
**Textiles — Environmental aspects —
Vocabulary**

Textiles — Aspects environnementaux — Vocabulaire

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 38, *Textiles*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 248, *Textiles and textile products*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

To date, the terminology regarding environmental aspects used in the textile industry has not been standardized, causing confusion, ineffectiveness and worst case hindering sustainable practices in the textile sector. The global nature of the textile industry highlights the need for global as well as national standards, enabling a common understanding and facilitate trade. A common vocabulary can serve to reduce the risk of greenwashing, bringing value for actors aiming to be transparent as well as facilitating the development of trust among consumers. Stakeholders will benefit from a common terminology for addressing issues related to environmental aspects of textile products and processes.

This document contains definitions of terms widely used in the textile value chain in reference to environmental aspects. ISO Guide 82 has been taken into consideration when addressing sustainability in this document.

This document is applicable to all stakeholders in the textile value chain regardless of size and location.

The aim of this document is to enable future standardization work related to environmental sustainability in the textile value chain.

The list of terms is wide but not exhaustive. Definitions are as far as possible adapted from existing standards but when the intention or definition is unclear additional context or definitions are updated or added.

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Textiles — Environmental aspects — Vocabulary

1 Scope

This document provides general terms and definitions used in the textile value chain related to environmental and circular economy aspects including design, production, retail, use and reuse, recycling processes, repair and disposal.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1 Terms related to textiles

3.1.1 General

3.1.1.1

biodegradable material

material capable of undergoing biological aerobic or anaerobic *degradation* (3.2.7.5) during a fixed period leading to a release of carbon dioxide and/or biogas and *biomass* (3.1.2.4), depending on the environmental conditions of the process

Note 1 to entry: Some countries have laws or regulations about claims using “biodegradable”.

3.1.1.2

blended fabric

fabric produced with a combination of two or more types of different *textile fibres* (3.1.1.12), or yarns

3.1.1.3

fibre composition

amount of fibre (s) used in making a textile product

Note 1 to entry: Fibre composition is expressed by mass percentage.

3.1.1.4

fibre shedding

mechanical, biological, chemical and photochemical or any other process

Note 1 to entry: Other process includes production and use, dyeing, washing, drying, ageing, etc.

3.1.1.5

monomer

chemical compound, usually of low molecular mass, that can be converted into a polymer by combining it with itself or with other chemical compounds

[SOURCE: ISO 472:2013, 2.624]

3.1.1.6

mono material textile

textiles made of *textile fibres* ([3.1.1.12](#)) which is only composed of single type of chemical composition

EXAMPLE A woven fabric made of 100 % cotton yarn.

Note 1 to entry: One fibre type can consist of different chemical compositions. For example, polyamide-6 is a different material than polyamide-6.6.

3.1.1.7

mono material textiles product

textile product ([3.1.1.13](#)) made of *textile fibres* ([3.1.1.12](#)) and other components, which is only composed of single type of chemical composition

Note 1 to entry: Any additional chemicals (such as dyes or finishes) do not change the mono material textile product.

3.1.1.8

multi material textile

textiles made of *textile fibres* ([3.1.1.12](#)) or materials made from more than one chemical composition

EXAMPLE 1 Bi-component fibres are a multi material textile.

EXAMPLE 2 Multi material textiles are e.g. intimate blend of polyester and cotton fibre, different fibres in warp and weft or a polyurethane coated polyester fabric.

3.1.1.9

multi material textiles product

textile product ([3.1.1.13](#)) made of *textile fibres* ([3.1.1.12](#)) and other components consisting of materials made from more than one chemical composition

EXAMPLE A jacket containing a pure cotton fabric, with a polyester sewing thread, a zipper with a polyester fabric and a polyoxymethylene hard parts (teeth, stoppers, and puller), a polyester woven label and metal press buttons.

Note 1 to entry: Any additional chemicals (such as dyes or finishes) do not change the multi material textile product.

3.1.1.10

primary material

virgin raw material

material which has never been processed into any form of end-use product

3.1.1.11

recycled fibre

non-virgin fibre

fibre that has been obtained from or processed through a *recycling* ([3.2.6.32](#)) process

Note 1 to entry: Claims of recycled fibre should only be made if the amount of *recycled content* ([3.2.6.29](#)) is stated and verified by a third-party *chain of custody* ([3.2.4.4](#)) certification.

3.1.1.12

textile fibre

unit of matter characterized by its flexibility, fineness and high ratio of length to maximum transverse dimension, which render it suitable for textile applications

[SOURCE: ISO/TR 23383:2020, 3.1]

3.1.1.13**textile product**

product made mainly of *textile fibres* ([3.1.1.12](#)), yarns and/or fabrics and intended to be used, as such or in conjunction with other textile or non-textile elements

Note 1 to entry: These articles can contain non-textile parts, such as plastics (e.g. buttons and membrane or coatings) or metals.

[SOURCE: ISO/TR 23383:2020, 3.2, modified — "mainly" and Note 1 to entry has been added]

3.1.2 Terms related to natural fibre**3.1.2.1****bio-based**

derived from *biomass* ([3.1.2.4](#))

[SOURCE: ISO 16559:2022, 3.23]

3.1.2.2**bio-based content**

fraction of a product that is derived from *biomass* ([3.1.2.4](#))

[SOURCE: ISO 16559:2022, 3.24, modified — "fuel" has been replaced with "product"]

3.1.2.3**bio-based product**

product wholly or partly derived from *biomass* ([3.1.2.4](#))

Note 1 to entry: The bio-based product is typically characterized by the *bio-based* ([3.1.2.1](#)) carbon content or the *bio-based content* ([3.1.2.2](#)).

