:**

A method for the start-up of an epoxidation process, a catalyst and a process for the epoxidation of an olefin

**Patentee:**

Shell Internationale Research Maatschappij B.V.

**Opponent:**

BASF Aktiengesellschaft

**Headword:**

Catalytic epoxidation of olefins/SHELL B.V.

**Relevant legal provisions:**

EPC Art. 113(1), 56, 54  
RPBA Art. 15(4), 13(1)

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

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**Keyword:**

"Novelty - (yes) - all features of the process not disclosed"  
"Inventive step - (no) - alleged improvement not credibly shown - obvious alternative"  
"Late-filed request - not accepted - not in reaction to a new argument"

**Decisions cited:**

T 0197/86, T 0181/82

**Catchword:**

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Case Number: T 0595/08 - 3.3.01

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.01  
of 8 June 2010

**Appellant:** BASF Aktiengesellschaft  
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**Decision under appeal:** Decision of the Opposition Division of the  
European Patent Office posted 14 January 2008  
rejecting the opposition filed against European  
patent No. 1532125 pursuant to Article 102(2)  
EPC.

**Composition of the Board:**

**Chairman:** P. Ranguis  
**Members:** J.-B. Ousset  
C.-P. Brandt

## Summary of Facts and Submissions

I. The appellant (opponent) lodged an appeal against the decision of the opposition division to maintain European patent No. 1 532 125 as granted.

II. Claim 1 of the main request read as follows:

"1. A process for the epoxidation of an olefin, which process comprises the steps of  
(a) pre-soaking a silver-based highly selective epoxidation catalyst with an organic halide,  
(b) passing over the pre-soaked catalyst a feed which is free of organic halide or which comprises an organic halide at a concentration of at most  $2 \times 10^{-4}$  mole-%, calculated on the basis of the halogen content relative to the total feed, for a period of more than 16 hours up to 200 hours, and  
(c) subsequently contacting the catalyst with a feed comprising the olefin, oxygen and an organic halide wherein the concentration of the organic halide is at least  $0.21 \times 10^{-4}$  mole-% higher than the concentration applied in step (b), calculated on the basis of the halogen content relative to the total feed."

III. The following documents were among those cited:

(3) EP-A-352849

(5) EP-A-352850

(15) Experimental results provided on 14.12.2007 by the patent proprietor.

- IV. The opposition division considered that the claimed subject-matter was novel vis-à-vis document (5). Furthermore, an inventive step was acknowledged, starting from document (3) as closest prior art and in view of the comparative data (15) provided by the patent proprietor during oral proceedings.
- V. In its statement setting out the grounds of appeal, the appellant (opponent) argued as follows:
- Contrary to the respondent's allegation that the claimed process was a "start-up phase", the expression "start-up phase" or an equivalent one was not mentioned in claim 1. Step a) was not limited in time. During step a), epoxidation could take place (see [32] to [35] of the patent in suit).
  - Since no amount of organic halide was mentioned in step a) of claim 1, and since in view of [32] of the patent in suit the amount of organic halide could be 1.5 ppm during this step, the concentration in step b) (up to 2 ppm) was not necessarily obtained by stripping. It could remain identical or even increase from 1.5 ppm to 2 ppm. Likewise the organic halide concentration in step c) must be 0.20 ppm higher than in step b). According to paragraph [0011], the technical problem to be solved consists in obtaining a higher olefin oxide selectivity in the step subsequent to step b). This step cannot be step c) since in step c) organic halide concentrations lower than the upper organic halide limit of 2 ppm according to step b) are possible. According to

paragraph [0011], the improved selectivity is obtained when the organic halide concentration is higher than the concentration range < 2 ppm.

- The subject-matter of claim 1 was thus not limited to such a "start-up phase". It is even less correct that the beginning of step c) is the end of the start-up phase.
  
- Document (5) mentioned that the halide content could vary from 0.3 to 20 ppm, in particular within the range of 1 to 20-25 ppm (see Table 1 and page 4, line 25). The organic halide concentration could also be varied during the reaction time (see page 4, lines 15 to 29). Since Table 2 of example 1 of document (5) showed that the halide concentration could be kept constant for 8 days, a concentration of 1.5 ppm maintained for at least 16 hours (step a) had no time limitation) could also be kept constant. The increase of 0.2 ppm according to step c) of the process of claim 1 of the patent in suit was disclosed in Table 2 of document (5).
  
