



Services overview

Department textile technology and personal protective equipment (PPE)



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Service information

ÖTI – Institute for Ecology, Technology and Innovation GmbH is an accredited testing and certification body as well as notified body (NB 0534) for personal protective equipment (PPE). The certification of personal protective equipment is carried out in accordance with Directive 89/686/EEC. All tests are subject to a quality management program according to EN ISO 17025.

This services overview is based on a list of the most common and most important tests (mainly according to EN, ISO and EN/ISO standards). Yet, ÖTI offers a vast range of other services and tests, which we are happy to quote for you upon request.

Orders are accepted in writing (letter, e-mail, fax), by phone and in person. Please note that we will only issue order confirmations on special request. Tests marked with “*”) will be tested with suitable subcontractors if required.

Our terms and conditions apply. Our current T&C's are published on our webpage (www.oeti.at).



Tests for fibres, yarns and threads

Tests / services
Material analysis quantitative and qualitative (various methods)
DNA analysis of animal fibres *)
Limit-viscosity of celluloses DIN 54270 T1+T3
Fibre fineness (various methods)
fibre length (various methods)
Strength and elongation of fibres
fibre shrinkage
Type of yarn (OE vs ring-spun yarn)
linear density of yarns / twisted treads EN ISO 2060
Twist in yarns / twisted treads EN ISO 2061
Strength / elongation of yarns / twisted treads EN ISO 2062
Yarn purity / imperfections (Classimat II)
Shrinkage yarns / twisted treads (various methods)

Tests for textile fabrics

Tests / services
Material analysis quantitative and qualitative (various methods)
DNA analysis of animal fibres *)
Determination of Characteristic features of fabrics
Determination of Characteristic features of woven fabrics structures, weight per unit area, thickness, linear density (warp / weft), number of threads (warp / weft)
Determination of Characteristic features of knitted fabrics structures, weight per unit area, thickness, linear density, number of courses, wales and stitch density
Determination of Characteristic features of Nonwovens Weight per unit area, thickness
Determination of the structures (woven fabrics ISO 9354 / knitted fabrics DIN 62050-1 / -2)

Determination of thickness Determination of thickness of textiles and textile products EN ISO 5084 Determination of thickness of nonwovens EN ISO 9073-2
Determination of linear density (mass per unit length) by the skein method EN ISO 2060
Determination of number of threads per unit length EN 1049-2
Determination of number number of courses, wales and stitch density of knitted fabrics DIN 53883
Inorganic / organic fabric incrustation DIN 53919-2
Assessing appearance-change of apparel and other textile end products after domestic washing and drying (Monsanto-Standard) EN ISO 15487
Clothing Physiology – water vapour resistance (Ret-value) ISO 11092
Clothing Physiology – thermal resistance (Rct-value) ISO 11092
Clothing Physiology – water vapour permeability index ISO 11092
Bursting properties of fabrics EN ISO 13938-2
Resistance to damage by flexing – Method C "Knitter/Biege-Verfahren" EN ISO 7854
determination of blocking resistance (Rubber- or plastics-coated fabrics) EN 25978
Flex cracking test (artificial leather and similar sheet materials) DIN 53359
downy feather proof / fleece proof / fiber proof (various methods)
Tests for colour fastness (various methods see „Colour - Tests“)
Determination of maximum force and elongation at maximum force using the strip method EN ISO 13934-1, EN ISO 1421-1, ISO 9073-3 and various further methods
Determination of maximum force using the grab method (dry / wet) EN ISO 13934-2, EN ISO 1421-2 and various further methods
Limit-viscosity of celluloses DIN 54270 T1+T3
Determination of materials soluble in organic solvents DIN 54278-1 / Determination of materials soluble in water DIN 54276 Pkt.6.1
Air-permeability EN ISO 9237
Dimensional change after washing and drying EN ISO 5077
Dimensional change after cleaning and finishing EN ISO 3175-1
Microscopic examinations
Seam tensile properties / slippage resistance of yarns at a ready-made seam EN ISO 13935 / EN ISO 13936 and various further methods
oil repellency / water repellency "3M-Test"



resistance to pilling and change of appearance of fabrics EN ISO 12945-2 and various further methods
Velocity of soaking water of textile fabrics (method by determining the rising height) DIN 53924
Abrasion resistance of fabrics „Martindale method“ EN ISO 12947-2 and various further methods
Determination of anions active surfactants / non-ionic surfactants
Examination according RIMS 1020 silicate determination pH-value Solvent-soluble parts
Parts UV- protection UV-Protection-Factors UV-Standard 801 Solar UV protective properties EN 13758-13 Sun protective clothing—Evaluation and classification AS/ NZS 4399
Water repellency of fabrics by the “Bundesmann rain-shower test” EN 29865
Resistance to surface wetting (Spray test) EN ISO 4920
Water absorption of fabrics DIN 53923
Tear force EN ISO 13937-1*), EN ISO 13937-2, EN ISO 13937-3, EN ISO 13937-4, EN ISO 4674, EN ISO 9073-4
Resistance to penetration by liquid chemicals EN ISO 6530
Resistance to penetration by water (Hydrostatic pressure test) EN 20811 / ISO 811
Elastic behaviour (various methods)

