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**Datasheet for the decision
of 7 June 2018**

Case Number: T 1718/15 - 3.3.10

Application Number: 07712912.0

Publication Number: 1994113

IPC: C09K3/18

Language of the proceedings: EN

Title of invention:
AIRCRAFT DE-/ANTI-ICER

Patent Proprietor:
Kilfrost Limited

Opponent:
Clariant Produkte (Deutschland) GmbH

Headword:

Relevant legal provisions:
EPC Art. 100(a), 56

Keyword:
Inventive step - (no) - all requests

Decisions cited:

Catchword:



Beschwerdekammern

Boards of Appeal

Chambres de recours

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Case Number: T 1718/15 - 3.3.10

D E C I S I O N
of Technical Board of Appeal 3.3.10
of 7 June 2018

Appellant: Clariant Produkte (Deutschland) GmbH
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Representative: Mikulecky, Klaus
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Respondent: Kilfrost Limited
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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 10 July 2015
rejecting the opposition filed against European
patent No. 1994113 pursuant to Article 101(2)
EPC.**

Composition of the Board:

Chairman P. Gryczka
Members: R. Pérez Carlón
T. Bokor

Summary of Facts and Submissions

I. The appeal lies from the decision of the opposition division to reject the opposition against European patent No. 1 994 113.

II. The documents filed during opposition proceedings included the following:

D6: US 5,334,323

D9: Steve Ritter, "Aircraft Deicers", CENEAR 79 1
page 30, January 1, 2001

D13: WO 94/05741

III. The main request of the respondent (patent proprietor) is to maintain the patent as granted. Since claim 1 of the European patent specification published as EP 1 994 113 contains a printing error, this decision refers to the wording of claim 1 according to the decision of the examining division to grant a European patent, which is the following:

"Use of a composition comprising 1,3-propylene glycol, one or more surfactants, one or more corrosion inhibitors, one or more pH regulators and water for removing frozen water from the surfaces of aircraft and/or for preventing the formation of frozen water thereon at a temperature below -32°C, wherein the composition is a type I de-/anti-icer".

Claim 1 of the first and second auxiliary requests, filed with the response to the grounds of appeal, is identical to claim 1 of the patent as granted.

IV. The board understands that the opposition division considered that, if document D6 was the closest prior

art, the problem underlying the claimed invention was to provide an alternative composition to the claimed use. The opposition division concluded that there was no pointer towards the claimed solution, which required to leave out the viscosifiers from the compositions of D6 and that the claimed subject-matter was thus inventive.

- V. In a communication annexed to the summons for oral proceedings dated 24 October 2017, the board informed the parties *inter alia* that document D6 would appear to be the closest prior art, and that they should be prepared to discuss during the oral proceedings whether or not D6 solved the problem of providing a more environmentally-friendly composition for the claimed use at low temperatures.
- VI. With a letter dated 16 February 2018, the respondent informed the board that it would not be attending the already scheduled oral proceedings, following which the board cancelled the oral proceedings.
- VII. The arguments of the appellant (opponent) relevant for the present decision were the following:

Document D6 explicitly disclosed all the features of claim 1 with the exception of whether or not it related to Type I compositions. If the use according to claim 1 were to be considered novel, document D6 would be the closest prior art, as it also related to de-/anti-icing compositions suitable for temperatures below -32°C . The problem underlying the claimed invention was merely to provide an alternative composition for the claimed use and the solution, which was characterised by the absence of a thickener so that the composition was Type I, was obvious for the skilled person. For these

reasons, the claimed use was not inventive.

VIII. The arguments of the respondent relevant for the present decision were the following:

Irrespective of whether document D6 or D13 was considered the closest prior art, the problem underlying the claimed invention was to provide a method of de-/anti-icing which was environmentally acceptable and could be used at extremely low temperatures. This problem was solved by the claimed use, which was characterised by combining low temperature and a specific compound (1,3-propylene glycol) in the context of a Type I composition. As the prior art did not point towards this solution, the claimed use was inventive.

IX. The final requests of the parties were the following:

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

The respondent requested that the appeal be dismissed or, subsidiarily, that the patent be maintained in the form of the first or second auxiliary requests, both auxiliary requests having been filed with the response to the grounds of appeal dated 1 March 2016.

Reasons for the Decision

1. The appeal is admissible.

Inventive step, all requests

2. Claim 1 of all the requests on file is directed to the use of a type I de-/anti-icer composition comprising

- 1,3-propylene glycol
- one or more surfactants
- one or more corrosion inhibitors and
- water

for removing frozen water or preventing its formation on surfaces of aircraft at a temperature below -32°C .

3. Closest prior art

Document D6 is the closest prior art, as it is the sole document which refers to the use of a composition as de-/anti-icer at -35°C , i.e. below the limit value of -32°C set in claim 1.

