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EU green public procurement criteria for textiles products and services

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1. INTRODUCTION

EU green public procurement (GPP) criteria are designed to make it easier for public authorities to purchase goods, services and works with reduced environmental impacts. The use of the criteria is voluntary. The criteria are formulated in such a way that they can be, if deemed appropriate by the individual authority, integrated into its tender documents with minimal editing. This document lists the EU GPP criteria developed for the 'textiles' product group, which covers the supply of textile products and services. An accompanying technical report provides the full rationales for the selection of these criteria and references for further information.

The criteria are split into selection criteria, technical specifications, award criteria and contract performance clauses. For each criteria area two sets of criteria are presented:

- the *Core criteria* are designed to allow for easy application of GPP, focusing on the key area(s) of environmental performance of a product and aimed at keeping administrative costs for companies to a minimum;
- the *Comprehensive criteria* take into account more aspects or higher levels of environmental performance, for use by authorities that want to go further in supporting environmental and innovation goals.

The formulation 'same for core and comprehensive criteria' is inserted if the criteria are identical for both levels of ambition.

The criteria are, as far as possible, intended to be verified according to European or internationally standardised methods and/or through commonly available verification routes.

1.1 Definition and scope for textile products

The criteria for textile products encompass the following products, which include finished products as well as intermediate products and accessories:

- Textile clothing and accessories: uniforms, workwear, personal protective equipment (PPE)¹ and accessories consisting of at least 80 % by weight of textile fibres in a woven, non-woven or knitted form.
- Interior textiles: textile products for interior use consisting of at least 80 % by weight of textile fibres in a woven, non-woven or knitted form. This includes bed linen, towels, table linen and curtains.
- Textile fibres, yarn, fabric and knitted panels: intermediate products intended for use in textile clothing and accessories and interior textiles, including upholstery fabric and mattress ticking prior to the application of backings and treatments associated with the final product.
- Non-fibre elements: intermediate products that are to be incorporated into textile clothing and accessories, and interior textiles. This includes zips, buttons and other accessories, as well as membranes, coatings and laminates that form part of the structure of clothing or interior textiles and which may also have a functional purpose.

For the purposes of these criteria, textile fibres comprise natural fibres, synthetic fibres and man-made cellulose fibres. The scope of textile fibres for which GPP criteria are provided is as follows:

- natural fibres: cotton and other natural cellulosic seed fibres, wool and other keratin fibres;
- synthetic fibres: polyamide and polyester;
- man-made cellulose fibres: lyocell, modal and viscose.

¹ Performance requirements for PPE that are laid down in EU and/or national legislation take precedence over any GPP performance requirements.

1.2 Definition and scope for textile services

Textile services are included within the scope as they can offer environmental life cycle cost benefits when compared with outright purchase. Such services comprise, as a basic scope, laundry, maintenance and take-back services for textile products that may be owned by the contracting authority or provided as part of a rental arrangement. The different potential elements of a textile service for which environmental criteria are provided are defined as follows:

- Laundry: the collection, cleaning (using a wet or dry process) and return of textiles to specified standards of cleanliness and hygiene.
- Maintenance: the maintenance and repair of textile products in order to extend their useful life span. This includes the replacement of accessories and parts, fabric panel replacement and the retreating/reproofing of functional coatings.
- Take-back: the collection and sorting of textile products in order to maximise their reuse and/or recycling. The procuring authority waives ownership of any textile products at the moment of their collection.

1.3 General note on verification

For a number of criteria, the proposed means of verification is the provision of test reports. For each of the criteria, the relevant test methods are indicated. It is up to the public authority to decide at which stage such test results should be provided. In general, it does not seem necessary to require all tenderers to provide test results from the outset. To reduce the burden on tenderers and public authorities, a self-declaration could be considered to be sufficient when submitting bids. In addition, there are different options for if and when these tests might be needed:

a) At the tendering stage:

For *one-off supply contracts*, the bidder with the most economically advantageous tender could be required to provide this proof. If the proof is deemed to be sufficient, the contract can be awarded. If the proof is deemed insufficient or non-compliant, then:

- (i) where the means of verification concern a technical specification, the proof would be requested from the next highest-scoring bidder who would then be considered for contract award;
- (ii) where the means of verification concerns an award criterion, the additional points awarded would be removed and the tender ranking would be recalculated with all the ensuing consequences.

A test report verifies that a sample of the textiles has been tested for certain requirements, not the textiles actually delivered under the contract. For framework contracts the situation may be different. This scenario is covered in more detail under b).

b) During contract execution:

Test results could be requested for one or several items delivered under the contract, either in general or if there are concerns about false declarations. This is particularly important for framework contracts, which may not stipulate an initial order of textiles.

It is recommended that explicit performance clauses are included in the contract. These should stipulate that the contracting authority is entitled to carry out random verification tests at any time during the term of the contract. If the results of such tests show that the delivered textiles do not meet the criteria, the contracting authority will then be entitled to apply penalties in proportion to the failure and has the option of terminating the contract. Some public authorities include conditions stipulating that if, after the tests, the product meets their requirements, the testing costs must be borne by the public authority; but if the requirements are not met, the costs must be borne by the supplier.

For *framework agreements*, the point at which provision of proof is requested depends on the specific set-up of the contract:

- (i) For framework agreements with a single operator where the individual textile products to be delivered are specified when awarding the framework agreement, and the number of units is determined later, the same considerations apply as for the one-off supply contracts described above.
- (ii) For framework agreements that pre-select several potential suppliers and then hold competitions among the pre-selected, tenderers, the pre-selected suppliers may only need to demonstrate at this initial pre-selection stage their capability to deliver textile products that meet the minimum performance requirements of the framework agreement. For ensuing call-down contracts (or orders) that are awarded following the competition among the pre-selected suppliers, the same considerations apply as under (a) and (b) above, if additional requirements have to be proven under the competition. If the competition is only about price, then a check at the contract execution stage should be considered.

It is also important to highlight the option for bidders to provide verification based on textile products holding the EU Ecolabel or another relevant Type I ecolabel (in accordance with ISO 14024) fulfilling the same specified requirements. Such textiles should also be deemed to comply with the relevant criteria, and verification would be requested following the same approach as has been set out for test results.

Please also note that, under Article 44(2) of Directive 2014/24/EU, the contracting authorities must accept other appropriate means of proof. This could include a technical dossier from the manufacturer if the economic operator concerned had no access to test reports, or

no possibility of obtaining them within the relevant time limits. This is on the proviso that the lack of access was not attributable to the economic operator concerned and that the economic operator concerned thereby proves that the works, supplies or services provided by it meet the requirements or criteria set out in the technical specifications, the award criteria or the contract performance conditions. In case a reference to a certificate/test report drawn up by a specific conformity assessment body is made, for the execution of the tests contracting authorities shall also accept certificates/test reports issued by other equivalent assessment bodies.

