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Agreement

on the Implementation of a European
Concerted Action Project in the Field
of Metallurgy on the Topic “Materials
for Gas Turbines”

Brussels, 23 November 1971

[The Agreement entered into force on 1 July 1972]

*Presented to Parliament
by the Secretary of State for Foreign and Commonwealth Affairs
by Command of Her Majesty
May 1973*

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AGREEMENT
ON THE IMPLEMENTATION OF A EUROPEAN CONCERTED
ACTION PROJECT IN THE FIELD OF METALLURGY ON
THE TOPIC "MATERIALS FOR GAS TURBINES"

The Governments of
the Federal Republic of Germany,
the French Republic,
the Italian Republic,
the Grand Duchy of Luxembourg,
the Kingdom of the Netherlands,
the Republic of Austria,
the Swiss Confederation,
Sweden,
the United Kingdom of Great Britain and Northern Ireland and
the European Coal and Steel Community
hereinafter referred to as "the Signatories",

HAVE ACCEPTED participation in the concerted action project described below, hereinafter referred to as "the project", and HAVE AGREED as follows:

ARTICLE 1

The Signatories shall co-ordinate their efforts in the project, which is being undertaken in order to stimulate research and development in the field of metallurgy on the topic "materials for gas turbines". An outline description of the work envisaged for this project is contained in the Annex.

The aim of the project is to stimulate the carrying out of co-ordinated research and development operations on the above topic by means of contracts between the competent public bodies on the one hand and industrial firms and research establishments (public or private research centres, university centres and joint centres), on the other, or by entrusting work to public research establishments which agree to work in association on a multinational basis.

ARTICLE 2

The duration envisaged for work on the project shall be a period not exceeding three years, unless otherwise determined unanimously by the Signatories.

ARTICLE 3

This Agreement is open for signature by other European Governments which participated in the Ministerial Conference held in Brussels on 22 and 23 November 1971 and by the European Communities subject to the unanimous consent of the Signatories. This unanimous consent shall not however be required until after the entry into force of the Agreement, on condition that the annual sum allocated by new Signatories to work on the project is no less than the smallest sum allocated to the project by the other Signatories.

ARTICLE 4

A Management Committee, hereinafter referred to as "the Committee", composed of one representative of each Signatory is hereby established. Each representative may be accompanied by such experts or advisers as he may need.

The Committee shall draw up its rules of procedure. The rules shall lay down the quorum required for the validity of the decisions of the Committee.

The Committee shall draw up reasoned recommendations based on the research proposals submitted to it. These recommendations shall be adopted by a simple majority; minority views and the reasoning behind them may be expressed in these recommendations.

Each representative shall have one vote in the Committee. Decisions concerning procedure shall be adopted by a simple majority. All other decisions shall be taken by unanimous vote; however, abstention by one or more representatives shall not preclude unanimity.

ARTICLE 5

The Committee shall:

- (a) invite industrial undertakings and research establishments to submit research proposals, preferably on a multinational basis, on the subject of the project;
- (b) examine the research proposals submitted by industrial undertakings and research establishments;
- (c) recommend the allocation of research tasks among the industrial undertakings and research establishments and address to the bodies concerned recommendations on the proposed contracts which, in its view, should be adopted, as well as on the duration of these contracts;
- (d) promote associations between partners from different countries;
- (e) supervise the progress of the work and recommend, where appropriate, such changes as may be necessary in the direction or the volume of the work being undertaken;
- (f) draw up programme proposals for any extension of the work beyond the expiry of this Agreement;
- (g) publish an annual progress report.

All matters dealt with by the Committee shall be kept confidential.

ARTICLE 6

At the request of the Signatories, the Secretariat of the Committee shall be provided by the Commission of the European Communities.

ARTICLE 7

The research outlay devoted to the work planned for the project shall be divided as follows among the Signatories:

<i>Signatories</i>					<i>Annual maximum amount in UA</i>
Governments of:					
Federal Republic of Germany	...	...	...	...	500,000
French Republic	...	...	...	...	400,000
Italian Republic	...	...	...	...	375,000
Grand Duchy of Luxembourg	...	...	...	...	100,000
Kingdom of Netherlands	...	...	...	...	100,000
Republic of Austria	...	...	...	...	100,000
Swiss Confederation	...	...	...	...	315,000
Sweden	...	...	...	...	100,000
United Kingdom of Great Britain and Northern Ireland	...	...	...	...	380,000
European Coal and Steel Community	...	...	...	...	120,000

These amounts include both contributions from public funds and contributions from industrial firms and their research establishments.

Any joint expenditure shall be shared equally between the Signatories, with the exception of Secretariat expenses.

