AICHE JOURNAL

MARCH 1993 • VOL. 39, NO. 3

The AIChE JOURNAL, a monthly publication of the American Institute of Chemical Engineers, is devoted to fundamental research and developments having immediate or potential value in chemical engineering.

EDITOR

Matthew V. Tirrell

MANAGING EDITOR Haeja L. Han

COPY EDITOR
Arthur H. Baulch

EDITORIAL ASSISTANT Karen M. Simpson

CONSULTING EDITORS

Richard Alkire
Electrochemical Engineering

Robert A. Brown
Computation

Mark E. Davis Catalysis

Morton M. Denn Materials

Carol K. Hall
Thermodynamics

George E. Keller, Il Separations

Michael T. Klein Reaction Engineering

Douglas A. Lauffenburger Bioengineering

Julio M. Ottino
Transport Processes

Glen H. Pearson

Materials Processing

Ronald W. Rousseau Crystallization

John Seinfeld

Environmental Engineering Michael Shuler

Biochemical Engineering George Stephanopoulos Systems/Design

PRODUCTION DIRECTOR

Daniel Chillak

EDITOR-IN-CHIEF
Mark D. Rosenzweig

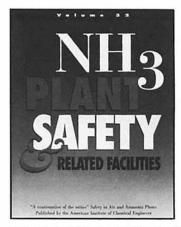
PUBLICATIONS DIRECTOR
Gary M. Rekstad

AIChE's Ammonia Plant Technical Manual

A new volume in the on-going series, providing an informative and timely review of accidents, safety developments and new technology related to safe and efficient plant operation.

VOLUME 32 Partial Contents:

Aspects of Modern Reforming Technology and Catalysts. Regate Process for Preheating Gases at High Temperature Under Pressure. Risk Analysis and Emergency Management of Ammonia Installations. Adiabatic Performing. Methanolation in Ammonia Plants. Failure and Novel Repair of Thick-wall Synthesis Converter Forgoings. Successful Application of Ammonia Detectors. Ammonia Storage Tank Study. Safety Assurance Program for Existing Operations. Advanced Control and Optimization Applications in Ammonia Plants. Optimization of the Intitial Start-up of an Ammonia Plant using a Stimulator. Catalyst Tube Failure Investigation and Inspection Following Furnace Fire.



1992 260pp Pub T-88 ISBN 0-8169-0573-8 U.S. List: \$150. / International: \$210. (* Members take 20% discount)

Call AIChE Publications Sales Dept. (212) 705-7657 • FAX (212) 752-3294.

Or mail your order to: AIChE Publication Sales Dept. 93AD

345 E. 47th ST, New York, NY 10017

For U.K. & Ireland Orders, Contact ICHEME PUBLICATIONS, Davis Building, 165-171 Railway Terrace, Rugby CV21 3HQ, (078) 857-8214, FAX (078) 856 - 0833

AIChE Journal (ISSN 0001-1541) is published monthly by the American Institute of Chemical Engineers, 345 E. 47th St., New York, NY 10017. Manuscripts should be submitted to Editor Matthew V. Tirrell at the Dept. of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN 55455, phone (612) 625-5823, fax (612) 626-1686. The statements and opinions in the AIChE Journal are those of the contributors, and A1ChE assumes no responsibility for them. Annual subscription rates: \$384 for nonmembers, \$60 for members, and \$30 for student members; outside U.S., add \$34 for postage. Single copies: \$38; outside U.S., add \$3 for postage. Second-class postage paid at New York, NY and additional mailing offices. Copyright 1993 by the American Institute of Chemical Engineers. Subscribers are requested to give prompt notification of any change of address. Postmaster: Send changes of address to AIChE Journal, 345 East 47th St., New York, NY 10017.

Authorization to photocopy items for internal or personal use, or the internal or personal use of specific clients, is granted by AIChE for libraries and other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service, provided that the \$3.00 per copy fee is paid directly to CCC, 21 Congress St., Salem, MA 01970. This consent does not extend to copying for general distribution, for advertising or promotional purposes, for inclusion in a publication, or for resale. Articles published before 1988 are subject to the same copyright conditions and the fee for each article is \$2.00. AIChE Journal fee code: 0001-1541/93 \$3.00.