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Engineering

Ceramic Engineering

Andrew I. Andrews Papers, 1924-1966

Box 1: Correspondence, C-W, 1963-65; Subject File, A-W; Research Reports and Papers on Enamels

Ceramics, History of - an introduction to the history of Ceramics and American Ceramics

Ceramic Engineering: Newsletter, information on teaching assignments and functions of the department, 1963-64

Engineering Science: evaluation and suggestions; correspondence with scholars in foreign universities, 1959-63

Vitreous Enamellers Institute: Bulletin and correspondence on the silver jubilee conference, 1959; further correspondence, 1959-62

Institute of Paper Chemistry, 1964-65

Marvel, C. S.: "Thermally Stable Polymers with Aromatic Recurring Units", an International Award Lecture in Chemistry, 1964

Niklewski, B. K.: Correspondence, 1939-63

Orton Memorial Lecture on "Color" by Andrews, 1963

Correspondence, concerning or with C. W. Parmelee, 1942-1947 Concerning Parmelee library collection, 1948

P - Correspondence, 1963-64

S - Correspondence, 1963-64

T - Correspondence, 1963-64

W - Correspondence, 1963-65

Determination of variations in glaze occurring as a result of coloring oxide additions

Literature Search of low-melting glasses and inorganic coatings; approach to engineering education, 1963-64

Phase Equilibria in Ceramics, 1955

phase relationships, Eutectic

Ceramic Engineering, Exams, 1951-57 thermodynamics in ceramics, introduction to crystal chemistry, oxide systems

Subject File

Acid Resistance Tests of Porcelain Enamel, 1928-41

Adherence of Porcelain Enamels, abstracts and research reports, 1943-51

Enamel Film Strength, 1941-53

Enamel Fusion Test, firing temperatures, sodium silicate as a new enamel raw material, 1933-54

Gloss - property of a surface by which it reflects light specularly-methods of determination, 1949.

Investigation of fish-scale phenomena, 1941

- Hairlining in Enamels, a study of hairlining in sheet steel and porcelain enamels, 1940-57
- High Temperature Coatings, properties of materials at high temperatures protective coatings for refractory metals, 1947-58
- Impact Test of Porcelain Enamel, relation of thickness to impact resistance, 1932-46
- Enamel Iron, Microscopic Examination of Metal Enamels - Proceedings of the 14th annual Porcelain Enamel Institute Forum, 1935-52
- Nickel Dip Treatment of Enameling Products, factors affecting rate of nickel deposition in nickel, 1932-48
- Opacity in Enamels, recrystallization of cerium oxide in porcelain enamels, photoelectric reflectometers, 1941-60
- Enamel, Effect of: effect of humidity and composition on strength and Young's modulus of enamels; study of the effect of soluble salts present in enamel mill liquors; properties, 1939-40
- Specifications for Enamels, 1939-45
- Torsion and Thermal-shock Test for Enamels, reflection of composition of viscosity of enamel glasses, 1940-55
- Waterlining, waterlining as related to dry beading, 1948
- Color, the Specification of, 1963
- Enamels: flues, furnaces and exhaust systems using high temperature porcelain enamels and ceramic coatings; a study of hairlining; a study of the phase relations of ZrO_2 - TiO_2 and ZrO_2 - TiO_2 - SiO_2 ; a study of the enameling of sheet nickel, 1953
- Furnace Atmospheres, Induction Firing in the Study of. Report of the determination of the effects of firing porcelain enamels in a closed system containing varied atmospheres Andrews, A. I.
- (1) The relation of viscosity, nuclei formation and crystal growth in Titania-opacified enamel;
 - (2) the calculation of the thermal expansion of enamel glasses;
 - (3) the immiscibility area in the TiO_2 - ZrO_2 - SiO_2 System;
 - (4) the development of opacity in white porcelain enamels
- Friedberg, A. L.: Clay-free porcelain enamel slips using celloidal silica powder, 1955 Parmelee, C. W., reports of:
- (1) Effects of boron oxide, phosphorous pentoxide and ferric oxide on the thermal expansion of a Florida Kaolin-quartz mixture;
 - (2) Heat-of-wetting values of unfired and fired clays;
 - (3) Testing and classification of ball clays: thermal history, 1921, 1935, 1944
- Hosking, J. S., et al.: Permanent Moisture Expansion of Clay Products, 1959
- Lead Industries Association, bulletins of technical information, 1959-61
- Keppeler, G., Untersuchungen über Kaoline und Tone, 1930 Chemical Reports, 1934-54:
- (1) Silicates of Soda in the Ceramic Industry;
 - (2) The Properties of Feldspars and their Use in Whitewares;
 - (3) Fluorspar as a Chemical Raw Material;
 - (4) High Purity Silicon
- Clays: an outline; the Jones Metal Products Co., a report, 1943