ARTICLE 8

The financial contribution of each Signatory to be supplied out of public funds shall not, in principle, exceed 60 per cent for each contract in the case of contracts concluded with industrial undertakings, or their research centres, and 75 per cent in the case of contracts concluded with other research establishments. These provisions shall not apply to research organisations financed entirely or chiefly by public authorities.

The Signatories shall, if they so desire, have the opportunity to make provision in their contracts for a total or partial refund of their contributions by the State if the research is successful.

ARTICLE 9

Applications for the award of contracts may be submitted by industrial firms and research establishments, preferably working in association, which are capable of carrying out all or any part of the planned research or having certain parts thereof carried out on their behalf and on their responsibility.

ARTICLE 10

The Signatories shall address their research proposals directly or through their competent public bodies to the Secretariat of the Committee.

Industrial undertakings and research establishments agreeing to associate for the purposes of carrying out a research project on a multinational basis shall freely negotiate between themselves the terms and conditions of their co-operation.

ARTICLE 11

The Signatories shall be responsible for the administration and financial management of the contracts which they conclude.

ARTICLE 12

The Signatories shall insert in the contracts a clause requiring the industrial undertakings or research establishments to submit periodic progress reports and a final report.

The progress reports shall be circulated in a limited number of copies to the Signatories and to the Committee and shall be confidential to the extent that they contain detailed technical information. The circulation of the final report, the sole purpose of which shall be to report on the results obtained, shall be much wider, embracing at least the industrial undertakings and research establishments concerned in the countries of the participants in this project.

ARTICLE 13

1. Without prejudice to the provisions of national laws, the Signatories shall insert in the research contracts clauses enabling the application of the following provisions for as long as the industrial property rights arising out of the studies, research and development (hereinafter referred to as "research"), excluding know-how, remain valid.

- (a) The industrial property rights over the research results belonging to the undertakings or research establishments which carried out the research or had it carried out on their behalf shall remain their property, but a Signatory concluding contracts which, in execution, give rise to such property rights, may reserve certain rights which shall be defined in the contracts.

As regards contracts concluded with research establishments (public or private research centres, university institutes and joint centres), it may be agreed that the industrial property rights are to belong to the Signatory concerned or to any other body designated by that Signatory.

The filing of applications for industrial property rights resulting from the research shall be brought to the attention of the Signatories through the agency of the State or body financing the research.

- (b) Without prejudice to the provisions of sub-paragraph (c), the proprietor of industrial property rights resulting from research or acquired during it shall be at liberty to grant licences or dispose of the industrial property rights, it being his responsibility to inform the Signatories of such an intention through the agency of the State or body financing the research.
- (c) In so far as the stipulations of the Treaties establishing the European Communities, the laws and regulations in force in the territory of the Signatory concerned and obligations previously contracted by the undertakings granted research contracts and notified at the time of the conclusion of these contracts do not constitute any obstacle thereto, each of the Signatories shall have the right to oppose the granting to undertakings established outside the territories of the Signatories of industrial property rights acquired by the undertakings granted research contracts during the implementation of these contracts and enabling the undertakings established outside the territories of the Signatories to manufacture or sell on the territory of the Signatory.
- (d) The proprietor of the industrial property rights shall, in the cases enumerated below, be obliged to grant a licence at the request of any Signatory other than the one who concluded the contract which in execution gave rise to the industrial property rights:
- (i) where this is necessary in order to meet the individual requirements of the Signatory requesting the licence in the fields of public safety and public health;
 - (ii) where the market requirements in the territory of the Signatory requesting the licence are not satisfied, in which case the licence is to be granted to an undertaking designated by that Signatory for the purpose of enabling that undertaking to meet the requirements of the market. However, a licence shall not be granted if the proprietor establishes legitimate grounds for refusing it, in particular that he has not been given adequate notice.

To obtain the grant of these licences, the applicant Signatory shall apply to the Signatory which concluded the contract which in execution gave rise to the industrial property rights.

These licences shall be granted on fair and reasonable terms and shall be accompanied by the right to grant a sub-licence on the same terms. They may, under the same conditions, cover the prior industrial property rights and applications for property rights of the licensor, in so far as is necessary for their utilisation.

2. The provisions of paragraph 1 shall apply *mutatis mutandis* to information not covered by industrial property rights (know-how, etc.).

ARTICLE 14

The Signatories shall consult with each other, if one of them so requests, on any problem arising out of the application of this Agreement.

ARTICLE 15

1. Each of the Signatories shall notify the Secretary-General of the Council of the European Communities as soon as possible of the completion of the procedures required in accordance with its internal provisions for the purpose of implementing this Agreement.

2. For the Signatories which have transmitted the notification provided for in paragraph 1, this Agreement shall enter into force on the first day of the second month following receipt of the notification guaranteeing cover for at least two-thirds of the sum of the amounts provided for in Article 7.⁽¹⁾

For those Signatories which transmit this notification after the entry into force of this Agreement, it shall come into force on the date of receipt of the notification.