2. KEY ENVIRONMENTAL IMPACTS

The criteria for textiles focus on the most significant environmental impacts along the life cycle of the products, which for textile products have been divided into five distinct categories:

- fibre sourcing;
- chemical restrictions;
- durability and lifespan extension;
- energy conservation during use;
- design for reuse and recycling.

The diversity of textile fibres that may be used, as well as the many different types of textile products and end-use applications, and a wide range of associated environmental impacts, mean that a number of points along the life cycle need addressing. Analysis of the life cycle of textile products suggests that the following 'hot spot' areas of significant environmental impact should be the focus for improvement:

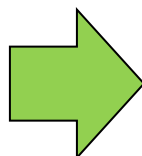
- Cotton production: the ecotoxicity associated with the production and use of fertilisers and pesticides is the main contributor to both energy consumption and ecotoxicity. The resource impact of water use for irrigation is also highlighted as being significant.
- Wool production: the washing (scouring) of wool can release grease, suint and ectoparasiticides into wastewater, with associated ecotoxicity, as well as requiring significant process energy use.
- Synthetic fibre production: the climate change and ecotoxicity impacts of energy and raw materials used to manufacture the fibres are high. Nylon (polyamide) is the most energy-intensive fibre to produce and technically the most difficult to recycle.
- Man-made cellulose fibre production: the climate change and ecotoxicity impacts of energy use in manufacturing these fibres are high. This type of fibre is mainly derived from timber and the environmental impacts associated with unsustainable forestry practices and illegal logging are potentially significant.
- Process energy and ecotoxicity associated with the spinning, weaving, dyeing, printing and finishing stages of production: the multiple production stages in the supply chain for textile products are associated with production chemicals and energy use in processes. Production chemicals and washed-out residues may pollute air and wastewater.
- Energy and ecotoxicity associated with the use phase of textile products: these impacts relate primarily to washing energy and detergents, and can be influenced by fibre choice and blends. Comparative studies of industrial and domestic washing and

drying suggest that industrial laundries tend to be more efficient than domestic washing/drying and therefore have the potential to reduce use phase impacts.

- Human toxicity associated with production and functional chemicals: chemicals used in production processes can also be a hazard to human health, either to workers at production sites or if the chemicals remain on the final product, creating the potential for exposure of the end user.

There are also significant potential environmental benefits from product lifetime extension and more circular systems of resource use associated with the disposal (end-of-life) phase. Environmental benefits can be allocated as a result of durability, reuse, recycling and energy recovery activities.

Key environmental aspects	GPP approach
<ul style="list-style-type: none"> • Hazardous effects on the aquatic environment due to the use of hazardous fertilisers and pesticides during the cultivation of natural fibres. • Hazardous effects on the aquatic environment due to substances used during the processing of intermediate and final textile products. • The use of biotic and abiotic resources from forestry, petroleum and natural gas to manufacture fertilisers and fibres. • Greenhouse gas emissions, acidification and smog resulting from the production and use of electricity and natural gas used to manufacture synthetic fibres and to wash, dry and iron textiles. • Early product failure which can result in the consequent waste of biotic and abiotic resources, and their landfilling or burning with potential for hazardous emissions to air and water. 	<ul style="list-style-type: none"> • Purchase textiles made from fibres which are produced using fewer fertilisers, hazardous pesticides and production chemicals. • Purchase textiles that contain recycled materials and fibres. • Purchase textiles with a reduced use of environmentally harmful and hazardous substances in their production. • Purchase textiles that require less energy for drying and ironing. • Purchase colour-fast fabrics that do not shrink during use, that are constructed to be more durable in use and which have longer-lasting functional coatings. • Contract services that minimise the energy used to wash, dry and iron textiles. • Contract services that maintain textiles in order to extend their lifetime. • Contract services that reuse maximise the potential for reuse and recycling of textiles at the end of their service life.



Please note that the order of environmental aspects does not necessarily reflect their importance.

3. EU GPP CRITERIA FOR TEXTILES

3.1 Procurement of textile products

Core criteria	Comprehensive criteria
SUBJECT MATTER	
The purchase of textile products with a reduced environmental impact	
3.1.1 Selection criteria	
SELECTION CRITERIA	
	<p>SC1. Suppliers of textile products</p> <p>Tenderers must be able to demonstrate the resources, expertise, documented procedures and management systems they have in place to address the following aspects of the product and its supply chain:²</p> <ul style="list-style-type: none"> • Textile fibre origin: systems that allow for the traceability of the source, content and production systems of natural and man-made fibres for which environmental criteria will apply. This includes transaction records that allow for verification and traceability from the origin of the raw material or feedstock to manufacturing and processing of yarn and greige fabric.³ This may include the use of third party certifications of origin and traceability. • Chemical management: the implementation of a restricted

² The explicit possibility to require supply chain management capabilities was introduced by Part II (d) of Annex XII to Directive 2014/24/EU on Public Procurement.

³ Greige is an unbleached and undyed, unfinished textile fabric which may be purchased as a commodity.

	<p>chemical substance list, including communication of the list to dyeing, printing and finishing sites, monitoring of the compliance of production sites (<i>as relevant to criteria P3. 2</i>) and monitoring of the compliance of final products (<i>as relevant to criteria P3. 1</i>), including laboratory testing. The use of auditors for site visits, textile compliance schemes and laboratories for product testing that are accredited to international standards (e.g. ISO 17025, ISO 17065, ISO 19011 or equivalent) will also be required.</p> <p>Verification:</p> <p>Tenderers must describe the systems and capabilities that they have in place to monitor and verify textile fibre origin and chemical management. Moreover, they will describe the systems of documentation, auditing and analysis used to monitor compliance of suppliers and the final product.</p> <p>The resourcing and expertise that will be used to manage compliance must be confirmed. Relevant examples must be provided from previous contracts to supply textile products showing how these two aspects have been managed and verified.</p>
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Core criteria	Comprehensive criteria
3.1.2 Textile fibres	
TECHNICAL SPECIFICATIONS	
<p>TS1. Cotton fibres</p> <p>A minimum of 20 % of the content of cotton goods used to fulfil the contract must be either:</p> <ol style="list-style-type: none"> 1. Organic: grown according to the requirements laid down in Regulation (EC) No 834/2007,⁴ the US National Organic Programme (NOP) or equivalent legal obligations set by trade partners of the EU; or 2. Integrated Pest Management (IPM): grown according to IPM principles as defined by the UN Food and Agricultural Organisation (FAO) IPM programme⁵ or EU Directive 2009/128/EC⁶ <p><i>If the contracting authority wishes to further support growth of the organic cotton market and/or identifies a shortage in the supply of certified organic cotton, uncertified or transitional organic cotton⁷ may be permitted (see explanatory note ‘Supporting the market for organic</i></p>	<p>TS1. Cotton fibres</p> <p>A minimum of 60 % of the content of cotton goods used to fulfil the contract must be either:</p> <ol style="list-style-type: none"> 1. Organic: Grown according to the requirements laid down in Regulation (EC) No 834/2007⁴, the US National Organic Programme (NOP) or equivalent legal obligations set by trade partners of the EU or 2. Integrated Pest Management (IPM): Grown according to the principles as defined by the UN Food and Agricultural Organisation (FAO) IPM programme⁵ or EU Directive 2009/128/EC⁶, or <p><i>If the contracting authority wishes to further support growth of the organic cotton market and/or identifies a shortage in the supply of certified organic cotton, uncertified or transitional organic cotton⁷ may be permitted (see explanatory note ‘Supporting the market for organic</i></p>