Box 2: Examinations - hour and final examinations for courses of ceramic engineering, 1961-53, 1947-61

Transistor:

- (1) Research leading to point-contact transistor;
- (2) Semiconductors;
- (3) a survey of transistor;
- (4) a discussion of transistor action and manufacture, 1955-58

Engineer's Council for Professional Development (ECPD): Annual Reports, 1953, 1955, 1959

Education: Reports on Evaluation and Importance of Engineering Education, 1934-55

Enrollment in the Department of Ceramic Engineering: Reports on the attempts of the Ceramic Engineering Department to increase the enrollment of students - Summary of Enrollment, 1930-54

Directories: porcelain enamel plants, potteries and clayware plants

Curriculum in Ceramic Engineering: course outlines and requirements

Conservation, Department of, correspondence, 1956

Ceramic Engineering Education, A. I. Andrews on, 1934, 1939-56

Ceramic Educational Council: Reports on the improvement of ceramic education; annual meetings, remarks, and correspondence, 1956-60

Ceramic Advisory Board Meeting: agenda, 1960

Crystal Chemistry in Ceramics: crystalization, 1951-60

Porcelain Enamels: Contract and correspondence -- The author, A.E. Andrews, revised and expanded his authoritative 1934 book before it was republished in 1961

American Society for Testing Materials - Reports on ceramic products, 1956

Schairer, J. F. and N. L. Bowen: The Systems $K_2O - Al_2O_3 - SiO_2$ and $Na_2O - Al_2O_3 - SiO_2$, a study of soda feldspar and potash feldspar as being the principal components of natural feldspars -the results of both studies are very important because of the usefulness of these feldspars in petrology and silicate technology, 1955-56

Alumni: List of students who received the graduate degree in the Department of Ceramic Engineering, 1908-63

Air Research and Development Command: a memorandum outlining the administrative procedures concerning contracts with the Solid State Sciences Division of the Office of Scientific Research

American Ceramic Society, 64th annual meeting, 1962; correspondence 1963

Ceramic Engineering Advisory Board: policy and administration, 1958

Pacific Coast Borax Co.: Experiments by Andrews on behalf of the PCB Co., to investigate the replacement of Borax by Rasorite, 1935-36

Porcelain Enameling: literature on the early and contemporary history of enamel -- background information very important for further investigation and research

Glass-lined chemical equipment: a paper by A. I. Andrews on the processes and importance on enameled chemical equipment, 1939

Firing Behaviour of Enamels: studies on the effect of furnace atmospheres in firing ceramics, 193058

Enamel Coating for Sheet-steel: Report on the development of a practical light-colored ground-coat enamel for sheet-steel, 1937
 Scientific Composition of Enamels -- identity and amounts of crystals in enamels and study of their compositions, 1930-61
 Ceramics: History and a survey of the field of ceramic engineering as to the purpose, importance, opportunities and scope, 1937-63
 Enameling Industry: domestic, commercial and industrial markets, 1945
 Chemistry of Ceramics: enamels and their properties, structure and composition; Thermodynamics in ceramics, 1921-59
 Foreign Correspondence, 1936-42

Box 3:

Glass Conferences -- papers on glass problems, 1947, 1961
 Ceramic Glossary (Complete list of the Ceramic Engineering Department graduates from 1908 through February 1956), 1963
 Illinois State Academy of Science, annual meetings, 1955-58
 Illinois Society of Professional Engineers, membership list and meetings, 1956
 Institute of Vitreous Enamellers: Silver Jubilee Conference -- international Congress at Venice, Italy, 1959, 1961
 Keramos - professional ceramic engineering fraternity, history and ritual, 1902-53
 National Institute of Ceramic Engineers, operating procedures, Newsletters, 1958-64
 National Academy of Sciences: National Research Council project for technological assistance to India, 1955
 Norris Stamping and Manufacturing Co., report on quality as related to damage and defects in Norris Stamping and Manufacturing Co. bath tubs.
 Engineering Open House: 1957 Transaction of the American Ceramic Society, 1958
 Chart of the Atoms, a summary report on the structure of the chart of the atoms, 1964
 Patent Office: patents on the inventions relating to the method of making a semicrystalline ceramic body, of the process of color-correcting titania-bearing porcelain enamels, and of conditioning of metal surfaces, 1953-61
 Phase Relationships: a study of the chemical and physical relationships at high temperatures in relation to a ceramic system; the systems (1) $\text{Na}_2\text{O} - \text{Al}_2\text{O}_3 - \text{SiO}_2$ and (2) $\text{K}_2\text{O} - \text{Al}_2\text{O}_3 - \text{SiO}_2$, 1955-56
 Petrography: the microscopic determination of the nonopaque minerals, 1921
 Cornell Aeronautical Laboratory, a report on the research activities, 1946-56
 Scientific research in Mellon Institute, 1955-56
 Research: reports on the research undertaken in industry, chemistry and other scientific areas; preliminary report of the committee on institutional research policy, 1953-54
 Refractories: studies on the mineral composition of refractory materials, role of refractories in steel's future and the relations of ceramics and refractory materials, 1935-62
 Small Homes Council: bulletins issued by the University of Illinois discussing different issues of house building and improvement, 1953-56
 Semiconductors - a theoretical study on importance of thermistors, 1953-54

American Ceramic Society - Correspondence, 1937-38

National Institute of Ceramic Engineers professional achievement awards in ceramic engineering, 1959-63

Study of the liquid pressure method of testing, a thesis, 1926

Topics for Ceramic Engineering 401, 1959-62

Topics for Ceramic Engineering 407, 1959-61

Porcelain Enamel Institute: Studies on Enamels, 1960

The Illini Ceramist, a student publication of the University of Illinois Ceramic Engineering students,

1937-64

Box 4:

Clays: a study of their occurrence and characteristics; Indian clays, heavy clay products, 1946-59
X-Ray investigation of the crystalline compounds present in sheet iron cover enamels and of sheet iron ground coat enamels

Reboiling of Enamels of Steels - a summary of observations and facts, 1933

Harshaw Chemical Co.: correspondence between Andrews and officials of the company; recommendations for improvement, 1945-50

Ceramic Surfaces: a study of ceramic surfaces with the optical microscope; adjustments of enamels to sheet steel, ground coat without adherence promoting oxides, 1943-47

National Resources Committee: small water storage projects, 1937-38

Condensation Engineering Corporation: advertising concerning the company and its basic products, 1948

American Institute of Chemical Engineers: Year Book, guide to authors, requirements for membership, 1950

Porcelain Enamels: conferences, symposia, proceedings of the Annual Porcelain Enamel Institute Forums, 1937-62

Studies on Ceramics: Bulletins of the Department of Ceramics of the University of Illinois, 1907-12
Andrews, A. I., Enamels; correspondence, 1934-35 Box 5:

Andrews, A. I., Personal and Career, 1924, 1931, 1966 Scientific Papers, chiefly on enamels, 1925-59

Box 6: [ARC]

Film, Moving Pictures of Enamel Defects Parts I and II, 2 copies, with description
Publication, Porcelain Enamels, Revised Edition, 1961