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Datasheet for the decision of 22 July 2025

Case Number: T 1694/23 - 3.3.10

Application Number: 16732782.4

Publication Number: 3286165

IPC: C07C273/12

Language of the proceedings: EN

Title of invention:
METHOD AND SYSTEM FOR THE INTEGRATED PRODUCTION OF UREA AND MELAMINE

Patent Proprietor:
Stamicarbon B.V.

Opponent:
CASALE SA

Headword:

Relevant legal provisions:
EPC Art. 54, 56, 84, 123(2)

Keyword:
Amendments - allowable (yes)
Claims - clarity (yes)
Novelty - (yes)
Inventive step - (yes)

Decisions cited:

Catchword:

Europäisches Patentamt
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Beschwerdekammern

Boards of Appeal

Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0

Case Number: T 1694/23 - 3.3.10

D E C I S I O N
of Technical Board of Appeal 3.3.10
of 22 July 2025

Appellant: (Patent Proprietor)	Stamicarbon B.V. Mercator 3 6135 KW Sittard (NL)
Representative:	V.O. P.O. Box 87930 Carnegieplein 5 2508 DH Den Haag (NL)
Appellant: (Opponent)	CASALE SA Via Giulio Pocobelli 6 6900 Lugano (CH)
Representative:	M. Zardi & Co S.A. Via G. B. Pioda, 6 6900 Lugano (CH)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 19 July 2023 concerning maintenance of the European Patent No. 3286165 in amended form.**

Composition of the Board:

Chairman	P. Gryczka
Members:	A. Zellner
	T. Bokor

Summary of Facts and Submissions

I. The opponent and the patent proprietor lodged appeals against the decision of the opposition division to maintain the European patent No. 3 286 165 in amended form, based on auxiliary request 3 before the opposition division (Article 101(3)(a) EPC).

II. An opposition was filed on the basis of Article 100(a) EPC for lack of novelty and lack of inventive step (Articles 54 and 56 EPC).

III. In the appealed decision, the opposition division held that:

(a) claims 9, 13 and 14 of the patent as granted were novel in view of the disclosure of document D1,

(b) claim 1 of the patent as granted lacked inventive step considering document D1 as closest prior art,

(c) claims 9 to 14 of the patent as granted involved an inventive step considering D1 as closest prior art,

(d) auxiliary requests 1 and 2 before the opposition division were not allowable, since claim 1 thereof was identical to claim 1 of the patent as granted, and thus also lacked inventive step,

(e) auxiliary request 3 was admissible, and fulfilled the requirements of Articles 84, 123(2) and (3) as well as 54 and 56 EPC, considering document D1 as closest prior art.

IV. In support of its appeal, the opponent argued that the opposition division erred in their decision to maintain the contested patent in amended form, because the claimed subject-matter was not based on the application as filed (Article 123(2) EPC), did not meet the requirements of Article 84 EPC for lack of clarity, and was not novel in view of the disclosure of document D1 (Article 54 EPC), or at least not based on an inventive step, considering the disclosure of the same document as closest prior art (Article 56 EPC).

V. In a communication pursuant to Article 15(1) RPBA the board informed the parties about its preliminary opinion on the legal and factual issues.

VI. Oral proceedings before the board were held on 6 May 2025. The decision was announced at the end of the proceedings.

VII. The patent proprietor withdrew its appeal during the oral proceedings before the board.

VIII. Reference is made to the following documents:

D1: WO 2005/080321 A1
D4: US 4,565,867
D5: US 3,723,430
D6: US 3,700,672
D7: US 2014/0005436 Al

IX. The sole request before the board (patent as maintained by the opposition division) has four independent claims, which have the following wording:

"1. An integrated process for the production of urea and melamine, the process comprising:

(a) *subjecting ammonia and carbon dioxide to urea forming conditions so as to obtain an aqueous urea synthesis solution;*
(b) *subjecting said urea synthesis solution to recovery of unreacted ammonia and carbon dioxide, thereby obtaining aqueous carbamate solution and urea;*
(c) producing *melamine in a melamine plant, whereby off-gas resulting fromthe melamine synthesis is obtained at a pressure of 15 to 35 bar;*
(d) *feeding obtained urea to the melamine plant as a starting material for producing the melamine;*
(e) *condensing said off-gas in the presence of water so as to form an aqueouscarbamate solution;*
(f) *recycling carbamate obtained from said off-gases and carbamate obtainedfrom said urea recovery section to the urea synthesis section as a starting material in producing urea;*

wherein prior to condensation the pressure of the off-gas is reduced so as to becontrolled at a pressure in a range of from 2 bar to 10 bar lower than the pressure at which the off-gas is obtained; wherein the process is carried out in the system of claim 9."

"9. A system for the production of urea and melamine, said system comprising a urea production zone; said urea production zone comprising a high pressure urea synthesis section and, downstream thereof and in fluid communication therewith, a low pressure urea recovery section adapted to separately obtain a urea solution and an aqueous carbamate solution; the system further comprising a melamine production zone; said melamine production zone comprising a high pressure melamine synthesis section and, downstream thereof and in fluid communication therewith, a melamine off-gas treatment section for obtaining melamine off-gas; said production zones being connected with each other so as to allow

transport of urea solution obtained from the recovery section, preferably via an evaporation section, to the melamine synthesis section and to allow transport of melamine off-gas from the melamine off-gas treatment section to the urea production zone, whereby the urea production zone comprises a medium pressure condensation section adapted to receive said melamine off-gas, said condensation section having an outlet for condensed carbamate which is in fluid communication with an inlet of the urea synthesis section and in fluid communication therewith, wherein a pressure control device is provided between the melamine off-gas treatment section and the medium pressure condensation section, wherein the pressure control device is adapted to be used as a pressure reducing unit."

"13. A method for the modernization of a urea plant comprising a high pressure urea synthesis section and, downstream thereof and in fluid communication therewith, a low pressure urea recovery section adapted to separately obtain a urea solution and an aqueous carbamate solution, the method comprising connecting the urea plant with a melamine plant comprising a high pressure melamine synthesis section and, downstream thereof and in fluid communication therewith, a melamine off-gas treatment section for obtaining melamine off-gas; said plants being connected with each other so as to allow transport of urea solution obtained from the urea recovery section, preferably via an evaporation section, to the melamine synthesis section and to allow transport of melamine off-gas from the melamine off-gas treatment section to the urea plant, the method further comprising adding a medium pressure condensation section adapted to receive said melamine off-gas, said condensation section having an outlet for condensed carbamate which is in fluid

communication with an inlet of the urea synthesis section, and providing a pressure reducing device between the melamine off-gas treatment section and said medium pressure condensation section."

"14. A method for the modernization of a pre-existing system for the production of urea and melamine, said pre-existing system comprising a urea production zone and a melamine production zone; said urea production zone comprising a high pressure urea synthesis section in fluid communication with a low pressure urea recovery section adapted to separately obtain urea and an aqueous carbamate solution, and, downstream thereof and in fluid communication therewith via a pressure increasing unit (such as a pump), a medium pressure condensation section; said melamine production zone comprising a high pressure melamine synthesis section and, downstream thereof and in fluid communication therewith, a melamine off-gas treatment section for obtaining melamine off-gas; said production zones being connected with each other so as to allow transport of urea solution obtained from the urea recovery section, preferably via an evaporation section, to the melamine synthesis section and to allow transport of melamine off-gas from the melamine 5 off-gas treatment section to the medium pressure condensation section; the method comprising providing a pressure control device, adapted to be used as a pressure reducing unit, between the melamine off-gas treatment section and the medium pressure condensation section."