⁴ Council Regulation (EC) No 834/2007 of 28 June 2007 on organic production and labelling of organic products and repealing Regulation (EEC) No 2092/91 (OJ L 189, 20.7.2007, p. 1).

⁵ *More about IPM*, The Food Agriculture Organisation (FAO) of the United Nations, <http://www.fao.org/agriculture/crops/thematic-sitemap/theme/pests/ipm/more-ipm/en/>.

⁶ See Annex I to Directive 2009/128/EC of 21 October 2009 of the European Parliament and of the Council, establishing a framework for Community action to achieve the sustainable use of pesticides.

⁷ The Organic Regulation (EC) No 834/2007 defines ‘in-conversion’ as ‘the transition from non-organic to organic farming within a given period of time, during which the provisions concerning the organic production have been applied’. Written confirmation from an organic competent authority of a country, or an organic control body, that growers have given notice of the conversion and subjected their farm(s) to an organic control system would provide formal proof of in-conversion status.

<p><i>cotton' below).</i></p> <p><i>If the contracting authority wishes to support organic labelling for the products used then the organic cotton used to fulfil the requirements must not be blended with genetically modified cotton. Proof may be requested if other sources of cotton used in the product(s) are obtained from countries where GM cotton is approved for use.⁸</i></p> <p>Verification:</p> <p>The cotton origin and content of the goods will be verified upon delivery by means of a third party certification scheme for IPM or organic cotton production together with documented transaction records that allow for the cotton content of individual items or batches of goods to be verified and traced back to the point of certification.</p> <p>This includes valid certification for organic or IPM production,⁹ as well as documentation of transactions that demonstrate the purchase of the claimed cotton content and provide traceability.</p> <p>If relevant, a screening test¹⁰ to verify non-genetically modified cotton will be provided upon request if conventional and IPM cotton are blended with organic cotton.</p>	<p><i>cotton' below).</i></p> <p><i>If the contracting authority wishes to support organic labelling for the products used then the organic cotton used to fulfil the requirements must not be blended with genetically modified cotton. Proof may be requested if other sources of cotton used in the product(s) are obtained from countries where GM cotton is approved for use⁸.</i></p> <p>Verification:</p> <p>The cotton origin and content of the goods will be verified upon delivery by means of a third party certification scheme for IPM or organic cotton production together with documented transaction records that allow for the cotton content of individual items or batches of goods to be verified and traced back to the point of certification.</p> <p>This include valid certification for organic or IPM production⁹, as well as documentation of transactions that demonstrate the purchase of the claimed cotton content and provide traceability.</p> <p>If relevant, a screening test¹⁰ to verify non-genetically modified cotton will be provided upon request if conventional and IPM cotton are blended with organic cotton.</p>
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⁸ See <http://www.isaaa.org/gmapprovaldatabase/countrylist/default.asp>.

⁹ At the time of writing the following schemes are considered to provide sufficient assurance: IPM: *the Better Cotton Initiative (BCI), AGRO 2 (Greece), Cotton Made in Africa, Fair Trade, the Australian Better Management Programme (BMP)*; Organic: *EU recognised organic control bodies, US organic programme, IFOAM*.

¹⁰ *A qualitative screening test for common genetic modifications carried out according to 'EU Reference Methods for GMO Analysis' is the recommended form of verification (see <http://gmo-crl.jrc.ec.europa.eu/gmomethods>). Tests are to be made on samples of raw cotton from each country of origin and before it has passed through any wet treatment. Certification of IPM cotton by schemes that exclude genetically modified cotton will be accepted as proof of compliance.*

AWARD CRITERIA	
<p>AC1. Cotton fibres</p> <p>Points will be awarded in proportion to each 10 % improvement upon the minimum technical specification of certified IPM or organic cotton content.</p> <p>Verification:</p> <p>See criterion P2.1</p>	<p>AC1. Cotton fibres</p> <p>Points will be awarded in proportion to each 10 % improvement upon the minimum technical specification of certified IPM or organic cotton content.</p> <p>Verification:</p> <p>See criterion P2.1</p>
<p>Explanatory note: Supporting the market for organic cotton</p> <p>The limited availability of organic cotton on the world market can pose a challenge for public contracts. On the other hand, public contracts can play an important role in creating demand. To address this challenge it is therefore recommended that early market consultations and/or prior information notices are used to notify potential bidders of upcoming contracts and the likely volumes of cotton textiles required.</p> <p>Bidders could also be encouraged to source cotton through collaborations with agricultural development projects. These type of projects, which in some case may have their own certification schemes (e.g. Cotton Made in Africa), have the potential to support new certification schemes for organic or IPM production. It is also the case that certification can be costly. Because of this cost, uncertified organic cotton can be obtained from a number of countries where development projects have promoted low input agriculture or where specific agricultural policies have been adopted.</p> <p>In order to bring more organic cotton into the market, contracting authorities can support the market in two ways:</p> <ol style="list-style-type: none"> 1. By accepting certification provided by organic control bodies, government control bodies or third party schemes <i>upon award</i> of the contract and/or purchase of the cotton. Combining this approach with early market consultations would give producers and growers more time and also send a clear signal to the market that there is demand to formally certify cotton. 2. Accepting cotton from farmers that are in the transitional <i>conversion period</i> as they move to organic production as laid down in Article 17 of the Organic Regulation. This would incentivise growers and projects based on low-input techniques to look at the options for marketing their cotton, as well as the future potential for certifying their production. <p>The latter would recognise the investment and changes required to move from conventional to organic systems, providing greater certainty that there will be a market for the cotton.</p>	

TECHNICAL SPECIFICATIONS

TS2. Wool fibres

(Same for core and comprehensive criteria)

It is recommended to use this criterion only where the wool content of the textile products is greater than 50 %.

