

Dr. Raphael Katzen
July 18, 1915 – July 12, 2009



Dr. Raphael “Ray” Katzen, 93, died on July 12, 2009. The biofuels industry has lost a great leader.

Dr. Katzen was an engineer, inventor, businessman and entrepreneur. He had an unwavering commitment and a lifelong vision of the fuel ethanol industry and its potential for making the world a better place for everyone. History will prove that he made a permanent mark on the biofuels industry worldwide.

After graduating from the Polytechnic Institute of Brooklyn (now Polytechnic Institute) with the Doctorate of Chemical Engineering, Ray worked for 16 years in the chemical industry before creating Raphael Katzen Associates International, Inc. (RKAI) in 1954. The company, though small in size, operated globally in an era when communication and transportation were varied and unreliable. He chaired the company (now KATZEN International, Inc.) for 4 decades, before turning over the ownership and operation of KATZEN International to those he personally selected and trained. He continued as adviser and also conducted his personal practice as an independent consultant to the ethanol industry.

Ray’s experience with ethanol began while working at Vulcan Cincinnati after earning his Doctorate. Vulcan was awarded a contract by the U.S. government to build an ethanol plant using wood waste as a feedstock. He then turned his attention to pre-Castro Cuba and created a modern fuel ethanol industry in that country. Because of the success of the Cuban fuel ethanol operations, a Brazilian engineering executive was dispatched to Cuba to learn about sugarcane-based fuel ethanol from Ray. From this experience, the Brazilian fuel ethanol industry developed.

After the Castro regime expelled Ray, RKAI consolidated its operations in Cincinnati, Ohio, with its main focus being the ethanol industry, worldwide. In 1978, following the OPEC crisis, the U.S. Department of Energy came to Ray

for advice. He reported back in the affirmative regarding the technical and economic feasibility of ethanol as a motor fuel. RKAI produced a roadmap for developing the fuel ethanol industry. This breakthrough report sold 30,000 copies. Following this blueprint, in 1980 RKAI designed a 60 million gallon-per-year facility at an abandoned fertilizer plant in South Point, Ohio. At that time, South Point Ethanol was the world's largest coal-fired dry mill fuel ethanol plant. This plant demonstrated numerous "firsts-of-kind", including simultaneous saccharification and fermentation, dubbed SSF by Ray. In the years to follow, RKAI designed, built, and consulted on numerous plants with a variety of feedstocks, and in a number of countries. In his later years, Ray re-focused his energies to developing new technologies in cellulosic ethanol – some 60 years later - continuing what he had started while at university.

Ray was a licensed Professional Engineer in a roll call of states. His awards, associations and accomplishments are too numerous to list. As a lifelong member and Fellow of the American Institute of Chemical Engineers, and former chair of the Ohio Valley Section, he was presented the Professional Practice Award in 1986; and, in 1988, he received the Personal Achievement in Chemical Engineering award from Chemical Engineering magazine. In 1990, he received the Management Division Award of the American Institute of Chemical Engineers. He was honored for his accomplishments in bioengineering by his election to the National Academy of Engineering in 1996. In 1997, he was presented the C.D. Scott Award by the Symposium on Biotechnology and Bioengineering sponsored by USDOE, NREL and ORNL. Ray was honored as the first recipient of the Award of Excellence presented by the International Fuel Ethanol Workshop in 2001. In 2008, the Symposium on Biotechnology and Bioengineering created the Dr. Raphael Katzen Lifetime Achievement Award. This annual award recognizes an individual who has made "distinguished contributions to enable and further the deployment and commercialization of biotechnology to produce fuels and chemicals from renewable sources". Ray was the first recipient.

Dr. Katzen held forty-eight U.S. and foreign patents. He presented more than twenty papers and authored over fifty publications. He assisted in the editing of the first edition of the landmark Kirk-Othmer Encyclopedia of Chemical Technology.

Ray worked until the very end for the advancement of the industry, in which he believed so strongly. He lived his life, both professionally and personally, with Selma Katzen, his partner and wife of more than 71 years. In addition to his beloved wife Selma S. (nee Siegel) Katzen, Ray is survived by his daughter, Nancy (Richard) Riedel of Cincinnati, OH; three grandchildren, Andrew Riedel of Foster City, CA, Christopher (Amy) Riedel of Cincinnati, OH

and Kimberly (Frank) Sanchez of Cincinnati, OH; and seven great grandchildren, Savannah, Casey, Jasmin, Jackson, Bryce, Sophia and Dylan. He was preceded in death by his parents and by his brother, Saul. Memorial contributions may be made to the American Institute of Chemical Engineers (AIChE), Raphael Katzen Memorial Fund, 3 Park Avenue 19th Floor, New York, NY 10016-5991

Dr. Katzen's wisdom and commitment to excellence will live on in the achievements of those whose lives he touched.

Philip W. Madson
President
KATZEN International, Inc.