X. The appellant (opponent) argued essentially as follows:

The main request does not meet the requirements of Article 123(2) EPC, because claim 1 does not find a basis in the application as filed. The request does

also not meet the requirements of Article 84 EPC. Claim 1 makes reference to the system according to claim 9, but this system comprised two parts being operated at a different pressure, *i.e.* the melamine synthesis section and the melamine off-gas treatment section. The system does not contain a pressure reducing device between these two sections, and it is thus unclear how the process according to claim 1, which requires the melamine off-gas entering the urea plant to be at a lower pressure than the pressure of the melamine synthesis part, can be carried out in such a system. The system according to claim 9 is not novel in view of the disclosure of document D1, and not based on an inventive step considering the teaching of document D1 as closest prior art. Thus the request does not meet the requirements of Articles 54 and 56 EPC.

XI. The respondent (patent proprietor) argued essentially as follows:

The main request meets all requirements of the EPC. Claim 12 is based on claims 1 and 9, as well as pages 14 to 16 of the application as filed. Claim 1 is clear, because although the system according to claim 9 does not mention a pressure reducing device between the melamine synthesis unit and the melamine off-gas treatment section, these two sections are different parts of the plant and a pressure reducing device is not excluded. The description describes how the pressure can be reduced, *i.e.* by subjecting the off-gases to washing steps. The system according to claim 9 is also novel in view of the disclosure of document D1, and based on an inventive step. Starting from the disclosure of D1 as closest prior art, the addition of a pressure reducing device between the melamine off-gas treatment section and the medium pressure condensation

section of the urea plant, *i.e.* the differing feature between the system according to claim 9 and the system disclosed in document D1, was not obvious to the skilled person.

XII. The appellant requests that the decision under appeal be set aside and that the patent be revoked.

XIII. The respondent requests that the appeal be dismissed and that the patent be maintained as upheld by the opposition division.

Reasons for the Decision

1. The appeal is admissible.

Main request - patent as maintained by the opposition division

Amendments (Article 123(2) EPC)

2. The opposition division held that claim 1 as maintained met the requirements of Article 123(2) EPC. According to the division, the combination of the process according to claim 1, and the system according to claim 9, as granted, was disclosed in the description as filed. Reference was made in particular to page 14, lines 17 to 18 and claim 1 of the application as filed.

3. This was disputed by the appellant. According to the appellant, the feature *"... wherein the process is carried out in the system of claim 9 ..."*, which was added to claim 1 as granted, was not disclosed in the application as filed in combination with the remaining features of claim 1 as maintained, *i.e.* in combination with the features defining the process according to

claim 1 as filed.

4. The appellant's argumentation is not convincing. Claim 1 as maintained differs from claim 1 as filed by the additional feature *"... wherein the process is carried out in the system of claim 9 ..."* at the end of the claim. A system of the invention is disclosed from page 14, line 17 to page 16, line 5 of the description as filed. This corresponds - undisputedly - to the system according to claim 9 as filed. According to lines 17 to 19 of page 14, this system is *"... for the production of urea and melamine in accordance with the method as described above."* The reference to *"... the method as described above ..."* can only be to a method disclosed as the method of the invention (see page 4, line 17 to page 5, line 8), *i.e.* the method according to claim 1 as filed. The combination of the features of claim 1 as filed and claim 9 as filed, as now required by claim 1 of the main request, is thus disclosed in the application as filed.

5. Claim 1 of the main request meets, for these reasons, the requirements of Article 123(2) EPC.

Clarity (Article 84 EPC)

6. The opposition division held in the impugned decision that the claim was clear. The division found that the skilled person - by reading claim 1 of the present main request in combination with the patent description - was aware that the off-gas resulting from the melamine synthesis in step (c) of claim 1 was the same as the off-gas which was obtained at the location where the melamine off-gas treatment section referred to in claim 9 was found.

7. The appellant essentially argued as during the opposition proceedings and submitted that it was unclear how the synthesis system according to claim 9 could be used to carry out the process according to claim 1. The appellant submitted that the system of claim 9 comprised a high-pressure melamine synthesis section, wherein the pressure was generally above 70 bar. On the other hand, the off-gas resulting from the melamine synthesis in step (c) of claim 1 was obtained at a pressure of 15 to 35 bar. Since there was no mention of a pressure reducing device, it was unclear how the melamine section according to claim 9 could produce off-gas at the low pressure obtained in step (c) of claim 1. The introduction of the feature *"... wherein the process is carried out in the system of claim 9 ..."* into claim 1 of the main request thus led to a lack of clarity. The appellant further argued that the resulting lack of clarity was not resolved by the description, in particular not by paragraphs [0021] and [0024], either, since these passages implied that a purification section was not part of the melamine synthesis section.