Note 2 to entry: Documentation proving source of material, either through traceability from the producer or from testing, is necessary and has been found suitable.

[SOURCE: ISO 16559:2022, 3.25, modified — Note 2 to entry has been added]

3.1.2.4**biomass**

material of biological origin, excluding material embedded in geological formations or transformed to fossilized material and excluding peat

Note 1 to entry: This includes organic material (both living and dead) from above and below ground, e.g. trees, crops, grasses, tree litter, algae, animals and *waste* ([3.2.7.15](#)) of biological origin, e.g. manure.

[SOURCE: ISO 14021:2016, 3.1.1]

3.1.2.5**natural fibre**

fibre which occurs in nature

Note 1 to entry: Natural fibres can be categorized according to their origin into animal, vegetable and mineral fibre.

[SOURCE: ISO 6938:2012, 2.1, modified – Second part of the definition given as Note 1 to entry]

3.1.2.6**natural polymer****biopolymer**

polymer obtained from *biomass* ([3.1.2.4](#)), in which the polymer retains the original chemical structure and composition present in biomass (i.e. starch, cellulose, lignin or lignocellulose)

[SOURCE: ISO 16620-1:2015, 3.1.7, modified — biopolymer has been added as synonym]

3.1.2.7

organic fibre

natural fibres (3.1.2.5) grown according to the principles of *organic agriculture* (3.2.5.4)

Note 1 to entry: The farm needs certification to comply with USDA National Organic Program (NOP), Regulation (EC) 834/2007 & EU 2018/848, or any other organic standard that is approved in the IFOAM Family of Standards.

Note 2 to entry: Principles of *organic agriculture* (3.2.5.4) include avoiding or growing without the use of synthetic pesticides, insecticides, or herbicides and *GMOs* (3.2.5.1).

3.1.3 Terms related to man-made fibre

3.1.3.1

artificial fibre

manufactured fibre made by transformation of *natural polymers* (3.1.2.6)

Note 1 to entry: Artificial fibres are made of macromolecular material existing in nature.

[SOURCE: ISO/TR 11827:2012, 4.2.1, modified — Additional information has been moved to a Note to entry]

3.1.3.2

man-made fibre

fibre obtained by a manufacturing process

Note 1 to entry: The term “chemically manufactured” fibre can be named “manufactured” fibre or “chemical” fibre.

[SOURCE: ISO 2076:2021, 3.1]

3.1.3.3

microfibre

fibre with linear density less than 1 dtex or a diameter less than 10µm

3.1.3.4

microplastics

MP

material consisting of a solid polymer containing particles, to which additives or other substances may have been added, and where $\geq 1\%$ w/w particles have:

- a) all sizes $100\text{ nm} \leq x \leq 5\text{ mm}$; or
- b) for fibres, a length of $300\text{ nm} \leq x \leq 15\text{ mm}$ and a length/diameter ratio >3 .

Note 1 to entry: *Natural polymers* (3.1.2.6) are excluded (e.g. wool, cotton, silk) as are polymers that are (bio) degradable. Alignment with other textile standards on microplastics.

[SOURCE: ECHA - ANNEX XV Restriction Report - Microplastics, 22 August 2019,^[46] par 1.2.2.1, modified on lower size recommended dimensions, by Commission Recommendation C/2022/3689 of 10 June 2022 on the definition of nanomaterial (OJ C 229, 14.6.2022, p. 1) and Note 1 to entry added]

3.1.3.5

regenerated fibre

fibres produced from naturally occurring polymers of cellulose or protein, where processing by dissolution is needed to convert them into fibre form

3.1.3.6

synthetic fibre

manufactured fibre made from synthetic polymers

Note 1 to entry: Synthetic fibres are made of macromolecular material which has been chemically synthesised.

[SOURCE: ISO/TR 11827:2012, 4.2.2, modified — Additional information has been moved to a Note to entry]

3.1.4 Terms related to chemical aspects

3.1.4.1

chemical content

presence of chemical substances in textiles and *textile products* ([3.1.1.13](#))

Note 1 to entry: Chemical content includes residues from process chemicals, chemical substances added for function (finishes, pigment, softeners, water repellents, etc.) and chemicals used during transport, storage etc.

3.1.4.2

contaminant

substance or material whose inclusion complicates its processing, transport, sale, use or recovery

Note 1 to entry: The term “impurity” is a deprecated synonym of contaminant and should not be used.

Note 2 to entry: A contaminant may or may not be harmful to health or it may simply make something impure

Note 3 to entry: An intentionally added substance can become an unwanted substance at a different stage for example in recycling

3.1.4.3

contaminated textile

textile material containing unwanted substances not deliberately added

Note 1 to entry: Unwanted substances are, for example, chemical residues from production processes, exposure to chemicals during transport, contamination from use, contamination from mould, etc.

3.1.4.4

dilution effect

<chemicals> result of reducing the *chemical content* ([3.1.4.1](#)) in an individual textile by increasing the solvent amount

3.1.4.5

manufacturing restricted substances list

MRSI

list of chemical substances which are banned from intentional use for the production of textiles

3.1.4.6

pollutant

substance which either alone or in combination with other substances or through its products of *degradation* ([3.2.7.5](#)) or emissions can have a harmful effect on human health or the environment

[SOURCE: ISO 20670:2018, 3.51]

3.1.4.7

restricted chemical

chemical which has been banned or otherwise restricted

Note 1 to entry: The ban or the restriction can be by legislation or by private organisations.

