



Photo courtesy of Carol Thiel

Charles Thiel

Metered Dose Inhaler (MDI)

U.S. PATENT NO. 3,014,844: Self-propelling powder dispensing compositions

Inducted in 2026 Born: April 4, 1928 Died: March 10, 2023

Charles Thiel, George Maison and Irving Porush invented the first pressurized metered dose inhaler (MDI) for the management of asthma and other lung conditions. Introduced by Riker Laboratories in 1956, the MDI was quickly accepted as the first convenient, portable inhaler to effectively deliver medication to the lungs. This important device has saved lives and improved the quality of life for hundreds of millions of people.



Full Bio: <https://www.invent.org/inductees/charles-thiel>

Primary Connections:

- Riker Laboratories/3M Drug Delivery Systems: Research Chemist, 1954-2000

Education:

- University of California, Santa Barbara: B.A., Chemistry, 1954

Military Service:

- U.S. Army Air Forces

Key Memberships/Awards:

- U.S. Pharmacopeia (USP): Jacob Bigelow Award, 2017
- Virginia Commonwealth University School of Pharmacy-3M Drug Delivery/Kindeva Drug Delivery: The Charles G. Thiel Award for Outstanding Research and Discovery in Respiratory Drug Delivery, 2006
- 3M Carlton Society, 1982

Things You Should Know:

- Thiel was born in Santa Barbara, California, in 1928.
- When he served in the U.S. Army Air Forces, he was stationed in Japan as a military photographer.
- Though he had been interested in pursuing a career in photography, he found there was a lack of photography jobs available, so he chose to enter the field of chemistry.
- When collaborating to develop the MDI at Riker Laboratories, Thiel developed an innovative suspension of the necessary medication in a liquefied gas propellant.
- In the mid-1960s, he created a technique using high-speed flash photography to capture images of MDI plumes, making it possible to identify defects.
- Thiel's plume photography technique was adopted widely by industry product developers.
- When Riker Laboratories was purchased by 3M Corp. as a subsidiary in 1970, Thiel remained there until his retirement in 2000.
- He said that 3M "provided a beautiful laboratory and paid me to play in it."
- The Charles G. Thiel Award for Outstanding Research and Discovery in Respiratory Drug Delivery was established by the Virginia Commonwealth University School of Pharmacy in 2006, and Thiel was the award's first recipient.