

BESCHWERDEKAMMERN  
DES EUROPÄISCHEN  
PATENTAMTS

BOARDS OF APPEAL OF  
THE EUROPEAN PATENT  
OFFICE

CHAMBRES DE RECOURS  
DE L'OFFICE EUROPEEN  
DES BREVETS

**Internal distribution code:**

(A) [ ] Publication in OJ  
(B) [ ] To Chairmen and Members  
(C) [X] To Chairmen

**D E C I S I O N**  
of 6 December 1996

**Case Number:** T 0561/94 - 3.3.1

**Application Number:** 90250274.9

**Publication Number:** 0432858

**IPC:** C10G 31/00

**Language of the proceedings:** EN

**Title of invention:**

Process for removing hydrogen sulfide from crude petroleum

**Applicant:**

MITSUBISHI JUKOGYO KABUSHIKI KAISHA

**Opponent:**

-

**Headword:**

Stripping process/Mitsubishi

**Relevant legal provisions:**

EPC Art. 56, 111(1)

**Keyword:**

"Inventive step - data in support of alleged improvement  
queried for the first time at oral proceedings"  
"Remittal to examining division for further prosecution"

**Decisions cited:**

T 0197/86, T 0020/81

**Catchword:**

-



Europäisches  
Patentamt

European  
Patent Office

Office européen  
des brevets

Beschwerdekammern

Boards of Appeal

Chambres de recours

Case Number: T 0561/94 - 3.3.1

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.1  
of 6 December 1996

**Appellant:**

MITSUBISHI JUKOGYO KABUSHIKI KAISHA  
5-1, Marunouchi 2-chome  
Chiyoda-ku  
JP - Tokyo (JP)

**Representative:**

Meissner, Peter E., Dipl. Ing.  
Meissner & Meissner  
Patentanwaltsbüro  
Postfach 33 01 30  
DE - 14171 Berlin (DE)

**Decision under appeal:**

Decision of the Examining Division of the  
European Patent Office posted 27 January 1994  
refusing European patent application  
No. 90250274.9 pursuant to Article 97(1) EPC.

**Composition of the Board:**

**Chairman:** A. J. Nuss  
**Members:** P. P. Bracke  
R. E. Teschemacher

## Summary of Facts and Submissions

- I. The appeal lies from the Examining Division's decision, dispatched on 27 January 1994, refusing European patent application No. 90 250 274.9, published as EP-A-0 432 858.
- II. This decision, resulting from the Appellant's (Applicant's) request by letter of 10 September 1993 for a decision according to the state of the file, was based on a set of 5 claims filed with letter of 4 September 1992, with the only independent claim reading:

"A process for removing hydrogen sulfide from crude petroleum, comprising contacting the crude petroleum to be freed from hydrogen sulfide with a stripping gas for removing hydrogen sulfide in a hydrogen sulfide stripping column, supplying the spent stripping gas now containing the thus stripped hydrogen sulfide to a hydrogen sulfide absorbing tower, characterized in separating the stripping gas from hydrogen sulfide in said absorbing tower by contacting the gas with a hydrogen sulfide absorbing agent to absorb hydrogen sulfide therein and returning the so refreshed hydrogen sulfide stripping gas now freed from hydrogen sulfide to said hydrogen sulfide stripping column under compression at a superatmospheric pressure in order to effect recirculation of the gas **whereby for stripping off the hydrogen sulfide a stripping gas is used being almost saturated with the light petroleum components of the crude petroleum.**" (emphasis added)

The application was refused for the reasons mentioned in the communication of 13 July 1993, namely that the claimed process was not inventive over the process described in document (1), US-A-2 757 127.

III. In the annex to the summons to attend oral proceedings the Appellant was informed that in assessing the patentability of the claimed process *inter alia* document

(3) Inst. Petroleum Rev., vol 14, December 1960, pages 393-395 (T R Shipster): "Partial removal of H<sub>2</sub>S from crude oil by stripping with natural gas",

was also to be taken into consideration.

IV. At the oral proceedings held on 6 December 1993, the Appellant acknowledged that the process for removing hydrogen sulfide from crude petroleum by using a stripping gas described in document (3) represented the closest available state of the art and that this process differed from the one claimed essentially in that the stripping gas was not said to be saturated with the light petroleum components of the crude petroleum before starting the stripping operation.

V. The Appellant requested that the decision under appeal be set aside and that the case be remitted to the department of first instance for further prosecution.