- Any document which describes the use of organic halide on a silver catalyst during an epoxidation process and in which the organic halide concentration varies is relevant.

Document (5) is the closest state of the art and not document (3). Document (5) has more technical features in common than document (3). Document (5) discloses all the technical features of claim 1

except the upper organic halide limit of 2 ppm in step b).

The experiments submitted by the proprietor as document (15) are not appropriate to support inventive step. A fair comparison with the closest state of the art requires that the tests differ only in the organic halide concentration in step b). The burden of proof rests with the patentee.

The main reason for the lack of relevance of the examples of document (15) is that working example 3 ("with strip") is performed for the most part at a higher temperature than example 2 ("without strip"). This is, in particular, apparent for step b), where a clearly higher temperature (difference 14°C) was used in the case of example 3. Furthermore, in example 2 the temperature was controlled during the whole process by keeping the EO concentration constant, whereas in example 3 temperature was not controlled during step b) and the EO concentration was not kept constant. It is worth noting that for example 3, no selectivity value is indicated for step b). As set out in figure 1 of document (15) the selectivity in example 3 falls dramatically at the end of step a). This consequently leads to a clear difference in the catalyst temperature in steps b) and c) between examples 2 and 3. Since between examples 2 and 3 at least two parameters are varied (difference in catalyst temperature, setting the EO concentration at a determined value), it cannot be asserted that the selectivity improvement is due to step b). Moreover, the

wording of claim 1 does not necessarily imply a decrease in the organic halide concentration in step b).

The patentee's assertion that the examples of document (15) do not add information other than that disclosed in the patent-in-suit is not correct.

Only one example is present in the patent, from which it can only be derived that 86,5% selectivity is reached 50 hours after the start of step c),. This selectivity value is in no way related to the comparative data. There is no data for other points. From this example it is not possible to show that due to step b) an increase in selectivity can be obtained in the long run. Furthermore, no fair comparison can be made between examples 1 (patent in suit) and 2 either. First, the process of example 1 was not compared with a process without strip in respect of selectivity. Furthermore, there are so many differences between examples 1 and 3 that a direct correlation cannot be made. In example 1, the feed was changed at the beginning of step c), the decrease in organic halide concentration in step b) was smaller, and the duration of the control of the catalyst temperature was different too (see \*\*) in Table 1).

Since there is no additional technical effect provided by the claimed process due to the distinguishing technical feature, namely an upper organic halide limit of 2 ppm in step b), the



technical problem to be solved can only be seen in the provision of a further process for selective preparation of ethylene oxide. The subject-matter of claim 1 does not involve an inventive step in view of document (5) and common general knowledge. The person skilled in the art obtains from Table 2 of document (5) the information that there is an increase in selectivity. Passing a feed with an organic halide concentration no greater than 2 ppm (step b)) is an obvious choice, in particular because document (5) mentions that the organic halide concentration can be reduced to 0.3 ppm (see Table 1).

VI. In its response, the respondent (patent proprietor) argued as follows:

- The "stripping phase" (here step b) in claim 1) introduced into the epoxidation process was found to reduce significantly the period of time until the catalyst has "lined out", namely when it could operate in a steady state. During this "stripping phase", an organic halide used as moderator was either omitted or its amount was reduced to a low concentration.
- The claimed subject-matter was novel over document (5) as found by the opposition division.
- Document (3) was the closest prior art, because it was concerned with highly selective epoxidation and a pre-soak step was present in the initial operation phase (named "start-up phase"). The improvement achieved by the claimed process was

independent of the time required to perform step a) of the claimed process. The timing was critical in step b) and here the time was specified.