8. The respondent argued that claim 9 as well as the description of the patent differentiated between a high pressure melamine synthesis section and a melamine off-gas treatment section in which melamine off-gas was obtained, and which was further downstream. There was thus no discrepancy between claims 1 and 9. The respondent further argued that, since the wording of claim 1 as such was clear, there was no need to refer to the description. In addition, the arguments brought forward by the appellant did not take account of the difference between a melamine plant and a melamine synthesis section, which produced the off-gas.

9. The appellant's argumentation is not convincing. Claim 9 refers to *"... a high-pressure melamine synthesis section ..."*, and, located downstream thereof, *"... a melamine off-gas treatment section for obtaining melamine off-gas ..."*. These two parts of the claimed system are not identical. It was not disputed that the pressure in the high pressure melamine synthesis section is around 70 bar, and the description of the contested patent also discloses that the off-gas directly resulting from high pressure melamine synthesis itself was much higher than the off-gas which was obtained at a pressure of 15 to 35 bar. The description further discloses that, in a regular melamine plant, the off-gas coming from the synthesis, *i.e.* at a high pressure, is further treated and was then obtained at a pressure of 15 to 35 bar (see paragraph [0021]). Further, paragraph [0024] of the contested patent discloses that the lower pressure off-gas is obtained as a result from the one or more regular purification (washing) steps to which the raw off-gas is normally subjected. It is thus clear that the pressure of the initially obtained off-gas is reduced to a pressure of 15 to 35 bar, which is the pressure according to step (c) of claim 1.

10. Claim 1 of the main request is, for these reasons, clear (Article 84 EPC).

Novelty (Article 54 EPC)

11. The appellant submitted, as during the opposition proceedings, that the system according to claim 9, as well as a method according to claims 13 and 14, of the patent as maintained were not novel in view of the disclosure of document D1. According to the appellant, the feature *"... wherein a pressure control device is*

provided between the melamine off-gas treatment section and the medium pressure condensation section, wherein the pressure control device is adapted to be used as a pressure reducing unit ..." was implicitly disclosed in D1, in particular in transport line 37 (see figure 1). The appellant further submitted, by reference to page 5, lines 5 and 10 of D1, that such a device had to be included due to the mandatory presence of a scrubber section 13 of the plant disclosed to D1, since the pressure of above 70 bar during the melamine synthesis had to be reduced to a pressure as low as 3 bar for the off-gas by-products of the melamine synthesis. This also applied even if such a device was not explicitly disclosed in figure 1 of D1. The appellant further argued that every valve would control, and not only reduce, at least to some extent the upstream pressure.

12. The respondent argued, in particular by reference to figure 1, lines 9 to 11 on page 8 and lines 19 to 27 on page 7 of D1, that this document did not disclose the contested feature. According to the respondent, document D1 disclosed that the off-gas condensation section (reference 17 in figure 1) was operated at essentially the same pressure as the off-gases leaving the melamine synthesis section (reference 13 in figure 1) and that a pressure reduction valve between the melamine off-gas treatment section and the medium pressure condensation section was thus unnecessary. The patent proprietor further argued that, even if scrubbing according to D1 was performed at a lower pressure, the corresponding section according to D1 was not at the position of the pressure control device according to claim 1 as maintained, *i.e.* not between the melamine off-gas section and the medium pressure condensation section, downstream of the melamine off-gas treatment section. Further, D1 disclosed in lines

12 to 27 that - in case the pressure of the melamine synthesis off-gases was higher than the carbamate aqueous solution discharged from the urea recovery section - the latter was compressed and the two were condensed only after they had been mixed. D1 did not disclose that the pressure of the first was reduced. The patent proprietor submitted that the off-gases leaving the melamine synthesis section of D1 (via line 17) had to be compared to the off-gases leaving the off-gas treatment section of the contested patent, in particular because the off-gases according to D1 were already scrubbed before leaving the melamine synthesis section (reference 13 in figure 1) and thus before being fed into line 37.

