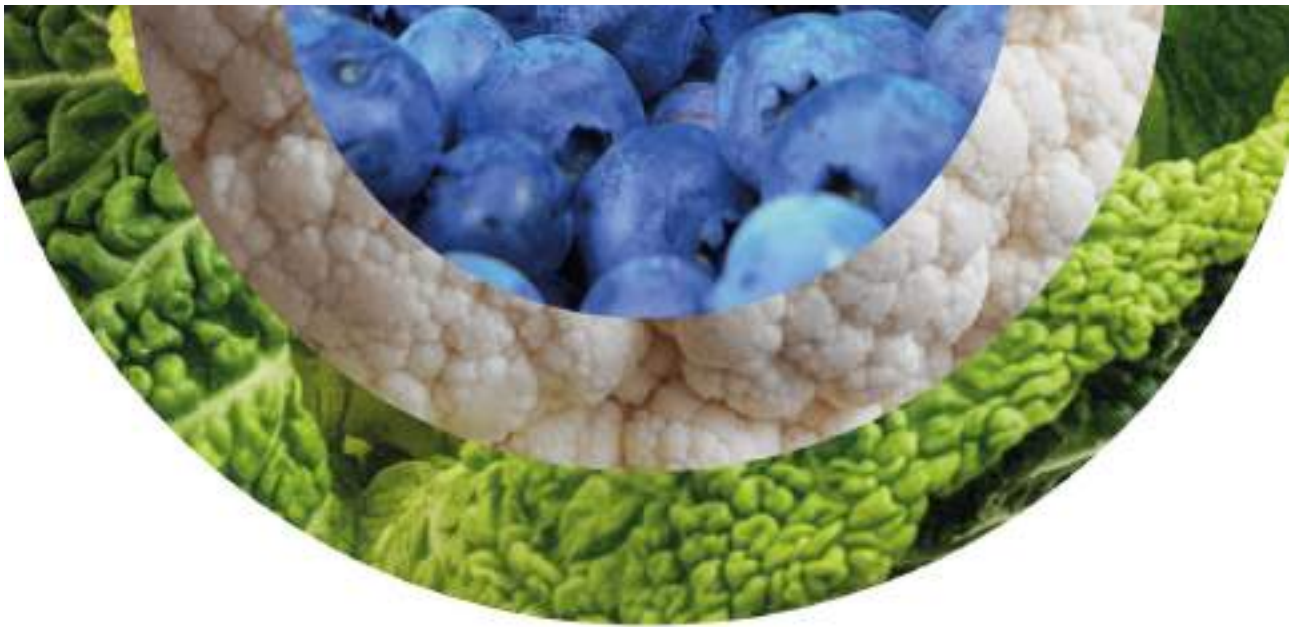


Agro2Circular



D8.8 – Standardization landscape and applicable standards

February 2022

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1 Technical references

Project Acronym	Agro2Circular
Project Title	TERRITORIAL CIRCULAR SYSTEMIC SOLUTION FOR THE UPCYCLING OF RESIDUES FROM THE AGRIFOOD SECTOR
Project Coordinator	Fuensanta Monzó CETEC fuensanta.monzo@agro2circular.org
Project Duration	October 2021 – September 2024 (36 months)
Deliverable No.	D8.8
Dissemination level*	PU
Work Package	WP 8 – A2C outreach: communication, dissemination, exploitation, training & policy recommendations.
Task	T8.8 – Standardization activities
Lead beneficiary	Asociación Española de Normalización (UNE)
Contributing beneficiary/ies	All partners
Due date of deliverable	30 February 2022
Actual submission date	30 February 2022

* PU = Public

PP = Restricted to other programme participants (including the Commission Services)

RE = Restricted to a group specified by the consortium (including the Commission Services)

CO = Confidential, only for members of the consortium (including the Commission Services)

Document history

V	Date	Comments
v0.1	07/02/2022	First draft of document
v0.2	21/02/2022	Revised version based on the comments of the peer reviewers Fuensanta Monzó (CETEC) and Sofia Martínez (CTNC) – Organisation, and a partner's selection of standards included.
V0.3	23/02/2022	Revised version with changes proposed by the WP leader Giuliana Folco from ICONS
v1.0	23/02/2022	First final version, approved by the WP leader and the project coordinator, (will be) submitted to EC.



v1.1		First draft based upon first final version
v2.0		Second final version, approved by the WP leader and the project coordinator, (will be) submitted to EC.

Document Distribution Log

Version	Date	Distributed to
v0.1	07/02/2022	Peer reviewers, Sofía Martínez (CTNC) and Fuensanta Monzó (CETEC)
v0.2	22/02/2022	WP leader for approval
V1.0	23/02/2022	Coordinator for submission

Verification and approval

	Name	Date
Verification Final Draft by WP leader	Giuliana Folco	23/02/2022
Approval Final Deliverable by coordinator	Fuensanta Monzó	23/02/2022

Disclaimer and acknowledgement

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101036838



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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 101036838.

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3 List of abbreviations

CEN European Committee for Standardization

CENELEC European Committee for electrotechnical Standardization

CWA Workshop Agreements

ETSI European Telecommunications Standards Institute

IEC International Electrotechnical Commission

ISO International standardization organization

SC Subcommittee

TC Technical committee

TS Technical Specifications

TR Technical Reports

WG Working group



4 Executive summary

This deliverable provides information on the standardization landscape and applicable standards relevant for the Agro2Circular Project. In this respect, the aim is to supply starting information for the work packages ensuring compatibility and interoperability with already existing solutions by identifying existing standards and standards under development at European and international levels in the fields of plastics, agricultural wastes, circular economy, recycling and upcycling. On the other hand, the standardization landscape will be useful to identify the main standardization technical committees and possible standardization gaps for further contribution of the A2C project to the ongoing and future standardization.



5 Standardization landscape

5.1 Introduction and methodology

5.1.1 Methodology of the document

This document presents the standardization activity found relevant for the A2C project. In order to structure the research, a list of key concepts was elaborated by UNE, and improved according to the consortium contributions, to act as a starting point for the identification of standardization areas:

1. Circular economy and recycling general standards (including “design for recycling topics” and “design guidelines and protocols for recyclability evaluation”).
2. Waste characterization, classification and treatment (focusing on agri-food waste and plastic waste)
3. Extracts (carotenoids, fibres, phenolic compounds) for food, cosmetics and nutraceuticals: extracts quality and safety criteria and characterisation (technological and nutritional capabilities).
4. Contaminants in vegetable products, food cosmetics and nutraceuticals
5. Plastics: recycling, upcycling, biodegradability and characterization (mechanical, thermal & rheological properties), bioplastics using microbes.
6. Materials and articles in contact with foodstuffs. Film and food packaging (barrier properties, biodegradation, migration tests, optical properties, weldability) + (mechanical properties)
7. Barrier films in agriculture (agricultural mulching and films for disinfection)
8. Industrial data integration, product & packaging digital identity, blockchain.
9. Microbial biotechnology (or microbial-based processes): metabolic engineering and synthetic biology.

The standardization study covers European standardization developed by the European Committee for Standardization ([CEN](#)), the European Committee for Electrotechnical Standardization ([CENELEC](#)) and the European Telecommunications Standards Institute



([ETSI](#)), and also the international standardization developed by the International Organization for Standardization ([ISO](#)) and the International Electrotechnical Commission ([IEC](#)). Other standardization organizations as [GSI](#) and [ASTM](#) have been included.

The first result of the research carried out by UNE (preselection of documents and technical committees, see Annex I) was shared with the consortium and the A2C partners were asked to select the interesting documents for their tasks and to add other relevant missing standards. Then, the submitted feedbacks from the different partners were compiled and the list of documents and technical committees was updated according to the consortium contribution. The final result of the A2C standardization landscape is described in the section 6.2 of this deliverable.

The study has been structured in standardization areas: the relevant standardization technical committees (TCs), published standards and standards under development within each area. The relationship among TCs, standards and the A2C project has been explained (see section 6.2).

5.1.2 Short introduction about standardization

Standards are voluntary technical documents that set out requirements for a specific item, material, component, system or service, or describe in detail a particular method, procedure or best practice. Standards are developed and defined through a process of knowledge sharing and consensus building among technical experts nominated by interested parties and other stakeholders - including businesses, consumers and environmental groups, among others. These experts are organized in Technical Committees (TCs), which are subdivided in Subcommittees (SCs) or Working Groups (WGs). These TCs are included in the structure of the Standardization Organizations (National, European and International, with the respective mirror committees) and work following their internal regulations.

The standardization bodies operate at National (UNE, AFNOR, BSI, DIN, etc.), Regional (CEN, CENELEC, ETSI) or International (ISO, IEC, ITU) level. Sometimes there are different standardization bodies at the same level, but covering different fields. This is the case of



ISO (general), IEC (electrical) and ITU (telecommunications) at international level, or CEN, CENELEC and ETSI at European level in the same way.

There are also different kinds of standardization documents. The most widespread is the standard, which has a different code depending on the organization under which it was developed; e.g. EN for European Standards, ISO or IEC for International standards. Other types of documents are Technical Specifications (TS), Technical Reports (TR) and Workshop Agreements (CWA). Further amendments to the standards are identified by adding A1, A2, etc. at the end of the standard code.

At European level, all members of CEN and CENELEC shall adopt EN standards as national standards and shall withdraw any existing national standard which might conflict with them. A summary of the characteristics of the different standardization documents can be found in the following Table 1.

