

Aerosols and Atmospheric Chemistry

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Aerosols and Atmospheric Chemistry

THE KENDALL AWARD SYMPOSIUM HONORING

PROFESSOR MILTON KERKER

*Clarkson College of Technology
Potsdam, New York*

AT THE PROCEEDINGS OF THE
AMERICAN CHEMICAL SOCIETY
LOS ANGELES, CALIFORNIA
MARCH 28-APRIL 2, 1971

Edited by

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Thousand Oaks, California*

1972



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ACADEMIC PRESS, INC.

111 Fifth Avenue, New York, New York 10003

United Kingdom Edition published by
ACADEMIC PRESS, INC. (LONDON) LTD.
24/28 Oval Road, London NW1

LIBRARY OF CONGRESS CATALOG CARD NUMBER: 72-88350

The articles appearing in this volume were originally published in the Journal of Colloid and Interface Science, 39, No. 1, April, 1972, and 40, No. 1, July 1972.

PRINTED IN THE UNITED STATES OF AMERICA

CONTENTS

CONTRIBUTORS	xiii
INTRODUCTION	xvii

PART I. GENERAL PAPERS

Some Optical and Dynamical Properties of Aerosols

Milton Kerker

1. Introduction	3
2. Preparation of Submicron Aerosols by Condensation	4
3. Particle Size Analysis by Light Scattering	7
4. Brownian Coagulation	9
5. Scavenging of Aerosol Particles by a Falling Water Droplet	14
6. Multiple Scattering	19
References	25

Formation and Properties of Neutral Ultrafine Particles and Small Ions Conditioned by Gaseous Impurities of the Air

J. Bricard, M. Cabane, G. Madelaine, and D. Vigla

Introduction	27
Mechanism of Formation of Aerosols of Photolytic and Radiolytic Origin	27
Study of the Mobility of Ions in the Gas	36
References	43

Preparation in a Hydrogen-Oxygen Flame of Ultrafine Metal Oxide Particles. Oxidative Properties toward Hydrocarbons in the Presence of Ultraviolet Radiation

M. Formenti, F. Juillet, P. Meriaudeau, S. J. Teichner, and P. Vergnon

Introduction	45
Principle of the Flame Reactor	45
Titanium Dioxide	47
Other Aerosols	48
Photocatalytic Properties of Aerosols	50
References	54

CONTENTS

Aerosols Produced by X-Rays

*Edward Y. H. Keng, Richard R. C. Chu, James A. Knight, Jr.,
and Clyde Orr, Jr.*

Introduction	57
Methods and Materials	57
Results and Discussion	58
Summary	64
References	65

The Kinetics of Growth of an Aerosol in a Flow Reactor.

I. Experimental

Siamak Shahriari, A. N. Sarmiento, and F. C. Goodrich

1. Introduction	67
2. Experimental Equipment	67
3. Operating Characteristics of the Apparatus	69
4. Physical Characteristics of the Growth Zone	70
5. Observed Kinetics of Growth	72
References	73

The Kinetics of Growth of an Aerosol in a Flow Reactor.

II. Theoretical

Siamak Shahriari and F. C. Goodrich

1. Introduction	75
2. Collision Controlled Kinetics	75
3. Diffusion Controlled Kinetics	77
4. A More Sophisticated Approach	80
5. Conclusions	83
References	84

A Correction to Classical Homogeneous Nucleation Theory for Polar Molecules Exhibiting an Electric Double Layer at the Liquid Surface

Daniel R. White and James L. Kassner, Jr.

Introduction	85
Theory	86
Surface Dipole-Dipole Correction	86
Heterogeneous Correction	87
Nucleation Rate	87
Experimental Method	87
Results and Conclusions	88
References	90

Theory of Nucleation of Water.

I. Properties of Some Clathrate-Like Cluster Structures

M. Dae, L. H. Lund, P. L. M. Plummer, J. L. Kassner, Jr., and B. N. Hale

Introduction	91
Discussion of the Model	93
The Expression for $\Delta A(g)$ and the Concentration of g Clusters	94
Evaluation of the Partition Functions	95
The Binding Potential Energy E_B	99
Neglected Terms	100
Results and Conclusions	100
References	103

Spatial Filtering for Detection of Particular Shape

A. G. Naylor and B. H. Kaye

Text	105
Conclusion	109
References	110

Distribution Analyses of the Aerodynamic Size and the Mass of Aerosol Particles by Means of the Spiral Centrifuge in Comparison to Other Aerosol Precipitators

Werner Stöber, Hermann Flachsbart, and Christoph Boose

Introduction	111
Experimental	113
Results	115
Discussion	118
Conclusions	122
References	122

