

DIN EN 421:2010-10 (E)

Protective gloves against ionizing radiation and radioactive contamination

Contents	Page
Foreword	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 Requirements	6
4.1 General	6
4.2 Design principles	7
4.2.1 General principles	7
4.2.2 Glove sizing and dimensions	7
4.3 Attenuation efficiency and uniformity of distribution of protective material	7
4.4 Glove integrity	8
4.5 Mechanical requirements	8
4.6 Chemical requirements	8
4.7 Specific requirements for gloves for containment enclosures	8
4.7.1 General requirement for gloves for containment enclosures	8
4.7.2 Design for gloves for containment enclosures	9
4.7.3 Specific integrity test for gloves for containment enclosures	9
4.7.4 Resistance to ozone cracking (static strain)	9
5 Test methods	10
5.1 Determination of lead equivalent thickness and uniformity of distribution	10
5.1.1 Introduction	10
5.1.2 Sampling	10
5.1.3 Test conditions	10
5.1.4 Expression of results	11
5.1.5 Detection with an X-ray film	11
5.1.6 Detection with numeric films	12
5.1.7 Detection with an ionising chamber	12
5.2 Determination of glove integrity, air leak test	13
5.2.1 Principle	13
5.2.2 Sampling	13
5.2.3 Test apparatus	13
5.2.4 Test procedure	14
5.2.5 Test report	14
5.3 Determination of resistance to ozone cracking (Static Strain Method)	14
5.3.1 Procedure	14
5.3.2 Test conditions	15
5.3.3 Sampling	15
5.3.4 Reporting of results	15
5.4 Pull test for assemblages (sleeve and glove)	15
6 Marking	15
7 Information supplied by the manufacturer	16
Annex A (informative) Determination of water vapour permeability	17
A.1 Requirement for water vapour permeability	17

A.2	Test method	17
A.2.1	Principle	17
A.2.2	Apparatus and materials	17
A.2.3	Sampling	19
A.2.4	Procedure	19
A.2.5	Report, calculation and result	20
Annex B (informative) Warning		21
B.1	General	21
B.2	Special tests: Chemical resistance	21
B.3	Special tests: Radiation resistance	21
Annex C (informative) Uncertainty of measurement and results interpretation		23
Annex D (informative) Significant technical changes between this European Standard and the previous edition		25
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 89/686/EEC		26
Bibliography		27
Figures Figure 1 -- Examples of glove integrity test apparatus for the air leak test		14
Figure 2 -- Pictogram ISO 7000 - 2484 Protection against particulate radioactive contamination		15
Figure 3 -- Pictogram ISO 7000 - 2809 Protection against ionizing radiation		16
Figure A.1 -- Diagram of dishes and templates (water vapour permeability test)		18
Figure C.1 -- Result pass		23
Figure C.2 -- Result fail		23
Figure C.3 -- Result fail		24