Table 1 – Characteristics of different standardization documents

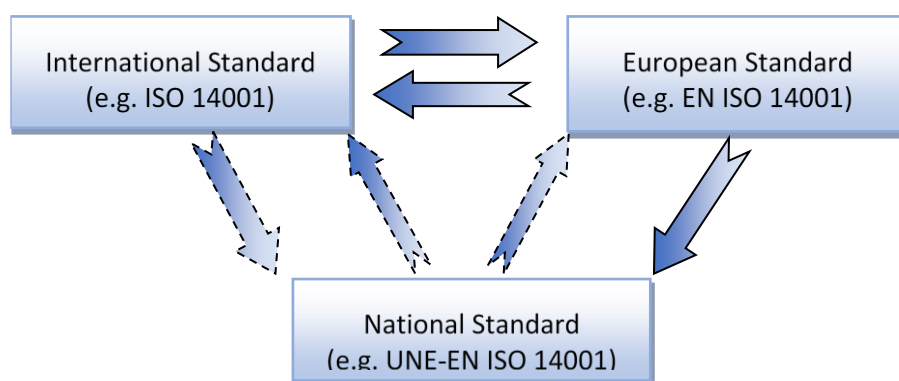
Type	International code	European code	National code	Main characteristics
Standard	ISO IEC	EN	UNE, NF, BS, DIN, etc. When adopting: UNE-EN, NF-EN, UNE-ISO, NF-ISO, etc.	<ul style="list-style-type: none"> • Elaboration: 3 years • 2 steps for member approval • European: compulsory national adoption Revision: every 5 years
Technical Specification	ISO/TS IEC/TS	CEN/TS CLC/TS	When adopting: UNE-CEN/TS, NF-CEN/TS, UNE-ISO/TS, NF-ISO/TS, etc.	<ul style="list-style-type: none"> • Elaboration: 21 months • 1 step for member approval or internal approval in TC • European: optional national adoption Revision: at 3 years (upgrading to EN or deletion)
Technical Report	ISO/TR IEC/TR	CEN/TR CLC/TR	When adopting: UNE-CEN/TR, NF-CEN/TR, UNE-ISO/TR, NF-ISO/TR, etc.	<ul style="list-style-type: none"> • Elaboration: free timeframe • Internal approval in TC • European: optional national adoption No revision required



Type	International code	European code	National code	Main characteristics
Workshop Agreement	IWA	CWA	Variable	<ul style="list-style-type: none"> • Elaboration: free timeframe (usually few months) • Internal approval in the Workshop • European: optional national adoption Revision: at 3 years (upgrading to EN or deletion)

There is also an agreement established between European and International Organizations (e.g. CEN and ISO) in order to avoid duplication of efforts and promote global relevance of standards, allowing the parallel adoption or development of standards with the same content and code. National standards could also be proposed as a base for new European or International standards. Figure 1 below shows the tracks of the standards.

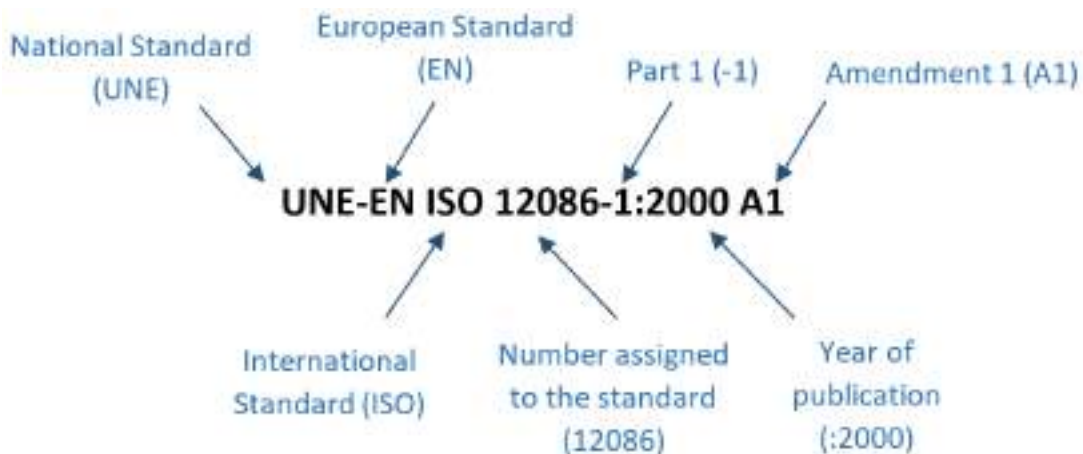
Figure 1 – Possible tracks of standards adoption



Therefore, the code of any standard is the combination of the above-mentioned issues, and could be explained as shown in Figure 2:

Figure 2 – Example of identification of elements in the code of a standard





5.2 Standardization related to A2C project

5.2.1 Standardization committees' overview

The standards search was carried out considering the agreed key concept list (see above in section 6.1.1), and, as a result, several standardization committees were identified as responsible for the development of these standards. These technical committees were therefore selected as the main technical committees in relation to the A2C Project and are shown in the following table, grouped by technical area:

Technical area	Standardization Technical Committees
Circular economy, LCA, biobased products	ISO/TC 207/SC 1 - Environmental management systems ISO/TC 207/SC 5 - Life cycle assessment CEN/SS S26 - Environmental management ISO/TC 323 - Circular economy CEN/TC 411 - Bio-based products CEN/TC 249/WG 9 - Plastics/Bio-based and biodegradable plastics ISO/TC 61/SC 14 - Plastics/Environmental aspects
General waste and	CEN/TC 444 Environmental characterization of solid matrices



biowaste	
Food, cosmetics and extracts	<p>CEN/TC 275 Food analysis - Horizontal methods</p> <p>ISO/TC 34 - Food products</p> <p>ISO/TC 34/SC 3 - Fruits and vegetables and their derived products</p> <p>ISO/TC 217 – Cosmetics</p> <p>CEN/TC 392 - Cosmetics</p> <p>ISO/TC 54 - Essential oils</p>
Plastics and environment	<p>CEN/TC 249 - Plastics</p> <p>CEN/TC 249/WG 11 - Plastics/Plastics recycling</p> <p>CEN/TC 249/WG 24 - Plastics/Environmental aspects</p> <p>CEN/TC 249/WG 9 - Plastics/Bio-based and biodegradable plastics</p> <p>ISO/TC 61/SC 14 - Plastics/Environmental aspects</p>
Plastic films and sheets	<p>CEN/TC 249 - Plastics</p> <p>CEN/TC 249/WG 7 - Plastics/Thermoplastic films for use in agriculture</p> <p>ISO/TC 61/SC 11 Plastics/Products</p>
Plastic characterization	<p>CEN/TC 249 - Plastics</p> <p>ISO/TC 61/SC 2 - Mechanical behavior</p> <p>ISO/TC 61/SC 5 - Physical-chemical properties</p>
Packaging	<p>CEN/TC 261/SC 4 - Packaging and Environment</p> <p>ISO/TC 122/SC 4 - Packaging and the environment</p> <p>CEN/TC 194 - Utensils in contact with food</p> <p>CEN/TC 261 - Packaging</p>
Biotechnology	CEN/TC 233 - Biotechnology
IT	<p>ISO/IEC JTC 1/SC 31 - Automatic identification and data capture techniques</p> <p>ISO/TC 307 - Blockchain and distributed ledger technologies</p> <p>GS1 AISBL</p> <p>ETSI Industry Specification Group (ISG) Permissioned Distributed Ledger (PDL).</p> <p>ETSI Industry Specification Group (ISG) Experiential Networked Intelligence (ENI).</p>



5.2.2 Standardization on “Circular economy, LCA, biobased products”

This section describes the activity of the main technical committees (TC), subcommittees (SC) or working groups (WG) that are responsible for the standards selected as the more relevant ones for the A2C project in the field of “Circular economy, LCA, biobased products”.

- **ISO/TC 207/SC 1 - Environmental management systems**

Standardization in the field of environmental management systems to support the achievement of sustainability.

- **ISO/TC 207/SC 5 - Life cycle assessment**

Standardization in the field of life cycle assessment and related environmental management tools for products and organizations. It includes life cycle based resource efficiency and eco-efficiency assessment, and encompasses consideration of a life cycle perspective in the assessment of impacts from the extraction of raw materials to the final disposal of waste.

- **CEN/SS S26 - Environmental management**

At European level, CEN/SS S26 works in close co-operation with ISO/TC 207, on the standards related to environmental management systems and life cycle assessment. In order to ensure consistency and harmonization with international standards, this committee publishes the ISO standards as EN ISO.

- **ISO/TC 323 - Circular economy**

Standardization in the field of Circular Economy to develop frameworks, guidance, supporting tools and requirements for the implementation of activities of all involved organizations, to maximize the contribution to Sustainable Development.

- **CEN/TC 411 - Bio-based products**

The scope of this technical committee is:

- i. Development of standards for bio-based products covering horizontal aspects. This includes consistent terminology, sampling, certification tools, bio-based



content, application of and correlation towards life cycle analysis, sustainability criteria for biomass used and for final products, and aspects where further harmonization is needed on horizontal level;

- ii. Development of standards for bio-solvents, covering product functionality, biodegradability and, if necessary, product specific aspects not covered under i.

- **CEN/TC 249/WG 9 - Plastics/Bio-based and biodegradable plastics**

Definition of terms, vocabulary and identification means regarding degradable plastics and degradability of plastics. Standardization of test methods for the characterisation of the degradability of plastics in various environments. Standardization of specifications for degradable plastics.

- **ISO/TC 61/SC 14 - Plastics/Environmental aspects**

All standardization activities in the field of plastics relating to environmental and sustainability aspects. The focus is on, but not limited to biobased plastics, biodegradability, environmental footprint incl. carbon footprint, resource efficiency incl. circular economy, characterization of plastics leaked into the environment incl. microplastics, waste management incl. organic, mechanical and chemical recycling.

The standards selected as the more relevant ones for the A2C project in the field of “Circular economy, LCA, biobased products” are listed below.