Comparison of Three Series for Calculation of Light-Scattering Functions

Grace Chiu and Frank T. Gucker

Introduction	123
Computations	124
Results	125
Discussion	125
References	126

A New Instrument for the Study of Individual Aerosol Particles

Philip J. Wyatt and David T. Phillips

Text	127
References	137

CONTENTS

PART II. APPLICATIONS TO THE ATMOSPHERE

Formation and Chemical Reactions of Atmospheric Particles

R. D. Cadle

Introduction	141
Particle Formation	141
Aerosol Reactions	144
References	147

Condensational Growth of Atmospheric Aerosols

J. R. Brock

Introduction	149
Summary	152
References	153

Aerosols as Heterogeneous Nuclei

Charles A. Knight

Introduction	155
Theory	156
Discussion	158
References	159

Water-Affected Fraction of Natural 1.5-9 μ Diameter Aerosol Particles

J. Rosinski and C. T. Nagamoto

I. Introduction	161
II. Water-Affected Fraction of Aerosol Particles	161
III. Experiment	162
IV. Results	163
V. Conclusions	165
References	165

Comparison of Synthetic and Smog Aerosols

Edgar R. Stephens and Monty A. Price

Text	167
Methods	169
Results	174
Calculation of Mass and Surface Area of Ambient Aerosol	178
Infrared Spectra of Impacted Aerosols	178
Oxidation Mechanism	180
References	180

CONTENTS

A Comparison of Filterable Mass and Light Scattering of Photochemically Produced Aerosols

A. H. Bockian and M. A. Hostak

Introduction	183
Experimental Procedure	183
Results and Discussion	185
Summary	186
References	186

PART III. THE 1969 PASADENA SMOG AEROSOL EXPERIMENT

The Minnesota Aerosol-Analyzing System Used in the Los Angeles Smog Project

Kenneth T. Whitby, Benjamin Y. H. Liu, Rudolf B. Husar, and Nicholas J. Barsic

Part I. The Los Angeles Smog Project	189
Part II. Minnesota Aerosol-Analyzing System	196
References	217

Aerometric Factors Affecting the Evolution of the Pasadena Aerosol

G. M. Hidy, Peter K. Mueller, Yoshiro Tokiwa, and S. Twiss

Introduction	219
Climatology and Meteorological Factors	220
Meteorological Observations	221
Behavior of Trace Gases	227
Significance of Average Concentrations	230
Relation of Gases to Aerosol Behavior	231
Mechanisms for Particle-Gas Interaction	233
Summary	235
References	236

The Aerosol Size Distribution of Los Angeles Smog

Kenneth T. Whitby, Rudolf B. Husar, and Benjamin Y. H. Liu

Text	237
Introduction	238
Data Collection and Processing	242
Results	243
Discussion	261
Summary and Conclusions	263
References	264

CONTENTS

Mass Distribution Data from the 1969 Pasadena Smog Experiment

D. A. Lundgren

Method	265
Mass Distribution Data	265
Comparison of Impactor and M.A.A.S. Measurements	267
Mass Data Accuracy and Uncertainty	268
Summary and Conclusions	270
References	270

Physical Mechanisms Governing the Dynamics of Los Angeles Smog Aerosol

Rudolf B. Husar, Kenneth T. Whitby, and Benjamin Y. H. Liu

Introduction	271
The Effect of Relative Humidity	272
Photochemical Nucleation and Growth Rates	274
The Role of Coagulation and Condensation	277
Summary	284
References	284

Chemical Composition of Pasadena Aerosol by Particle Size and Time of Day.

III. Chemical States of Nitrogen and Sulfur by Photoelectron Spectroscopy

T. Novakov, Peter K. Mueller, A. E. Alcocer, and J. W. Otvos

Introduction	285
Method	285
Description of Samples	287
Analytical Results	288
Summary and Conclusions	293
References	294

Chemical Composition of Pasadena Aerosol by Particle Size and Time of Day.

IV. Carbonate and Noncarbonate Carbon Content

Peter K. Mueller, R. W. Mosley, and L. B. Pierce

Introduction	295
Sample Collection and Analysis	296
Carbon Content of Pasadena Aerosol	296
Summary and Conclusions	299
References	299

CONTENTS

A Chemical Element Balance for the Pasadena Aerosol

M. S. Miller, S. K. Friedlander, and G. M. Hidy

Introduction	301
Method of Calculation	302
Emission Sources and Atmospheric Data	303
Calculation of Source Coefficients, C_j	306
Discussion of Results	307
Summary and Conclusions	311
References	311

Multiwavelength Nephelometer Measurements in Los Angeles Smog Aerosol.

Preface

R. J. Charlson

Text	313
References	314

Multiwavelength Nephelometer Measurements in Los Angeles Smog Aerosol.