- Document (5) was concerned with moderator levels in normal epoxidation processes. The skilled reader would understand that the start-up phase would have happened before the moderator tests were run. Table 1 of document (5) did not disclose that the level of moderator was reduced to 0.3 ppm, it merely referred to "the range of conditions that are often used in current commercial ethylene oxide reactor units", which in the Table is given as 0.3 to 20 ppm total. In document (15), both processes were run keeping the %EO production and the work rate constant to avoid any influence on selectivity; this implied an adjustment of the reaction temperature. The data of the patent in suit and document (15) demonstrated the advantages of the claimed subject-matter which were unexpected over any of the cited prior art. The data of document (15) provided no new information beyond what had been given in the patent.

VII. In its communication annexed to the summons to oral proceedings, the board gave its provisional opinion on the following points:

- Only the text on which the decision to grant was based is authentic. Hence, the value " $2 \times 10^{-4}$ " was to be considered in step c) of claim 1 instead of the value " $21 \times 10^{-4}$ ".

- VIII. The appellant withdrew its request for refund of the appeal fee based on an alleged procedural violation by the department of first instance at the beginning of the oral proceedings.
- IX. The appellant (opponent) requested that the decision under appeal be set aside and that European patent No. 1 532 125 be revoked.
- X. The respondent (patentee) requested that the appeal be dismissed.
- XI. At the end of the oral proceedings, the decision of the board was announced.

### **Reasons for the Decision**

1. The appeal is admissible.

#### *Main request*

2. Novelty
- 2.1 The novelty of claim 1 was questioned solely on the basis of document (5).

The claimed process contains at least the three following steps:

- a) a silver-containing catalyst which is pre-soaked with an organic halide,
- b) the said pre-soaked catalyst is then treated with a feed which is either free of organic halide or which contains up to  $2 \times 10^{-4}$  mole-% of said halide calculated

on the basis of the halogen content relative to the total feed within a period ranging from 16 to 200 hours, and

c) the said catalyst is further contacted with a feed comprising oxygen, an olefin and an organic halide in such a way that the organic halide concentration is at least  $2 \times 10^{-4}$  mole-% higher than the concentration applied in step b).

- 2.2 The appellant and the respondent did not agree on a proper reading of claim 1 concerning the claimed subject-matter. The question was whether the claimed subject-matter did or did not relate to a start-up phase, namely an initial phase of an epoxidation process before the optimum selectivity is achieved and the process runs stably, or in other words the period of time before the catalyst has "lined out" according to the definition given by the respondent.

That the claimed process is concerned with a start-up phase as defined above is not mentioned in claim 1. Nevertheless, what is to be decided is whether or not, taking into account a proper reading of claim 1, it might be concluded that the claimed process relates to a start-up phase.

The respondent contended that, whether or not the term "start-up" is used in the claims of the patent, it is still clear that the process of claim 1 concerns a pre-soak process (see step a). However, this finding must be related to the fact that, as noted by the appellant, step a) is actually a step already involving all the conditions for an epoxidation process to be achieved (see for instance the working example and paragraphs

[0032] to [0035])). This is all the more the case given that epoxidation could take place during step a), since the stripping phase contains olefin and oxygen and the sole difference with the pre-soaking step (step b)) is the possible variation in organic halide (see page 5, lines 15 to 53).

It transpires that the respondent's argument is of little relevance for proving that the term pre-soak implies that the process according to claim 1 relates to a start-up phase.

By contrast, it is noted, as pointed out by the appellant, that the description at no point mentions how long the start-up phase lasts. Only a period of 16 to 200 hours is indicated in step b). Otherwise the claimed process does not contain any indication of time. As can be derived from the patent in suit, the epoxidation phase has already started in step a) (see paragraphs [0032] to [0035])). As it is indicated in the specification that the organic halide concentration in step a) may be 1.5 ppm, the claimed process does not require that the concentration in step b) must necessarily be lower. It can be the same or higher. Likewise it must be noted that the organic halide concentration in step c) must be 0.20 ppm higher than in step b). According to paragraph [0011], the technical problem to be solved consists in obtaining a higher olefin oxide selectivity in the step subsequent to step b). This step cannot be step c) since in step c) organic halide concentrations lower than the upper organic halide limit of 2 ppm according to step b) are possible. According to paragraph [0011], the improved selectivity is obtained when the organic halide

concentration is higher than the concentration range < 2 ppm. The process does not in fact set a limit beyond which it cannot be considered as a start-up phase.