13. The board holds that the opposition division was, for the following reasons, correct in concluding that the contested feature is not disclosed in document D1:

13.1 The parties agreed that, in order to disclose a system according to claim 9 of the main request, a *pressure control device* according to claim 9 would have to be located in line 37 of figure 1 of D1. The parties also agreed that such a device was not explicitly disclosed in line 37. The board agrees.

13.2 The appellant argued that the disclosure of a pressure control device according to claim 9 was implicit in a system according to figure 1 of document D1. This was contested by the respondent.

13.3 The board concludes that there is also no implicit disclosure of the contested feature in D1. It is correct, as submitted by the appellant, that the document discloses a pressure of between 3 and 30 bar for the off-gases discharged as by-products of the

melamine synthesis of a non-catalytic high pressure (*i.e.* above 70 bar) type melamine plant (see page 5, lines 8 to 11 and lines 3 to 5). It is thus also correct that the pressure of the off-gases is reduced from above 70 bar to between 3 and 30 bar.

13.4 The appellant argued that this pressure reduction could be linked to the washing/scrubbing step, so that the pressure reduction occurred between the melamine and the urea section, *i.e.* in line 37 of figure 1.

13.5 However, the board notes that document D1 also discloses that the off-gas obtained in the melamine synthesis section 13, and leaving this section through flow line 37, is washed (scrubbed) before leaving the melamine synthesis section 13 (page 7, lines 19 to 24), so that the obtained off-gases are then fed, through line 37, to the off-gas condensation section 17. D1 further discloses that the pressure of the off-gases leaving the melamine synthesis section 13 is the same as the operating pressure of the off-gas condensation section 17, which is part of the urea plant (see page 8, lines 9 to 11). D1 thus discloses that washing/ scrubbing of the off-gases - and a pressure reduction which may be associated therewith - happens in and before these off-gases leave the melamine synthesis section 13, and thus before reaching line 37.

13.6 Document D1 does therefore not disclose - even not implicitly - a pressure control device between the melamine off-gas treatment section and the medium pressure condensation section, as required by the system according to claim 9 of the main request. As a result, the system according to claim 9 of the main request is novel in view of the disclosure of D1.

13.7 No additional arguments were submitted with respect to the methods according to independent claims 13 and 14 of the main request. Since both of these methods comprise *"... providing a pressure reducing device (...) between the melamine off-gas treatment section and said medium pressure condensation section ..."* the methods are also novel in view of the disclosure of D1.

13.8 The board therefore holds that the claims of the main request meet the requirements of Article 54 EPC.

Inventive step (Article 56 EPC)

14. The opposition division found that the system according to claim 9 was based on an inventive step. According to the division, the feature relating to the pressure control device, which is located between the melamine off-gas treatment section and the medium pressure condensation section and which is adapted to be used as a pressure reducing unit, led to a decoupling of the processes in the urea and melamine production zones. The skilled person would not contemplate amending the system disclosed in D1 according to the claimed system, and the presence of an inventive step was acknowledged.

15. The appellant contested this finding and argued that the differing feature essentially consisted in the addition of a valve into line 37 of the system shown in figure 1 of D1. The technical effect of a valve was to allow control of the flow rate between the melamine synthesis section and the off-gas condensation section and thus control of the pressure in the washer/scrubber part of the melamine plant. The appellant defined the technical problem as to control the pressure of the off-gas scrubber, and considered the solution provided, which was the provision of a valve, to be obvious

considering common technical knowledge or the technical teaching of documents D4, D5, D6 or D7. The appellant concluded that the subject-matter of claim 9 was not based on an inventive step.

