

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43*bis*.1)

To:

see form PCT/ISA/220

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/EP2018/066813

International filing date (day/month/year)
22.06.2018

Priority date (day/month/year)
29.06.2017

International Patent Classification (IPC) or both national classification and IPC
INV. F16D69/02

Applicant
VALEO MATERIAUX DE FRICTION

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA:



European Patent Office
P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk - Pays Bas
Tel. +31 70 340 - 2040
Fax: +31 70 340 - 3016

Date of completion of
this opinion

see form
PCT/ISA/210

Authorized Officer

Domínguez Gutiérrez

Telephone No. +31 70 340-0



Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:
 - the international application in the language in which it was filed.
 - a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).
2. This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:
 - a. forming part of the international application as filed:
 - in the form of an Annex C/ST.25 text file.
 - on paper or in the form of an image file.
 - b. furnished together with the international application under PCT Rule 13ter.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
 - c. furnished subsequent to the international filing date for the purposes of international search only:
 - in the form of an Annex C/ST.25 text file (Rule 13ter.1(a)).
 - on paper or in the form of an image file (Rule 13ter.1(b) and Administrative Instructions, Section 713).
4. In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of

- the entire international application
- claims Nos. 5(completely); 1-4, 6-19(partially)

because:

- the said international application, or the said claims Nos. relate to the following subject matter which does not require an international search (*specify*):
- the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):
- the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed (*specify*):
- no international search report has been established for the whole application or for said claims Nos. 5(completely); 1-4, 6-19(partially)
- a meaningful opinion could not be formed without the sequence listing; the applicant did not, within the prescribed time limit:
 - furnish a sequence listing in the form of an Annex C/ST.25 text file, and such listing was not available to the International Searching Authority in the form and manner acceptable to it; or the sequence listing furnished did not comply with the standard provided for in Annex C of the Administrative Instructions.
 - furnish a sequence listing on paper or in the form of an image file complying with the standard provided for in Annex C of the Administrative Instructions, and such listing was not available to the International Searching Authority in the form and manner acceptable to it; or the sequence listing furnished did not comply with the standard provided for in Annex C of the Administrative Instructions.
 - pay the required late furnishing fee for the furnishing of a sequence listing in response to an invitation under Rule 13ter.1(a) or (b).
- See Supplemental Box for further details

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	<u>13-15(partially)</u>
	No: Claims	<u>1-4, 6-12, 16-19(all partially)</u>
Inventive step (IS)	Yes: Claims	
	No: Claims	<u>1-4, 6-19(all partially)</u>
Industrial applicability (IA)	Yes: Claims	<u>1-4, 6-19(all partially)</u>
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item III

1. Art. 6 PCT. Lack of clarity and support.

1.1 Claim 1 relates to a chemical composition, and as such is required to clearly identify the chemical components falling under its scope.

This claim however attempts to define some of the components of the composition by an overlapping, undefined physical form, e.g. powder, rubber, addition.

Several compounds of different chemical nature can fulfill the above-mentioned forms, leading to a further lack of clarity because the skilled person would be unable to ascertain the number and type of compounds present in the composition. Moreover, the claims encompass compounds which can fulfil several functions without being clear which of the -powder/rubber or powder/addition- roles they represent. It is not plausible that any combination of compounds that can fall under these definitions provides the technical effect sought by the present application. Therefore, the scope of protection provided by this claim is not commensurate with the contribution made to the art by the present application. For these reasons, this claim lacks support, contrary to the requirements of Art. 6 PCT.

1.2 Claim 1 lacks clarity contrary to the requirements of Art. 6 PCT. As explained above, the components of present claim 1, except for the thermosetting resin, can indeed fulfill several roles in the composition. The skilled person is thus left in doubt as to the exact number and type of compounds present in the composition. The claim is therefore drafted using a functional language that does not allow to ascertain which compounds are encompassed by the present composition.

1.3 The present application does not fulfil the requirements of Art. 6 PCT because several compounds throughout the claims and description overlap in their roles, such as rubber powder, and aluminum powder, which could be considered as friction material powder. It is also stated in the description that the rubber is rubber powder and recycled rubber, and that would be impossible to distinguish from friction material powder waste. Further lack of clarity would arise, as it is not clear, to which extent certain powders integrate one component or another in order to assess the content, size, and composition of each ingredient.

1.4 Present claim 4 states that the friction material powder waste contains 30 to 60 mass% organic content. The rest must thus be inorganic content. This implies that said ingredient's nature is not uniform, and other components are contained within. It is thus not possible to establish a difference between this ingredient and the remaining ones of the composition.

1.5 The expression "metal addition" employed in claim 1 is broad, and does not define a clear class of compounds within the present technical field. This would encompass from coordination compounds to metal fibres, which is clearly not intended in the light of the description.

