

# The ever-changing landscape of ISO and IEST cleanroom standards

## Electronic documentation could make keeping up a little less daunting

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**D**o you ever feel lost in trying to keep up with new and revised international standards and recommended practices? If feedback from our many colleagues is a good indicator, you are not alone in wishing there was something akin to a GPS system to guide you through the ever-changing landscape of standards. While the GPS system may be wishful thinking, the Institute of Environmental Sciences and Technology (IEST) is working the roadway to both increased standards awareness and improved standards access.

In the not-so-distant past, Fed. Std. 209 was the main document used in the United States in contamination control operations and contracts. The revisions moved along the alphabet from “A” to

“E,” making it easy to keep up with any changes. We now live in a world dominated by global events, global businesses, and global economies. Standardization is not only integral but necessary, resulting in the need for publication of generic guidance documents (ISO standards) and more specific Recommended Practices (IEST RPs). As of this writing, ISO Technical Committee 209, *Cleanrooms and Associated Controlled Environments* (ISO/TC 209), has ten published International standards, one document under development, and four published documents under revision. IEST has 27 published recommended practices and standards with many more in various stages of development.

To steer you down the express lane to the official ISO standards, IEST will soon be providing all ISO cleanroom standards in searchable electronic format. No more worrying about where you left your dog-eared printed copy of contamination control’s cornerstone ISO 14644-1, *Cleanrooms and Associated Controlled Environments—Part 1: Classification of Air Cleanliness*. You can now ensure that you have the latest official version on your laptop or PC for quick reference while specifying processes or finalizing contracts. As the secretariat for ISO/TC 209, IEST will offer the official electronic PDF versions of all available ISO 14644 and 14698 series standards. The documents can be ordered online from IEST and delivered via e-mail to your computer. Ordering directly from IEST ensures that you are receiving the authentic, officially adopted version of each standard and not violating international copyrights.

To guide the industry through the ever-growing standards landscape,

IEST also provides detailed scopes of more than 40 available standards, recommended practices, and guides on contamination control on its web site at [www.iest.org](http://www.iest.org). Questions regarding which standards apply to your application, process, or contract can be sent using the contact inquiry form.

The detailed ISO standards section of the web site offers background about the development and content of the ISO cleanroom standards and explains another perplexing portion of the ISO standards landscape—the availability of “draft” standards and their role in your contracts and operations. ISO documents can move through as many as five draft stages before the final publication stage. Of these stages, only the Draft International Standard (DIS) and Final Draft International Standard (FDIS) stage documents may be made available for public use. The DIS stage is vitally important because it marks the first stage that a standard may be used as a trade reference per agreement between customer and supplier. Standards reaching the DIS and FDIS stages will also be available in electronic format from IEST.

## IEST will soon provide all ISO cleanroom standards in searchable electronic format.

Another aspect that impacts the changing standards landscape is that standards work mirrors the contamination control industry itself and is far from static. Published international standards are subject to specified periodic reviews to assure recommendations, practices, and references are kept current with new technology, information, and regulations. In 2007, ISO, the world’s largest developer and publisher of international standards, modified its systematic review process to reduce the timeline for the initial review of published international standards from five years to three years (subsequent reviews are held every five years).

Organizations such as IEST, which is accredited for standards development by the American National Standards Institute (ANSI), also operate according to published guidance. IEST reviews each Recommended Practice every three years, but several have been revised in a tightened timeframe to introduce new methods to the contamination control community.

During the review process, experts vote to confirm, revise, or

# setting the standard

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withdraw the document. Confirmation or validation of the existing document indicates the committee has recommended that no changes to the existing document are necessary. ISO and IEST review processes are accomplished within the year the document is scheduled for review. However, some document reviews/revisions take longer, and ISO has taken into account extenuating circumstances to extend normal expectations and revision processes up to five years. Adding to the complexity is the fact that once an ISO standard is published, adoption by national agencies may take an additional two to three years. The time period to national adoption is likely to be much shorter for countries that have participated in the development of the standard, are on the national standards body, or serve as secretariat in a standards developing organization. Thus, standards developed by ISO/TC 209 and overseen by the secretariat, IEST, are normally adopted domestically in a few months, with IEST and ANSI coordinating efforts.

Each international standard may reveal the need for other supporting documents such as recommended practice and guidance documents. The IEST web site offers a wide range of information about related documents. For example, the listing for *IEST-G-CC1001: Counting Airborne Particles for Classification and Monitoring of Cleanrooms and Clean Zones* includes a recommendation for the following: ISO 14644-1, ISO 14644-2, CC1002, CC1003, and CC1004. This information provides the opportunity for a review of synopses of the additional documents to decide relevance to your specific application. In addition, one of the most frequently downloaded files from IEST's web site is a reference table that lists ISO standards

and parallel Recommended Practices. IEST has recently packaged related ISO standards and IEST Recommended Practices to enable contamination control experts to quickly find the references they need.

What is in the future for cleanroom standards? ISO/TC 209 is considering a new series of standards: Cleanrooms and Associated Controlled Environments—Nanotechnology. IEST is also working on several nanotechnology initiatives and is looking for working group experts. As for the format of the standards themselves, IEST is reviewing the concept of “smart” standards that link documents to their references, allowing readers to quickly find the underlying methodology or move from highly generic to application-specific examples and resources. ☛

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