

Table of Contents

| | | |
|---|---|-----|
| | AGS STANDARDS DEVELOPMENT COMMITTEE | v |
| | ACKNOWLEDGMENTS | vi |
| | COMMENT FORM..... | vii |
| 1 | SCOPE | 1 |
| | 1.1 Limitations..... | 1 |
| | 1.2 Purpose | 1 |
| | 1.3 Uses of Containment Gloveboxes for Low-Penetrating Ionizing Radiation | 1 |
| 2 | SUPPORTING DOCUMENTS | 1 |
| 3 | TERMS AND DEFINITIONS | 2 |
| 4 | DESIGN | 4 |
| | 4.1 Introduction..... | 4 |
| | 4.2 Design Considerations | 5 |
| | 4.3 Glovebox Shell | 7 |
| | 4.4 Linings | 12 |
| | 4.5 Appurtenances | 12 |
| | 4.6 Support Stands | 14 |
| | 4.7 Shielding | 14 |
| | 4.8 Instrumentation | 15 |
| | 4.9 Atmosphere..... | 16 |
| | 4.10 Windows | 17 |
| | 4.11 Doors..... | 18 |
| | 4.12 Fire Protection | 18 |
| | 4.13 Human Factors | 19 |
| | 4.14 Material Handling and Storage..... | 20 |
| | 4.15 Vessels | 21 |
| | 4.16 Furnaces | 22 |
| | 4.17 Cooling and Heating | 23 |
| | 4.18 Electrical | 24 |
| | 4.19 Process Piping..... | 25 |
| | 4.20 Testing, Inspection, and Examination | 26 |
| | 4.21 Design Verification..... | 29 |
| | 4.22 Documentation and Records..... | 29 |
| | 4.23 Marking..... | 30 |

| | | |
|-----|---|----|
| 5 | FABRICATION..... | 31 |
| 5.1 | Design for Manufacturability | 31 |
| 5.2 | Welding..... | 33 |
| 5.3 | Assembly | 36 |
| 5.4 | Personnel Qualifications..... | 36 |
| 5.5 | Finishing Requirements | 37 |
| 5.6 | Cleaning Methods..... | 38 |
| 5.7 | Shipping..... | 39 |
| 6 | QUALITY ASSURANCE..... | 40 |
| 6.1 | Requirements | 40 |
| 6.2 | Quality Assurance Criteria | 40 |
| 6.3 | Implementation Guidance and Information..... | 42 |
| 7 | REFERENCES | 43 |
| 8 | INDEX | 49 |
| | APPENDIX A: Data Sheet for Glovebox Pressure-Decay Leak Test..... | 55 |

List of Figures

| | | |
|------------|--------------------------------------|----|
| FIGURE 4.1 | Glovebox Reinforcement Options | 11 |
| FIGURE 4.2 | Glovebox Identification Tag..... | 30 |

List of Tables

| | | |
|-----------|---|----|
| TABLE 4.1 | Protective Constraints for Process Piping | 26 |
| TABLE 5.1 | Tolerance Requirements for Welded Glovebox Shells | 33 |
| TABLE 5.2 | Tolerance Requirements for Cutout Locations..... | 33 |
| TABLE 5.3 | Tolerance Requirements for Cutout Size..... | 33 |