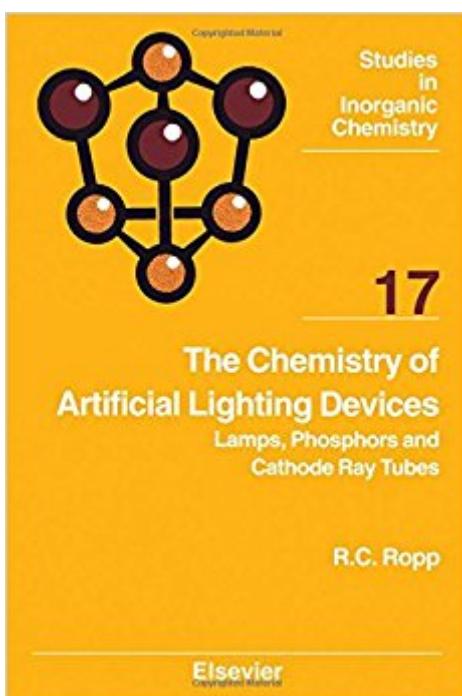


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The Chemistry Of Artificial Lighting Devices, Volume 17: Lamps, Phosphors And Cathode Ray Tubes (Studies In Inorganic Chemistry)



Synopsis

Both the early use of artificial lighting and current manufacturing methods concerning incandescent and fluorescent lamps are covered in this book. The protocols for manufacture of fluorescent lamp phosphors and those used in cathode ray tubes are also treated in some detail. This text surveys the amazing, vast array of artificial lighting devices known to date in terms of how they arose and are, or have been used by mankind. A complete description of the formulations and methodology for manufacturing all known phosphors is given. The book will serve as a repository of such phosphor manufacturing methods, including that of cathode ray tube phosphors. Methods of manufacture of lamp parts are also presented, including that of tungsten wire. The original approaches used are described as well as improvements in technology. These will serve as comparative methods for present day manufacture of these components. A history of the lamp industry is presented. Several methods are given which may serve as a source for further work in the lamp industry. Some of the earliest work has been applied in the laser industry to develop new types of discharge lasers. These include nitrogen-gas lasers and the rare gas (excimer) lasers. Previous work on lamps may also be applied in the development of new types of lasers.

Book Information

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Richard C. Ropp, Ph.D., holds a Ph.D. in Physical Chemistry from Rutgers University (1971), an M.S. from Purdue University (1952), and the A.B. (Chem.) from Franklin College (IN). His career in chemistry spans over 60 years and he has been a consultant to industry during the past 40 years.

Dr. Ropp has presented many seminars and talks and is the author of eight books (six by Elsevier). These books are based upon the properties of alkaline earth compounds. He began working with alkaline earth compounds in 1952, and was the originator and inventor of the red color TV phosphor in 1956 which is still being used today. He also created more than 25 new lamp and TV phosphors still being manufactured for the industry. Most of these were based upon alkaline earth compounds. He also developed more than 15 new chemical processes for raw materials used in the trade, many of which involved the manufacture of alkaline earth compounds. Fifty-five patents have been issued in his name (seven on glass) and he has published 63 technical papers. About 90% of the patents involved alkaline earth compounds. He is the inventor of a new type of alkaline earth phosphate glasses based on molecular polymerization. These glasses do not exhibit surface leaching by water and are more stable to hydrolysis than silicate-based glasses. These new glasses have unique applications in fiber-optics, high level nuclear waste disposal, high strength fibers, medical and dental implants, lasers, projection TV, and uses in optical and electronic components. Dr. Ropp held appointments as Research Specialist and Member of the Faculty of the Department of Chemistry at Rutgers University in Newark, NJ from 1971 to 1981. His experience has been varied and he has acted as Consultant and Expert Witness to attorneys concerning the technological aspects of their ongoing cases from 1989 to 2011 (more than 155 cases). From January 1990 to January 17, 1991, he served as Vice President of Technology for International Superconductor Corporation (ISC) of North Miami Beach, FL. During that time, he was responsible for all matters pertaining to technology and acquisition of patents in the field of high temperature ceramic superconductors. Due in part to his efforts, ISC now owns 16 patents for license or sale to the industry. He continued to aid in the marketing campaign and became a member of the Licensing Executives Society in September 1990. From May to December 1989, he served as Consultant to the Corporation and wrote all 32 patent applications subsequently filed in the US Patent Office. From April 1988 to April 1989, he served as Director of Technical Affairs at Electro-Nucleonics in Fairfield, NJ (later called CPG, Inc.) where he was responsible for Quality Control during the manufacture of controlled pore glass, including the preparation of various types and grades of coated glass. Part of the work included improvement of existing manufacturing techniques, as well as new techniques for producing coated glass. Dr. Ropp's other affiliations include: Staff Scientist for Allied Chemical (Morristown, NJ-1973-1977); Westinghouse Electric as Manager of Special Products Group (Bloomfield, NJ-1963-1967) and as Consultant (1967-1970); and Advanced Development Engineer for Sylvania Electric Products (Towanda, PA- 1952-1963). He was consultant to ITT (1973) for evaluation of their lamp manufacturing plant, production methods, and quality control at Champion Lamp Works in

Salem, MA. He was invited in May 1996 to lecture for two days at ITRI (Hinchu, Taiwan) on phosphor properties. A New York City insurance company sent him to Taiwan to evaluate 4000+ cathode-ray tubes, said to be water-damaged (December 1996). He also served as consultant from 1995 to 2003 to Light Sources of Orange, CT during their development and manufacture of superior "Blacklight" fluorescent lamps for tanning salon usage. Dr. Ropp is a Fellow of the Royal Society of Chemistry (London) and is a Chartered Chemist of the Society. He is also a member of the American Ceramic Society, American Chemical Society, AAAS, Materials Research Society, Sigma Xi, Licensing Executives Society, and served as the President of the New Jersey Institute of Chemists (1976-1980). He is listed in Who's Who in the East and Who's Who in the World-Registry of Business Leaders.

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