Tests of assembled garments

Tests / services
Assessing appearance-change of apparel and other textile end products after domestic washing and drying (Monsanto-Standard) EN ISO 15487
Clothing design - Assessment of the manufacturing quality
Determination of dimensional - ready-made garments EN ISO 5077 / EN ISO 3175-1
Seam tensile properties / slippage resistance of yarns at a ready-made seam (various methods)
Assessment of the fitting
Various Failure Analysis

Colour - Tests

Tests / services
Colorimetry (CIE tristimulus values) EN ISO 11664-3
Colour difference DIN 6174
Colour change - visual assessment with the grey scale ISO 105 / A02
Staining - visual assessment with the grey scale ISO 105 / A03
Tests for colour fastness.
Colour fastness to artificial light (various methods) Colour fastness to artificial light (Xenon arc fading lamp test) ISO 105-B02 Colour fastness to artificial weathering (Xenon arc fading lamp test) ISO 105-B04 Colour fastness and ageing to artificial light at high temperatures (Xenon arc fading lamp test) ISO 105-B06
Colour fastness to washing with soap or soap and soda (various methods) Colour fastness to domestic and commercial laundering ISO 105-C06 Colour fastness to domestic and commercial laundering using a test detergent (non-phosphate reference detergent incorporating a low-temperature bleach activator) ISO 105-C08 Colour fastness to washing with soap or soap and soda ISO 105-C10
Colour fastness to dry cleaning using perchloroethylene solvent ISO 105-D01
Colour fastness to water (various methods) Colour fastness to water (severe) ISO 105-E01 Colour fastness to sea water ISO 105-E02 Colour fastness to chlorinated water (swimming-pool water) ISO 105-E03 Colour fastness to spotting - Water ISO 105-E07 Colour fastness to hot water ISO 105-E08
Colour fastness to perspiration (acidic & alkaline) ISO 105-E04
Colour fastness to spotting - Acid ISO 105-E05
Colour fastness to spotting - Alkali ISO 105-E06
Colour fastness to potting ISO 105-E09
Colour fastness to steaming ISO 105-E11
Colour fastness to milling (various methods) Colour fastness to milling - Alkaline milling ISO 105-E12 Colour fastness to acid-felting (severe) ISO 105-E13



Colour fastness to acid-felting (mild) 105-E14
Colour fastness to bleaching (various methods) Colour fastness to bleaching - hypochlorite ISO 105-N01 Colour fastness to bleaching - Peroxide ISO 105-N02 Colour fastness to bleaching - Sodium chlorite (mild) ISO 105-N03 Colour fastness to bleaching - Sodium chlorite (severe) ISO 105-N04
Colour fastness to mercerizing ISO 105-X04
Colour fastness to organic solvents ISO 105-X05
Colour fastness to cross-dyeing ISO 105-X07
Colour fastness to hot pressing ISO 105-X11
Colour fastness to rubbing (various methods) Colour fastness to rubbing - Organic solvents ISO 105-D02 Colour fastness to rubbing - dry & wet ISO 105-X12 Colour fastness to rubbing - small areas - dry & wet ISO 105-X16
Assessment of the potential to phenolic yellowing of materials ISO 105 X18
Retroreflective photometric performance (entrance angle of 5° / observation angle of 12') EN ISO 20471 Pkt.7.3
Washing process test Ash determination Limited viscosity Tensile strength - wet Degree of whiteness according Ganz

Electrical properties and antistatic properties

Tests / services
Horizontal Resistance and Vertical Resistance DIN 54345-1
Electrostatic Charge (with 2 frictional partners) DIN 54345-4
Protective clothing - Vertical Resistance EN 1149-2
Protective clothing - Charge Decay *) EN 1149-3
Protective clothing - Surface Resistivity, Type A EN 1149-1