Note 2 to entry: The restricted chemical is related to its use and/or presence in *textile products* ([3.1.1.13](#)) or processes.

3.1.4.8

substance free

claim made when the level of the specified substance is no more than that which would be found as an acknowledged trace *contaminant* (3.1.4.2) or background level

EXAMPLE Common statements of substance free are "Ni free", "azo free", "phthalate free", "PFAS free" or "PFC free".

Note 1 to entry: For insights to self-declared environmental claims and any explanatory statements, see requirements provided in ISO 14021:2016, 5.7.

Note 2 to entry: Substance X"-free is not relevant when it is no longer used or has never been used in the specific *textile products* (3.1.1.13) by any company.

[SOURCE: ISO 14021:2016, 5.4, modified — the term "free" has been removed]

3.2 Terms related to environmental aspects and circular economy

3.2.1 General

3.2.1.1

ecodesign

integration of *environmental aspects* (3.2.3.6) into product design and development, with the aim of reducing adverse *environmental impacts* (3.2.3.7) throughout a product's *life cycle* (3.2.3.9)

Note 1 to entry: Other terminology used worldwide includes Environmentally Conscious Design (ECD), Design For Environment (DFE), green design and environmentally sustainable design.

Note 2 to entry: Design for *recycling* (3.2.6.32) and design for *durability* (3.2.2.8) cover some of the aspects covered by ecodesign.

[SOURCE: ISO 14006:2011, 3.2.2, modified — Note 2 to entry has been added]

3.2.1.2

extended producer responsibility

EPR

environmental policy approach in which a producer's responsibility for a product is extended to the post-consumer stage of a product's *life cycle* (3.2.3.9)

Note 1 to entry: An EPR policy is characterized by:

- a) the shifting of responsibility (physically and/or economically; fully or partially) upstream towards the producer and away from government or municipalities;
- b) the provision of incentives to producers to take into account environmental considerations when designing their products.

Note 2 to entry: An EPR can be only financial or can be financial and operational depending on national laws.

[SOURCE: ISO 24161:2022, 3.1.1.2]

3.2.1.3

greenwashing

unsubstantiated or misleading claim about the positive or negative *environmental aspects* (3.2.3.6) of a product, service, technology or company practice

[SOURCE: EN 17615:2022, 3.122]

3.2.2 Terms related to circular economy

3.2.2.1

biological cycle

cycle(s) through which biological nutrients are restored into the biosphere in a way that rebuilds ecosystem resilience and natural capital and enables the regrowth of *renewable resources* (3.2.3.14)

Note 1 to entry: Such cycles can involve, at various stages, cascading, composting, anaerobic digestion or the extraction of bio-chemicals.

Note 2 to entry: Natural capital refers to the *renewable* (3.2.2.13) and *non-renewable* (3.2.2.9) natural resources (e.g., plants, animals, air, water, soils, minerals) that combine to yield a flow of benefits to people, including various ecosystem services such as production oxygen, capturing carbon dioxide, purifying water, nutrient cycling, etc.

Note 3 to entry: The biological and *technical cycles* (3.2.2.18) can be seen as loops into the complex system of resources flowing through the economy

Note 4 to entry: The biological cycle is not related to the nature of the material, for example natural, manmade or synthetic.

[SOURCE: ISO/DIS 59004, 3.1.21, modified — Note 4 has been added]

3.2.2.2

circular economy

economic system that uses a systemic approach to maintain a *circular flow of resources* (3.2.2.3), by recovering, retaining or adding to their value, while contributing to sustainable development

Note 1 to entry: Resources can be considered concerning both stocks and flows.

Note 2 to entry: From a sustainable development perspective, the inflow of virgin resources is kept as low as possible, and the circular flow of resources is kept as closed as possible to minimize emissions and losses (waste) (of resources) from the economic system.

[SOURCE: ISO/DIS 59004:—, 3.1.1]

3.2.2.3

circular flow of resources

systematic cycling of the provision and use of resources within technical or *biological cycles* (3.2.2.1)

Note 1 to entry: Resources can be considered concerning both stocks and flows.

Note 2 to entry: The biological and *technical cycles* (3.2.2.18) represent feedback loops into the complex system of resource flows in the economy.

[SOURCE: ISO/DIS 59004:—, 3.1.6]

3.2.2.4

closed loop in production processes

reuse (3.2.2.16) of a process chemical for its original purpose

3.2.2.5

design for recyclability

construction and design of a *textile product* (3.1.1.13) using choices that will facilitates recycling of the product after its initial service lifespan

Note 1 to entry: Some choices that can enhance *recyclability* (3.2.6.28) include using a single mono material textile or designing for *disassembly* (3.2.6.9).

Note 2 to entry: design can include facilitating tracking or tracing of components.

3.2.2.6

design for remake

construction and design of a *textile product* (3.1.1.13), with the plan to *remake* (3.2.2.11) the article after the initial service lifetime

3.2.2.7

design for repairability

construction and design of a *textile product* (3.1.1.13) using choices that will facilitate ease of *repair* (3.2.2.14) by the end user during the product's lifespan

Note 1 to entry: Some choices that can improve *repairability* (3.2.2.15) include providing extra buttons or trims and making seams and hems with larger allowances.

3.2.2.8

durability

ability of a *textile product* (3.1.1.13) to retain its required properties in specified conditions for an intended lifespan

Note 1 to entry: The durability of textile articles only takes into account their physical, objective and quantifiable characteristics (intrinsic properties, functionalities, etc.) and excludes the emotional or subjective and difficult to quantify aspects.

Note 2 to entry: Lifespan is for a given number of cleaning cycles or time period.