CIRCULAR ECONOMY, LIFE CYCLE ASSESSMENT	
Existing Standards	
CEN ISO/TS 14071:2016	Environmental management - Life cycle assessment - Critical review processes and reviewer competencies: Additional requirements and guidelines to ISO 14044:2006 (ISO/TS 14071:2014)
EN ISO 14006:2020	Environmental management systems - Guidelines for incorporating ecodesign (ISO 14006:2020)
EN ISO 14007:2020	Environmental management - Guidelines for determining environmental costs and benefits (ISO 14007:2019)
EN ISO 14008:2020	Monetary valuation of environmental impacts and related environmental aspects (ISO 14008:2019)



EN ISO 14040:2006	Environmental management - Life cycle assessment - Principles and framework (ISO 14040:2006)
EN ISO 14040:2006/A1:2020	Environmental management - Life cycle assessment - Principles and framework - Amendment 1 (ISO 14040:2006/Amd 1:2020)
EN ISO 14044:2006	Environmental management - Life cycle assessment - Requirements and guidelines (ISO 14044:2006)
EN ISO 14044:2006/A1:2018	Environmental management - Life cycle assessment - Requirements and guidelines - Amendment 1 (ISO 14044:2006/Amd 1:2017)
EN ISO 14044:2006/A2:2020	Environmental management - Life cycle assessment - Requirements and guidelines - Amendment 2 (ISO 14044:2006/Amd 2:2020)
EN ISO 14045:2012	Environmental management - Eco-efficiency assessment of product systems - Principles, requirements and guidelines (ISO 14045:2012)
EN ISO 14046:2016	Environmental management - Water footprint - Principles, requirements and guidelines (ISO 14046:2014)
ISO 14067:2018	Greenhouse gases — Carbon footprint of products — Requirements and guidelines for quantification
Standards under revision or under development	
ISO/WD 59004	Circular economy — Framework and principles for implementation
ISO/WD 59010.2	Circular economy — Guidelines on business models and value chains
ISO/WD 59020.2	Circular economy — Measuring circularity framework
ISO/CD TR 59031	Circular economy – Performance-based approach – Analysis of cases studies
ISO/DTR 59032.2	Circular economy - Review of business model implementation
ISO/AWI 59040	Circular Economy — Product Circularity Data Sheet
prEN 50729 (WI=JT010006)	Method to achieve circular designs of products
BIO-BASED PRODUCTS	
Existing standards	
CEN/TR 16721:2014	Bio-based products - Overview of methods to determine the bio-based content
CEN/TR 16957:2016	Bio-based products - Guidelines for Life Cycle Inventory (LCI) for the End-of-life phase
CEN/TR 17341:2019	Bio-based products - Examples of reporting on sustainability criteria
EN 16575:2014	Bio-based products - Vocabulary
EN 16751:2016	Bio-based products - Sustainability criteria
EN 16760:2015	Bio-based products - Life Cycle Assessment
EN 17228:2019	Plastics - Bio-based polymers, plastics, and plastics products - Terminology, characteristics and communication



ISO 16620-1:2015	Plastics — Biobased content — Part 1: General principles
ISO 16620-2:2019	Plastics — Biobased content — Part 2: Determination of biobased carbon content
ISO 16620-3:2015	Plastics — Biobased content — Part 3: Determination of biobased synthetic polymer content
ISO 16620-4:2016	Plastics — Biobased content — Part 4: Determination of biobased mass content
ISO 16620-5:2017	Plastics — Biobased content — Part 5: Declaration of biobased carbon content, biobased synthetic polymer content and biobased mass content
ISO 22526-1:2020	Plastics — Carbon and environmental footprint of biobased plastics — Part 1: General principles
ISO 22526-2:2020	Plastics — Carbon and environmental footprint of biobased plastics — Part 2: Material carbon footprint, amount (mass) of CO ₂ removed from the air and incorporated into polymer molecule
ISO 22526-3:2020	Plastics — Carbon and environmental footprint of biobased plastics — Part 3: Process carbon footprint, requirements and guidelines for quantification
Standards under revision or under development	
ISO/AWI 16620-4	Plastics — Biobased content — Part 4: Determination of biobased mass content
ISO/DIS 22526-4	Plastics — Carbon and environmental footprint of biobased plastics — Part 4: Environmental (total) footprint (Life Cycle Assessment)

5.2.3 Standardization on “General waste and biowaste”

The technical committee **CEN/TC 444 - Environmental characterization of solid matrices** is responsible for the standards selected as the more relevant ones for the A2C project in the field of “General waste and biowaste”.

The scope of this TC is the standardization of methods for the environmental characterization of soil, solid and liquid waste, biowaste and sludge.

This covers:

- Sampling, assessment methods and vocabulary
- Digestion / extraction, chemical analysis, physical methods, quality assurance and quality control (laboratories);



- Where appropriate and decided by matrix specific environmental Technical Committees: leaching tests, screening methods, sample pretreatment, biological and microbiological analysis, reporting.

Excluded are: sampling, assessment methods and vocabulary related to sludge, which are covered by CEN/TC 308 'Characterization and management of sludges'.

The standards selected as the more relevant ones for the A2C project in the field of “General waste and biowaste” are listed below.

CHARACTERIZATION OF WASTE	
Existing Standards	
CEN/TR 15018:2005	Characterization of waste - Digestion of waste samples using alkali-fusion techniques
CEN/TR 16110:2010	Characterization of waste - Guidance on the use of ecotoxicity tests applied to waste
CEN/TR 16130:2011	Characterization of waste - On-site verification
CEN/TR 16193:2013	Sludge, treated biowaste and soil - Detection and enumeration of Escherichia coli
CEN/TS 15937:2013	Sludge, treated biowaste and soil - Determination of specific electrical conductivity
CEN/TS 16177:2012	Sludge, treated biowaste and soil - Extraction for the determination of extractable ammonia, nitrate and nitrite
CEN/TS 16189:2012	Sludge, treated biowaste and soil - Determination of linear alkylbenzene sulfonates (LAS) by high-performance liquid chromatography (HPLC) with fluorescence detection (FLD) or mass selective detection (MS)
CEN/TS 16800:2020	Guideline for the validation of physico-chemical analytical methods
EN 13657:2002	Characterization of waste - Digestion for subsequent determination of aqua regia soluble portion of elements
EN 14735:2021	Characterization of waste - Preparation of waste samples for ecotoxicity tests
EN 15002:2015	Characterization of waste - Preparation of test portions from the laboratory sample
EN 15216:2021	Environmental solid matrices - Determination of total dissolved solids (TDS) in water and eluates
EN 15309:2007	Characterization of waste and soil - Determination of elemental composition by X-ray fluorescence



EN 15527:2008	Characterization of waste - Determination of polycyclic aromatic hydrocarbons (PAH) in waste using gas chromatography mass spectrometry (GC/MS)
EN 15933:2012	Sludge, treated biowaste and soil - Determination of pH
EN 15934:2012	Sludge, treated biowaste, soil and waste - Calculation of dry matter fraction after determination of dry residue or water content
EN 15935:2021	Soil, waste, treated biowaste and sludge - Determination of loss on ignition
EN 15936:2012	Sludge, treated biowaste, soil and waste - Determination of total organic carbon (TOC) by dry combustion
EN 16166:2021	Soil, treated biowaste and sludge - Determination of adsorbed organically bound halogens (AOX)
EN 16168:2012	Sludge, treated biowaste and soil - Determination of total nitrogen using dry combustion method
EN 16169:2012	Sludge, treated biowaste and soil - Determination of Kjeldahl nitrogen
EN 16170:2016	Sludge, treated biowaste and soil - Determination of elements using inductively coupled plasma optical emission spectrometry (ICP-OES)
EN 16171:2016	Sludge, treated biowaste and soil - Determination of elements using inductively coupled plasma mass spectrometry (ICP-MS)
EN 16181:2018	Soil, treated biowaste and sludge - Determination of polycyclic aromatic hydrocarbons (PAH) by gas chromatography (GC) and high performance liquid chromatography (HPLC)
EN 17322:2020	Environmental Solid Matrices - Determination of polychlorinated biphenyls (PCB) by gas chromatography - mass selective detection (GC-MS) or electron-capture detection (GC-ECD)
EN ISO 54321:2021	Soil, treated biowaste, sludge and waste - Digestion of aqua regia soluble fractions of elements (ISO 54321:2020)
Standards under revision or under development	
(WI=00444044)	Characterization of waste - Determination of the content of elements and substances in waste

5.2.4 Standardization on “Food, Cosmetics, Extracts”

This section describes the activity of the main technical committees (TC) or subcommittees (SC) that are responsible for the standards selected as the more relevant ones for the A2C project in the field of “Food, Cosmetics, Extracts”.



- **CEN/TC 275 Food analysis - Horizontal methods**

Standardization of methods of analysis for the detection and/or determination of:

- additives, residues, biotoxins and contaminants in food,
- nutrients in food and food supplements,
- irradiated foodstuffs,
- food allergens and food substances causing intolerances,
- genetically modified foodstuffs,

In general, CEN/TC 275 does not elaborate standards on terminology, but sometimes on requirements/criteria for methods.

- **ISO/TC 34 Food products**

Standardization in the field of human and animal foodstuffs, covering the food chain from primary production to consumption, as well as animal and vegetable propagation materials, in particular, but not limited to, terminology, sampling, methods of test and analysis, product specifications, food and feed safety and quality management and requirements for packaging, storage and transportation.

- **ISO/TC 34/SC 3 Fruits and vegetables and their derived products**

Standardization in the field of fruit and vegetable and their derived products, in particular, terminology, sampling, product specifications, requirements for packaging, storage, transportation, methods of tests and analysis.

- **ISO/TC 217 Cosmetics**

Standardization in the field of cosmetic products

- **CEN/TC 392 – Cosmetics**

The purpose of the CEN TC 392 is to develop appropriate standards in the field of cosmetics to the final benefit of consumer health and well being. However, it is recognized that certain products (substances or mixtures), although applied to the body for decorative purposes, do not fall under the definition of cosmetic products. CEN TC 392 will consider such products when appropriate and justified by shared technical challenges.



- **ISO/TC 54 - Essential oils**

Standardization of methods of analysis and specifications for essential oils.

The standards selected as the more relevant ones for the A2C project in the field of “Food, Cosmetics, Extracts” are listed below.