Tests for determining the behaviour when exposed to heat and / or flames

Tests / services
Limited flame spread EN ISO 15025
burning behaviour of Fabrics for apparel EN 1103
Burning behaviour of Protective gloves EN 407, EN ISO 6941
Determination of ease of ignition of vertically oriented specimens EN ISO 6940
Flame spread properties of vertically oriented specimens EN ISO 6941
Contact heat transmission EN 702 / EN ISO 12127-1
burning behaviour by oxygen index *) (LOI-Index) EN ISO 4589-2
Melting behaviour (Heat resistance of sewing thread) ISO 3146
Flammability of toys EN 71-2
Determination of arc protection class of material by using a constrained and directed arc *) (box test) EN 61482-1-2
Determination of arc protection class of clothing by using a constrained and directed arc *) (box test) EN 61482-1-2
Heat transmission on exposure to flame EN 367 / ISO 9195
Thermal behaviour of materials and material assemblies when exposed to a source of radiant heat EN ISO 6942 (various methods)
Heat resistance (convective heat) ISO 17493

Tests to verify harmlessness

Tests / services
Determination of pH of aqueous extract (pH-value) EN ISO 3071
Determination of formaldehyde content LAW 112
determination of certain aromatic amines derived from azo colorants EN 14362
Determination of chromium(VI) content (Leather) EN ISO 17075



Tests for certification of personal protective equipment (PPE)

Tests / services
Abrasion resistance of protective clothing material EN 530
Clothing Physiology – water vapour resistance (Ret-value) ISO 11092
Clothing Physiology – thermal resistance (Rct-value) ISO 11092
Clothing Physiology – water vapour permeability index ISO 11092
Limited flame spread EN ISO 15025
Resistance to damage by flexing – Method C "Knitter/Biege-Verfahren" EN ISO 7854
Vertical Resistance EN 1149-2
Contact heat transmission EN 702 / EN ISO 12127-1
Charge Decay *) EN 1149-3
Air-permeability EN ISO 9237
Resistance of materials to molten metal splash *) EN ISO 9185
Chromatic coordinates and luminance factor EN ISO 20471 Pkt.7.2 - in new condition and after various pretreatments
Surface Resistivity, Type A EN 1149-1
Melting behaviour (Heat resistance of sewing thread) ISO 3146
Protective gloves – Abrasion resistance EN 388
Protective gloves – Cut resistance *) EN 388
Protective gloves – Tear resistance EN 388
Protective gloves – Puncture resistance EN 388
Protective gloves – Burning behaviour EN 407, EN ISO 6941
Protective gloves – Measurement of flexibility "testing the dexterity" EN 420
Protective gloves – Water penetration resistance of the entire glove ISO 15383
Determination of arc protection class of material by using a constrained and directed arc *) (box test) EN 61482-1-2
Determination of arc protection class of clothing by using a constrained and directed arc *) (box test) EN 61482-1-2
determination of behaviour of materials on impact of small splashes of molten metal *) EN 348 / EN ISO 9150
determination of behaviour of materials on impact of small splashes of molten metal



Resistance to surface wetting (Spray test) EN ISO 4920
Heat transmission on exposure to flame EN 367 / ISO 9195
Thermal behaviour of materials and material assemblies when exposed to a source of radiant heat EN ISO 6942 (various methods)
Resistance to penetration by liquid chemicals EN ISO 6530
Resistance to penetration by liquids in form of a light spray (fog test) *) EN 13034
Resistance to penetration by water (Hydrostatic pressure test) EN 20811 / ISO 811
Heat resistance (convective heat) ISO 17493

Safety of toys

Tests / services
Mechanical and Physical Properties EN 71-1
Flammability EN 71-2
Migration of Certain Elements EN 71-3 *)

Further Services

Tests / services
Various Failure Analysis
Photo Documentation
Assistance with Complaints Processing
Individual Consulting
Assistance in preparation of tender documents
Studies for correct textile care labelling
Tests for awarding with Quality Austria label
Quality Assessment / Incoming Control - On Site
Construction of test equipment
Seminars / workshops



About us – Department textile technology and personal protective equipment (PPE)

Our core competency in testing textiles and clothing as well as certifying personal protective equipment (PPE) spans decades.

Our team of specialists certifies your PPE to acquire a CE-marking. According to Directive 89/686/EEC for personal protective equipment – clothing, that protects people against risks to life or health, must carry a CE mark. Equipment protecting against specific high risks (i.e. chemical-protection suits), other protective clothing like for example gardening gloves, protection from rain or cold as well as protective work clothing for construction workers (safety vests) are considered protective clothing.

In the area of “textile technology” our experts test textiles along the entire production chain - from fibres to fabrics, textile material composites to finished clothing.



Your contact

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We are looking forward to hearing from you!

ÖTI – Our mission

We deliver reliable, high quality consulting, testing and certification services worldwide.

We are independent, highly-skilled and customer-oriented.

We offer comprehensive service and safety in the fields of ecology, textiles, flooring technology and interior materials with our team of specialists.

We increase our customers' competitiveness.

We act responsibly towards our employees, our customers and our environment.

Competence creates confidence

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