[SOURCE: EN 17615:2022, 3.94, modified — “textile” and “intended lifespan” have been added, Note 1 to entry has been deleted and replaced by new Note 1 to entry and Note 2 to entry]

3.2.2.9

non-renewable resource

resource that exists in a limited amount that cannot be naturally regenerated within a foreseeable time frame

Note 1 to entry: Resources that are derived from activities that occur only in the technosphere such as *recycling* (3.2.6.32) are not considered *renewable resources* (3.2.3.14).

[SOURCE: ISO 21930:2017, 3.6.3, modified — The reference to ‘replenished or cleansed on a human time scale’ has been replaced by ‘regenerated within a foreseeable time frame,’ Note 1 to entry has been clarified and Notes 2 and 3 to entry have been deleted]

3.2.2.10

redesign

design of a product based on an existing product design to improve targeted characteristics of the product

Note 1 to entry: Examples of targeted characteristics include reducing the use of raw materials, enhancing the *recycled content* (3.2.6.29), reducing the use of hazardous substances, energy saving, improving material, *recyclability* (3.2.6.28), etc.

[SOURCE: ISO 14009:2020, 3.2.2]

3.2.2.11

remake refashion

disassemble and partially or entirely reassemble used or unsold *textile products* (3.1.1.13) into new products

Note 1 to entry: Remake also includes replacement of a damaged component which cannot be repaired.

Note 2 to entry: Remake aims to make a new or different version/form of a product.

3.2.2.12

remanufacturing

industrial process by which an item is returned to original condition from both a quality and performance perspective

Note 1 to entry: The item can be previously sold, leased, used, worn, remanufactured, or non-functional product or part.

Note 2 to entry: Remanufactured condition can be described as like-new, same-as-when-new, or better-than-when-new.

3.2.2.13

renewable

replenishable naturally at source at a rate at least the same as consumption

Note 1 to entry: This can apply to materials and energy.

[SOURCE: ISO 8887-1:2017, 3.1.7]

3.2.2.14

repair

action to restore a product to a condition needed for the product to function according to its original purpose

Note 1 to entry: Actions can include renewal or replacement of worn, damaged, or degraded parts of the product.

Note 2 to entry: Regular maintenance, for example washing or re-applying finishings, is excluded from this definition.

[SOURCE: ISO/DIS 59004:—, 3.5.17, modified — Note 2 to entry has been added]

3.2.2.15

repairability

characteristic of a *textile product* (3.1.1.13) that allows all or some of its parts to be separately repaired or replaced without having to replace the entire product

Note 1 to entry: The access to spare parts and/or the simplicity to disassemble and replace or fix damaged parts of the product affects the repairability.

3.2.2.16

reuse

utilization of a product after its initial utilization intended by the original design

Note 1 to entry: Utilization intended by design can involve either single-use or multiple-uses over time.

Note 2 to entry: Minor treatment of the product, e.g. cleaning, refreshing of colour and function may be needed by the user to allow for reuse.

Note 3 to entry: One part of the product can be reused if this part is in good condition for using.

[SOURCE: ISO/DIS 59004:—, 3.5.15, modified — “e.g. cleaning” has been added to Note 2 to entry, Note 3 to entry has been removed]

3.2.2.17

second hand goods

goods or components/parts that have been used and that are re-entering a market for sale, lease or use by a second user or an end user

[SOURCE: ISO 20245:2017, 3.7, modified — definition slightly altered and Note 1 to entry removed]

3.2.2.18

technical cycle

cycle(s) within the economic system through which resources are used, recovered, restored, and utilized within existing or new products

Note 1 to entry: Resources flow into and within a technical cycle, which involves activities like sharing, maintenance, *reuse* (3.2.2.16), *repair* (3.2.2.14), *remanufacturing* (3.2.2.12) and *recycling* (3.2.6.32).

Note 2 to entry: The technical and *biological cycles* (3.2.2.1) can be seen as loops into the complex system of resources flowing through the economy.

[SOURCE: ISO/DIS 59004:—, 3.1.20, modified — Note 3 to entry has been added]

3.2.3 Terms related to life cycle assessment (LCA)

3.2.3.1

by-product

co-product from a process that is incidental or not intentionally produced and which cannot be avoided

Note 1 to entry: *Waste* ([3.2.7.15](#)) is not a by-product.

[SOURCE: ISO 21930:2017, 3.4.7]

3.2.3.2

carbon footprint of a product

CFP

sum of GHG emissions and GHG removals in a product system, expressed as CO₂ equivalents and based on a *life cycle assessment* ([3.2.3.10](#)) using the single impact category of climate change

Note 1 to entry: A CFP can be disaggregated into a set of figures identifying specific GHG emissions and removals (see ISO 14067:2018, Table 1). A CFP can also be disaggregated into the stages of the life cycle.

Note 2 to entry: The results of the quantification of the CFP are documented in the CFP study report expressed in mass of CO₂e per functional unit.

[SOURCE: ISO 14067:2018, 3.1.1.1]

3.2.3.3

cradle to gate

description of a portion of product *life cycle* ([3.2.3.9](#)), which begins with raw material acquisition or generation from natural resources and extends through the end of that stage or any other in the product system, such as transportation or manufacturing, that ends before beginning of *final disposal* ([3.2.7.8](#)) stage

Note 1 to entry: The definition is based on LCA practice as outlined in ISO 14040:2006/ISO 14044:2006.