Document D6 discloses de-icing and anti-icing fluids for aircraft containing a glycol, which can be 1,3-propylene glycol (claim 1 in combination with claim 5), a mixture of KOH and NaOH (component e of claim 1), a nonionic surfactant (component c), corrosion inhibitor(s) (component e) and water (component g).

D6 further discloses that this fluids have a very low viscosity within the temperature range from 0°C to -35°C (column 4, lines 32-33), which is the temperature range encountered in practice (column 2, lines 20-22). Such low viscosity allows good run-off characteristics on take-off (column 2, lines 22-23).

The compositions of D6 contain thickeners and have holdover times over 30 minutes (column 2, lines 55-56; examples). For this reason, it is concluded, contrary to the appellant's argument, that these compositions

are not type I de-/anti-icers, as required by claim 1, as D9, page 2, third and fifth full paragraphs discloses that type I de-/anti-icers have a holdover time of five to 15 minutes; the patent in suit [0021] discloses that a type I de-/anti-icer has a "short" holdover time.

4. Problem underlying the claimed invention
 - 4.1 The respondent formulated the problem underlying the claimed invention as providing a method of de-/anti-icing which is both environmentally acceptable and can be used at extremely low temperatures (paragraph 99 of the response to the grounds of appeal).
 - 4.1.1 Document D6 already solves the problem of providing de-/anti-icing compositions which can be used at temperatures down to -35°C .
 - 4.1.2 According to the patent in suit, 1,3-propylene glycol is an environmentally favourable alternative to ethylene glycol [0008], and has benign toxicological properties similar to those of 1,2-propylene glycol [0012]. Propylene glycol (1,2-propylene glycol or 1,3-propylene glycol) is a preferred embodiment of component a) of the composition of D6 (claim 5; column 3, lines 51-55). Thus, the problem of providing an environmentally friendly de-anti-icing fluid has also been already solved in document D6.
 - 4.1.3 Thus, both parts of the problem formulated by the respondent were already solved by the use disclosed in D6.
 - 4.2 Having regard to document D6, the problem underlying the claimed invention can therefore only be seen as to

provide an alternative environmentally-friendly composition suitable for the claimed use, namely for removing frozen water and/or preventing its formation on the surface of aircraft at temperatures below -32°C .

5. Solution

The claimed solution to this technical problem is characterised in that it requires a Type I de-/anti-icing composition.

The respondent argued that the combination of 1,3-propylene glycol and temperatures below -32°C was also a feature characterising the solution. In favour to the respondent, it will be considered to be the case.

6. Success

It is not disputed that the problem formulated in point 4.1 above is solved by the use according to claim 1.

7. It thus remains to be decided whether or not the proposed solution to the objective problem defined above is obvious in light of the prior art.

7.1 Document D6 discloses compositions comprising a crosslinked polyacrylic acid as thickener due to its good run-off properties at aircraft take-off and holdover times over 30 minutes.

It is generally known that the viscosity of a composition increases with decreasing temperature (see response to the grounds of appeal, paragraph 118).

Document D6 explicitly states that holdover time of a deicing or antiicing composition is reduced with

decreasing stationary viscosity (column 2, lines 32-34). Thus it is immediately apparent to the skilled person that holdover time would decrease in the absence of thickener.

The skilled person, trying to obtain an alternative composition for the use of claim 1 at temperatures towards the lower end of those disclosed in D6 and below, would thus immediately recognise that a composition such as that of document D6 without a thickener (i.e. of Type I) will be less viscous and have a shorter holdover time. For this reason, a Type I composition represents an obvious alternative for the claimed use at low temperatures.

Also examples 2 and 3 of D6, which disclose the viscosity of compositions containing 1,2-propylene glycol at temperatures down to -35°C, higher than those at higher temperatures, point towards the claimed solution, as they make it obvious that at low temperatures a thickener does not provide any additional advantage and thus becomes redundant.

Document D6 discloses (column 3, lines 52-53) that "component a) of the deicing or antiicing fluid according to the invention is preferably propylene glycol (1,2-propylene glycol or 1,3-propylene glycol) and/or diethylene glycol". Document D6 thus discloses 1,3-propylene glycol as an alternative to 1,2-propylene glycol. For this reason, the skilled person finds in D6 also a pointer towards the use of 1,3-propylene glycol in the same conditions as 1,2-propylene glycol, i.e. at temperatures such as -35°C, disclosed in the examples.

7.2 For these reasons, the use of claim 1 of all the requests on file is not inventive (Article 56 EPC) with

the consequence that the opposition ground defined in Article 100(a) EPC precludes the maintenance of the patent as granted and that none of the auxiliary requests, whose claim 1 corresponds to that of the main request, is allowable.

Order

For these reasons it is decided that:

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

The Registrar:

The Chairman:



C. Rodríguez Rodríguez

P. Gryczka

Decision electronically authenticated