

STATEMENT OF CONSIDERATIONS

REQUEST BY AIR PRODUCTS AND CHEMICALS, INC. FOR AN
ADVANCE WAIVER OF DOMESTIC AND FOREIGN PATENT RIGHTS
UNDER DOE COOPERATIVE AGREEMENT NO. DE-FC36-95GO10059;
W(A)-96-016; CH-0908

The Petitioner, Air Products and Chemicals, Inc., has requested a waiver of domestic and foreign patent rights for all subject inventions arising from its participation under the above referenced cooperative agreement entitled "Sorption Enhanced Reaction (SER) Process for Production of Hydrogen."

The objective of the cooperative agreement is to develop and demonstrate the feasibility of performing Steam Methane Reforming (SMR) at a low temperature with a suitable metal oxide chemisorbent for the production of hydrogen. The agreement comprises three phases including, respectively, concept feasibility, engineering development and demonstration. In Phase I, work will focus on developing a suitable practical chemisorbent for the SER reaction and demonstrating the technical feasibility of the SER process concept for SMR. If Phase I is successful, work will proceed to Phase II, wherein the engineering data needed for the design of a process development unit (PDU) will be generated. In Phase III, the Petitioner's HyCO development team will design, install and operate a PDU to develop data and models for commercialization.

The total anticipated cost of the cooperative agreement, over the course of its three phases, is \$3.68 million, with the Petitioner providing \$1.4 million for about thirty eight percent (38%) cost sharing. Thus far, DOE has obligated about \$899,000 to this project. This waiver is contingent upon the Petitioner maintaining, in aggregate, the above cost sharing percentage over the course of the agreement.


As noted in its waiver petition, Petitioner is a major international supplier of industrial gases and related equipment, chemicals, and environmental and energy systems and is a leader in the production and supply of hydrogen and carbon monoxide in the world. Further, Petitioner has been active in the development of adsorption technology for over twenty years and has in place a strong, state-of-the-art facility for developing and testing new adsorbent materials. Petitioner states that over the past 10 years, it has invested approximately \$50 million in research, process development and commercialization of adsorption technology. Considering Petitioner's technical expertise, established market position, and significant investment in this technology including sizable cost sharing in this cooperative

agreement, it is reasonable to conclude that Petitioner will continue to develop and ultimately commercialize the technology and products which may arise from this cooperative agreement.


Petitioner has agreed that this waiver shall be subject to the march-in and preference for U.S. industry provisions, as well as the U.S. Government license, comparable to those set out in 35 U.S.C. 202-204. Further, Petitioner has agreed to the U.S. competitiveness provisions as attached to this Statement. In brief, Petitioner has agreed that products embodying intellectual property developed under this agreement shall be substantially manufactured in the United States, and that Petitioner will not license, assign or otherwise transfer any waived invention to any entity unless that entity agrees to these same requirements.

Referring to item 10 of the waiver petition, granting this waiver is not anticipated to have any adverse impact on competition. There are currently numerous applications, as well as competitors, in the field of adsorption technology, with sorption enhanced reaction process being just one such application. The success of this cooperative agreement can be expected to stimulate further investment in this technology, as well as to encourage widespread dissemination of the technology.

Considering the foregoing, it is believed that granting this waiver will provide Petitioner with the necessary incentive to invest its resources in the commercialization of the results of the cooperative agreement in a fashion which will make the above technology available to the public in the shortest practicable time. Therefore, upon evaluation of the waiver petition and in view of the objectives and considerations set forth in 41 CFR 9-9.109-6, all of which have been considered, it is recommended that the requested waiver be granted.


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Assistant Chief Counsel
Intellectual Property Law
Division


Date: 9-24-96


Daniel D. Park
Patent Attorney
Intellectual Property Law
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Date: 9/24/96

Based upon the foregoing Statement of Considerations and representations in the attached waiver petition, it is determined that the interests of the United States and the general public will best be served by a waiver of patent rights of the scope described above, and therefore the waiver is granted. This waiver shall not apply to any modification or extension of the cooperative agreement, where through such modification or extension, the purpose, scope or cost of the cooperative agreement has been substantially altered.

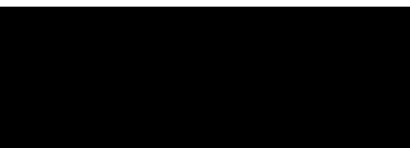
CONCURRENCE:



Gary D. Burch
Director, Office of Solar,
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Date: 3/13/97

APPROVAL:



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Assistant General Counsel
for Technology Transfer and
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Date: 3-17-97

(c)(3)(ix) U.S.Competitiveness

In exchange for the benefits received under this DOE Cooperative Agreement, the Parties therefore agree to the following provisions:

- (a) Products embodying Intellectual Property developed under this DOE Cooperative Agreement shall be substantially manufactured in the United States.
- (b) Processes, services and improvements thereof which are covered by Intellectual Property developed under this cooperative Agreement shall be incorporated into the Contractor's manufacturing facilities in the United States either prior to or simultaneously with implementation outside the United States. Such processes, services, or improvements, when implemented outside the United States, shall not result in reduction of the use of the same processes, services, or improvements in the United States.
- (c) The Contractor agrees that it will not license, assign or otherwise transfer any waived invention to any entity unless that entity agrees to these same requirements. Should the Contractor or other such entity receiving rights in the invention undergo a change in ownership amounting to a controlling interest, then the waiver, assignment, license or other transfer of rights in the waived invention is suspended until approved in writing by the DOE.

WAIVER ACTION - ABSTRACT
W(A)-96-016

<u>REQUESTOR</u>	<u>CONTRACT SCOPE OF WORK</u>	<u>RATIONALE FOR DECISION</u>	<u>DISPOSITION</u>
Air Products and Chemicals, Inc.	Development and demonstration of sorption reaction process for hydrogen production	38% cost sharing	