FRUITS AND VEGETABLES, AND FOOD PRODUCTS (EUROPEAN STANDARDS)	
Elements and their chemical species	
EN 13804:2013	Foodstuffs - Determination of elements and their chemical species - General considerations and specific requirements
EN 14083:2003	Foodstuffs - Determination of trace elements - Determination of lead, cadmium, chromium and molybdenum by graphite furnace atomic absorption spectrometry (GFAAS) after pressure digestion
EN 14084:2003	Foodstuffs - Determination of trace elements - Determination of lead, cadmium, zinc, copper and iron by atomic absorption spectrometry (AAS) after microwave digestion
EN 14627:2005	Foodstuffs - Determination of trace elements - Determination of total arsenic and selenium by hydride generation atomic absorption spectrometry (HGAAS) after pressure digestion
EN 15763:2009	Foodstuffs - Determination of trace elements - Determination of arsenic, cadmium, mercury and lead in foodstuffs by inductively coupled plasma mass spectrometry (ICP-MS) after pressure digestion
EN 16943:2017	Foodstuffs - Determination of calcium, copper, iron, magnesium, manganese, phosphorus, potassium, sodium, sulfur and zinc by ICP-OES
Pesticides	
CEN/TR 15641:2007	Food analysis - Determination of pesticide residues by LC-MS/MS - Tandem mass spectrometric parameters
CEN/TR 16468:2013	Food analysis - Determination of pesticide residues by GC-MS - Retention times, mass spectrometric parameters and detector response information
CEN/TR 16699:2014	Foodstuffs - Determination of pesticide residues by GC-MS/MS - Tandem mass spectrometric parameters
EN 15637:2008	Foods of plant origin - Determination of pesticide residues using LC-MS/MS following methanol extraction and clean-up using diatomaceous earth



EN 15662:2018	Foods of plant origin - Multimethod for the determination of pesticide residues using GC- and LC-based analysis following acetonitrile extraction/partitioning and clean-up by dispersive SPE - Modular QuEChERS-method
Toxins	
CEN/TR 15298:2006	Foodstuffs - Sample comminution for mycotoxins analysis - Comparison between dry milling and slurry mixing
EN 14177:2003	Foodstuffs - Determination of patulin in clear and cloudy apple juice and puree - HPLC method with liquid/liquid partition clean-up
EN 15890:2010	Foodstuffs - Determination of patulin in fruit juice and fruit based purée for infants and young children - HPLC method with liquid/liquid partition cleanup and solid phase extraction and UV detection
EN 17203:2021	Foodstuffs - Determination of citrinin in food by HPLC-MS/MS
EN 17279:2019	Foodstuffs - Multimethod for the screening of aflatoxin B1, deoxynivalenol, fumonisin B1 and B2, ochratoxin A, T-2 toxin, HT-2 toxin and zearalenone in foodstuffs, excluding foods for infants and young children, by LC-MS/MS
Nitrate, nitrite	
EN 12014-1:1997	Foodstuffs - Determination of nitrate and/or nitrite content - Part 1: General considerations
EN 12014-1:1997/A1:1999	Foodstuffs - Determination of nitrate and/or nitrite content - Part 1: General considerations
EN 12014-2:2017	Foodstuffs - Determination of nitrate and/or nitrite content - Part 2: HPLC/IC method for the determination of nitrate content of vegetables and vegetable products
EN 12014-7:1998	Foodstuffs - Determination of nitrate and/or nitrite content - Part 7: Continuous flow method for the determination of nitrate content of vegetables and vegetable products after Cadmium reduction
Vitamins and Carotenoids	
EN 12823-1:2014	Foodstuffs - Determination of vitamin A by high performance liquid chromatography - Part 1: Measurement of all-E-retinol and 13-Z-retinol
EN 12823-2:2000	Foodstuffs - Determination of vitamin A by high performance liquid chromatography - Part 2: Measurements of Beta-carotene
EN 14122:2014	Foodstuffs - Determination of vitamin B1 by high performance liquid chromatography
EN 14152:2014	Foodstuffs - Determination of vitamin B2 by high performance liquid chromatography
EN 14164:2014	Foodstuffs - Determination of vitamin B6 by high performance chromatography



EN 15607:2009	Foodstuffs - Determination of d-biotin by HPLC
EN 15652:2009	Foodstuffs - Determination of niacin by HPLC
EN 12136:1997	Fruit and vegetable juices - Determination of total carotenoid content and individual carotenoid fractions
FRUITS AND VEGETABLES, AND FOOD PRODUCTS (INTERNATIONAL STANDARDS)	
ISO 874:1980	Fresh fruits and vegetables — Sampling
ISO 1955:1982	Citrus fruits and derived products — Determination of essential oils content (Reference method)
ISO 6635:1984	Fruits, vegetables and derived products — Determination of nitrite and nitrate content — Molecular absorption spectrometric method
ISO 8128-1:1993	Apple juice, apple juice concentrates and drinks containing apple juice — Determination of patulin content — Part 1: Method using high-performance liquid chromatography
ISO 5498:1981	Agricultural food products — Determination of crude fibre content — General method
ISO 6541:1981	Agricultural food products — Determination of crude fibre content — Modified Scharrer method
ISO 7002:1986	Agricultural food products — Layout for a standard method of sampling from a lot
ISO/TS 19657:2017	Definitions and technical criteria for food ingredients to be considered as natural
ISO/TR 23304:2021	Food products — Guidance on how to express vitamins and their vitamers content
ISO 23443:2020	Infant formula and adult nutritionals — Determination of β -carotene, lycopene and lutein by reversed-phase ultra-high performance liquid chromatography (RP-UHPLC)
COSMETICS	
EN ISO 22716:2007	Cosmetics - Good Manufacturing Practices (GMP) - Guidelines on Good Manufacturing Practices (ISO 22716:2007, Corrected version 2008-05-15)
EN ISO 17516:2014	Cosmetics - Microbiology - Microbiological limits (ISO 17516:2014)
CEN ISO/TR 19838:2016	Microbiology - Cosmetics - Guidelines for the application of ISO standards on Cosmetic Microbiology (ISO/TR 19838:2016)
EN ISO 29621:2017	Cosmetics - Microbiology - Guidelines for the risk assessment and identification of microbiologically low-risk products (ISO 29621:2017)
CEN ISO/TR 24475:2013	Cosmetics - Good Manufacturing Practices - General training document (ISO/TR 24475:2010)
ESSENTIAL OILS	



ISO/TS 210:2014	Essential oils — General rules for packaging, conditioning and storage
ISO/TS 211:2014	Essential oils — General rules for labelling and marking of containers
ISO 212:2007	Essential oils — Sampling
ISO 9910:1991	Oil of sweet orange — Determination of the total carotenoids content

5.2.5 Standardization on “Plastics and environment”

This section describes the activity of the main technical committees (TC), subcommittees (SC) or working groups (WG) that are responsible for the standards selected as the more relevant ones for the A2C project in the field of “Plastics and environment”.

- **CEN/TC 249 – Plastics**

Standardization of:

- terminology,
- test methods,
- specifications, classifications and designation systems,
- environmental aspects,
- joining systems and techniques,

of plastics, plastic-based materials, semi-finished products and products (thermoplastics, thermosets, degradable plastics, bio-based polymers, thermoplastic elastomers, composites, reinforcement products for plastics, recyclates).

- **CEN/TC 249/WG 11 - Plastics/Plastics recycling**

Standardization related to the characterization of recycled plastics and requirements for application of plastic recyclates in products.

- **CEN/TC 249/WG 24 - Plastics/Environmental aspects**

Strategic aspects and coordination of all standardization activities in the field of plastics relating to environmental aspects. The focus is on, but not limited to biobased plastics, biodegradability, carbon and environmental footprint, circular



economy and resource efficiency, microplastics and plastics in the environment, recycling and waste management.

- **CEN/TC 249/WG 9 - Plastics/Bio-based and biodegradable plastics**

The scope of this working group is described above in 6.2.2.

- **ISO/TC 61/SC 14 - Plastics/Environmental aspects**

The scope of this subcommittee is described above in 6.2.2.

The standards selected as the more relevant ones for the A2C project in the field of “Plastics and environment” are listed below.

PLASTICS AND ENVIRONMENTAL ISSUES	
Plastics recycling	
Existing standards	
CEN/TR 15353:2007	Plastics - Recycled plastics - Guidelines for the development of standards for recycled plastics
CEN/TS 16010:2020	Plastics - Recycled plastics - Sampling procedures for testing plastics waste and recyclates
CEN/TS 16011:2013	Plastics - Recycled plastics - Sample preparation
CEN/TS 17627:2021	Plastics - Recycled plastics - Determination of solid contaminants content
EN 15342:2007	Plastics - Recycled Plastics - Characterization of polystyrene (PS) recyclates
EN 15343:2007	Plastics - Recycled Plastics - Plastics recycling traceability and assessment of conformity and recycled content
EN 15344:2021	Plastics - Recycled plastics - Characterization of Polyethylene (PE) recyclates
EN 15347:2007	Plastics - Recycled Plastics - Characterisation of plastics wastes
ISO 15270:2008	Plastics — Guidelines for the recovery and recycling of plastics waste
ISO 17088:2021	Plastics — Organic recycling — Specifications for compostable plastics
ISO/TR 23891:2020	Plastics — Recycling and recovery — Necessity of standards
Standards under revision or under development	
prEN 15347	Plastics - Recycled plastics - Characterisation of sorted plastics wastes
prEN 15348	Plastics - Recycled plastics - Characterization of poly(ethylene terephthalate) (PET) recyclates
(WI=00249A3C)	Plastics — Quality requirements for application of plastic recyclates in products — Part 2 : Polyethylene (PE)