16. The respondent essentially concurred with the opposition division's argumentation in the impugned decision. They emphasised that the pressure control device was located between the melamine off-gas treatment and the medium pressure condensation section. The respondent argued that this would contradict the teaching of document D1, in particular lines 9 to 11 on page 8. Furthermore, the positioning of the pressure control device according to claim 9 as maintained was at a position in the device of D1, where the pressure of the gas leaving the melamine synthesis section was to be maintained. The respondent further argued, by reference to paragraph [0029] of the patent, that reduction and control of pressure at this particular position in the claimed system allowed for decoupling the two processes, *i.e.* melamine production and urea production, of the integrated production plant, in particular in cases of pressure swings. The technical problem resulting from the technical effects of pressure reduction and pressure control, and thus of avoiding pressure swings, was the provision of an improved system and process, wherein the improvement was better system stability and improved performance. This problem was referred to in paragraphs [0009] and [0016] of the patent. The respondent concluded that the addition of the pressure control device to the system of D1 was not obvious in order to solve the objective technical problem, in particular because D1 disclosed that the pressure at this part of the system should remain substantially unchanged. Even more, D1 suggested to increase the pressure of the carbamate solution in

case the two pressures were not the same, rather than decreasing the pressure of the melamine off-gases. They also submitted that the solution was also not obvious in the light of the disclosure of documents D4 to D7.

17. The board comes to the following conclusion:

The contested patent

17.1 The patent relates to a method and system for the integrated production of urea and melamine. According to paragraphs [0016] and [0019] of the description, the invention allows for the integration of the production of urea and melamine such that a decoupling of the processes is achieved. In order to avoid that process variations in one part affect the other process, and thus to achieve this decoupling, a pressure reducing step is included between the step of obtaining the ammonia and carbon dioxide as output from the melamine plant and the step of introducing these gases as input into the urea plant (see paragraphs [0017], [0030] and [0031]). According to claim 9 of the main request, a system is provided, *"... wherein a pressure control device is provided between the melamine off-gas treatment section and the medium pressure condensation section, wherein the pressure control device is adapted to be used as a pressure reducing unit."*

The closest prior art

17.2 Document D1 is considered, in agreement with the parties, as the closest prior art. It also relates to a process for the integrated production of urea and melamine, and to an integrated plant for carrying out such a process (see page 1, lines 4 to 5 and 8 to 9).

The differing feature

17.3 As set out above (see novelty), the system of D1 in line 37 of figure 1 does not contain a pressure control device as claimed in claim 9. The system according to claim 9 of the main request therefore differs from the system disclosed in D1 in that *"... a pressure control device is provided between the melamine off-gas treatment section and the medium pressure condensation section, wherein the pressure control device is adapted to be used as a pressure reducing unit."*

The technical problem

17.4 The appellant argued that every valve is a pressure reduction and a pressure control device. The appellant further argued that the provision of a valve, in particular as referred to in paragraph [0036] of the patent in dispute, could not prevent a pressure swing from being transmitted between the melamine and the urea synthesis unit, and that the definition of the objective technical problem could thus not rely on such an effect. The objective technical problem could thus only be seen in the provision of an alternative system to the system disclosed in document D1.

17.5 This argument is not convincing. It is noted that claim 9 does not require the presence of a valve, but of a pressure control device. A valve, in general, may include a device which simply allows for the flow of a fluid to be blocked, or not. Such a device may be used, as submitted by the appellant, in order to allow separation of the two units for maintenance. A pressure control device according to claim 9, however, can also be used to reduce and control the passage of a fluid through a line (see paragraph [0036] of the contested

patent). As a consequence, the urea and melamine production parts of the integrated plant can be decoupled in terms of pressure changes, and pressure changes and swings in one part of the plant as a consequence of changes in the other part of the plant can be avoided (paragraph [0029]). This will lead to a smoother operation of the system (paragraph [0016]).

17.6 The technical problem can thus be seen in the provision of an improved system for the production of urea and melamine, exhibiting more stable operating conditions.

