

*Institute of Environmental Sciences and Technology*

**IEST-RP-CC026.3**

Contamination Control Division  
Recommended Practice 026.3

# Cleanroom Operations



1827 Walden Office Square, Suite 400  
Schaumburg, IL 60173  
Phone: (847) 981-0100 • Fax: (847) 981-4130  
E-mail: [information@iest.org](mailto:information@iest.org) • Web: [www.iest.org](http://www.iest.org)

---

This Recommended Practice was prepared by and is under the jurisdiction of Working Group 026 of the IEST Contamination Control Division (WG-CC026). The following WG voting members contributed to the development of this edition of this Recommended Practice:

Anne Marie Dixon-Heathman, Cleanroom Management Associates, Inc.  
WG-CC026 Chair

Gordon Ely, GEM Consulting

Jennifer Galvin, DuPont

Leo Gubenko, Vileda Professional

Rick Meyer, Superior Laboratory Services, Inc.

Jay Postlewaite, Texwipe, An ITW Company

Mike Rataj, ARAMARK Cleanroom Services

Matt Smyers, Technical Safety Services

David C. Swinehart, Clean Environments Consultancy

Jay Valentine, Vileda Professional

The Working Group also wishes to acknowledge the contributions of members who prefer to remain anonymous.

Copyright © 2020 by the Institute of Environmental Sciences and Technology

First printing, May 2020

ISBN: 978-1-937280-44-4

ISBN: 978-1-937280-43-7

**PROPOSAL FOR IMPROVEMENT:** The Working Groups of the Institute of Environmental Sciences and Technology are continually working on improvements to their Recommended Practices and Reference Documents. Suggestions from users of these documents are welcome. If you have a suggestion regarding this document, please use the online Proposal for Improvement form found on the IEST website at [www.iest.org](http://www.iest.org).

Institute of Environmental Sciences and Technology  
1827 Walden Office Square, Suite 400  
Schaumburg, IL 60173  
Phone: (847) 981-0100 • Fax: (847) 981-4130  
E-mail: [information@iest.org](mailto:information@iest.org) • Web: [www.iest.org](http://www.iest.org)

---

**NOTICE AND DISCLAIMER:** This Recommended Practice is published by the Institute of Environmental Sciences and Technology (IEST) to advance the technical and engineering sciences. Use of this document is entirely voluntary, and determination of its applicability and suitability for any particular use is solely the responsibility of the user. Use of this Recommended Practice does not imply any warranty or endorsement by IEST.

The information in this publication was considered technically sound by the consensus of persons engaged in the development and approval of the document at the time it was developed. Consensus does not necessarily mean that there is unanimous agreement among all persons participating in the development of this document.

IEST standards, recommended practices, and guideline publications, of which the document contained herein is one, are developed through a voluntary consensus standards development process. This process brings together volunteers and seeks out the views of persons who have an interest in the topic covered by this publication. While IEST administers the process to promote fairness in the development of consensus, the organization does not write the document and does not independently test, evaluate, or verify the accuracy or completeness of any information or the soundness of any judgments contained in IEST standards, recommended practices, and guideline publications.

IEST disclaims liability for any personal injury, property, or other damages of any nature whatsoever, whether special, indirect, consequential, or compensatory, directly or indirectly resulting from the publication, use of, application, or reliance on this document. IEST disclaims and makes no guaranty or warranty, express or implied, as to the accuracy or completeness of any information published herein, and disclaims and makes no warranty that the information in this document will fulfill any of the particular purposes or needs of users of the document. IEST does not guarantee the performance of any individual manufacturer or seller's products or services by virtue of this standard or guide.

In publishing and making this document available, IEST is not undertaking to render professional or other services for or on behalf of any person or entity, nor is IEST undertaking to perform any duty owed by any person or entity to someone else. Anyone using this document should rely on his or her own independent judgment or, as appropriate, seek the advice of a competent professional in determining the exercise of reasonable care in any given circumstances. Information and other standards on the topic covered by this publication may be available from other sources, which the user may wish to consult for additional views or information not covered by this publication.

IEST has no power, nor does it undertake to police or enforce compliance with the contents of this document. IEST does not certify, test, or inspect products, designs, or installations for safety or health purposes. Any certification or other statement of compliance with any health or safety-related information in this document shall not be attributable to IEST and is solely the responsibility of the certifier or maker of the statement.

---

COPYING IS ILLEGAL

---

# Cleanroom Operations

## IEST-RP-CC026.3

### CONTENTS

#### SECTION

1	SCOPE AND LIMITATIONS .....	6
2	REFERENCES.....	6
3	TERMS AND DEFINITIONS .....	8
4	BACKGROUND AND PURPOSE .....	10
5	ANCILLARY OPERATIONS.....	10
6	METHODS FOR VERIFYING CLEANLINESS.....	21

#### FIGURE

1	CONTINUOUS FLOWING DUCT METHOD.....	24
2	TEST CHAMBER SCHEMATIC FOR RESERVOIR METHOD.....	28
3	RELATIVE PARTICLE CONCENTRATION IN THE RESERVOIR DURING THE RESERVOIR TEST METHOD .....	30

#### APPENDIX

A	BIBLIOGRAPHY .....	38
---	--------------------	----

# Cleanroom Operations

## IEST-RP-CC026.3

### 1 SCOPE AND LIMITATIONS

This Recommended Practice (RP) provides guidance for maintaining the integrity of the cleanroom or clean zone during ancillary operations.

#### 1.1 Scope

Ancillary operations include:

- a) Preparation of supplies and materials for entry into the cleanroom
- b) Modification of the facility
- c) Installation and repair of equipment

Procedures are given for verifying the cleanliness of the equipment, the workstation, and the area, following these ancillary operations.

#### 1.2 Limitations

This Recommended Practice does not address the effect of contamination from the equipment or facility upon the product under manufacture, nor does it specify limits of acceptance for operational conditions. It does, however, recommend standard terminology for specifying desired limits.

### 2 REFERENCES

The following documents are incorporated into this Recommended Practice to the extent specified herein. Users should apply the most recent editions of the references.