The wastewater discharges from wool scouring, either directly from treatment on-site or indirectly from off-site wastewater treatment, measured in g COD (chemical oxygen demand)/kg greasy wool must be ≤ 25 g for coarse wool and lambswool and ≤ 45 g for fine wool.¹¹

Verification:

The tenderer will upon delivery of the goods provide compliant monitoring data for the processing lots from which wool used in the contract comes from.

COD calculations will relate to the wool throughput in kg to the wastewater flow in litres from each processed lot of wool. Monitoring data must be obtained by third party testing according to ISO 6060 or equivalent wastewater from each wool scouring site that wool is purchased from.

Transaction records will be provided that verify the wool scouring site for the wool used to manufacture the products.

TS3. Man-made cellulose fibre (e.g. viscose, modal, lyocell)

(Same for core and comprehensive criteria)

This type of fibre may be used instead of cotton in a variety of clothing items or interior textiles requiring a softer handle. It may also be blended with synthetic fibres to improve wear and make it easier to dry. It is recommended to use this criterion only where the man-made cellulose fibre content of the textile products is greater than 50 %.

¹¹ Fine wool is defined as merino wool of ≤ 23.5 micron in diameter.

TS3.1 Sulphur emissions to air

For viscose and modal fibres, the sulphur content of the emissions of sulphur compounds to air from the fibre production process, expressed as an annual average, must not exceed the values in table (a).

Table a. Viscose and modal sulphur emissions values

Fibre type	Performance value (g S/kg)
Staple fibre	30 g/kg
Filament fibre	
- Batch washing	40 g/kg
- Integrated washing	170 g/kg

Verification:

The tenderer will upon award provide monitoring data, transaction records and batch production records demonstrating the compliance of supplier(s) and associated production sites used to manufacture the fibres used in the contract.

Compliant monitoring data will be provided for those production sites used to make the specific fibre product to be used in execution of the contract.

TS3.2 Halogenated emission from pulp

Pulp used to manufacture the fibre product used in the contract will be bleached without the use of elemental chlorine. The resulting total amount of chlorine and organically bound chlorine in the finished fibres (OX) must not exceed 150 ppm or in the wastewater from pulp manufacturing (AOX) must not exceed 0.170 kg/t air dried pulp.

Verification:

The tenderer will upon award provide a test report for the specific fibre

	<p>product and its production line demonstrating compliance with either the OX or the AOX requirement, using the appropriate test method or equivalent:</p> <ul style="list-style-type: none"> - OX: ISO 11480 (controlled combustion and microcoulometry). - AOX: ISO 9562.
<p>Sustainable sourcing of wood pulp</p> <p><i>These GPP criteria do not include a proposal on the sourcing of wood pulp derived from sustainable forestry, for the following reasons:</i></p> <p>Several Member States are using their own green or sustainable public procurement criteria to define sustainable forest management and have different processes in place to determine whether certification or other third party verified schemes provide sufficient assurance. In this situation, it was not possible, within the framework of this criteria development process, to provide a harmonised definition of sustainable managed forestry.</p> <p>The current consensus of the Member States with an active sustainable timber procurement policy is that, in general, proprietary certification schemes, such as those of the Forest Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certification (PEFC) provide sufficient levels of assurance for compliance with their national criteria.¹²</p>	
	<p>TS4. Polyester recycled content</p> <p>Polyester fibre product(s) to be used in fulfilment of the contract must be manufactured using a minimum recycled content of 20 %.</p> <p><i>Note: Technical issues may be encountered in meeting other quality specifications required in a contract. This should be taken into account when evaluating tenders and could also be addressed through market enquiries or during competitive dialogue (if used).</i></p>

¹² The availability of certified dissolving pulp on the world market is currently limited. Therefore, it is recommended to seek feedback from the market prior to publishing a call for tender.

	<p>Verification:</p> <p>The tenderer will upon award demonstrate that the production line(s) for the fibre product are dedicated to production with the minimum recycled content.</p> <p>Third party certification of the recycled content and its traceability will be provided for the production lines of the products to be delivered and the recyclate feedstock. ISO 14021, ISO 9001 or equivalent may be used. The verification will provide information in accordance with parts 4.4 of EN 15343.</p>
<p>AWARD CRITERIA</p>	
	<p>AC2. Polyester and polyamide (nylon) recycled content</p> <p>Points will be awarded for polyester and/or nylon fibre product(s) to be used in fulfilment of the contract for each additional increment of 10 % greater than a minimum recycled content of 20 % pre-consumer and/or post-consumer waste.</p> <p><i>Note: Technical issues may be encountered in meeting other quality specifications required in a contract. This should be taken into account when evaluating tenders and could also be addressed through market enquiries or during competitive dialogue (if used).</i></p> <p>Verification:</p> <p>The tenderer will upon award demonstrate that the production line(s) for the fibre product are dedicated to production with the minimum recycled content.</p> <p>Third party certification of the recycled content and its traceability must be provided for the production lines of the products to be delivered and</p>

	the recycle feedstock. ISO 14021, ISO 9001 or equivalent may be used. The verification must provide information in accordance with parts 4.4 and 6 of EN 15343.
	<p>AC3. Polyester recycling</p> <p>Points will be awarded to tenderers that can demonstrate:</p> <ul style="list-style-type: none"> - that the design of the final textile product facilitates ease of separation for polyester fabrics at the end of a product's service life; - the provision of a voluntary take-back route for the textile product so that the contracting authority can return polyester fabrics to be recycled or reused. <p>Verification:</p> <p>The tenderer must upon award:</p> <ul style="list-style-type: none"> - provide details of the design measures and features that will facilitate ease of fabric separation for recycling, and/or; - provide details of the take-back arrangements and a written commitment that extends in time to cover the end-of-life of the products.

Core criteria	Comprehensive criteria
3.1.3 Chemical restrictions	
TECHNICAL SPECIFICATIONS	
<p>TS5. Declaration for REACH Candidate List substances</p> <p><i>(Same for core and comprehensive criteria)</i></p>	

The tenderer must declare the presence of any REACH Candidate List¹³ substances at a concentration of greater than 0.1 % (weight by weight) in the finished product.

Verification:

The tenderer must provide a valid REACH Article 33(2) declaration upon delivery of the finished article(s). If Candidate List substances are declared as being present, they must be identified.