1.6 Having regard to the points discussed above, and considering the description, i.e. p. 2, l. 20 - p. 3, l. 20, in which it is clear that only a limited number and type of compounds afford a material that provides the desired technical effect. Therefore, the scope of protection provided by independent claim 1 is not commensurate with the contribution made to the art by the present application because there is no reason to justify that the scope of this claim is as broad as to claim a material containing a thermosetting resin binding an undefined number of ingredients in powdery form. As a result, claim 1 lacks support contrary to the requirements of Art. 6 PCT because its subject-matter is not commensurate with the contribution made to the art by the present application.

1.7 Claim 5 does not fulfil the requirements of Art. 6 PCT because it attempts to characterise a component by its origin without providing any technical features related to its composition. It is impossible to ascertain the origin of the composition's ingredients, let alone to assess whether identical ingredients of different origin would account for different technical features.

1.8 Claim 12 relates to a method of producing any friction material having the ingredients listed in claim 1. The same objections thus apply to this claim *mutatis mutandis*. In addition, it is observed that the description does not provide a method for preparing compositions others than those listed in claim 1. Moreover, it is not clear how said method would not afford compositions different than those of claim 1, the above-mentioned lack of clarity notwithstanding.

1.9 Regarding claim 1. Considering the lack of support and clarity in points 1.1-1.6, the non-compliance with the substantive provisions is to such an extent, that the search has to be performed taking into consideration the non-compliance in determining the extent of the search of claim 1 (PCT Guidelines 9.19 and 9.23). For these reasons, the search was therefore limited to the subject-matter that can reasonably be expected to be claimed later in the procedure: "claim 1, wherein the rubber is synthetic rubber of the type NBR or SBR, and wherein the metal addition is selected in the list consisting of copper, brass and aluminum powder"; so that the type of at least two ingredients is defined, and clearly not overlapping with the friction material powder waste component, as supported by the present application, and acknowledged to solve the technical effect.

1.10 Claim 5 encompasses a scope that cannot be ascertained, contrary to the requirements of Art. 6 PCT. The fact that the origin of the ingredient is defined, does not overcome this objection, as the skilled person would not know beforehand whether ingredients of the same composition and unknown/different origin would fall within the scope claimed.

The non-compliance with the substantive provisions is to such an extent that a meaningful search of the whole claimed subject-matter could not be carried out (Article 17(2) PCT and PCT Guidelines 9.30).

1.11 Regarding claim 12, the search has to be performed taking into consideration the non-compliance in determining the extent of the search (PCT Guidelines 9.19 and 9.23). For these reasons, the search was therefore limited to the subject-matter that can reasonably be expected to be claimed later in the procedure: "claim 7, wherein the method produces a friction material according to claim 1".

Re Item V

2. Prior art.

D1: WO 2013/048627 A1 (FEDERAL MOGUL CORP [US]; SUBRAMANIAN VIJAY [US]) 4 April 2013 (2013-04-04)

D2: US 2013/220747 A1 (KIKUDOME TAKASHI [JP] ET AL) 29 August 2013 (2013-08-29)

3. Novelty. Art. 33(2) PCT.

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1, 6-12, 16-19 is not new in the sense of Article 33(2) PCT.

3.1 Document **D1** discloses (claims 1, 2, 12-16, and §[0027-8]) a non-asbestos frictional material for a brake comprising, in percent (%) by volume: a phenolic resin binder forming 16-24%; a filler forming 46-65 % by volume, said filler including nitrile rubber powder forming 7-11%, and at least 4-16% friction dust; metal fibers forming not greater than 0.2 % by volume; and copper forming not greater than 0.2 % by volume.

The material is made by mixing all ingredients, and press-forming at a pressure of 5-50 tons/piece and temperature of 265-295° F for a total pressing time of about 250 seconds (§[0032-3]).

3.2 Document **D2** discloses (claim 1) a non-asbestos frictional material composition containing a binder, an organic filler, an inorganic filler, and a fiber base material, comprising copper in a content of 5 mass % or less, and cashew dust in a content of 1.5-4.5 mass%.

The binder is a thermosetting resin (§[0022-3]). The particle size of the cashew dust is preferably 500 µm or less (§[0028]). The cashew dust is coated with a rubber component, which is preferably SBR (§[0027]-[0031]).

4. Inventive step. Art. 33(3) PCT.

4.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 13-15 does not involve an inventive step in the sense of Article 33(3) PCT.

These claims relate to the ubiquitous press-forming procedure used in the preparation of friction linings, as illustrated by D1. The composition is anticipated by D2. The combination of these features thus relates to the routine operations of the skilled person.

Re Item VIII

Certain observations on the international application

5. Clarity, support, disclosure. Art. 5, 6 PCT.

5.1 See points 1.1-1.8 above.

5.2 Claim 1 does not fulfil the requirements of Art. 6 PCT because it is not clear. Claim 1 is relies on a "friction material powder waste", which has an undefined composition. It is not clear to which extent the scope of this claim is to cover, when a chemical composition contains as essential component an ingredient of undefined character. Comparison with the prior art appears impossible.

Moreover, the amount of information provided in the present disclosure insofar how this ingredient is obtained, or about its composition, is insufficient for the skilled person to reproduce said ingredient. As a result, it appears that this claim does not fulfil the requirements of disclosure, contrary to the requirements of Art. 5 PCT.