The solution provided

17.7 According to claim 9 of the main request, this problem is solved by a system which includes *"... a pressure control device (...) between the melamine off-gas treatment section and the medium pressure condensation section, wherein the pressure control device is adapted to be used as a pressure reducing unit."*

The inventiveness of the claimed solution

17.8 Document D1 does not suggest to reduce and control the pressure between the melamine off-gas treatment section and the medium pressure condensation section. D1 rather suggests that the off-gas condensation section 17 is operated at substantially the same pressure as the pressure of the off-gases leaving the melamine synthesis section 13, and that - in case the pressure of the off-gases coming from the melamine synthesis section 13 is higher than the pressure of the carbamate aqueous solution discharged from the urea recovery section 16, the latter is advantageously compressed to the pressure of the off-gases (see page 8,lines 9 to 16). D1 thus teaches the opposite to the solution

provided according to claim 9 of the main request.

18. The appellant also referred to documents D4 to D7. The teaching of these documents, however, cannot negate the disclosure of D1.

Document D4 does not disclose a pressure control device located between the melamine off-gas treatment section and the medium pressure condensation section. As submitted by the appellant, off-gas 23 is sent to a scrubber 22, where it is washed with urea melt. Line 26 then connects the clean off-gases - after scrubbing by ammonia - to a urea plant for utilising in producing urea (see Figure 2 and col, 7, line 58 to column 8, line 11). Although it is correct that line 26 contains several valves, the document does not disclose a pressure control device between the melamine off-gas treatment section and the medium pressure condensation section according to claim 9 of the main request.

Document D5 discloses in column 5, lines 12 to 20 that melamine off-gas goes via duct 16 through a valve 17 and via duct 18 to the low pressure urea synthesising tower 12. However, the pressure in the melamine synthesising tower 10, the washing tower 4, as well as the low pressure urea synthesising tower 22 is kept at the same pressure of 80-150 kg/cm^2 (approx. 78 - 147 bar), and is only reduced after the urea synthesising tower 22 when passing valve 24 (see column 5, lines 18 to 28). Document D5 does therefore not suggest to amend the system of D1 by the addition of a pressure control device according to claim 9 of the main request. It rather suggests to keep the pressure between the melamine off-gas treatment section and the medium pressure condensation section of the urea plant unchanged - as disclosed in D1 itself (see page 8,

lines 8 to 10).

Document D6 discloses a valve 3 downstream of the washing tower 2 (see the figure and column 5, lines 29 to 34). However, document D6 also discloses that the urea-forming materials are recovered at high pressure. Document D6 does therefore not suggest to amend the system disclosed in document D1 by the addition of a pressure control device according to claim 9 of the main request.

Document D7 discloses in figure 6 a valve 2a between the urea scrubber 2, which is located downstream of the melamine synthesis reactor 1 and receives the off-gases 3, and upstream of the urea plant 6. D7 does not disclose that a pressure control device is located upstream a medium pressure condensation of the urea plant, since the off-gases are mixed with at least one carbamate solution after leaving the washing section (see paragraph [0021]).

19. Claim 9 of the main request therefore meets the requirements of Article 56 EPC.

20. The appellant conceded during the oral proceedings before the board that - in case the system according to claim 9 was found to be inventive - the integrated process according to claim 1 would have to be assessed similarly. The appellant furthermore submitted in the written proceedings that the argumentation with respect to inventive step of a system according to claim 9 was also applicable to the methods according to claims 13 and 14. No additional arguments were submitted during the oral proceedings before the board either. Since the methods according to both of these claims comprise the feature *"... providing a pressure reducing device (...)*

between the melamine off-gas treatment section and said medium pressure condensation section ...", and inventive step was acknowledged based on this feature for the system according to claim 9 (see above) the methods are also based on an inventive step considering the disclosure of D1 as closest prior art, for the reasons given with respect to claim 9.

21. The Board, for these reasons, comes to the conclusion that the subject-matter of the claims of the main request meet the requirements of Article 56 EPC.

22. In conclusion, the patent as amended according to the main request meets the requirements of the EPC and the opponent's appeal can therefore not succeed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

C. Rodríguez Rodríguez *P. Gryczka*

Decision electronically authenticated