Signatories which have not yet transmitted this notification at the time of entry into force of this Agreement shall be able to take part in the work of the Committee without voting rights for a period of six months after the entry into force of this Agreement.

3. The Secretary-General of the Council of the European Communities shall notify each of the Signatories of the deposit of the notifications provided for in paragraph 1 and of the date of entry into force of this Agreement.

ARTICLE 16

This Agreement, drawn up in a single copy in the German, English, French, Italian and Dutch languages, all texts being equally authentic, shall be deposited in the archives of the General Secretariat of the Council of the European Communities, which shall transmit a certified true copy to each of the Signatories.

DONE at Brussels on the twenty-third day of November in the year one thousand nine hundred and seventy-one.

[For signatures and notifications see page 10]

ANNEX

The research work carried out under the project will relate to materials designed for aircraft engines and turbines for use on land or at sea.

It should not include the direct development of new technological processes or entirely new materials; but should consist rather of studies of the properties and behaviour of the most advanced materials. Studies should yield practical results, such as increased knowledge of the possibilities for using the materials, recommendations as to improvements to the materials and processes, and the definition of test methods.

The subjects have been chosen to respond to the desire to commence co-operation on subjects of immediate practical importance, on lines likely to give concrete results within a reasonable period.

⁽¹⁾ The Agreement entered into force on 1 July 1972 for the Governments of France, the Federal Republic of Germany, Sweden, Switzerland and the United Kingdom.

Research subjects

The programme set out below concerns nickel or cobalt-based alloys containing chrome and titanium alloys.

High-temperature corrosion and protective coatings

Detailed studies are required in order to give a better understanding of the mechanics of high-temperature corrosion phenomena and to enable selection of the most suitable test methods. They will enable a rational examination to be made of the prospects for improving protective coatings and, if possible, for increasing resistance to corrosion in the alloys themselves.

The work to be undertaken is not to relate specifically to air-filtration techniques or to inhibitory additives. Industrialists will nevertheless bear these techniques in mind when considering the aims of the research projects that they propose.

High-temperature metallurgical stability

The metallurgical stability of the most advanced alloys will be studied at high temperature; the effect of the stress applied will also be examined. The aim of these studies will be to obtain more detailed basic data with a view to improving the best existing alloys.

High-temperature fatigue

The work will be centred on the following two problems:

- (i) low-cycle fatigue, which may be the cause of breakages in turbine and compressor discs, and
- (ii) thermic fatigue, which is a frequent cause of cracking and breaking in turbine blades.

The studies will concentrate on the best available alloys and will be planned in such a way as to give a better knowledge of the phenomena involved. They should lead to the definition of appropriate test methods. It will be interesting to see whether there is a connection between high-temperature fatigue phenomena and the basic properties of the materials.

Corrosion of titanium under stress

Study of the chief problems associated with the tendency of titanium alloys to crack owing to corrosion under stress.

Metallurgical homogeneity and physical flaws in castings

Study of the effect on reliability of local heterogeneity of composition or microstructure. Examination of the possibilities for detecting such heterogeneity by non-destructive test methods.

The study of the origin of micro-cavities and micro-cracks in precision castings would greatly assist the future improvement of processes.

Metallurgical structures obtained by forging

Study of the effect of the structures obtained by forging on the mechanical properties of nickel, cobalt and titanium alloys.

Weldability of alloys

The physical quality of welded seams (micro-cracks), their mechanical properties and metallurgical structure will be studied. Special emphasis will be given to the weldability of precision-cast alloys.

Effect of working on reliability

Study of the metallurgical causes for the deterioration of fatigue characteristics, with particular reference to titanium rectifying and electro-chemical working.

Alloys with oriented structure

The mechanical properties of pieces produced by oriented solidification, the influence of the metallurgical structure, and the possibilities of adapting the composition of alloys in order to obtain the optimum properties in the products will be studied.

Pseudo-eutectic alloys with oriented structure

Study of the properties of materials at ambient and high temperatures. Research to find improved compositions.

Improved alloys produced by powder metallurgy

Study of the properties of nickel or cobalt-based alloys containing chrome obtained by powder metallurgy techniques. Study of the influence of the physical properties and the chemical composition of the powders.

SIGNATURES AND NOTIFICATIONS UNDER ARTICLE 15 (1)

<i>Government of :</i>	<i>Date of receipt of notification</i>
Austria	9 Aug. 1972
France	3 Mar. 1972
Germany, Fed. Rep. of	18 May 1972
Italy	
Luxembourg	
Netherlands	
Sweden	23 Feb. 1972
Switzerland	12 May 1972
United Kingdom	12 May 1972
European Coal and Steel Community ...	

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