(WI=00249A3E)	Plastics — Quality requirements for application of plastic recyclates in products — Part 5 : Poly(ethylene terephthalate) (PET)
(WI=00249A3K)	Plastics — Quality requirements for application of plastic recyclates in products — Part 1: General
ISO/CD 5677	Testing and characterization of mechanically recycled Polypropylene (PP) and Polyethylene (PE) for intended use in different plastics processing techniques
Plastics, General environmental aspects	
Existing standards	
CEN ISO/TR 21960:2020	Plastics - Environmental aspects - State of knowledge and methodologies (ISO/TR 21960:2020)
ISO 17422:2018	Plastics — Environmental aspects — General guidelines for their inclusion in standards
Standards under revision or under development	
FprEN 17615	Plastics - Environmental Aspects - Vocabulary
ISO/DIS 24187	Principles for the analysis of plastics and microplastics present in the environment
Biodegradable plastics	
Existing standards	
EN 17417:2020	Determination of the ultimate biodegradation of plastics materials in an aqueous system under anoxic (denitrifying) conditions - Method by measurement of pressure increase
CEN/TR 15351:2006	Plastics - Guide for vocabulary in the field of degradable and biodegradable polymers and plastic items
EN 14987:2006	Plastics - Evaluation of disposability in waste water treatment plants - Test scheme for final acceptance and specifications
EN 14995:2006	Plastics - Evaluation of compostability - Test scheme and specifications
EN ISO 10210:2017	Plastics — Methods for the preparation of samples for biodegradation testing of plastic materials
ISO 13975:2019	Plastics — Determination of the ultimate anaerobic biodegradation of plastic materials in controlled slurry digestion systems — Method by measurement of biogas production
EN ISO 14851:2019	Determination of the ultimate aerobic biodegradability of plastic materials in an aqueous medium — Method by measuring the oxygen demand in a closed respirometer
EN ISO 14852:2021	Determination of the ultimate aerobic biodegradability of plastic materials in an aqueous medium — Method by analysis of evolved carbon dioxide
EN ISO 14853:2017	Plastics — Determination of the ultimate anaerobic biodegradation of plastic materials in an aqueous system — Method by measurement of biogas production
EN ISO 14855-1:2012	Determination of the ultimate aerobic biodegradability of plastic materials under controlled composting conditions — Method by analysis of evolved carbon dioxide — Part 1: General method
EN ISO 14855-2:2018	Determination of the ultimate aerobic biodegradability of plastic materials under controlled composting conditions — Method by analysis of evolved carbon dioxide — Part 2: Gravimetric measurement of carbon dioxide evolved in a laboratory-scale test
EN ISO 15985:2017	Plastics — Determination of the ultimate anaerobic biodegradation under high-solids anaerobic-digestion conditions — Method by analysis of released biogas



EN ISO 16929:2021	Plastics — Determination of the degree of disintegration of plastic materials under defined composting conditions in a pilot-scale test
EN ISO 17556:2019	Plastics — Determination of the ultimate aerobic biodegradability of plastic materials in soil by measuring the oxygen demand in a respirometer or the amount of carbon dioxide evolved
EN ISO 18830:2017	Plastics — Determination of aerobic biodegradation of non-floating plastic materials in a seawater/sandy sediment interface — Method by measuring the oxygen demand in closed respirometer
EN ISO 19679:2020	Plastics — Determination of aerobic biodegradation of non-floating plastic materials in a seawater/sediment interface — Method by analysis of evolved carbon dioxide
EN ISO 20200:2015	Plastics — Determination of the degree of disintegration of plastic materials under simulated composting conditions in a laboratory-scale test
EN ISO 22403:2021	Plastics — Assessment of the intrinsic biodegradability of materials exposed to marine inocula under mesophilic aerobic laboratory conditions — Test methods and requirements
EN ISO 22404:2021	Plastics — Determination of the aerobic biodegradation of non-floating materials exposed to marine sediment — Method by analysis of evolved carbon dioxide
EN ISO 22766:2021	Plastics — Determination of the degree of disintegration of plastic materials in marine habitats under real field conditions
ISO 23832:2021	Plastics — Test methods for determination of degradation rate and disintegration degree of plastic materials exposed to marine environmental matrices under laboratory conditions
EN ISO 23977-1:2021	Plastics — Determination of the aerobic biodegradation of plastic materials exposed to seawater — Part 1: Method by analysis of evolved carbon dioxide
EN ISO 23977-2:2021	Plastics — Determination of the aerobic biodegradation of plastic materials exposed to seawater — Part 2: Method by measuring the oxygen demand in closed respirometer
Standards under revision or under development	
ISO/DIS 5148	Plastics — Determination of specific aerobic biodegradation rate of solid plastic materials and disappearance time (DT50) under mesophilic laboratory test conditions
ISO/AWI 20200	Plastics — Determination of the degree of disintegration of plastic materials under simulated composting conditions in a laboratory-scale test

5.2.6 Standardization on “Plastics films and sheets”

This section describes the activity of the main technical committees (TC) or subcommittees (SC) that are responsible for the standards selected as the more relevant ones for the A2C project in the field of “Plastics films and sheets”.

- **CEN/TC 249 – Plastics**

The scope of this technical committee is described above in 6.2.5.

- **CEN/TC 249/WG 7 - Plastics/Thermoplastic films for use in agriculture**



Standardisation of thermoplastic films for use in agriculture and requirements for physical and mechanical characteristics for film intended to be used for the following applications: covering films, mulching films, silage films and silage stretched films for round bales.

- **ISO/TC 61/SC 11 Plastics/Products**

The standards selected as the more relevant ones for the A2C project in the field of “Plastics films and sheets” are listed below.

PLASTIC FILMS AND SHEETING	
EN ISO 527-3:2018	Plastics — Determination of tensile properties — Part 3: Test conditions for films and sheets
ISO 4591:1992	Plastics — Film and sheeting — Determination of average thickness of a sample, and average thickness and yield of a roll, by gravimetric techniques (gravimetric thickness)
ISO 4592:1992	Plastics — Film and sheeting — Determination of length and width
ISO 4593:1993	Plastics — Film and sheeting — Determination of thickness by mechanical scanning
EN ISO 6383-2:2004	Plastics — Film and sheeting — Determination of tear resistance — Part 2: Elmendorf method
EN ISO 7765-1:2004	Plastics film and sheeting — Determination of impact resistance by the free-falling dart method — Part 1: Staircase methods
ISO 7765-2:1994	Plastics film and sheeting — Determination of impact resistance by the free-falling dart method — Part 2: Instrumented puncture test
EN ISO 8295:2004	Plastics — Film and sheeting — Determination of the coefficients of friction
EN ISO 11502:2018	Plastics — Film and sheeting — Determination of blocking resistance
ISO 15105-1:2007	Plastics — Film and sheeting — Determination of gas-transmission rate — Part 1: Differential-pressure methods
ISO 15105-2:2003	Plastics — Film and sheeting — Determination of gas-transmission rate — Part 2: Equal-pressure method
ISO 23559:2011	Plastics — Film and sheeting — Guidance on the testing of thermoplastic films



FILMS FOR USE IN AGRICULTURE	
CEN/TR 17219:2018	Plastics - Biodegradable thermoplastic mulch films for use in agriculture and horticulture - Guide for the quantification of alteration of films
EN 13206:2017+A1:2020	Plastics - Thermoplastic covering films for use in agriculture and horticulture
EN 13655:2018	Plastics - Thermoplastic mulch films recoverable after use, for use in agriculture and horticulture
EN 17033:2018	Plastics - Biodegradable mulch films for use in agriculture and horticulture - Requirements and test methods
EN 17098-1:2018	Plastics - Barrier films for agricultural and horticultural soil disinfection by fumigation - Part 1: Specifications for barrier films
EN 17098-2:2018	Plastics - Barrier films for agricultural and horticultural soil disinfection by fumigation - Part 2: Method for film permeability determination using a static technique
ISO 23517:2021	Plastics — Soil biodegradable materials for mulch films for use in agriculture and horticulture — Requirements and test methods regarding biodegradation, ecotoxicity and control of constituents

5.2.7 Standardization on “Plastic characterization”

In this section, the main technical committees (TC) and subcommittees (SC) that are responsible for the standards selected as the more relevant ones for the A2C project in the field of “Plastics characterization” are indicated below.

- CEN/TC 249 – Plastics**
The scope of this technical committee is described above in 6.2.5.
- ISO/TC 61/SC 2 – Plastics/Mechanical behavior**
Standardization of methods for determination of mechanical properties of plastics.
- ISO/TC 61/SC 5 – Plastics/ Physical-chemical properties**
Standardization of methods for determination of physico-chemical properties of plastics



- **ASTM Committee D20 Plastics, Subcommittee D20.10 on Mechanical Properties**

The standards selected as the more relevant ones for the A2C project in the field of “Plastic characterization” are listed below.

PLASTIC Physical-chemical properties	
EN ISO 1133-1:2011	Plastics — Determination of the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastics — Part 1: Standard method
EN ISO 1133-2:2011	Plastics — Determination of the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastics — Part 2: Method for materials sensitive to time-temperature history and/or moisture
EN ISO 3146:2000	Plastics — Determination of melting behaviour (melting temperature or melting range) of semi-crystalline polymers by capillary tube and polarizing-microscope methods
EN ISO 3146:2000/AC:2003	Plastics — Determination of melting behaviour (melting temperature or melting range) of semi-crystalline polymers by capillary tube and polarizing-microscope methods — Technical Corrigendum 1
EN ISO 6186:1998	Plastics — Determination of pourability
EN ISO 6721-1:2019	Plastics — Determination of dynamic mechanical properties — Part 1: General principles
EN ISO 6721-2:2019	Plastics — Determination of dynamic mechanical properties — Part 2: Torsion-pendulum method
EN ISO 6721-3:2021	Plastics — Determination of dynamic mechanical properties — Part 3: Flexural vibration — Resonance-curve method
ISO 6721-4:2019	Plastics — Determination of dynamic mechanical properties — Part 4: Tensile vibration — Non-resonance method
ISO 6721-5:2019	Plastics — Determination of dynamic mechanical properties — Part 5: Flexural vibration — Non-resonance method
ISO 6721-6:2019	Plastics — Determination of dynamic mechanical properties — Part 6: Shear vibration — Non-resonance method
ISO 6721-7:2019	Plastics — Determination of dynamic mechanical properties — Part 7: Torsional vibration — Non-resonance method
ISO 6721-8:2019	Plastics — Determination of dynamic mechanical properties — Part 8: Longitudinal and shear vibration — Wave-propagation method



