

ISO 6529:2026-01 (E)

Protective clothing - Protection against chemicals - Determination of resistance of protective clothing materials to permeation by liquids and gases

Contents		Page
Foreword		v
Introduction		vi
1	Scope	1
2	Normative references	1
3	Terms and definitions	2
4	Principle	5
5	Choice of analytical technique and collection medium	6
5.1	General	6
5.2	Gaseous collection media	6
5.3	Liquid collection media	6
5.4	Limitation due to collection media	6
6	Apparatus	7
7	System configuration	9
7.1	General	9
7.2	Open-loop	9
7.3	Closed-loop	10
8	Detection	12
8.1	Frequency of analysis	12
8.2	Analytical methods	13
8.3	Anomalous data points	13
8.4	Detection of chemical mixtures	14
9	Sampling procedure	14
9.1	Choice of sample	14
9.2	Size and cutting of specimen	15
9.3	Measurement of test specimen thickness and mass	15
9.4	Conditioning of test specimens	15
10	Test procedure	15
10.1	Pre-screening test	15
10.2	Calibration	16
10.3	Validation	16
10.4	Preparation of test apparatus	16
10.5	Permeation	18
10.5.1	General	18
10.5.2	Method A -- Liquid chemicals with continuous contact	20
10.5.3	Method B -- Gaseous chemicals with continuous contact	21
10.6	Calculation of results	21
10.6.1	General	21
10.6.2	Normalized breakthrough time	21
10.6.3	Cumulative permeation mass	23
10.6.4	Cumulative permeation time	23

10.7	Visual assessment of test specimen	25
10.8	Repeat tests	25
10.8.1	General	25
10.8.2	Repeat tests for NBT variance	25
10.8.3	Repeat tests for CPT variance	26
10.8.4	Repeat tests for CPM variance	27
11	Permissible deviations from this test method	28
11.1	Alternative test temperatures	28
11.1.1	Higher test temperatures	28
11.1.2	Lower test temperatures	29
11.2	Alternative frequencies of analysis	30
12	Test report	30
Annex A (informative) Recommended list of chemicals for comparing permeation resistance of protective clothing materials		33
Annex B (informative) Sources of permeation test cells and permeation test cell parts		36
Annex C (informative) Designs and specifications of commonly-used permeation test cells		38
Annex D (informative) Suggested procedures for calibrating and measuring the sensitivity of permeation-test systems		46
Annex E (informative) Testing the permeation resistance of seams and closures		50
Annex F (normative) Default conditions for testing and reporting permeation resistance		53
Annex G (informative) Interlaboratory and inter-sample variation		54
Annex H (informative) Formulae for calculating permeation rates		75
Annex I (informative) Examples of compliant open-loop (GC-FID) setups		77
Bibliography		80