

**INSTITUTE OF
ENVIRONMENTAL
SCIENCES AND
TECHNOLOGY**

**Contamination Control Division
Recommended Practice 018.4**

IEST-RP-CC018.4

**Cleanroom Housekeeping:
Operating and Monitoring
Procedures**

INSTITUTE OF ENVIRONMENTAL SCIENCES AND TECHNOLOGY

Arlington Place One
2340 S. Arlington Heights Road, Suite 100
Arlington Heights, IL 60005-4516
Phone: (847) 981-0100 • Fax: (847) 981-4130
E-mail: iest@iest.org • Web: www.iest.org



This Recommended Practice is published by the INSTITUTE OF ENVIRONMENTAL SCIENCES AND TECHNOLOGY to advance the technical and engineering sciences. Its use is entirely voluntary, and determination of its applicability and suitability for any particular use is solely the responsibility of the user.

This Recommended Practice was prepared by and is under the jurisdiction of Working Group 018 of the IEST Contamination Control Division.

Copyright © 2007 by the **INSTITUTE OF ENVIRONMENTAL SCIENCES AND TECHNOLOGY**

First printing, October 2007

ISBN 978-0-9787868-3-0

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 those who use 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/proposal/form.html.

INSTITUTE OF ENVIRONMENTAL SCIENCES AND TECHNOLOGY

Arlington Place One

2340 S. Arlington Heights Road, Suite 100

Arlington Heights, IL 60005-4516

Phone: (847) 981-0100 • Fax: (847) 981-4130

E-mail: iest@iest.org • Web: www.iest.org



Cleanroom Housekeeping: Operating and Monitoring Procedures

IEST-RP-CC018.4

CONTENTS

SECTION

1	SCOPE AND LIMITATIONS	5
2	REFERENCES	5
3	TERMS AND DEFINITIONS	6
4	BACKGROUND	6
5	PROCEDURES	7
6	TEST METHODS	14

FIGURE

1	RECOMMENDED WIPING SEQUENCE.....	10
2	WALL-CLEANING STROKE METHOD	10
3	FLOOR-CLEANING STROKE METHOD.....	11
4	CLEANING CHECKLIST	13
5	WIPING SUB-ASSEMBLY	18
6	CAMERA AND UV LIGHT SUB-ASSEMBLY	19

TABLE

1	CLEANING FREQUENCY FOR ISO CLASS 5 CLEANROOM	13
2	APPLICATION OF TEST METHODS ACCORDING TO TYPE OF CONTAMINATION	14
A1	EFFECT OF PARTICLE SIZE ON ADHESION TO SURFACE	24

APPENDIX

A	PARTICLE ADHESION AND REMOVAL	23
B	BIBLIOGRAPHY	26

COPYING IS ILLEGAL

INSTITUTE OF ENVIRONMENTAL SCIENCES AND TECHNOLOGY
Contamination Control Division
Recommended Practice 018.4

Cleanroom Housekeeping: Operating and Monitoring Procedures

IEST-RP-CC018.4

1 SCOPE AND LIMITATIONS

1.1 Scope

This Recommended Practice (RP) provides guidance for maintaining a cleanroom at the level for which it was designed. This document is intended as a guide for establishing appropriate housekeeping procedures essential for the overall contamination control program of the cleanroom. In addition, test procedures are provided for use in establishing the frequency of housekeeping and monitoring the effectiveness of the housekeeping.

The test methods also are designed to help determine appropriate levels of surface cleanliness for specific cleanrooms.

1.2 Limitations

This RP does not specify acceptance limits, but does provide standard terminology for specifying desired limits.

NOTE: References to "cleanroom" in this document are to be construed, where appropriate, as including clean zones and clean-air devices.

2 REFERENCES

The cited editions of the following documents are incorporated into this RP to the extent specified herein. Users are encouraged to investigate the possibility of applying the most recent editions of the references.

2.1 American Society for Testing and Materials (ASTM)

ASTM F24-04: Standard Method for Measuring and Counting Particulate Contamination on Surfaces

2.2 Institute of Environmental Sciences and Technology (IEST)

IEST-RP-CC003.3: Garment System Considerations in Cleanrooms and Other Controlled Environments

IEST-RP-CC004.3: Evaluating Wiping Materials Used in Cleanrooms and Other Controlled Environments

IEST-RP-CC005.3: Gloves and Finger Cots Used in Cleanrooms and Other Controlled Environments

IEST-RP-CC007.1: Testing ULPA Filters

2.3 International Organization for Standardization (ISO)

ISO 14644-1:1999 Cleanrooms and associated controlled environments—Part 1: Classification of air cleanliness

2.4 United States Pharmacopeia (USP)

USP30-NF25: The United States Pharmacopeia and National Formulary

2.5 Sources and Addresses

ASTM

American Society for Testing and Materials
100 Barr Harbor Drive
West Conshohocken, PA 19428-2959 USA
Phone: 610-832-9585
Fax: 610-832-9555
Web: www.astm.org