ISO 6721-9:2019	Plastics — Determination of dynamic mechanical properties — Part 9: Tensile vibration — Sonic-pulse propagation method
ISO 6721-10:2015	Plastics — Determination of dynamic mechanical properties — Part 10: Complex shear viscosity using a parallel-plate oscillatory rheometer
ISO 6721-11:2019	Plastics — Determination of dynamic mechanical properties — Part 11: Glass transition temperature
ISO 6721-12:2009	Plastics — Determination of dynamic mechanical properties — Part 12: Compressive vibration — Non-resonance method
EN ISO 13468-1:2019	Plastics — Determination of the total luminous transmittance of transparent materials — Part 1: Single-beam instrument
EN ISO 13468-2:2021	Plastics — Determination of the total luminous transmittance of transparent materials — Part 2: Double-beam instrument
ISO 14782:1999/COR 1:2005	Plastics — Determination of haze for transparent materials — Technical Corrigendum 1
ISO 14782:2021	Plastics — Determination of haze for transparent materials
ISO 26723:2020	Plastics — Determination of total luminous transmittance and reflectance
EN ISO 11357-1:2016	Plastics - Differential scanning calorimetry (DSC) - Part 1: General principles (ISO 11357-1:2016)
EN ISO 11357-2:2020	Plastics - Differential scanning calorimetry (DSC) - Part 2: Determination of glass transition temperature and step height (ISO 11357-2:2020)
EN ISO 11357-3:2018	Plastics - Differential scanning calorimetry (DSC) - Part 3: Determination of temperature and enthalpy of melting and crystallization (ISO 11357-3:2018)
EN ISO 11357-4:2021	Plastics - Differential scanning calorimetry (DSC) - Part 4: Determination of specific heat capacity (ISO 11357-4:2021)
EN ISO 11357-5:2014	Plastics - Differential scanning calorimetry (DSC) - Part 5: Determination of characteristic reaction-curve temperatures and times, enthalpy of reaction and degree of conversion (ISO 11357-5:2013)
EN ISO 11357-6:2018	Plastics - Differential scanning calorimetry (DSC) - Part 6: Determination of oxidation induction time (isothermal OIT) and oxidation induction temperature (dynamic OIT) (ISO 11357-6:2018)
EN ISO 11357-7:2015	Plastics - Differential scanning calorimetry (DSC) - Part 7: Determination of crystallization kinetics (ISO 11357-7:2015)
EN ISO 11357-8:2021	Plastics - Differential scanning calorimetry (DSC) - Part 8: Determination of thermal conductivity (ISO 11357-8:2021)
EN ISO 11358-1:2014	Plastics - Thermogravimetry (TG) of polymers - Part 1: General principles (ISO 11358-1:2014)



ASTM D3985-17	Standard Test Method for Oxygen Gas Transmission Rate Through Plastic Film and Sheeting Using a Coulometric Sensor
ASTM F1249-13	Standard Test Method for Water Vapor Transmission Rate Through Plastic Film and Sheeting Using a Modulated Infrared Sensor
PLASTIC Mechanical behavior	
EN ISO 75-1:2020	Plastics — Determination of temperature of deflection under load — Part 1: General test method
EN ISO 178:2019	Plastics — Determination of flexural properties
EN ISO 179-1:2010	Plastics — Determination of Charpy impact properties — Part 1: Non-instrumented impact test
EN ISO 179-2:2020	Plastics — Determination of Charpy impact properties — Part 2: Instrumented impact test
EN ISO 180:2019	Plastics — Determination of Izod impact strength
EN ISO 306:2013	Plastics — Thermoplastic materials — Determination of Vicat softening temperature (VST)
ISO 458-1:1985	Plastics — Determination of stiffness in torsion of flexible materials — Part 1: General method
EN ISO 527-1:2019	Plastics — Determination of tensile properties — Part 1: General principles
EN ISO 527-2:2012	Plastics — Determination of tensile properties — Part 2: Test conditions for moulding and extrusion plastics
EN ISO 604:2003	Plastics — Determination of compressive properties
EN ISO 899-1:2017	Plastics — Determination of creep behaviour — Part 1: Tensile creep
EN ISO 899-2:2003	Plastics — Determination of creep behaviour — Part 2: Flexural creep by three-point loading
ISO 974:2000	Plastics — Determination of the brittleness temperature by impact
EN ISO 2039-1:2003	Plastics — Determination of hardness — Part 1: Ball indentation method
ISO 6601:2002	Plastics — Friction and wear by sliding — Identification of test parameters
EN ISO 8256:2004	Plastics — Determination of tensile-impact strength
ISO 9352:2012	Plastics — Determination of resistance to wear by abrasive wheels
EN ISO 13802:2015	Plastics — Verification of pendulum impact-testing machines — Charpy, Izod and tensile impact-testing
EN ISO 2039-2:1999	Plastics — Test specimens



5.2.8 Standardization on “Packaging”

This section describes the activity of the main technical committees (TC) or subcommittees (SC) that are responsible for the standards selected as the more relevant ones for the A2C project in the field of “Packaging”.

- **CEN/TC 261 – Packaging**

CEN/TC 261 is responsible for the elaboration of standards dealing with terminology, dimensions, capacities, marking, test methods, performance requirements and environmental aspects in the field of packaging and unit loads. The field covers primary, secondary and transport packaging and unit loads, whatever the materials, shapes, contents or distribution system used.

- **CEN/TC 261/SC 4 - Packaging and Environment**

This field covers all environment related aspects of packaging. SC4 will, among other things, deal with the following aspects: - material recovery, - energy recovery, - other types of recovery, - degradability, - symbology, - terminology, - determination of environmental impacts criteria.

- **ISO/TC 122/SC 4 - Packaging and the environment**

- **CEN/TC 194 - Utensils in contact with food**

Standardization in the field of kitchen, table and household utensils, used in the preparation, cooking, serving and consumption of food and beverage, domestically and in catering establishments. Standardization of conditions of storage and transportation of catering containers containing prepared foodstuffs.

The standards selected as the more relevant ones for the A2C project in the field of “Packaging” are listed below.

PACKAGING	
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EN 26590-2:1992	Packaging — Sacks — Vocabulary and types — Part 2: Sacks made from thermoplastic flexible film
Packaging and environment	
CEN/TR 13910:2010	Packaging - Report on criteria and methodologies for life cycle analysis of packaging
ISO 18604:2013	Packaging and the environment — Material recycling
ISO 21067-2:2015	Packaging — Vocabulary — Part 2: Packaging and the environment terms
CONTACT WITH FOODSTUFF	
Existing standards	
CEN/TR 15356-1:2006	Validation and interpretation of analytical methods, migration testing and analytical data for materials and articles in contact with food - Part 1: General considerations
EN 13130-1:2004	Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 1: Guide to test methods for the specific migration of substances from plastics to foods and food simulants and the determination of substances in plastics and the selection of conditions of exposure to food simulants
EN 13130-2:2004	Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 2: Determination of terephthalic acid in food simulants
EN 13130-7:2004	Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 7: Determination of monoethylene glycol and diethylene glycol in food simulants
CEN/TS 13130-15:2005	Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 15: Determination of 1,3-butadiene in food simulants
EN 1186-1:2002	Materials and articles in contact with foodstuffs - Plastics - Part 1: Guide to the selection of conditions and test methods for overall migration
EN 1186-2:2002	Materials and articles in contact with foodstuffs - Plastics - Part 2: Test methods for overall migration into olive oil by total immersion
EN 1186-3:2002	Materials and articles in contact with foodstuffs - Plastics - Part 3: Test methods for overall migration into aqueous food simulants by total immersion
EN 1186-4:2002	Materials and articles in contact with foodstuffs - Plastics - Part 4: Test methods for overall migration into olive oil by cell
EN 1186-5:2002	Materials and articles in contact with foodstuffs - Plastics - Part 5: Test methods for overall migration into aqueous food simulants by cell
EN 1186-6:2002	Materials and articles in contact with foodstuffs - Plastics - Part 6: Test methods for overall migration into olive oil using a pouch



EN 1186-7:2002	Materials and articles in contact with foodstuffs - Plastics - Part 7: Test methods for overall migration into aqueous food simulants using a pouch
EN 1186-8:2002	Materials and articles in contact with foodstuffs - Plastics - Part 8: Test methods for overall migration into olive oil by article filling
EN 1186-9:2002	Materials and articles in contact with foodstuffs - Plastics - Part 9: Test methods for overall migration into aqueous food simulants by article filling
EN 1184:1997	Materials and articles in contact with foodstuffs - Plastics - Part 10: Test methods for overall migration into olive oil (modified method for use in cases where incomplete extraction of olive oil occurs)
EN 1186-11:2002	Materials and articles in contact with foodstuffs - Plastics - Part 11: Test methods for overall migration into mixtures of C-labelled synthetic triglycerides
EN 1186-12:2002	Materials and articles in contact with foodstuffs - Plastics - Part 12: Test methods for overall migration at low temperatures
EN 1186-13:2002	Materials and articles in contact with foodstuffs - Plastics - Part 13: Test methods for overall migration at high temperatures
EN 1186-14:2002	Materials and articles in contact with foodstuffs - Plastics - Part 14: Test methods for 'substitute tests' for overall migration from plastics intended to come into contact with fatty foodstuffs using test media iso-octane and 95 % ethanol
EN 1186-15:2002	Materials and articles in contact with foodstuffs - Plastics - Part 15: Alternative test methods to migration into fatty food simulants by rapid extraction into iso-octane and/or 95 % ethanol
Standards under revision or under development	
prEN 1186-2	Materials and articles in contact with foodstuffs - Plastics - Part 2: Test methods for overall migration in vegetable oils
prEN 1186-3	Materials and articles in contact with foodstuffs - Plastics - Part 3: Test methods for overall migration in evaporable simulants

5.2.9 Standardization on “Biotechnology”

The technical committee **CEN/TC 233 - Biotechnology** is responsible for the standards selected as the more relevant ones for the A2C project in the field of “Biotechnology”.



The scope of this TC is the standardization in the field of biotechnology, particularly in relation to food, pharmaceuticals and agriculture, to support the development of the industry as well as to provide a safety framework for workers, consumers and environment with four main tasks: - biotechnical research, development and analysis in laboratories; - performance criteria for equipment used in biotechnology, especially as regards the problems of cleanability, sterilizability and leak tightness; - large scale production operations; - release into the environment of genetically modified organisms.

The standards selected as the more relevant ones for the A2C project in the field of “Biotechnology” are listed below.

