INSTITUTE OF ENVIRONMENTAL SCIENCES AND TECHNOLOGY

Contamination Control Division Recommended Practice 028.1

IEST-RP-CC028.1

Minienvironments

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 is a preview of "IEST-RP-CC028.1". Click here to purchase the full version from the ANSI store.

This Recommended Practice is published by the INSTITUTE OF ENVIRONMENTAL SCIENCES AND TECHNOLOGY to advance contamination control and 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 CC028 of the IEST Contamination Control Division.

Copyright © 2002 by the Institute of Environmental Sciences and Technology

Second printing, December 2002

ISBN 978-1-877862-83-0

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

Phone: (847) 981-0100 • Fax: (847) 981-413 E-mail: iest@iest.org • Web: www.iest.org

Minienvironments IEST-RP-CC028.1

CONTENTS

1	SCOPE AND LIMITATIONS	
2	REFERENCES	5
3	TERMS AND DEFINITIONS	
4	APPLICATIONS AND CONCEPTS	
5	PLANNING	
6	DESIGN CONSIDERATIONS	15
7	EVALUATION OF MINIENVIRONMENT SYSTEMS	22
8	BIBLIOGRAPHY	26
TAB	LE	
1	MICROELECTRONICS PRODUCTION OPERATIONS	10
2	MINIENVIRONMENT CONCEPTS	10
3	CONTAMINATION CONTROL CATEGORIES	14
FIGU	URE	
1	STAND-ALONE MINIENVIRONMENT (OPEN LOOP)	
2	FACILITY SUPPLIED MINIENVIRONMENT (OPEN LOOP)	
3	STAND-ALONE MINIENVIRONMENT (CLOSED LOOP)	12

This is a preview of "IEST-RP-CC028.1". Click here to purchase the full version from the ANSI store.



INSTITUTE OF ENVIRONMENTAL SCIENCES AND TECHNOLOGY Contamination Control Division Recommended Practice 028.1

Minienvironments IEST-RP-CC028.1

1 SCOPE AND LIMITATIONS

1.1 Scope

The purpose of this document is to provide a framework for describing minienvironments for microelectronics and similar applications.

Applications, planning, design, and evaluation are discussed in detail.

This Recommended Practice is intended to stimulate discussion of specifications and configurations for a specified application between the supplier and customer. This Recommended Practice does not address microbiological issues or applications.

1.2 Limitations

This Recommended Practice is limited to a discussion of the design characteristics and operating characteristics of minienvironments and other locally controlled environments. Process equipment design falls outside the scope of this document.

This document does not supersede specific requirements established by recognized national or international regulating bodies. Certain specific hazardous materials, such as radioactive materials and genetically altered organisms, and certain toxic materials are not specifically addressed in this document. Users of these substances should augment this document with industry-specific publications.

2 REFERENCES

2.1 Institute of Environmental Sciences and Technology (IEST)

2340 S. Arlington Heights Road, Suite 100 Arlington Heights, IL 60005-4516, USA

Phone: (847) 981-0100 Fax: (847) 981-4130 E-mail: iest@iest.org Website: www.iest.org

IEST-RP-CC006.2: Testing Cleanrooms

IEST-RP-CC008-84: Gas-Phase Adsorber Cells

IEST-RP-CC012.1: Considerations in Cleanroom Design

IEST-RP-CC022.1: Electrostatic Charge in Cleanrooms and Other Controlled Environments

IEST-RP-CC034.1: HEPA and ULPA Filter Leak Tests

2.2 American National Standards Institute (ANSI)

Website: www.ansi.org

ANSI C63.14-1992 Dictionary of Technologies of Electromagnetic Compatibility (EMC), Electromagnetic Pulse (EMP), and Electrostatic Discharge (ESD)