Statistical Engineering Division Seminar

Friday June 9, 1995 11:00 am
Room B157, Technology Bldg.
NIST
Gaithersburg, MD

Where to Set Fill Targets

Lynne Hare
Consultant

All manufacturers of consumer goods sold by net contents must contend with the issue of setting fill targets. Because of fill variation, it is inevitable that some packages will be filled below the declared net contents. The question is, "How many should fall in that category?" The statistical literature has considered this an economic issue based on such costs as scrap, rework, labor, raw materials, customer dissatisfaction, and so on, most of which are unknown.

The present work offers a different approach based on how well the filling process is controlled and on the chance that the manufacturer is willing to take of failing to comply with the regulations. NIST Handbook 133, Checking the Net Contents of Packaged Goods, November 1994 Supplement, is used as the guide. Fill variation is divided into "capability," that which is inherent to the process, and "performance," the variation actually experienced by the consumer. The ratio of these two kinds of variation measures lack of control. Variance components are used to measure both types of variation, and risks of failure to comply are calculated. Further, it is demonstrated that higher ratios of performance to capability necessitate higher targets for the same level of compliance.

Lynne Hare is a statistical and quality management consultant with over 25 years of industrial experience. He has founded two industrial statistics departments and has been extremely active fostering the advancement of statistics in industrial decision making at all levels. He has also worked as a director of a multi-disciplinary organization which included chemists, microbiologists, statisticians, computer scientists and other technical staff. Lynne holds PhD and MS degrees from Rutgers University and a BA from The Colorado College. He is a fellow of the American Statistical Association and of the American Society for Quality Control. In 1993, he was chosen to deliver the W. J. Youden Memorial Address at the Fall Technical Conference which is sponsored jointly by two divisions of the ASQC and a section of the ASA. This address commemorates the renowned chemist-statistician who worked at the National Bureau of Standards, 1947-71.

[NIST contact: M. Carroll Croarkin, 301-975-2849]