TS6. Substances to be tested for on the final product

(Same for core and comprehensive criteria)

The final supplied product must not contain the substances listed in Annex 1 at greater than the individual or sum total concentration limits. This must be demonstrated by laboratory testing of a sample of each product type supplied during execution of the contract. *The contracting authority will reserve the right to also request a further random check.*

Verification:

Each product sample must be analysed by a laboratory accredited to carry out the relevant tests according to ISO 17025 or by the accreditation body for a textile testing scheme that requires product testing. Certificate(s) demonstrating compliance must be provided upon delivery of the goods.

Where the test methods are the same, test results from valid Type I ecolabels, including the EU Ecolabel, as well as third-party textile testing schemes, must be accepted.¹⁴

AWARD CRITERIA

AC4. Restrictions on substances to be verified at production sites

Points will be awarded to tenderers who restrict use of the substances listed in Annex 2 in dyeing, printing and finishing production processes for the supplied product(s).

¹³ The REACH candidate list available at <https://echa.europa.eu/regulations/reach/authorisation/the-candidate-list>.

¹⁴ At the time of writing the schemes Oeko Tex 100, Bluesign and GOTS are considered to provide a sufficient level of assurance.

	<p>Verification:</p> <p>The tenderer must provide upon delivery of the goods a valid site audit report carried out by a third party verifying the production formula used at the dyeing, printing and finishing sites for the product. The audit report must be not older than two years and must include:</p> <ul style="list-style-type: none"> i. findings from inspections of chemical stores and the operation of production processes; ii. confirmation of the formulations used, and; iii. results of analytical testing (if carried out) at each site.
Core criteria	Comprehensive criteria
3.1.4 Durability and lifespan extension	
TECHNICAL SPECIFICATIONS	
<p>TS7. Durability standards</p> <p><i>(Same for core and comprehensive criteria)</i></p> <p>The textile products must meet the relevant durability requirements identified in Annexes 2 and 3.</p> <p>In the case of functional workwear that can demonstrate inherent performance characteristics that negate the need for water, dirt or stain repellents and/or flame retardant treatments to be applied to the textile fabric, the product will be exempted from testing requirements 3.7 and/or 3.8 in Annex 3.</p> <p>Verification:</p> <p>The tenderer will, for each distinct product design or item of workwear to be supplied, provide upon delivery of the goods reports from tests carried out in accordance with the standards specified in Annex 3. The reports will verify that each product type or model meets the specified durability requirements.</p>	

TS8. Availability of parts and accessories

(Same for core and comprehensive criteria)

The successful tenderer must make spares available of all parts and accessories (e.g. zips, buttons, fasteners) that form part of the products to be supplied for a minimum of two years after product delivery *or* the duration of the supply contract (whichever is the longest). An indicative price list for these parts and accessories must also be provided.

Verification:

The tenderer will upon award provide a written commitment to fulfil the requirement as part of the product warranty and an indicative price list for the inventory of parts.

Core criteria	Comprehensive criteria
3.1.5 Energy conservation during use	
TECHNICAL SPECIFICATIONS	
TS9. Fabric selection to minimise energy use for drying and ironing	
<i>(Same for core and comprehensive criteria)</i>	
<i>(For textiles that will be washed on a daily or weekly basis)</i>	
The fabric will be selected to have a moisture retention content after spinning of less than 35 % and a fabric smoothness grade after drying of SA3 for fabrics with cotton content of ≥ 50 % and SA4 where the cotton content is < 50 %.	
Verification:	
The tenderer will upon delivery of the goods provide a test report demonstrating the fabric(s) performance according to the following methods:	
<ul style="list-style-type: none"> • moisture retention content: EN ISO 15797 (or equivalent) washing procedure. • easy care: EN ISO 15487 (or equivalent) appearance after washing and drying. 	

TS10. Care labelling

(Same for core and comprehensive criteria)

(For textiles intended to be washed at home)

The textile care labelling must promote washing at lower temperatures, if possible at 30°C or less and using the washing machine’s low energy programme, unless there is a technical reason otherwise (e.g. hygiene, safety, soiling).

Verification:

The tenderer must provide examples of the care labelling and additional instructions to the user and provide, if applicable, information on why textiles should be washed at higher temperatures than 30°C.

Core criteria	Comprehensive criteria
3.1.6 Design for re-use and recycling	
AWARD CRITERIA	
AC5. Design for reuse and recycling	
<i>(Same for core and comprehensive criteria)</i>	
Garments must be designed so that any logos or distinctive identification features can be easily removed or overprinted without damaging the	

item.

Verification:

The tenderer must upon delivery of the goods provide clear, easy to understand instructions for reuse contractors on how to remove or overprint logos or branding.

3.2 Procurement of textile services

Core criteria	Comprehensive criteria
SUBJECT MATTER	
The contracting of textile services with a reduced environmental impact	
3.2.1 Selection criteria	
SELECTION CRITERIA	
<p>SC1. Providers of textile services</p> <p>Tenderers must be able to demonstrate the resources, expertise, documented procedures and management systems that they have in place in order to address the following aspects of the services to be provided:¹⁵ <i>(to be selected as appropriate to the tender)</i>:</p> <ul style="list-style-type: none"> • For maintenance services: <ul style="list-style-type: none"> - The implementation of asset management systems for inventories of textiles. This will allow for data and feedback from end users on the condition and lifespan of the textiles to be collected on an ongoing basis. These systems will have been actively used to identify the frequency and causes of fabric and garment failure. - The management of services to repair and maintain garments and fabrics in order to maximise their lifespan. 	<p>SC1. Providers of textile services</p> <p>Tenderers must be able to demonstrate the resources, expertise, documented procedures and management systems that they have in place in order to address the following aspects of the services to be provided¹⁵ <i>(to be selected as appropriate to the tender)</i>:</p> <ul style="list-style-type: none"> • For laundry services: at laundry sites the implementation of energy management systems according to ISO 50001 or equivalent and including: <ul style="list-style-type: none"> - staff training and awareness programmes at each site; - equipment and procedures at each site in order to maximise process energy efficiency; - sub-metering that allows for the management and reporting of specific energy consumption for the laundry processes and type of textiles handled at each site (i.e. electricity, gaseous and liquid fuels consumed expressed in kWh per kg

¹⁵ The explicit possibility to require supply chain management capabilities was introduced by Part II (d) of Annex XII to Directive 2014/24/EU on public procurement, to be transposed into national law at latest by April 2016.

Verification:

Tenderers must confirm that they have the required systems and capabilities. Relevant examples from previous contracts must be compiled.

Moreover they must describe the internal resourcing, management systems and infrastructure that will be used to manage compliance and provide the services.