### Reasons for the Decision

1. The appeal is admissible.
2. *Amendments*

The wording of Claims 1 to 5 essentially differs from that of Claims 1 to 5 as filed only by the feature

described in the emphasized part of present Claim 1 (see point II above), which feature was disclosed on page 4, lines 7 to 22, especially lines 15 to 17, of the application as filed.

Therefore, Claims 1 to 5 do not contravene Article 123(2) EPC.

3. *Novelty*

The claimed process differs from the process disclosed in document (1) or (3) at least by the feature described in the said emphasized part of Claim 1, which was never contested by the Examining Division.

Having examined the remaining prior art cited in the European Search Report, the Board has reached the conclusion that the claimed process is also not disclosed therein.

The Board therefore concludes that the subject-matter of Claims 1 to 5 is novel.

4. *Inventive step*

4.1 The Board considers that document (3) represents the closest state of the art. This was also acknowledged by the Appellant (see point IV above).

Document (3) relates to a process of partially removing hydrogen sulfide from crude oil by stripping with natural hydrocarbon gas (page 393, left-hand column, last sentence of the first paragraph), whereby the stripping gas is supplied to the crude oil at a superatmospheric pressure (page 393, right-hand column, penultimate sentence). Additionally, in the paragraph bridging the left- and the right-hand column on

page 394 it is proposed to recycle the stripping gas by removing only the stripped hydrogen sulfide thereof, thus leaving a sweetened product with, for all practical purposes, the same properties as that entering the sweetening unit.

- 4.2 At the oral proceedings the Appellant admitted that, starting from document (3), the only problem underlying the claimed invention, which implied an improvement over this prior art, could be seen in the reduction of the loss of stripping gas and/or of light petroleum fractions.
- 4.3 The application in suit claims to solve this problem by the process according to Claim 1, in particular, by using a stripping gas almost saturated with the light petroleum components of the crude petroleum.
- 4.4 Therefore, the question arises whether it can be accepted that the technical problem as defined above has been effectively solved by the claimed process.

The data presented in Table 1 and on page 5, lines 1 to 18, of the application in suit was intended to show that the claimed process has the advantage over conventional prior art processes for removing hydrogen sulfide from crude petroleum, wherein the stripping gas was exhausted as a waste gas (as mentioned on page 2, lines 18-20), that by recycling the stripping gas scarce losses in stripping gas and in useful light petroleum fractions occur.

However, the Board considers in accordance with the case law of the Boards of Appeal that, if comparative tests are chosen to demonstrate an inventive step on the basis of an improved effect, the nature of the comparison with the closest state of the art must be

such that the said effect is convincingly shown to have its origin in the distinguishing feature of the invention (T 0197/86, OJ EPO 1989, 371, Reasons 6.1.3) and that alleged but unsupported advantages cannot be taken into consideration in respect of the determination of the problem underlying the application (T 0020/81, OJ EPO 1982, 217).

In the present case, the closest state of the art is not represented by the above-mentioned conventional process wherein the stripping gas is exhausted as a waste gas, but by a process wherein the stripping gas is recycled as proposed in document (3), the distinguishing feature between the claimed process and the process described in that document being that in the former the stripping gas brought into contact with the crude petroleum is almost **saturated** with the light petroleum components of the crude petroleum.

When dealing with the possible technical impact of that measure, the Appellant did not contest at the end that the experimental data contained in the application in suit is inadequate for showing any alleged technical improvement over document (3); he submitted however that he could provide proper experimental data obtained in accordance with the principle set out above, in order to make credible that the problem underlying the invention has been effectively solved by the process as now claimed.

5. Only from the discussions in the oral proceedings on the basis of the communication accompanying the summons did the Appellant realise that the experimental data contained in the application in suit was not suitable for showing that by using a stripping gas almost saturated with the light petroleum components of the crude petroleum the loss of stripping gas and/or of

light petroleum components was reduced to a greater extent than by using a stripping gas not previously saturated with the light petroleum components. Therefore, to enable the Appellant to provide proper experimental data and in order to give him the possibility of having his case examined and decided by two instances, the Board has decided to invoke its power under Article 111(1) EPC and to remit the case to the department of first instance for further prosecution.

### Order

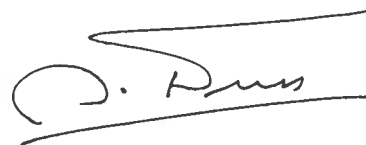
For these reasons it is decided that:

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

The Registrar:

  
E. Gorgmaler

The Chairman:

  
A. Nuss