3.2.3.4

cradle-to-grave

description of product *life cycle* ([3.2.3.9](#)), which begins with raw material acquisition or generation from natural resources and extends through the *final disposal* ([3.2.7.8](#))

Note 1 to entry: The definition is based on LCA practice as outlined in ISO 14040:2006/ISO 14044:2006.

3.2.3.5

end-of-life

stage which begins when the used product is ready for disposal, *recycling* ([3.2.6.32](#)), *reuse* ([3.2.2.16](#)), etc. and ends when the product is returned to nature (combustion, deterioration), or is recycled or reused

Note 1 to entry: The end-of-life of a textile material occurs at the end of its useful life when it can no longer be *reused* ([3.2.2.16](#)), reprocessed nor recycled.

[SOURCE: ISO 16759:2013, 3.3.3]

3.2.3.6

environmental aspect

element of an organization's activities or products or services that interacts or can interact with the environment

Note 1 to entry: An environmental aspect can relate to past, present and future activities, products and services.

[SOURCE: ISO 14015:2022, 3.10]

3.2.3.7**environmental impact**

change to the environment, whether adverse or beneficial, including possible consequences, wholly or partially resulting from an organization's *environmental aspects* ([3.2.3.6](#))

[SOURCE: ISO 14015:2022, 3.12]

3.2.3.8**input**

product, material or energy flow that enters a unit process

Note 1 to entry: Products and materials include raw materials, intermediate products and co-products.

Note 2 to entry: Input includes *reused* ([3.2.2.16](#)), reprocessed and *recycled materials* ([3.2.6.30](#)) or products and can occur at any stage of the *value chain* ([3.2.4.9](#)).

[SOURCE: ISO 14040:2006, 3.21 modified — Note 2 to entry has been added]

3.2.3.9**life cycle**

consecutive and interlinked stages of a product system, from raw material acquisition or generation from natural resources to *final disposal* ([3.2.7.8](#))

[SOURCE: ISO 14040:2006, 3.1]

3.2.3.10**life cycle assessment****LCA**

compilation and evaluation of the *inputs* ([3.2.3.8](#)), *outputs* ([3.2.3.13](#)) and the potential *environmental impacts* ([3.2.3.7](#)) of a product system throughout its *life cycle* ([3.2.3.9](#))

[SOURCE: ISO 14040:2006, 3.2]

3.2.3.11**life span**

expected time of a product's serviceable use or period of use

[SOURCE: ISO 20294:2018, 3.3.14, modified — Note 1 to entry has been removed]

3.2.3.12**mass balance model**

chain of custody ([3.2.4.4](#)) model in which materials or products with a set of specified characteristics are mixed according to defined criteria with materials or products without that set of characteristics

Note 1 to entry: The proportion of the *input* ([3.2.3.8](#)) with specified characteristics might only match the initial proportions on average and will typically vary across different *outputs* ([3.2.3.13](#)).

[SOURCE: ISO 22095:2020, 3.3.4]

3.2.3.13**output**

product, material or energy flow that leaves a unit process

Note 1 to entry: Products and materials include raw materials, intermediate products, co-products and releases.

Note 2 to entry: Output includes *reused* ([3.2.2.16](#)), reprocessed and *recycled materials* ([3.2.6.30](#)) or products and can occur at any stage of the *value chain* ([3.2.4.9](#)).

[SOURCE: ISO 14040:2006, 3.25, modified — Note 2 to entry has been added]

3.2.3.14

renewable resource

resource that can be naturally or artificially grown or regenerated using processes found in nature within a foreseeable time frame

Note 1 to entry: Note 1 to entry: A renewable resource is capable of being exhausted but can be regrown or regenerated indefinitely with proper stewardship.

[SOURCE: ISO/DIS 59004, 3.3.6, modified — "in a manner consistent with sustainable development" removed]

3.2.4 Terms related to traceability

3.2.4.1

audit

systematic, independent and documented process for obtaining evidence and evaluating it objectively to determine the extent to which *audit criteria* ([3.2.4.2](#)) are fulfilled

[SOURCE: ISO 20252:2012, 2.5]

3.2.4.2

audit criteria

set of policies, procedures or requirements used as a reference

[SOURCE: ISO 20252:2012, 2.6]

3.2.4.3

certification body

body that conducts certification of conformity

[SOURCE: ISO 30003:2009, 3.1]

3.2.4.4

chain of custody

process by which *inputs* ([3.2.3.8](#)) and *outputs* ([3.2.3.13](#)) and associated information are transferred, monitored and controlled as they move through each step in the relevant *supply chain* ([3.2.4.5](#))

[SOURCE: ISO 22095:2020, 3.1.1]

3.2.4.5

supply chain

series of interlinked processes or activities that includes the sourcing of raw material and extends through the manufacturing, processing, handling, and delivery, *collection* ([3.2.6.7](#)) and *reuse* ([3.2.2.16](#)), *repair* ([3.2.2.14](#)), remanufacturing, refurbishing, repurposing of goods and related services including *waste* ([3.2.7.15](#)) management and *end-of-life* ([3.2.3.5](#)) operations

[SOURCE: ISO 28001:2007, 3.24, modified — Minor adjustments in definition and Note 1 to entry has been removed]

3.2.4.6

third-party certification

certification provided by a person or body that is recognized as being independent of the parties involved as concerns the certification

[SOURCE: ISO 12576-1:2001, 3.26]

3.2.4.7**transaction certificate**

document issued by a *certification body* (3.2.4.3) that verifies that products being sold or shipped from one organization to another conform to a given normative document and may be treated as claimed materials by the receiver

[SOURCE: Textile Exchange, Policy for issuing Transaction Certificates,^[47] modified — definition slightly modified]

3.2.4.8**transparency**

open, comprehensive and understandable presentation of information

[SOURCE: ISO 14040:2006, 3.7]

3.2.4.9**value chain**

entire sequence of activities or parties that create or receive value through the provision of a product or service

Note 1 to entry: In this document, value chain is regarded as a broader concept than *supply chain* (3.2.4.5). The supply chain is a part of the value chain, but the value chain can also include other parties not directly involved in the supply chain.