Therefore, in the board's judgment, the skilled person reading claim 1 cannot clearly distinguish a process according to a start-up phase from a normal process of olefin oxidation. The claimed process can relate to a start-up phase as well as a normal process of epoxidation.

3. Document (5) discloses a process of ethylene epoxidation in which a silver-containing catalyst is used in the presence of an organic halide, whose concentration is increased during operation (see claim 1). Example 1 and Table 2 of document (5) disclose that a silver-containing catalyst is treated with a feed containing ethylene, oxygen, carbon dioxide and a 50/50 mixture of vinyl chloride/ethyl chloride (VC/ET). In view of the results listed in Table 2, it appears that the concentration of the mixture of halides is kept constant for 8 days at 2 ppm (see first line of the said Table 2 on page 5). Then, after the eight days to the twentieth day, the concentration is increased to 4 ppm. Then, at given intervals of 20, 30, 39, 47 and 59 days, the same operation is repeated starting from the same organic halide concentration, i.e. 3 ppm. Hence, example 1 of document (5) describes all the features of step a) of the process of claim 1 of the patent in suit, since this step does not limit either the amount or the nature of the organic halide and also does not rule out that other components may be present in addition to the organic halide (see claim 1

of the patent in suit; "...process comprising.." and line 20, page 5 of the patent in suit wherein during the pre-soak phase, namely step a), the organic halide concentration in the feed may be at least  $1.5 \times 10^{-4}$  mole-%; see also page 4, lines 42 to 45).

In view of page 4, line 25 of document (5), it appears that the concentration of the organic halide passed over the catalyst ranges from 1 to 20-25 ppm (e.g. 1 to  $20-25 \times 10^{-4}$  mole-%) on a molar basis of the gas stream. The value of 1 ppm for the organic halide concentration is thus disclosed in document (5). Consequently, although in example 1 of document (5) an amount of 3 ppm of VC/ET is used, it clearly emerges that the said process can be run using an amount of 1 ppm of the VC/ET mixture, since, as recited on line 25 on page 4 of document (5), the amount of halide "...will **typically** be in the range of 1 to 20-25 mole-%". The concentration of the VC/ET mixture is kept constant for 8 days (see Table 2 of example 1 of document (5)); thus all the features of step b) are disclosed, namely 1 ppm ( $1 \times 10^{-4}$  mole-%) is lower than  $2 \times 10^{-4}$  mole-% and the eight days for which the halide concentration is kept constant is longer than the time range of 16 to 200 hours required in step b) of the claimed process.

Step c) of the claimed process requires that the concentration of the halide present in step b) be increased by at least  $0.2 \times 10^{-4}$  mole-% calculated on the basis of the halide content relative to the total feed. Although Table 2 of example 1 of document (5) shows that the halide concentration is increased during the operation, it cannot be concluded that when the said process is carried out using 1 ppm - the lower

limit of the organic halide concentration range - instead of 3 ppm of halide, the increase in the said concentration will be at least  $0.2 \times 10^{-4}$  mole-%.

- 3.1 The appellant argued that either in view of the value for the amount of halide given in table 1 of document (5) (see page 3, "0.3 to 20") or in view of the value of 1 ppm (see page 4, line 25), novelty should not be acknowledged, since the reproduction of example 1 with one of these values would also disclose the feature of step c) due to the increase in the amount of halide during the operation as shown in Table 2 of example 1.

The board does not agree with this view, because if in Table 2 of example 1 there is an increase in the amount of halide during the operation, such an increase is directly linked to the amount used at the beginning of the operation in order to increase the selectivity, since all the values mentioned in example 1 are dependent on each other to achieve the desired selectivity. Hence, it cannot be directly and unambiguously inferred, either from example 1 or from the content of the description of document (5), that when a different amount of halide is used to run the epoxidation process the increase would fulfil the requirements of step c) of the process of claim 1 of the patent in suit.

- 3.2 The novelty of claim 1 of the patent in suit is thus acknowledged. Since all the other claims of the main request are dependent on claim 1, they are also regarded as novel.