Where it is deemed appropriate, the contracting authority reserves the right to carry out site visits and inspections, or to request third party inspections, in order to confirm the tenderer's capabilities.

of textile products processed, assigned to processes used for flatware or workwear).

- For maintenance services:
 - The implementation of asset management systems for inventories of textiles. This will allow for data and feedback from end users on the condition and lifespan of the textiles to be collected on an ongoing basis. These systems will have been actively used to identify the frequency and causes of fabric and garment failure.
 - The management of services to repair and maintain garments and fabrics in order to maximise their lifespan.
- For take-back (end-of-life management) services:
 - The implementation of asset management systems and infrastructure that support the segregation into specific different streams, storage and sale of specific textile products and fabrics in order to maximise their reuse and recycling.
 - The provision of design advice to contracting authorities in order to facilitate ease of reuse and recycling. The provision of training in how to segregate end-of-life textiles to employees of the contracting authority.

Verification:

Tenderers must confirm that they have the required systems and capabilities. Relevant examples from previous contracts must be compiled.

	<p>Moreover, they must describe the internal resourcing, management systems and infrastructure that will be used to manage compliance and provide the services.</p> <p>Where deemed appropriate, the contracting authority reserves the right to carry out site visits and inspections, or to request third party inspections to confirm the tenderer's capabilities.</p>
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Core criteria	Comprehensive criteria
3.2.2 Laundry	
TECHNICAL SPECIFICATION	
<p>TS1. Fabric selection to minimise energy use for drying and ironing</p> <p><i>(Same for core and comprehensive criteria)</i></p> <p><i>(For textiles that will be washed on a daily or weekly basis)</i></p> <p>The textile fabrics will be selected to have a moisture retention content after spinning of less than 35 % and a fabric smoothness grade after drying of SA3 for fabrics with cotton content of ≥ 50 % and SA4 where the cotton content is < 50 %.</p> <p>Verification:</p> <p>The tenderer must provide a test report demonstrating the fabric(s) performance according to the following methods:</p> <ul style="list-style-type: none"> • moisture retention content: EN ISO 15797 (or equivalent) washing procedure • easy care: EN ISO 15487 (or equivalent) appearance after washing and dying 	

AWARD CRITERIA

Guidance note on laundry energy and detergent use

It is recommended to combine the criteria on energy consumption and detergent environmental impact and to weigh the total points awarded on the following basis:

- Criterion S5.1: Energy consumption: 75 %.
- Criterion S5.2: Detergent environmental impact: 25 %.

Monitoring must be carried out in accordance with contract performance clause S2.4.

	<p>AC1. Specific energy consumption</p> <p>Tenderers will be awarded points according to the proposed specific energy consumption in kWh (electricity plus gaseous and liquid fuels) per kg of flatwear and workwear textile product washed, dried and finished (<i>as appropriate</i>) that will be achieved during provision of the service.</p> <p>The points will be awarded in linear proportion to the proposals received, from the lowest (100 % available points) to the highest (zero points).</p> <p>Verification:</p> <p>The tenderer will provide specifications for the sub-metering of each washing, drying and finishing process line, distinguishing between flatwear and workwear, that will be used in providing the service. They will also describe the arrangements for verification of the sub-meter readings.</p>
	<p>AC2. Detergent environmental impact</p> <p>Tenderers will be awarded points if they commit to the use of detergents in execution of the contract that meet the aquatic toxicity and biodegradability criteria of the EU Ecolabel for Institutional Laundry</p>

	<p>Detergents <i>or their equivalent</i>. The criteria can be found here: http://ec.europa.eu/environment/ecolabel/products-groups-and-criteria.html</p> <p>Tenderers making the commitment will be awarded the maximum available points.</p> <p>Verification:</p> <p>The tenderer must provide details of the system of verification to be used for the purchase of compliant detergents for use in the individual washing process lines that will provide the service.</p>
CONTRACT PERFORMANCE CLAUSE	
	<p>CPC1. For textile services that include laundering</p> <p>The successful tenderer must carry out the services according to the proposed specific energy consumption and compliant detergent use which it committed to in its tender.</p> <p>The tenderer must provide the following forms of verification:</p> <ul style="list-style-type: none"> - monthly metered energy consumption data aggregated from the sub-metered process lines at related sites, reflecting the fabric type/weight and divided by the weight of textiles processed; - copies of invoices for detergent purchases together with proof that the detergent(s) either: <ul style="list-style-type: none"> (i) has the EU Ecolabel; or, (ii) has a Type I ecolabel which contains equivalent criteria; or, (iii) meets the specified EU Ecolabel criteria.¹⁶

¹⁶ European Commission, *Industrial and Institutional Laundry Detergents*, <http://ec.europa.eu/environment/ecolabel/products-groups-and-criteria.html>.

	<p>Proof must comprise valid Ecolabel licences for ecolabels and/or third party verified test data for the detergents used.</p> <p>The contracting authority reserves the right to request third-party verification at any point during the contract and the contractor will be obliged to provide this evidence at their own expense.</p>
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Core criteria	Comprehensive criteria
3.2.3 Maintenance	
TECHNICAL SPECIFICATION	
<p>TS2. Maintenance of the textile assets</p> <p><i>(Same for core and comprehensive criteria)</i></p> <p><i>This could also be combined with or formulated as an award criterion rewarding the most ambitious maintenance approach.</i></p> <p>The tenderer of textile services, as part of their asset management plan, will extend the useful life of workwear and interior textiles by providing ongoing maintenance and repair services. This will, as a minimum, include <i>(as relevant to the textiles to be provided)</i>:</p> <ul style="list-style-type: none"> - provision of basic repairs, including repairing seam splits and stitching, the replacement of broken/lost parts and the fixing/replacement of zips and fastenings; - fabric panel replacement for workwear; - the retreating and proofing of functional coatings. 	

Verification:

The tenderer will provide a detailed specification for the maintenance services offered including, where appropriate, documented evidence from the maintenance facilities that they have under operation or under sub-contract arrangements.

Core criteria	Comprehensive criteria
3.2.4 Take back	
TECHNICAL SPECIFICATION	
	<p>TS3. Take-back system</p> <p><i>This could also be combined with or formulated as an award criterion rewarding the most ambitious take-back approach.</i></p> <p>The tenderer as part of their asset management system must operate a take-back system, or have formal arrangements with a take-back scheme, for the textiles supplied for use within the contract, to include the following elements:</p> <ul style="list-style-type: none">• collection systems installed in the contracting authority's own premises to facilitate (<i>where appropriate</i>) the sorting and classification of textiles;• training and guidance material to ensure that staff of the public authority have a clear understanding of how to use the system;• post-collection sorting activities in order to maximise the value obtained from reuse or recycling. This will, at a minimum, include segregation based on fibre, colour and condition of garment.

