

Colorado Geological Survey

43rd Forum on Geology
of Industrial Minerals
2007

May 20-25, 2007
Boulder, Colorado, USA

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571
www.proceedings.com

ISBN: 978-1-60560-450-3

Some format issues inherent in the e-media version may also appear in this print version.

Copyright (2007) by Colorado Geological Survey
All rights reserved.

For permission requests, please contact Colorado Geological Survey
at the address below.

Colorado Geological Survey
1313 Sherman Street
Room 715
Denver Colorado, 80203

Colorado Geological Survey

43rd Forum on Geology of Industrial Minerals
2007

TABLE OF CONTENTS

SESSION 1 – Geology of IMs in Colorado and other Western States

Industrial Minerals, a Staple in the Economy of New Mexico	1
<i>P. Harben, G. Austin, G. Hoffman, V. McLemore, M. Caledon, J. Barker</i>	
Montana's Industrial Minerals	146
<i>R.B. Berg</i>	
Industrial Mineral Deposits of Colorado.....	170
<i>J.A. Cappa, B.L. Widmann</i>	
Geology and Industrial Minerals of Oklahoma	192
<i>S.T. Krukowski</i>	
Utah Industrial Rocks and Minerals – Geology, Mining, and Recent Developments	208
<i>B.T. Tripp</i>	

SESSION 2 – Industrial Minerals, Then, Now and in the Future

A Short History on the Exploration for and Production of Chlorite in the Western United States	246
<i>D.L. Crouse</i>	
A History of Stone Resources in Canada as a Primer for Stone and Aggregate Resource Planning in Alberta.....	257
<i>W.A.D. Edwards</i>	
Industrial Minerals: Almost a Generation of Change	270
<i>P. Harben</i>	
Environmental and Economic Factors Influencing Use of Mineral Admixtures in Concrete Over the Last 25 Years.....	289
<i>G. Hoffman</i>	
Next Generation Aggregates	311
<i>K. Jeffrey</i>	
One Hundred Years of Industrial Mineral Production in 17 Western States.....	317
<i>W.H. Langer, A.B. Wilson</i>	

SESSION 3 – Aggregates and other Construction Materials

The Economic Geology of the Ovruch Quartzite and Sandstone Deposits Northern Ukraine –Transition from Soviet Controlled Operations to Free Market Enterprises	340
<i>J. Guilinger</i>	
How Geology and Gravel Composition Affect Aggregate Quality in the South Platte River and its Tributaries, Colorado	357
<i>D.A. Lindsey, W.H. Langer, D.H. Knepper Jr.</i>	
Cement Plants: A Great Opportunity to Teach People about Minerals.....	366
<i>D.O. Shumway</i>	

Geology of the Dolomitic Marble of Lusaka, Zambia, Southern Africa	373
<i>O. Sikazwe</i>	
The Aggregate Potential of Byproducts Generated by Minnesota's Taconite Mining Industry: A Summary of Current Research	387
<i>L.M. Zanko, D.R. Fosnacht, M.J. Severson, J.A. Oreskovich, M. Meinders-Patelke, S.A. Hauck</i>	

SESSION 4 – The Other Side of the Industry

Industrial Minerals Reserves and Resources Classification and Evaluation	416
<i>D.M. Abbott Jr.</i>	
Construction Aggregates Verses The “Real” Mining Industry	443
<i>D.P. Bryan</i>	
Preventing the Sterilisation of Mineral Resources – Policy, Procedures and Reality in the UK.....	451
<i>J. Cowley</i>	
Field Demonstrations of Five Geophysical Methods that Could be Used to Characterize Alluvial Aggregate Deposits.....	462
<i>K.J. Ellefsen, B.L. Burton, J.E. Lucius, S.S. Haines, D.V. Fitterman, J.A. Witty, D. Carlson, B. Milburn, W.H. Langer</i>	
Three Decades of Mined Land Reclamation.....	476
<i>K.S. Klco</i>	
Volumetric Analysis & Three-Dimensional Visualization of Industrial Mineral Deposits	487
<i>J.P. Reed</i>	
How Can There be Renewable Industrial Mineral Resources?	509
<i>N.R. Shaffer</i>	

SESSION 5 – Potpourri

Coal Combustion Products as Recovered Industrial Mineral Resources.....	533
<i>D.C. Goss</i>	
Diamond Deposits of the North American Craton	541
<i>W.D. Hausel</i>	
Gemstones of Wyoming – Recent Discoveries	587
<i>W.D. Hausel</i>	
A New Kaolin Province in Guyana and Suriname	604
<i>H.H. Murray</i>	
Chemistry and Mineralogy of the Turquoise Group of Semi-Precious Gem Stones and Their Facsimiles.....	610
<i>A.J. Regis</i>	
Poster Abstracts	625
Field Trips and Guest Trips	635
List of Participants.....	640
Author Index	