

THE WORLD RESOURCE FOR EMERGING CERAMIC & GLASS TECHNOLOGY

\$7.50

September 2004

www.ceramics.org
www.ceramicbulletin.org

AMERICAN CERAMIC SOCIETY
BULLETIN

Spray Drying Dielectrics / 12

Materials for Electronic,
Photonic Applications / 15

Piezo Resonators' Upper
Frequency Limits / 20

Underwater Transducers / 25

Glass & Optical Materials
Final Program / 53

1083087 CBI September 2004 12/31/2004

SICODP

Uni Blida Bibli Cent

17 rue Didouche Mourad

Alger

Algeria





050-620-29

www.ceramicbulletin.org

CONTENTS

Volume 83, Number 9, September 2004

feature articles

Feature Articles Online at www.ceramicbulletin.org

- Effect of Dispersants, Fine Powders on Aluminum-Containing Refractory Castables
A.R. Studart, I.R. de Oliveira, M.D.M. Innocentini and V.C. Pandolfelli
- Glass and the Government
Jeffrey R. Gilbert
- General Shale Opens Ultramodern Brick Plant
Mark Kinser

12 **Spray-Drying Dielectric Ceramics**

Qi Tan

15 **Ceramic Materials for Electronic, Photonic Applications**

David W. Johnson Jr.

20 **Upper Frequency Limits of Piezoceramic Resonators**

Arthur Ballato

19 **New Combustion Gas Sensors**

19 **Spiraling Glass Fibers**

25 **Multimode Underwater Transducers**

R.E. Newnham, D.C. Markley, R.J. Meyer Jr.,
W.J. Hughes, A.-C. Hladky-Hennion and J.K. Cochran Jr.

news

- 3 global news
- 4 technology briefs
- 6 nano news
- 8 refractory hot line
- 9 envirotech
- 10 glass facts
- 11 names in the news

thermal analysis ...

ceramic materials...



ACerS news & activities

- 29 member news
- 31 president's letter
- 32 calendar
- 33 29th International Conference on Advanced Ceramics and Composites in conjunction with the Electronics Division, Call for Papers
- 39 6th Pacific Rim Conference on Ceramic and Glass Technology, Call for Papers
- 53 Glass & Optical Materials Division Fall Meeting, incorporating the XIVth International Symposium on Non-Oxide and Novel Optical Glasses, Final Program

products

- 23 focus on processing: Thermal Analysis

classified ads

- 68 career opportunities
- 70 business services

AMERICAN CERAMIC SOCIETY BULLETIN covers news and activities of the Society and its members, includes items of interest to the ceramic community, and provides the most current information concerning all aspects of ceramic technology, including R&D, manufacturing, engineering and marketing.

AMERICAN CERAMIC SOCIETY BULLETIN (ISSN No. 0002-7812). ©2004. PRINTED IN THE UNITED STATES OF AMERICA. THE BULLETIN IS PUBLISHED MONTHLY AS A "DUAL-MEDIA" MAGAZINE IN PRINT AND ELECTRONIC FORMAT ([WWW.CERAMICBULLETIN.ORG](http://www.ceramicbulletin.org)).

EDITORIAL AND SUBSCRIPTION OFFICES: 735 CERAMIC PLACE, WESTERVILLE, OH 43081-8720. SUBSCRIPTION INCLUDED WITH AMERICAN CERAMIC SOCIETY MEMBERSHIP. NONMEMBER SUBSCRIPTION RATES: NORTH AMERICA, 1 YEAR \$75; INTERNATIONAL, 1 YEAR \$131. RATES INCLUDE SHIPPING CHARGES. INTERNATIONAL REMAIL SERVICE IS STANDARD OUTSIDE OF NORTH AMERICA.

SINGLE ISSUES, JANUARY-NOVEMBER: MEMBER \$6.00 PER ISSUE; NONMEMBER \$7.50 PER ISSUE. DECEMBER ISSUE: MEMBER \$20, NONMEMBER \$25. POSTAGE/HANDLING FOR SINGLE ISSUES: NORTH AMERICA, \$3 PER ITEM; NORTH AMERICA EXPEDITED (UPS 2ND DAY AIR), \$8 PER ITEM; INTERNATIONAL STANDARD, \$6 PER ITEM.

POSTMASTER: PLEASE SEND ADDRESS CHANGES TO AMERICAN CERAMIC SOCIETY BULLETIN, P.O. Box 6136, WESTERVILLE, OH 43086-6136.

PERIODICAL POSTAGE PAID AT WESTERVILLE, OHIO, AND ADDITIONAL MAILING OFFICES. ALLOW SIX WEEKS FOR ADDRESS CHANGES.

ACSBA7, Vol. 83, No. 9, pp 1-88. ALL FEATURE ARTICLES ARE COVERED IN CURRENT CONTENTS.