BIOTECHNOLOGY	
EN 12075:1997	Biotechnology - Large-scale process and production - Procedures for fermentation and downstream processes
EN 12128:1998	Biotechnology - Laboratories for research, development and analysis - Containment levels of microbiology laboratories, areas of risk, localities and physical safety requirements
EN 12296:1998	Biotechnology - Equipment - Guidance on testing procedures for cleanability
EN 12297:1998	Biotechnology - Equipment - Guidance on testing procedures for sterilizability
EN 12298:1998	Biotechnology - Equipment - Guidance on testing procedures for leak tightness
EN 12307:1997	Biotechnology - Large-scale process and production - Guidance for good practice, procedures, training and control for personnel
EN 12460:1998	Biotechnology - Large-scale process and production - Guidance on equipment selection and installation in accordance with the biological risk
EN 12461:1998	Biotechnology - Large scale process and production - Guidance for the handling, inactivating and testing of waste
EN 12462:1998	Biotechnology - Performance criteria for pumps
EN 12689:1998	Biotechnology - Guidance on assessment of the purity, biological activity and stability of microorganism based products
EN 12690:1999	Biotechnology - Performance criteria for shaft seals
EN 12740:1999	Biotechnology - Laboratories for research, development and analysis - Guidance for handling, inactivating and testing of waste
EN 12741:1999	Biotechnology - Laboratories for research, development and analysis - Guidance for biotechnology laboratory operations
EN 12884:1999	Biotechnology - Performance criteria for centrifuges



EN 12885:1999	Biotechnology - Performance criteria for cell disrupters
EN 13091:1999	Biotechnology - Performance criteria for filter elements and filtration assemblies
EN 13092:1999	Biotechnology - Equipment - Guidance on sampling and inoculation procedures
EN 13095:1999	Biotechnology - Performance criteria for off-gas systems
EN 13311-1:2001	Biotechnology - Performance criteria for vessels - Part 1: General performance criteria
EN 13311-2:2001	Biotechnology - Performance criteria for vessels - Part 2: Pressure protection devices
EN 13311-3:2001	Biotechnology - Performance criteria for vessels - Part 3: Glass pressure vessels
EN 13311-4:2001	Biotechnology - Performance criteria for vessels - Part 4: Bioreactors
EN 13311-5:2001	Biotechnology - Performance criteria for vessels - Part 5: Kill tanks
EN 13311-6:2001	Biotechnology - Performance criteria for vessels - Part 6: Chromatography columns
EN 13312-1:2001	Biotechnology - Performance criteria for piping and instrumentation - Part 1: General performance criteria
EN 13312-2:2001	Biotechnology - Performance criteria for piping and instrumentation - Part 2: Couplings
EN 13312-3:2001	Biotechnology - Performance criteria for piping and instrumentation - Part 3: Sampling and inoculation devices
EN 13312-4:2001	Biotechnology - Performance criteria for piping and instrumentation - Part 4: Tubes and pipes
EN 13312-5:2001	Biotechnology - Performance criteria for piping and instrumentation - Part 5: Valves
EN 13312-6:2001	Biotechnology - Performance criteria for piping and instrumentation - Part 6: Equipment probes
EN 1619:1996	Biotechnology - Large-scale process and production - General requirements for management and organization for strain conservation procedures
EN 1620:1996	Biotechnology - Large-scale process and production - Plant building according to the degree of hazard
EN 1826:1996	Biotechnology - Large-scale process and production - Control procedures for raw materials

5.2.10 Standardization on “Information technology”

This section describes the activity of the main technical committees (TC), subcommittees (SC) or groups that are responsible for the standards selected as the more relevant ones for the A2C project in the field of “Information technology”.



- **ISO/IEC JTC 1/SC 31 - Automatic identification and data capture techniques**

Standardization of data formats, data syntax, data structures, data encoding, and technologies for the process of automatic identification and data capture and of associated devices utilized in inter-industry applications and international business interchanges and for mobile applications.

- **ISO/TC 307 - Blockchain and distributed ledger technologies**

Standardisation of blockchain technologies and distributed ledger technologies.

ETSI Industry Specification Group (ISG) Permissioned Distributed Ledger (PDL).

This group analyzes and provides the foundations for the operation of permissioned distributed ledgers, with the ultimate purpose of creating an open ecosystem of industrial solutions to be deployed by different sectors, fostering the application of these technologies, and therefore contributing to consolidate the trust and dependability on information technologies supported by global, open telecommunications networks.

- **ETSI Industry Specification Group (ISG) Experiential Networked Intelligence (ENI).**

The Experiential Networked Intelligence Industry Specification Group (ENI ISG) is defining a Cognitive Network Management architecture, using Artificial Intelligence (AI) techniques and context-aware policies to adjust offered services based on changes in user needs, environmental conditions and business goals. It therefore fully benefits the 5G networks with automated service provision, operation, and assurance, as well as optimized slice management and resource orchestration. ENI has also launched Proof of Concepts (PoCs) aiming to demonstrate how AI techniques can be used to assist network operation including 5G.

- **GS1 AISBL**

Standardization mainly for identifying, capturing and sharing information of products and services.



The standards selected as the more relevant ones for the A2C project in the field of “Information technology” are listed below.

AUTOMATIC IDENTIFICATION AND DATA CAPTURE	
ISO/IEC 18004:2015	Information technology — Automatic identification and data capture techniques — QR Code bar code symbology specification
ISO/IEC 15459-4:2014	Information technology — Automatic identification and data capture techniques — Unique identification — Part 4: Individual products and product packages
ISO/IEC TR 24729-1:2008	Information technology — Radio frequency identification for item management — Implementation guidelines — Part 1: RFID-enabled labels and packaging supporting ISO/IEC 18000-6C
ISO 17364:2013	Supply chain applications of RFID — Returnable transport items (RTIs) and returnable packaging items (RPIs)
ISO 17366:2013	Supply chain applications of RFID — Product packaging
ISO 17367:2013	Supply chain applications of RFID — Product tagging
GS1/EPCIS 2.0	EPCIS Standard: enables disparate applications to create and share visibility event data, both within and across enterprises
GS1/CVB 2.0	Comprehensive Business Vocabulary (CBV) Standard specifies the structure of vocabularies and specific values for the vocabulary elements to be utilised in conjunction with the GS1 EPCIS standard
GS1/Digital Link	GS1 Digital Link Standard: enabling consistent representation of GS1 identification keys within web addresses to link to online information and services
BLOCKCHAIN	
Existing standards	
ISO 22739:2020	Blockchain and distributed ledger technologies — Vocabulary
ISO/TR 23244:2020	Blockchain and distributed ledger technologies — Privacy and personally identifiable information protection considerations
ISO/TS 23258:2021	Blockchain and distributed ledger technologies — Taxonomy and Ontology
ISO/TR 23455:2019	Blockchain and distributed ledger technologies — Overview of and interactions between smart contracts in blockchain and distributed ledger technology systems
ISO/TR 23576:2020	Blockchain and distributed ledger technologies — Security management of digital asset custodians
ETSI GR PDL 001 V1.1.1 (2020-03)Published	Permissioned Distributed Ledger (PDL); Landscape of Standards and Technologies



ETSI GR PDL 004 V1.1.1 (2021-02)Published	Permissioned Distributed Ledgers (PDL); Smart Contracts; System Architecture and Functional Specification
ETSI GR ENI 016 V2.1.1 (2021-07)Published	Experiential Networked Intelligence (ENI); Functional Concepts for Modular System Operation
ETSI GS CIM 004 V1.1.2 (2020-06)Published	Context Information Management (CIM); Application Programming Interface (API)
Standards under revision or under development	
ISO/DTR 3242	Blockchain and distributed ledger technologies – Use cases
ISO/WD TR 6039	Blockchain and distributed ledger technologies - Identifiers of subjects and objects for the design of blockchain systems
ISO/AWI 7603	Decentralized Identity standard for the identification of subjects and objects
ISO 23257	Blockchain and distributed ledger technologies — Reference architecture
ISO/AWI TS 23516	Blockchain and Distributed Ledger Technology — Interoperability Framework
ISO/DTR 23644	Blockchain and distributed ledger technologies - Overview of trust anchors for DLT-based identity management (TADIM)



6 CONCLUSIONS

The standardization landscape around the A2C project has been elucidated. A comprehensive list of the main standards (and other documents within the standardization system, as Technical Specifications and Technical Reports) related to the A2C research and development activities has been elaborated throughout the A2C partners collaboration. The standardization Technical Committees which are responsible for the development and maintenance of these documents have been also identified.

Consequently, the following objectives have been achieved:

- ✓ Identification of documents (Standards, Technical Specifications, Technical Reports) that can be directly applied in the A2C activities, or/and that can be used as a valuable information source.
- ✓ Identification of relevant standardization Technical Committees for A2C project, allowing the monitorization of their future activities.
- ✓ Awareness of the present standardization framework around the A2C knowledge areas, that will allow in the next steps to identify possible contributions of the A2C project to the on-going and future standardization developments.
- ✓ Insight into the state of the art, that will be the base for the specification of an A2C strategy concerning its interaction with the European standardisation system.



7 ANNEXES

7.1 Annex 1

In the following tables, the preselection of standards related to A2C project is presented.



