Form PTO-1595 U.S. DEPARTMENT OF COMMERCE REC (Rev. 10/02) U.S. Patent and Trademark Office OMB No. 0651-0011 (exp. 6/30/2005) 102607292 attached original documents or copy thereof. To the Honorable Commissioner of Patents and 1. Name of conveying party(ies): 2. Name and address of receiving party(ies): Michael Francis Carolan Air Products and Chemicals, Inc. **Matthew James Watson** Name: **Eric Minford** Internal Address: Patent Department Stephen Andrew Motika Dale M. Taylor Street Address: 7201 Hamilton Boulevard 0 Additional name(s) of conveying party(ies) attached? □Yes City Allentown State PA ZIP 18195-1501 Additional name(s) & address(es) attached? □ Yes ☑ No 3. Nature of Conveyance: ☑ Assignment □ Merger ☐ Security Agreement □ Change of Name ☐ Other Execution Date: 1) 11/4/03; 2) 11/4/03; 3) 11/4/03; 4) 11/14/03; 5) 11/10/03 Application number(s) or patent number(s): If this document is being filed together with a new application, the execution date of the application is: 1) 11/4/03; 2) 11/4/03; 3) 11/4/03; 4) 11/14/03; 5) 11/10/03 A. Patent Application No.(s) B. Patent No.(s) Additional numbers attached?

Yes 5. Name and address of party to whom correspondence 6. Total number of applications and patents involved: 1 concerning document should be mailed: Total fee (37 CFR 3.41) \$ 40.00 Name: Dianne K. Moser □ Enclosed **Legal Assistant** Authorized to be charged to deposit account Internal Address: Patent Department (06355 USA) 8. Deposit account number: Street Address: 7201 Hamilton Boulevard 01-0493 City Allentown State PA ZIP 18195-1501 DO NOT USE THIS SPACE 9. Statement of signature. To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document. John M. Fernbacher, Reg. No. 32,895 14 November 2003 Name, Reg. No. of Person Signing Total number of pages mprising cover sheet: Mail documents to be recorded with required cover sheet information to: **Mail Stop Assignment Recordation Services** Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450 DOCUMENT4

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ASSIGNMENT

For value received, we, Michael Francis Carolan, Matthew James Watson, Eric Minford, Stephen Andrew Motika, Dale M. Taylor, hereby sell, assign, and transfer to **AIR PRODUCTS AND CHEMICALS, INC.**, a corporation of the State of Delaware, having an office at 7201 Hamilton Boulevard, Allentown, PA 18195-1501, the entire right, title, and interest in and to the invention relating to

CONTROLLED HEATING AND COOLING OF MIXED CONDUCTING METAL OXIDE MATERIALS

described in our application for Letters Patent of the United States (identified by Docket No. 06355 USA) executed of even date herewith, in and to all Letters Patent which may be issued upon said application, in and to any divisional or reissue applications based thereon, and in and to all Letters Patent upon said invention or improvements which may be granted in foreign countries. We hereby also assign and convey to said **AIR PRODUCTS AND CHEMICALS, INC.**, all the rights accruing to us by virtue of the International Convention for the Protection of Industrial Property (Art. 4), including the right to apply for and to have patents issued in its own name.

And we hereby authorize and request the Commissioner of Patents and Trademarks of the United States and the Officials of the Patent Offices of all other countries to issue the Letters Patent of their respective countries to said **AIR PRODUCTS AND CHEMICALS, INC.**, as assignee of the entire right, title, and interest in and to the same.

And we hereby promise and agree to execute all papers and perform all acts necessary to secure to and vest in said **AIR PRODUCTS AND CHEMICALS**, **INC.**, its successors and assigns, the rights conveyed as herein set forth.

Michael Francis Carolan

4 November 2003

Date

Lic Minford

4 November 2003

Eric Minford

4 November 2003

Date

Luck Minford

(L.S.)

Eric Minford

4 November 2003

Date

RECORDED: 11/17/2003

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