4. Inventive step

4.1 Determination of the closest prior art

The closest prior art is a document aiming at the same objective as the patent in suit and having the most relevant technical features in common. The appellant and the respondent did not agree on a proper reading of claim 1 concerning the objective of the claimed subject-matter and, therefore, had contrary opinions as far as the closest prior art is concerned. The question was whether the claimed subject-matter did or did not relate to a start-up phase, namely an initial phase of an epoxidation process before the optimum selectivity is achieved and the process runs stably, or in other words the period of time before the catalyst has "lined out" according to the definition given by the respondent.

However, the respondent's contention that the claimed process is limited to a start-up phase is not correct in the board's judgment (see point 2.2 above). Therefore, both document (3) and document (5) can be considered as aiming at the same objective as the patent in suit, namely a process for producing ethylene oxide.

The appellant maintained that document (5) should be considered as the closest prior art whereas the respondent considered this to be document (3).

Document (3) relates to the optimisation of the operating conditions for a silver-containing catalyst (see column 5, lines 6 to 9). It discloses a process

for starting up a fixed-bed ethylene oxide reactor containing a silver-containing catalyst. This catalyst is treated with ethylene, then with a chlorohydrocarbon moderator and finally with gaseous oxygen (see claim 1). However, there is no mention in this document that the amount of chlorohydrocarbon must not be higher than  $2 \times 10^{-4}$  mole-% and this for a period of 16 to 200 hours, since the moderator is added over a period ranging from 2 to 6 hours (see claim 11). Furthermore, document (3) does not also disclose that after this time range, the concentration of halide must be increased by at least  $0.2 \times 10^{-4}$  mole-%.

Document (5) also relates to the optimisation of the operating conditions for a silver-containing catalyst (see page 2, lines 20 to 22). In the board's judgment document (5) is closer than document (3). As described above, document (5) has in common with the patent in suit that there is a variation of the level of moderator in the long run, which is one of the main features of claim 1. Therefore, the board considers that document (5) represents the closest prior art from which the person skilled in the art would start.

#### 4.2 Definition of the problem to be solved

4.2.1 The problem underlying the patent in suit lies in the provision of a process for making epoxides with improved selectivity. However, the burden of proof for showing that the claimed process leads to this valuable technical effect rests with the appellant. The patent in suit comprises one single example which is according to the claimed process.

4.2.2 Document (15) describes the experimental results submitted by the respondent in order to show that the said problem has been solved. This document relates to two different processes, one named "without strip", allegedly corresponding to the process according to document (5) (example 2), and one named "with strip", which represents a process according to claim 1 of the patent in suit (example 3) (see below).

**Table x. Comparative Summary.**

See Figure 1 for corresponding Selectivity data

Temperature Control Capability =  $\pm 2^{\circ}\text{C}$

Temp( $^{\circ}\text{C}$ ) Values shown are averaged over time interval

Designation	WITHOUT STRIP	WITH STRIP
<u>Testing Feedstock and Conditions</u>		
C <sub>2</sub> H <sub>4</sub> (%)	28.0	28.0
O <sub>2</sub> (%)	8.0	8.0
CO <sub>2</sub> (%)	4.0	4.0
GHSV(hr <sup>-1</sup> )	3300	3300
P(barg)	14.3	14.3
Final Workrate (kg/m <sup>3</sup> /hr)	200	200
Final %EO out	3.1	3.1
<u>Summary of Critical Improvements of Instant Invention</u>		
<u>Hours 0-4 "Step a" Pre-Loading of Chloride</u>		
Rx Control:	%EO= 3.1	%EO= 3.1
EC (ppm):	3.0	3.0
Temp( $^{\circ}\text{C}$ ):	245	244
<u>Hours 4-24 "Step b" Stripping of Chloride for 'With Strip' Reactor Only</u>		
Rx Control:	%EO= 3.1	<del>T=260<math>^{\circ}\text{C}</math></del> %EO= 3.1
EC (ppm):	3.0	0.1
Temp( $^{\circ}\text{C}$ ):	246	260
<u>Hours 24-40 "Step c" Re-Introduction and Optimization of Chloride</u>		
Rx Control:	%EO= 3.1	%EO= 3.1
EC (ppm):	3.0	2.2
Temp( $^{\circ}\text{C}$ ):	246	253
<u>Hours 40-52 "Step c" Re-Introduction and Optimization of Chloride</u>		
Rx Control:	%EO= 3.1	%EO= 3.1
EC (ppm):	3.0	2.6
Temp( $^{\circ}\text{C}$ ):	247	251
<u>Hours 52-80 "Step c" Re-Introduction and Optimization of Chloride</u>		
Rx Control:	%EO= 3.1	%EO= 3.1
EC (ppm):	3.0	3.0
Temp( $^{\circ}\text{C}$ ):	247	248