I. Comparison of Calculated and Measured Light Scattering

*D. S. Ensor, R. J. Charlson, N. C. Ahlquist, Kenneth T. Whitby,
Rudolf B. Husar, and Benjamin Y. H. Liu*

I. Introduction and Objectives	315
II. Experimental Methods	316
III. Light-Scattering Calculations	319
IV. Discussion of Results	319
V. Conclusions	323
References	323

Multiwavelength Nephelometer Measurements in Los Angeles Smog Aerosol.

II. Correlation with Size Distributions, Volume Concentrations

*J. F. Thielke, R. J. Charlson, J. W. Winter, N. C. Ahlquist,
Kenneth T. Whitby, Rudolf B. Husar, and Benjamin Y. H. Liu*

I. Introduction	325
II. Data	326
III. Calculations and Results	326
IV. Discussion	331
References	332

CONTENTS

Multiwavelength Nephelometer Measurements in Los Angeles Smog Aerosol.

III. Comparison to Light Extinction by NO₂

R. J. Charlson, D. S. Covert, Yoshiro Tokiwa, and Peter K. Mueller

I. Introduction	333
II. Description of Measurements	333
III. Data and Their Interpretation	335
IV. Discussion	338
References	338

Inadvertent Weather Modification and Los Angeles Smog

G. M. Hidy, W. Green, and A. Alkezweeny

1. Introduction	339
2. Experimental	340
3. Results and Discussion	341
References	343
SUBJECT INDEX	345

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INTRODUCTION

This volume contains a number of papers presented at the 1971 American Chemical Society Kendall Award Symposium honoring Professor Milton Kerker. Included in the symposium was a wide variety of studies on the physical chemistry of aerosols and their relationship to atmospheric chemistry. The results of recent research in aerosol behavior indicate that this field is rapidly growing to play a more significant role in the science of colloidal behavior. Part of the motivation for the expanding aerosol research is the current interest in air pollution, but part also stems from the fact that aerosol research as an experimental science has been enhanced considerably recently with the development of new more sophisticated techniques to measure aerosol properties.

It is particularly befitting to pay tribute to Professor Kerker with a Symposium of this kind. Professor Kerker's research interests and scientific contributions in colloidal science have emphasized important aspects of aerosol properties including light scattering and coagulation. The basic knowledge that he and his co-workers have gained has been applied to many problems, including some directly related to the behavior of particles in the Earth's atmosphere. It is a particular pleasure to honor Professor Kerker at this productive stage in his scientific career, knowing that he will contribute significantly to aerosol science for many years to come.

Some of the more important contributions to the symposium were those sessions devoted to the discussion of the first results from the *1969 Pasadena Smog Aerosol Study*. This experiment has special significance in that it represents the first attempt to mount a major study of urban atmospheric aerosols that are closely related to photochemical reactions. The Pasadena Study was conceived by Professor K. T. Whitby, Dr. P. K. Mueller, and Professor S. K. Friedlander and was organized as a joint institution program to make detailed experimental observations of the physical and chemical properties of photochemical aerosols. Like most experimental investigations of atmospheric chemistry, the Pasadena Study raised more questions than it provided answers to previous conjectures. However, the results of the study showed that large, coordinated projects of this kind can provide information on aerosol behavior far in excess of separate, specialized, small-scale studies that have developed in the past. As an illustration of the comprehensive nature of the Pasadena Study, the first results are reported in this volume.

As organizer of the 1971 Kendall Award Symposium, I wish to thank all of the participants for their cooperation in making the conference an important milestone in aerosol science. The efforts of all the participants in timely preparation of the research work for this volume are appreciated.

INTRODUCTION

A few of the papers presented at the meeting are not included here for various reasons. For purposes of completeness, these are listed below by author and title:

1. J. L. Katz, "Binary Homogeneous Nucleation as a Mechanism for the Generation of Aerosols."
2. S. K. Friedlander, "The Characterization of Aerosols Distributed with Respect to Size and Chemical Composition. II. Classification and Design of Aerosol Measuring Devices."
3. J. E. Stickney and J. E. Quon, "Spark Replica Technique for Measuring Sulfuric Acid Nuclei."
4. P. K. Mueller, J. J. Wesolowski, and A. E. Alcocer, "Chemical Composition of Pasadena Aerosol by Particle Size and Time of Day. I. Elemental Analysis by Atomic Absorption and Neutron Activation."
5. P. K. Mueller, T. A. Cahill, and A. E. Alcocer, "Chemical Composition of Pasadena Aerosol by Particle Size and Time of Day. II. Elemental Analysis by Alpha-Excited X-Ray Fluorescence."

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