

STANDARD OF PRACTICE FOR GLOVEBOX FIRE PROTECTION

AGS-G010-2011

**AMERICAN GLOVEBOX SOCIETY
STANDARDS DEVELOPMENT COMMITTEE**

All Rights Reserved
Copyright 2011

No portion may be duplicated without the written consent of the American Glovebox Society.

ISBN: 1-892643-07-3

Extra copies may be requested from
American Glovebox Society
526 So. E Street
Santa Rosa, CA 95404
(800) 530-1022
(707) 578-4406 (fax)
www.gloveboxsociety.org

DISCLAIMER

This American Glovebox Society (AGS) Standard of Practice for the Glovebox Fire Protection, AGS-G010-2011, has been compiled from established practices and member and contributor experiences. The AGS, its membership, and contributors assume no responsibility for any liability arising out of its use or application. Note that the requirements stated within this standard of practice may be superseded by legal requirements within the jurisdiction of use.

Table of Contents

AGS STANDARDS DEVELOPMENT COMMITTEE		v
ACKNOWLEDGMENTS		vi
AGS TECHNICAL COMMITTEE DOCUMENT COMMENT FORM		vii
1 SCOPE		1
1.1 Limitations.....		1
1.2 Purpose		1
2 SUPPORTING DOCUMENTS		1
3 TERMS AND DEFINITIONS		2
4 METHODOLOGY		4
5 FIRE SAFETY PERFORMANCE CRITERIA		4
5.1 Application to Glovebox Design and Operation.....		4
5.2 Codes and Standards Applicable to Glovebox Design		5
6 FIRE HAZARDS ANALYSIS and FIRE HAZARDS EVALUATION		5
6.1 Fire Hazard Analysis		5
6.2 Fire Hazards Evaluation		6
6.2.1 Elements of an FHE.....		6
6.3 Fire Models.....		8
7 GLOVEBOX DESIGN		8
7.1 Construction.....		8
7.1.1 Shells and Stands		8
7.1.2 Windows, Frames, and Gaskets.....		8
7.1.3 Gloveports		9
7.1.4 Bagports.....		9
7.1.5 Glovebags		9
7.1.6 Glovebox Shielding or Insulating Material		9
7.2 Glovebox Ventilation		9
7.2.1 General.....		9
7.2.2 Requirements		10
7.2.3 Ventilation Considerations		10
7.3 Inert Atmospheres.....		11
7.3.1 General.....		11
7.3.2 Inerting System Design.....		11
7.4 Oxygen Enriched Atmospheres		12
7.5 Automatic Fire Detection Systems		12
7.5.1 Requirements		12

7.6	Fire Suppression Systems.....	12
7.6.1	Protection of Room or Building	12
7.6.2	Protection of Spaces Obstructed by Gloveboxes.....	13
7.6.3	Protection of Glovebox Contents.....	13
7.7	Manual Fire Suppression for Gloveboxes	13
7.7.1	Manual Fire Fighting	13
7.8	Passive Fire Protection Features.....	13
7.8.1	Fire-rated Opening Protectives	13
7.8.2	Fire Barrier Penetrations.....	14
7.9	Utilities	14
7.9.1	Electrical Systems.....	14
7.9.2	Compressed Flammable Gases	14
7.9.3	Piped Gases and Liquids.....	14
8	GLOVEBOX OPERATIONS.....	14
8.1	Combustible Loading Restrictions	14
8.1.1	Limits.....	14
8.1.2	Controlling Combustibles.....	15
8.1.3	Segregation of Combustibles.....	15
8.1.4	Use and Storage of Flammable and Combustible Materials or Liquids	15
8.1.5	Inspections	15
8.2	Heat Producing Equipment.....	15
8.3	Glovebox Operational Requirements	16
8.4	Gloveboxes Removed from Service	16
8.5	Gloveboxes Out of Commission.....	17
9	INSPECTION, TESTING, AND MAINTENANCE	17
9.1	Inspection, Testing and Maintenance of Fire Protection Systems and Features.....	17
9.2	Open Glovebox Maintenance	17
10	REFERENCES/SUPPORTING DOCUMENTS	18
Appendix A	.....	A-1
Appendix B	.....	B-1
Appendix C	.....	C-1
Appendix D	.....	D-1
Appendix E	.....	E-1