

Comment about PFOS in our environment.

In the 1980's I was a Professor at the Cornell College of Veterinary Medicine doing racehorse drug testing using novel analytical technologies that my laboratory was developing. Our success with forensic drug testing attracted attention from the pharmaceutical industry which led me to start a commercial contract research organization (CRO) laboratory in 1993 to serve that industry. Meanwhile, several industries had contracted me to be their consultant to help them adopt our new technologies. One of these companies was the 3M Company. Because 3M was familiar with my laboratory's analytical capabilities, they contracted with my CRO to analyze some blood samples for the presence of PFAS and other PFOS chemicals. Their request was to measure the quantity of these PFOS chemicals in some blood samples. Such bioanalytical measurements require that negative control or 'blank' blood samples be used that do not contain any of the chemicals we were looking to measure. We needed to produce a calibration curve for PFAS which was then used to measure the actual levels of PFAS in the blood samples provided by 3M for us to measure. We had great difficulty locating a blood sample of any kind that did not contain PFAS. This was almost 30 years ago! We finally located ONE PFAS-free sample - - a rabbit that was from Siberia! Using that negative control blood, we produced a calibration curve and analyzed 3M's blood samples. Those samples had measurable levels of PFAS in them. We reported these results to 3M and I do not recall being asked to do any further analyses.

PFAS chemicals have many fluorine atoms attached to a chain of carbon atoms. These C-F chemical bonds are very short and very strong. This means these chemicals are chemically stable so they do not degrade, break down or metabolize very well. These chemicals have come to be known as 'forever chemicals' because of this characteristic. Because of their chemical stability these chemicals accumulate in our environment (water and soil) and animals including fish, especially those living in waters close to where wastes are discarded. Current research studies now show that 99% of humans have detectable levels of PFAS chemicals in their blood. Clinical toxicology studies are not yet plentiful, but the EPA and the FDA have set zero levels on some of them. It is sobering to note that there are now thousands of these chemicals in our environment.

From: Jack Henion, Ph.D.

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Biographical Sketch of Jack Henion

Professor Jack Henion is Emeritus Professor of Toxicology at Cornell University where he was a member of the College of Veterinary Medicine commencing in 1976. Dr. Henion was co-founder of Advion BioSciences in 1993 where he served as President and CEO until 2006 when he became CSO of Advion, Inc. Professor Henion has received three *Doctor Honoris Causa* (Honorary Doctorate) degrees in recognition of his international reputation in modern analytical techniques. These were awarded from the University of Ghent, Uppsala University and Albany University. Professor Henion's Cornell research explored applications in many areas of liquid chromatography/mass spectrometry (LC/MS) employing atmospheric pressure ionization (API) sources. Professor Henion has published 235 peer-reviewed papers, trained over 100 students, post-doctoral scientists, and trainees and received 12 patents for inventions developed from his work. He has also received a number of awards which recognize his contributions to analytical chemistry and entrepreneurship. In December 2019 Dr. Henion retired from Advion, Inc. and is now a consultant on behalf of Henion Enterprises.