The results are shown in the following graph (see figure 1 below):

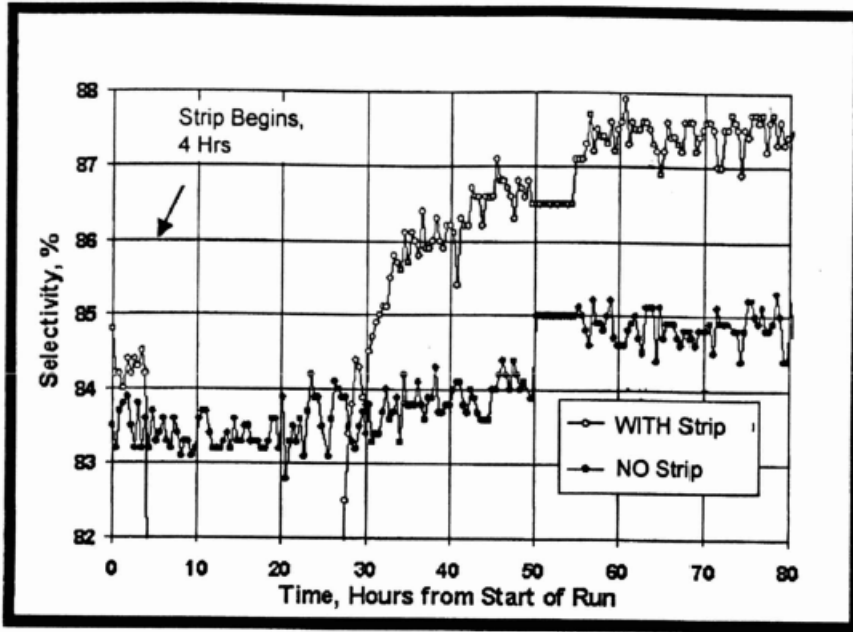


FIGURE 1

The respondent submitted that without the stripping phase the selectivity does continue at the same level and then gradually increases after the catalyst has "lined out". However, the incorporation of the stripping step can be seen to be initially disastrous for the selectivity but then give rise to a significantly higher selectivity, more quickly than was possible without the stripping phase.

The appellant contended that there were two differences between examples 2 and 3, namely a difference of temperature regarding step b), and the subsequent step c) until 52 hours and a difference of EO concentration in step b) since the temperature was not controlled, which flawed the comparison. The respondent, by contrast, contended that the temperature in example 3 was increased to keep the EO concentration constant to prevent it from influencing the selectivity results.

However, when examples are used to show the presence of an improved effect, it should be convincingly shown that the said improved effect has its origin in the feature which allegedly distinguishes the claimed subject-matter and the comparative example. In the present case the difference in selectivity should be due to step b), namely the decrease in ethyl chloride concentration.

As noted by the appellant, working example 3 ("with strip") is performed for the most part at a higher temperature than example 2 ("without strip"). This is, in particular, apparent for step b), where a clearly higher temperature (difference 14°C) was used in the case of example 3.

Furthermore, as also noted by the appellant, in example 3, figure, no selectivity value is indicated for step b). The selectivity in step b) falls dramatically. That finding is in line with the fact that selectivity is related to the presence of a moderator (see [0006] of the patent). In the absence of data indicating the value to which the selectivity falls, it cannot be ruled out that this selectivity is so low that it significantly affects the EO production. In other words, it cannot be ascertained that in the meantime (4-24 hours) the EO production is still under control. In the absence of clear evidence, the board shares the appellant's doubt regarding the allegedly constant EO concentration.