[SOURCE: ISO 14006:2020, 3.3.6, modified — “or service” has been added]

3.2.5 Terms related to organic sourcing**3.2.5.1****genetically modified organism****GMO**

organism in which the genetic material has been changed through modern biotechnology in a way that does not occur naturally by multiplication and/or natural recombination

[SOURCE: ISO 16577:2016, 3.73]

3.2.5.2**GMO free**

contains no *genetically modified organisms* (3.2.5.1)

3.2.5.3**in-conversion****transitional**

establishment of an organic management system and building of soil fertility requires an interim period, known as the conversion period

Note 1 to entry: While the conversion period may not always be of sufficient duration to improve soil fertility and for re-establishing the balance of the ecosystem, it is the period in which all the actions required to reach these goals are started.

[SOURCE: Textile Exchange, Organic Cotton Standard^[52]]

3.2.5.4

organic agriculture

holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, *biological cycles* (3.2.2.1), and soil biological activity, emphasising the use of management practices in preference to the use of off-farm *inputs* (3.2.3.8), taking into account that regional conditions require locally adapted systems, accomplished by using, where possible, agronomic, biological, and mechanical methods, as opposed to using synthetic materials, to fulfil any specific function within the system

Note 1 to entry: The farm carrying out organic agriculture needs certification according to USDA National Organic Program (NOP), Regulation (EC) 834/2007 & EU 2018/848, or any other organic standard that is approved in the IFOAM Family of Standards.

[SOURCE: FAO/WHO Codex Alimentarius Commission, 1999^[48]]

3.2.6 Terms related to material recovery and recycling

3.2.6.1

augmented sorting

sorting process beyond human perception using optical or spectroscopic sensor technologies as well as machine readable identifiers

Note 1 to entry: Technologies may include but are not limited to: computer vision, NIR/MIR/Raman spectroscopy, RFID, QR code.

Note 2 to entry: It aims to take optimal decisions to prolong use and find the best suitable *recycling* (3.2.6.32) process for the textile.

3.2.6.2

automated sorting

sorting using machines to conduct the sorting process

Note 1 to entry: Technologies may include but are not limited to FTIR, NIR, RFID, QR etc.

3.2.6.3

cascade recycling

process in which a material is repeatedly used usually at decreasing quantity and quality at each subsequent stage or cycle

Note 1 to entry: Cascading takes into account the inherent loss of quantity and quality over time. It took its origin in the field of *biomass* (3.1.2.4) utilization and is widely used for biobased resources such as timber. However, the concept is also relevant to other materials as most result in a loss of quantity and quality when used over and over again.

Note 2 to entry: The challenge is to design the optimal cascade to minimize resource and energy consumption as well as other impacts. *Energy recovery* (3.2.7.7) or disposal terminates the cascade as further material use is not possible.

[SOURCE: ISO/DIS 59004, 3.3.10, modified — "process" has been added, "material" has been used instead of resource]

3.2.6.4

cascading material

material produced by *cascade recycling* (3.2.6.3)

3.2.6.5**chemical recycling
feedstock recycling**

manufacturing processes that convert *waste* (3.2.7.15) materials into a *feedstock* (3.2.6.12) by changing the chemical structure of waste materials to be used in the production of new polymers, *monomers* (3.1.1.5), intermediates, or other materials

Note 1 to entry: Processes may include but are not limited to pyrolysis, *gasification* (3.2.6.15), *depolymerization* (3.2.6.8), solvolysis, catalysis, reforming, purification, hydrogenation, dissolution, dehydrochlorination, and other similar existing or newly developed technologies or processes.

3.2.6.6**closed loop system
closed loop recycling**

system by which *textile products* (3.1.1.13) are used and then recovered and turned into new textile products indefinitely, without losing their inherent properties

Note 1 to entry: Depending on the technology used, some material loss can be expected in the *recycling* (3.2.6.32) of *textile products* (3.1.1.13).

3.2.6.7**collection**

process of gathering and transporting used *textile products* (3.1.1.13) or waste materials to a sorting facility for further processing such as *reuse* (3.2.2.16), *repair* (3.2.2.14), *remanufacturing* (3.2.2.12), or *recycling* (3.2.6.32)

3.2.6.8**depolymerization**

reversion of a polymer to its *monomer(s)* (3.1.1.5) or to a polymer of lower relative molecular mass

Note 1 to entry: The resulting smaller molecules can be *monomers* (3.1.1.5) and oligomers or raw, intermediate, or final products, but they can also be altered substances.

[SOURCE: ISO 472:2013, modified — Note 1 to entry has been added]

3.2.6.9**disassembly**

process whereby a *textile product* (3.1.1.13) is taken apart in such a way that it could subsequently be reassembled and *reused* (3.2.2.16) or remade

[SOURCE: ISO 14009:2020, 3.2.15, modified — to add textile, reused, and remade]

3.2.6.10**downcycling**

production of *recycled material* (3.2.6.30) that is of lower economic value or quality than the original product

3.2.6.11**fabric recycling**

process of recovering woven, nonwoven or knitted fabric and reprocessing the textile material into useful products

3.2.6.12**feedstock**

primary material (3.1.1.10) introduced into a plant for processing

[SOURCE: ISO 1998-1:1998, 1.05.100]

3.2.6.13**fibre mechanical recycling**

mechanical process for disassembling used *textile products* (3.1.1.13), extracting fibres and incorporating them into a new textile product or other application

3.2.6.14

fibre recycling

system for disassembling used fibres, extracting polymers and re-spinning or converting them for new uses

Note 1 to entry: Cellulosic fibre regeneration implies some modification to the polymer structure. Recycling of nylon does not count and comes under the definition of polymer recycling.