	<p>The tenderer will provide an indication of the likely end markets for the textiles recovered.</p> <p>Verification:</p> <p>The tenderer must provide a description of the proposed system including, where relevant, documentation for post-collection systems they operate, including specifications for sorting lines and site photographic evidence.</p>
CONTRACT PERFORMANCE CLAUSE	
	<p>CPC2. Take-back system</p> <p>The tenderer must report on the performance of their take-back system in accordance with the following requirements:</p> <ul style="list-style-type: none"> • Surveys will be carried out of staff at the contracting authority’s facilities to determine how easy it has been to use the collection/segregation systems. These will be carried out within the first six months of the services and the findings used to identify/implement potential improvement measures. • The proportion by weight of the collected textiles that have been reused or recycled and the associated value/kg of textiles obtained from the destination end markets to which they are sent will be determined and recorded on an annual basis. <p>The tenderer will provide a short summary of the staff survey findings and the potential improvement measures identified. An annual report providing a breakdown of the destination of the textiles and the value obtained from each end market will be provided.</p>

4. LIFE CYCLE COSTING

Life cycle costing (LCC) is a technique that can be used to estimate the total cost of ownership for textile products (and possibly some of the environmental externalities). It is a method for making effective, long-term investment decisions since some cost aspects may not be immediately apparent to the decision maker, *e.g., a higher initial investment may be required to achieve lower life-cycle costs, based on lower laundry energy costs and improved durability with associated longer lifespans and lower repair costs*. When externalities are taken into consideration LCC is particularly relevant to achieving an improved environmental performance.

The EU GPP criteria for textiles address a number of aspects of the design and specification of textile products that, with careful consideration at the procurement stage, can serve to reduce the life cycle costs associated with their laundering, maintenance and end of life:

- Laundering: the cost of energy associated with washing, drying and ironing textile products will either be a direct cost to the public authority (if it operates the laundry) or an indirect cost passed on by contractors (if laundry services are outsourced). Textile product specifications can have a significant influence on the energy required per laundry cycle:
 - The fibre composition of textiles has a significant impact on the amount of energy that is required to wash, dry and iron them. For example, workwear or interior textiles made from cotton-synthetic blends can reduce the energy needed for each laundry cycle, and therefore also the costs, by up to an indicative 50 % compared with the same products made from 100 % natural fibres.
- Lifespan: there are many factors that can influence the lifespan of a textile product. These include its resistance to wear and early failure, and the provision of proper care and maintenance (particularly in the case of technical products with special properties) in order to avoid early replacement:
 - Resistance to wear during use and laundry cycles is strongly influenced by fibre composition. A more resistant fibre composition can extend a textile product's lifespan by, indicatively, between 34 % (*in the case of workwear*) and 100 % (*in the case of towels and bed sheets*) when compared with a 100 % cotton item.
 - The early failure of seams and finishes, as well as closures such as zips, buttons, velcro and fasteners, can require expensive repairs and treatments, or lead to the early discarding of workwear and uniforms. Whilst product planning might typically be based on up to a two-year lifespan, through better design and durable specifications there is the potential to increase this to up to three years, with associated reductions in maintenance and replacement costs.
- End of life: the disposal of textiles at the end of their useful life is a cost burden for public authorities, who will have to pay by weight. End of life textiles are worth money in the recycling market (indicatively €250-560/tonne). There is demand both for further use in their original form (e.g. as second-hand workwear) and as raw materials for use in the manufacturing of new textiles or other products (e.g. insulation material). This can result in a positive or neutral value for textile waste arisings.

- Public authorities can take active steps to increase the value of end-of-life textiles — *for example, by implementing systems to segregate end-of-life textiles into different specific streams, or by requiring a design for easy removal of logos.*

By taking into account a combination of these factors, the ‘total cost of ownership’ for each textile item procured can be reduced. One way of controlling these factors is to move from the procurement of textile products to textile services. Performance can then be specified for each stage in the life cycle of the textile products used. Contractors then become responsible for optimising the cost of delivering these services, which would otherwise entail additional overheads and sub-contracts for public authorities.

Annex 1: Final product substance restrictions

Substance group	Restrictions that apply	Concentration limits	Test method
1.1 Azo dyes <i>Applicability:</i> Clothing containing acrylic, cotton, polyamide and wool	Azo dyes that may cleave to aromatic amines that are known to be carcinogenic must not be used (<i>see the list in Appendix 2 of the EU Ecolabel</i> ¹⁷). A limit value for aryl amines will apply for the purpose of testing the final product.	30 mg/kg for each amine	EN 14362-1 and 3 or equivalent.
1.2 Formaldehyde <i>Applicability:</i> All clothing and interior textiles containing natural fibres	The following limit values apply to residual formaldehyde on the finished product: <ul style="list-style-type: none"> - Products for babies and children under 3 years old - All other products <i>Improved performance for skin contact garments could additionally be requested as an award criterion.</i> ¹⁸ <i>The following requirement can be applied as a comprehensive criterion for interior textiles only:</i> <ul style="list-style-type: none"> - Emissions from the final product 	16 ppm 75 ppm 0.1 mg/m ³	EN ISO 14184-1 or equivalent. EN 16516 and EN ISO 14184-1 or equivalent
1.3 Auxiliaries <i>Applicability:</i> All products	The following substances must not be present on the final product: <ul style="list-style-type: none"> - Nonylphenol - Octylphenol 	100 mg/kg sum total	Solvent extraction followed by HPLC/MS
	The following substances must not be present on the final product: <ul style="list-style-type: none"> - Nonylphenol ethoxylates - Octylphenol ethoxylates 	100 mg/kg sum total	ISO 18254
1.4 Coatings, laminates and membranes <i>Applicability:</i> Where incorporated into textile structure	Coatings, plastisol printing, laminates, membranes and plastic accessories must not contain the following phthalates: <ul style="list-style-type: none"> - DEHP (Bis-(2-ethylhexyl)-phthalate) - BBP (Butylbenzylphthalate) - DBP (Dibutylphthalate) - DMEP (Bis(2-methoxyethyl) phthalate) - DIBP (Diisobutylphthalat) - DIHP (Di-C6- 8-branched alkylphthalates) - DHNUP (Di-C7- 11-branched alkylphthalates) - DHP (Di-n-hexylphthalate) 	Sum total 0.10 % w/w	EN ISO 14389 or equivalent.

¹⁷ European Commission, *EU Ecolabel textile product group*, <http://ec.europa.eu/environment/ecolabel/products-groups-and-criteria.html>.