Since between examples 2 and 3 at least two parameters are varied (difference in catalyst temperature, setting

the EO concentration at a determined value), it cannot be asserted that the selectivity improvement is due to step b). As a consequence, the alleged improved selectivity has not been shown by the respondent.

Nor can example 1 according to the patent in suit rebut this finding. As noted by the appellant, only one example is present in the patent, from which it can only be derived that 86.5% selectivity is reached 50 hours after the start of step c). This selectivity value is in no way related to the comparative data. There is no data for other points. From this example it is not possible to show that due to step b) an increase of selectivity can be obtained in the long run.

Furthermore, no fair comparison can be made between examples 1 (patent in suit) and 2 either. First, the process of example 1 was not compared with a process without strip in respect of the selectivity.

Furthermore, there are so many differences between examples 1 and 3 that a direct correlation cannot be made. In example 1, the feed was changed at the beginning of step c), the decrease in the organic halide concentration in step b) was smaller and the duration of the control of the catalyst temperature was different too (see \*\*) in Table 1).

4.3 The problem underlying the patent should thus be reformulated in a less ambitious manner, namely the provision of an alternative process using a silver-containing catalyst in order to epoxidise olefins.

4.3.1 In view of the example described in the patent in suit, the board is convinced that this problem has been solved by the process of claim 1.

Document (5) discloses a process for making ethylene oxide using a silver-containing catalyst wherein at normal operating conditions the concentration of chlorohydrocarbon moderator in the gas passing over the catalyst is increased during the operation of the catalyst. This increase in moderator level has a beneficial effect on the longevity that is the stability of the catalyst. The halide ranges concentration from 0.3 to 20 ppm in particular, 1 to 20-25 ppm (see Table 1 and page 4, line 25). In example 1, in epoxidation conditions, sufficient vinyl chloride and ethyl chloride was provided to maintain a moderator level of 3 ppm, then from the eighth day to the nineteenth day the level was increased to 4 ppm. In view of the general teaching of this disclosure, it is within the ambit of the person skilled in the art to choose any other starting concentration of chlorohydrocarbon moderator below 2 ppm and to increase the concentration as taught by Table 2, which would lead him in an obvious manner to a process falling within the scope of the claimed invention (since claim 1 does not necessarily require that step b) has a lower organic halide concentration than step a).

4.4 The claimed subject-matter is thus not inventive.

4.5 For the sake of completeness, even if the comparative experiments of document (15) had convincingly shown an improved selectivity compared to a process without strip, it would not be credible that such an effect could be acknowledged over the whole claimed scope. The claimed process, as noted by the appellant, does not



require that the concentration in strip b) must be lower. It can be the same or higher.

*First auxiliary request*

5. Admissibility

5.1 Although the respondent asked to be allowed to file an auxiliary request at the beginning of the oral proceedings, this auxiliary request was actually submitted shortly before the closing of the debate. To justify such a late filing, the respondent argued that it was not aware of the conclusions of the board as to the assessment of steps a) and b), which were not considered as a start-up phase and a stripping phase respectively, in view of which, such a request could not have been prepared and submitted earlier.

5.2 The board rejects this request. The arguments put forward by the appellant were already presented before the department of first instance and were discussed before it. Moreover, these arguments were already mentioned during the written procedure (see appellant's letter of 23 May 2008, pages 3 to 7) and discussed during oral proceedings before the board. The respondent cannot be surprised that the board on the basis of the written arguments and the discussion during oral proceedings concludes that the main request was not patentable. Since the respondent had the possibility to take position on these arguments and on the statements of the board during the written procedure and during oral proceedings - and actually did so - the requirements of Article 113(1) EPC have been met. On the basis of Article 13(1) RPBA and in

order to insure fair proceedings (Article 15(4) RPBA), the board does not see any reason to admit a late-filed request into the proceedings.

## **Order**

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

1. The decision under appeal is set aside.
2. The European patent 1 532 125 is revoked.

The Registrar

The Chairman

M. Schalow

P. Ranguis