3.2.6.15

gasification

manufacturing process whereby collected *feedstocks* (3.2.6.12) are introduced in a high temperature oxygen-controlled atmosphere converting feedstocks into syngas (carbon monoxide (CO) and hydrogen (H₂)), followed by conversion into valuable raw, intermediate and final products

[SOURCE: ISO 20675:2018,3.25]

3.2.6.16

manual sorting

sorting process conducted by persons using visual or haptic inspection

3.2.6.17

material recovery

material processing operations as part of textile, fibre or polymer recycling but excluding *energy recovery* (3.2.7.7), and aerobic/anaerobic digestion

Note 1 to entry: Pyrolysis output can result i both material recovery and *energy recovery* (3.2.7.7).

3.2.6.18

mechanical recycling process

mechanical process, used in a recycling system, based on physical forces

EXAMPLE Compounding, drying, grinding, re-granulating, separating, *shredding* (3.2.6.34), washing are examples of mechanical recycling process.

Note 1 to entry: material obtained at the mechanical recycling process may be used in isolation for textile or *fibre recycling* (3.2.6.14) or as pre-processed material for thermal or *chemical recycling* (3.2.6.5) processes.

3.2.6.19

open-loop recycling

recycling materials transferred into another material category or application with loss of purity or quality

3.2.6.20

off-class product

descriptive term used in definition covering the product before it reaches the customer, such as off-class products, damaged or obsolete products

3.2.6.21

post-consumer material

material or object which has been used by the end user(s) and is no longer of use for this end-user(s)

3.2.6.22

post-consumer recycled content

post-consumer material

PCR

material generated by households or by commercial, industrial and institutional facilities in their role as end-users of the product which can no longer be used for its intended purpose, including returns of used or damaged/defective material from the distribution chain

[SOURCE: ISO 1382:2020, 3.373]

3.2.6.23**post-consumer textile**

textile material, generated by the end-users of products, that has fulfilled its intended purpose or can no longer be used, including material from the distribution chain

3.2.6.24**post-industrial textile waste**

materials that come from *waste* (3.2.7.15) from (industrial) production

Note 1 to entry: This excludes materials that are or can be *reused* (3.2.2.16) when producing textile and in the same production process from which they originate, including in-house scraps.

3.2.6.25**pre-consumer textile**

product before it reaches the customer

Note 1 to entry: Pre-consumer products include items returned tried on but unused by consumers to the retailer.

Note 2 to entry: This definition includes all items (e.g. trims, yarn, belt, buttons, pieces of fabric) used in the textile *value chain* (3.2.4.9).

Note 3 to entry: Pre-consumer textile" is often used interchangeably with "post-industrial textile.

3.2.6.26**reclaimed material**

substances or objects that would have otherwise been disposed of as *waste* (3.2.7.15), but has instead been collected and used in another process or product, requiring only minor alterations and or refinishing

Note 1 to entry: For the purposes of this document, the expressions "recovered material" and "reclaimed material" are treated as synonyms; however, it is recognized that, in some countries, one or other of these expressions can be preferred for this application, however when used to describe recovered material that is meant and intended for use as a fuel / energy, this use of "recovered" is specific and not the same as the use above.

Note 2 to entry: Adapted from ISO 14021:2016, 7.8.1.1.

3.2.6.27**recyclable textile**

textile material or *textile product* (3.1.1.13) suitable and prepared for recycling with techniques commercially available, including chemical, mechanical and/or thermo-mechanical recycling

3.2.6.28**recyclability**

ability to be recycled

3.2.6.29**recycled content**

proportion, by mass, of *recycled material* (3.2.6.30) in products

Note 1 to entry: Only pre-consumer and *post-consumer materials* (3.2.6.21) shall be considered as recycled content.

Note 2 to entry: Recycled content can be attributed through various *chain of custody* (3.2.4.4) models as outlined in ISO 22095:2020.

[SOURCE: ISO 14021:2016, 7.8.1.1, modified — Packaging removed, second part of the definition given as Note 1 to entry and Note 2 to entry have been added]

3.2.6.30

recycled material

secondary material

materials that have been recovered, or otherwise diverted, from the *waste* (3.2.7.15) stream, either from the manufacturing process [i.e. post-industrial recycled materials, but not in-house scrap] or after consumer use (i.e. post-consumer recycled materials), and are reintroduced or incorporated in the manufacture of new products

[SOURCE: ISO/TR 24699:2009, 3.12, modified — “reused” has been replaced by “reintroduced or incorporated”]

3.2.6.31

recycler

actor performing *recycling* (3.2.6.32) operations

3.2.6.32

recycling

activities to obtain recovered resources for use in a product, excluding *energy recovery* (3.2.7.7)

Note 1 to entry: Activities to obtain resources can include activities such as *collection* (3.2.6.7), transport, sorting, cleaning, re-processing, etc.

Note 2 to entry: Recycling occurs only through activities controlled by one or several organizations.

Note 3 to entry: The process can be mechanical, thermo-mechanical and/or chemical.