¹⁸ There may be a trade-off in terms of the quality and durability of stay-press garments, particularly where garments are to be subject to high temperature washing.

Annex 2: Production process substance restrictions

Substance group	Restrictions that apply	Verification requirements
2.1 Dyes and pigments	<p>The following dyes and pigments must not be used in textile production:</p> <p>Acid Red 26, Direct Black 38, Disperse Blue 1, Basic Red 9, Direct Blue 6, Disperse Orange 11, Basic Violet 14, Direct Red 28, Disperse Yellow 3, Pigment Red 104, Pigment Yellow 34</p>	<p>Site audit at which the dyes used are to be identified.</p>
2.2 Auxiliaries	<p>The following substances must not be used in textile production:</p> <ul style="list-style-type: none"> - bis(hydrogenated tallow alkyl) dimethyl ammonium chloride (DTDMAC) - distearyl dimethyl ammonium chloride (DSDMAC) - di(hardened tallow) dimethyl ammonium chloride (DHTDMAC) - ethylene diamine tetra acetate (EDTA) - diethylene triamine penta acetate (DTPA) - 4-(1,1,3,3-tetramethylbutyl)phenol - 1-Methyl-2-pyrrolidone - Nitrilotriacetic acid (NTA) 	<p>Site audit at which the chemical used as auxiliaries are to be identified.</p>
2.3 Bleaching	<p>Chlorine based bleaches must not be used for the bleaching of any yarns, fabrics or knitted panels.</p>	<p>Site audit at which the bleaches used are to be identified.</p>
2.4 Water, stain and oil repellent treatments	<p><i>Core requirement:</i></p> <p>Long chain ($\geq C5$) perfluoroalkane sulfonic acids or sulfonates (PFSA) and ($\geq C7$) perfluoroalkyl carboxylic acids or carboxylates (PFCA) substances must not be used.</p> <p><i>Comprehensive requirement:</i></p> <p>Fluorinated water, stain and oil repellent treatments must not be used, unless these functions are required in combination.</p> <p><i>In addition, for both core and comprehensive criteria the garment(s) must be tested for durability (see Criterion 3.1)</i></p>	<p>Site audit at which the repellents used for the finishes are to be identified.</p>
2.5 Waterproof membranes	<p>Fluoropolymer membranes and laminates used for outdoor clothing must not be manufactured using perfluorooctanoic acid (PFOA) or any longer chain fluorinated surfactants.</p>	<p>Site audit of the membrane/laminate supplier <i>or</i> documentation from a government regulatory body.</p>

<p>2.6 Flame retardants</p>	<p><i>Core requirement:</i></p> <p>The following flame retardants must not be used:</p> <ul style="list-style-type: none"> - HBCDD – Hexabromocyclododecane - DecaBDE – Decabromodiphenyl ether - TEPA – Tris(aziridinyl) phosphin oxide - TRIS – Tris (2,3 dibromopropyl) phosphate - TCEP – Tris (2, chloroethyl) phosphate - Paraffin, C10-C13, chlorinated (SCCP) <p><i>Comprehensive requirement:</i></p> <p>Where fire protection is required the fabric must be tested to ensure it provides a high level of durability (see Criterion 3.1)</p>	<p>Site audit at which the flame retardants used are to be identified.</p>
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Annex 3: Durability tests

3.1 Indicative applicability of the textile durability performance requirements

Product type	Dimensional change	Washing colour fastness	Perspiration colour fastness	Wet rubbing colour fastness	Tensile strength	Seam strength	Water, dirt and stain repellency	Flame retardancy
Tests applying to all products	✓	✓						
Towels and bed linen	✓	✓			✓			
Uniforms and presentational workwear	✓	✓	✓	✓				
Heavy duty workwear and PPE for field operations	✓	✓			✓	✓		
Functional outerwear i.e. jackets, trousers, PPE	✓	✓					✓	✓

3.2 Performance benchmarks and test methods

Core performance		
Durability standard	Performance benchmarks	Test method(s)
3.1 Dimensional change	Woven fabrics - Cotton and cotton mix +/- 3.0 % - Wool mix +/- 2.0 % - Synthetic fibres +/- 2.0 % - Bed linen and towels +/-8.0 %	EN ISO 6330 (domestic washing) or equivalent, <i>or</i> ISO 15797 (industrial laundries) or equivalent in combination with EN ISO 5077 or equivalent after 3 washes.
3.2 Washing colour fastness	3-4 for colour change and staining	ISO 15797 or equivalent (where applicable) in combination with ISO 105 C06 or equivalent
3.3 Perspiration colour fastness	3-4 for colour change and staining, 4 for dark colours (standard depth > 1/1)	ISO 15797 or equivalent (where applicable) in combination with ISO 105 E04 (acid and alkaline comparison with multi-fibre fabric) or equivalent.
3.4 Wet rubbing colour fastness	Level 2-3	ISO 15797 or equivalent (where applicable) in combination with ISO 105 X12 or equivalent
3.5 Tensile strength	<50 % cotton N/(g/m ²) □ 2.0	EN ISO 13934 (Strip method)

	□ 50 % cotton N/(g/m ²) □ 1.8 <i>Minimum performance 400 N</i>	or equivalent
3.6 Seam strength	100 N at breakdown	EN ISO 13935 (Strip method) or equivalent.
<i>Comprehensive performance</i>		
Durability standard	Performance benchmarks	Test method(s)
3.7 Water, dirt and stain repellency	The following retention of functionality after either 20 domestic cycles at 40°C or 10 industrial cycles at 75°C: - Water repellency: 80 out of 90 - Oil repellency: 3.5 out of 4.0 - Stain repellency: 3.0 out of 5.0 Industrial washing temperatures may be reduced to 60°C for garments with taped seams.	ISO 6330 (domestic) or equivalent <i>or</i> ISO 15797 (industrial) or equivalent in combination with: - Water repellents: ISO 4920 or equivalent - Oil repellents: ISO 14419 or equivalent - Stain repellents: ISO 22958 or equivalent
3.8 Flame retardancy	Washable products must retain their functionality after 50 wash cycles (Comprehensive criterion). Non-washable products must retain their functionality after a soak test.	ISO 6330 (domestic) or equivalent, or as relevant to the contract requirements EN ISO 10528 (industrial) or equivalent in combination with EN ISO 12138 or equivalent. Where the textile is non-washable and/or non-removable the test method described in BS 5651, Section 4 or equivalent must be used. ¹⁹

¹⁹ This test method is based on that described in British Standard 5651: *Method for cleansing and wetting procedures for use in the assessment of the effect of cleansing and wetting on the flammability of textile fabrics and fabric assemblies.*