Note 4 to entry: It does not include the reprocessing into materials intended to be used as fuels or for backfilling operations.

[SOURCE: ISO/DIS 59004:—, 3.5.16, modified — Notes 2, 3 and 4 to entry have been added]

3.2.6.33

recycling rate

ratio of the amount of material that has completed a *recycling* (3.2.6.32) process to the total amount input

Note 1 to entry: Exact calculations may vary based on situation.

[SOURCE: EN 17615:2022, 3.212]

3.2.6.34

shredding

mechanical process of dismantling fabric to smaller pieces in preparation for further processing

3.2.6.35

textile collector

actor involved in separate *collection* (3.2.6.7) of textiles

3.2.6.36

textile fraction

textile materials sorted by defined characteristics

EXAMPLE Characteristics may include but are not limited to; colours, type of garment, fibre length (staple or continuous), composition, fabrics construction etc.

Note 1 to entry: A fraction can be used as *feedstock* (3.2.6.12) in a recycling process.

3.2.6.37

textile tearing process

mechanical testing process of exposing *textile fibre* (3.1.1.12) from a fabric in preparation for further processing

3.2.6.38**thermo-mechanical recycling process**

process used in a *recycling* (3.2.6.32) system that melts a polymer, typically employed to permit polymer recycling

3.2.6.39**upcycling**

process of converting *waste* (3.2.7.15) products to new materials that are of higher economic value or quality than in the original product

3.2.7 Terms related to end-of-life**3.2.7.1****biodegradation**

degradation (3.2.7.5) caused by biological activity, especially by enzymatic action, leading to a significant change in the chemical structure of a material

[SOURCE: ISO 472:2013, 2.1680]

3.2.7.2**compost**

organic soil conditioner obtained by *biodegradation* (3.2.7.1) of a mixture consisting principally of vegetable residues, occasionally with other organic material and having a limited mineral content

[SOURCE: ISO 14855-2:2018, 3.1]

3.2.7.3**compostable material**

material that undergoes *degradation* (3.2.7.5) by biological processes during composting to yield CO₂, water, inorganic compounds and *biomass* (3.1.2.4) at a rate consistent with other known compostable materials and leave no visible, distinguishable or toxic residue

[SOURCE: ISO 17088:2021, 3.2, modified — Note: the original term of compostable plastic is adapted to compostable material]

3.2.7.4**compostability****textile compostability**

property of a material to be biodegraded in a composting process

Note 1 to entry: Compostability refers to an aerobic process.

Note 2 to entry: Composting of textiles can be restricted by biowaste regulations.

[SOURCE: ISO 472:2013, 2.1736, modified — textile has been added, Note 1 to entry and Note 2 to entry have been added]

3.2.7.5**degradation**

irreversible process leading to a significant change in the structure of a material, typically characterized by a change of properties (e.g. integrity, molecular mass or structure, mechanical strength) and/or by fragmentation, affected by environmental conditions, proceeding over a period of time and comprising one or more steps

[SOURCE: ISO 472:2013, 2.262]

3.2.7.6**discard**

act of throwing away textiles no longer useful or required by its owner

3.2.7.7

energy recovery waste-to-energy

process of treating waste products by thermal, chemical or biological processes to recover energy or products for energy production

[SOURCE: ISO 24161:2022, 3.1.3.5]

3.2.7.8

final disposal

end-of-life (3.2.3.5) treatment of waste (3.2.7.15) by *incineration* (3.2.7.9) or *landfilling* (3.2.7.11)

Note 1 to entry: *Landfilling* (3.2.7.11) is banned in some jurisdictions.

3.2.7.9

incineration

controlled burning of waste products or other combustible materials in an incinerator or similar apparatus

[SOURCE: ISO 16165:2013, 2.11.1]

3.2.7.10

industrial composting

composting process performed under controlled conditions on industrial scale with the aim of producing compost for the market

Note 1 to entry: In some regions, industrial composting is referred to as professional composting.

Note 2 to entry: Composting of textiles can be restricted by biowaste regulations.

[SOURCE: ISO 17088:2021, 3.12, modified — Note 2 to entry has been added]

3.2.7.11

landfill

waste (3.2.7.15) disposal site for the deposit of waste on to or into land under controlled or regulated conditions

Note 1 to entry: Landfill might not be a legal option for waste disposal in some jurisdictions.

Note 2 to entry: Landfilling is not to be confused with unregulated waste disposal.

[SOURCE: ISO 15270:2008, 3.18, modified — Notes 1 and 2 to entry have been added]

3.2.7.12

textile process waste

substances or objects from textile processes which the holder intends or is required to dispose of

[SOURCE: ISO 14044:2006, 3.35, modified — original term was "waste"; added "from textile processes" in the definition]

3.2.7.13

textile waste

textile material that is considered to no longer be an asset as it provides no value to the holder

3.2.7.14

thermal recovery

textile thermal recovery

combustion process for extracting the fuel value of materials and deliver heat to another process

Note 1 to entry: Textiles are examples of materials. Other materials can also be included such as buttons, slide fasteners and trimmings.

3.2.7.15**waste**

resource that is considered to no longer be an asset as it provides no value to the holder

Note 1 to entry: The assignment of value to waste as a resource is linked, in part, to the available technology (e.g. *landfill* ([3.2.7.11](#)) mining).

Note 2 to entry: Some regulations require the holder to dispose of certain types of wastes, while others assign value to waste.

Note 3 to entry: Value can be assigned to waste as a result of a need from other interested parties, at which point the resource is no longer considered waste.

[SOURCE: ISO/DIS 59004:—, 3.3.5]

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