CHECK	ISO reference	CEN reference	Title
CIRCULAR ECONOMY, LIFE CYCLE ASSESSMENT			
Existing Standards:			
<input type="checkbox"/>		CEN ISO/TS 14071	Environmental management - Life cycle assessment - Critical review processes and reviewer competencies: Additional requirements and guidelines to ISO 14044:2006 (ISO/TS 14071:2014)
<input type="checkbox"/>		EN ISO 14006:2020	Environmental management systems - Guidelines for incorporating ecodesign (ISO 14006:2020)
<input type="checkbox"/>		EN ISO 14007:2019	Environmental management - Guidelines for determining environmental costs and benefits (ISO 14007:2019)
<input type="checkbox"/>		EN ISO 14008:2019	Monetary valuation of environmental impacts and related environmental aspects (ISO 14008:2019)
<input type="checkbox"/>		EN ISO 14040:2006	Environmental management - Life cycle assessment - Principles and framework (ISO 14040:2006)
<input type="checkbox"/>		EN ISO 14042:2006	Environmental management - Life cycle assessment - Principles and framework - Amendment 1 (ISO 14040:2006/Amd 1:2020)
<input type="checkbox"/>		EN ISO 14044:2006	Environmental management - Life cycle assessment - Requirements and guidelines (ISO 14044:2006)
<input type="checkbox"/>		EN ISO 14044:2006	Environmental management - Life cycle assessment - Requirements and guidelines - Amendment 1 (ISO 14044:2006/Amd 1:2017)
<input type="checkbox"/>		EN ISO 14044:2006	Environmental management - Life cycle assessment - Requirements and guidelines - Amendment 2 (ISO 14044:2006/Amd 2:2020)
<input type="checkbox"/>		EN ISO 14045:2012	Environmental management - Eco-efficiency assessment of product systems - Principles, requirements and guidelines (ISO 14045:2012)
<input type="checkbox"/>		EN ISO 14046:2014	Environmental management - Water footprint - Principles, requirements and guidelines (ISO 14046:2014)
<input type="checkbox"/>	ISO 14067:2018		Greenhouse gases — Carbon footprint of products — Requirements and guidelines for quantification
Standards under revision or under development			
<input type="checkbox"/>	ISO/WD 59004		Circular economy — Framework and principles for implementation
<input type="checkbox"/>	ISO/WD 59010-1		Circular economy — Guidelines on business models and value chains
<input type="checkbox"/>	ISO/WD 59020-1		Circular economy — Measuring circularity framework
<input type="checkbox"/>	ISO/CD TR 59031		Circular economy — Performance-based approach — Analysis of cases studies
<input type="checkbox"/>	ISO/D TR 59032-1		Circular economy - Review of business model implementation
<input type="checkbox"/>	ISO/AWI 59040		Circular Economy — Product Circularity Data Sheet
		prEN 50728 IWI-IT	Method to achieve circular designs of products
BIO-BASED PRODUCTS			
Existing standards			
<input type="checkbox"/>		CEN/TR 16711:2011	Bio-based products - Overview of methods to determine the bio-based content
<input type="checkbox"/>		CEN/TR 16952:2011	Bio-based products - Guidelines for Life Cycle Inventory (LCI) for the End-of-life phase
<input type="checkbox"/>		CEN/TR 17341:2011	Bio-based products - Examples of reporting on sustainability criteria
<input type="checkbox"/>		EN 16575:2014 (W)	Bio-based products - Vocabulary
<input type="checkbox"/>		EN 16751:2016 (W)	Bio-based products - Sustainability criteria
<input type="checkbox"/>		EN 16780:2015 (W)	Bio-based products - Life Cycle Assessment
<input type="checkbox"/>		EN 17228:2019 (W)	Plastics - Bio-based polymers, plastics, and plastics products - Terminology, characteristics and communication
<input type="checkbox"/>	ISO 16620-1:2015		Plastics — Biobased content — Part 1: General principles
<input type="checkbox"/>	ISO 16620-2:2015		Plastics — Biobased content — Part 2: Determination of biobased carbon content
<input type="checkbox"/>	ISO 16620-3:2015		Plastics — Biobased content — Part 3: Determination of biobased synthetic polymer content
<input type="checkbox"/>	ISO 16620-4:2015		Plastics — Biobased content — Part 4: Determination of biobased mass content
<input type="checkbox"/>	ISO 16620-5:2017		Plastics — Biobased content — Part 5: Declaration of biobased carbon content, biobased synthetic polymer content and biobased mass content
<input type="checkbox"/>	ISO 22526-1:2020		Plastics — Carbon and environmental footprint of biobased plastics — Part 1: General principles
<input type="checkbox"/>	ISO 22526-2:2020		Plastics — Carbon and environmental footprint of biobased plastics — Part 2: Material carbon footprint, amount (mass) of CO ₂ removed from the air and incorporated into polymer molecule
<input type="checkbox"/>	ISO 22526-3:2020		Plastics — Carbon and environmental footprint of biobased plastics — Part 3: Process carbon footprint, requirements and guidelines for quantification
Standards under revision or under development			
<input type="checkbox"/>	ISO/AWI 16620-4		Plastics — Biobased content — Part 4: Determination of biobased mass content
<input type="checkbox"/>	ISO/DIS 22526-4		Plastics — Carbon and environmental footprint of biobased plastics — Part 4: Environmental (total) footprint (Life Cycle Assessment)



CHECK	ISO reference	CEN reference	Title
CHARACTERIZATION OF WASTE			
Existing Standards			
<input type="checkbox"/>	CEN/TR 14520:2004		Characterization of waste - State of the art document - Chromium VI specification in solid matrices
<input type="checkbox"/>	CEN/TR 15018:2005		Characterization of waste - Digestion of waste samples using alkali-fusion techniques
<input type="checkbox"/>	CEN/TR 15210-1:2006		Characterization of waste - Sampling of waste materials - Part 1: Guidance on selection and application of criteria for sampling under various conditions
<input type="checkbox"/>	CEN/TR 15210-2:2006		Characterization of waste - Sampling of waste materials - Part 2: Guidance on sampling techniques
<input type="checkbox"/>	CEN/TR 15210-3:2006		Characterization of waste - Sampling of waste materials - Part 3: Guidance on procedures for sub-sampling in the field
<input type="checkbox"/>	CEN/TR 15210-4:2006		Characterization of waste - Sampling of waste materials - Part 4: Guidance on procedures for sample packaging, storage, preservation, transport and delivery
<input type="checkbox"/>	CEN/TR 15210-5:2006		Characterization of waste - Sampling of waste materials - Part 5: Guidance on the process of defining the sampling plan
<input type="checkbox"/>	CEN/TR 16410:2018		Characterization of waste - Guidance on the use of ecotoxicity tests applied to waste
<input type="checkbox"/>	CEN/TR 16430:2014		Characterization of waste - On-site verification
<input type="checkbox"/>	CEN/TR 16430:2014		Characterization of waste - Screening methods for elemental composition by X-ray fluorescence spectrometry for on-site verification
<input type="checkbox"/>	CEN/TR 16390:2014		Sludge, treated biowaste and soil - Detection and enumeration of <i>Escherichia coli</i>
<input type="checkbox"/>	CEN/TS 20837:2015		Sludge, treated biowaste and soil - Determination of specific electrical conductivity
<input type="checkbox"/>	CEN/TS 20172:2017		Sludge, treated biowaste and soil - Extraction for the determination of extractable ammonia, nitrate and nitrite
<input type="checkbox"/>	CEN/TS 20182:2017		Sludge, treated biowaste and soil - Determination of nonylphenols (NP) and nonylphenol-mono- and diethers/oligos using gas chromatography with mass selective detection (GC-MS)
<input type="checkbox"/>	CEN/TS 20184:2017		Sludge, treated biowaste and soil - Determination of selected phthalates using capillary gas chromatography with mass spectrometric detection (GC-MS)
<input type="checkbox"/>	CEN/TS 20189:2017		Sludge, treated biowaste and soil - Determination of linear alkylbenzene sulfonates (LAS) by high-performance liquid chromatography (HPLC) with fluorescence detection (FD) or mass selective detection (MSD)
<input type="checkbox"/>	CEN/TS 20880:2010		Guidelines for the validation of physico-chemical analytical methods
<input type="checkbox"/>	EN 13095:2000	OW:0	Soil, treated biowaste, sludge and waste - Digestion with a hydrochloric (HCl), nitric (HNO ₃) and peroxodisulfuric (H ₂ O ₈) or hydrofluoric (HF) acid mixture for subsequent determination of elements
<input type="checkbox"/>	EN 13097:2002	OW:0	Characterization of waste - Digestion for subsequent determination of aqua regia soluble portion of elements
<input type="checkbox"/>	EN 13098:2000	OW:0	Characterization of waste - Terminology - Part 2: Management related terms and definitions
<input type="checkbox"/>	EN 14022:2004	OW:0	Characterization of waste - Determination of hydrocarbon content in the range of C10 to C40 by gas chromatography
<input type="checkbox"/>	EN 14025:2004	OW:0	Characterization of waste - Determination of hydrocarbon content by gravimetry
<input type="checkbox"/>	EN 14083:2008	OW:0	Characterization of waste - Halogen and sulfur content - Oxygen combustion in closed systems and determination methods
<input type="checkbox"/>	EN 14235:2003	OW:0	Characterization of waste - Preparation of waste samples for ecotoxicity tests
<input type="checkbox"/>	EN 14099:2005	OW:0	Characterization of waste - Sampling of waste materials - Framework for the preparation and application of a Sampling Plan
<input type="checkbox"/>	EN 15002:2005	OW:0	Characterization of waste - Preparation of test portions from the laboratory sample
<input type="checkbox"/>	EN 15216:2003	OW:0	Environmental solid matrices - Determination of total dissolved solids (TDS) in water and sludges
<input type="checkbox"/>	EN 15209:2007	OW:0	Characterization of waste and soil - Determination of elemental composition by X-ray fluorescence
<input type="checkbox"/>	EN 15272:2008	OW:0	Characterization of waste - Determination of polycyclic aromatic hydrocarbons (PAH) in waste using gas chromatography mass spectrometry (GC/MS)
<input type="checkbox"/>	EN 15075:2014	OW:0	Characterization of waste - Static test for determination of acid potential and neutralization potential of sulfidic waste
<input type="checkbox"/>	EN 15075:2014	AC:20	Characterization of waste - Static test for determination of acid potential and neutralization potential of sulfidic waste
<input type="checkbox"/>	EN 15093:2012	OW:0	Sludge, treated biowaste and soil - Determination of pH
<input type="checkbox"/>	EN 15094:2012	OW:0	Sludge, treated biowaste, soil and waste - Calculation of dry matter fraction after determination of dry residue or water content
<input type="checkbox"/>	EN 15095:2011	OW:0	Soil, waste, treated biowaste and sludge - Determination of loss on ignition
<input type="checkbox"/>	EN 15096:2013	OW:0	Sludge, treated biowaste, soil and waste - Determination of total organic carbon (TOC) by dry combustion
<input type="checkbox"/>	EN 15165:2011	OW:0	Soil, treated biowaste and sludge - Determination of adsorbed organically bound halogens (AOH)
<input type="checkbox"/>	EN 15168:2013	OW:0	Sludge, treated biowaste and soil - Determination of total nitrogen using dry combustion method
<input type="checkbox"/>	EN 15169:2013	OW:0	Sludge, treated biowaste and soil - Determination of Kjeldahl nitrogen
<input type="checkbox"/>	EN 15170:2015	OW:0	Sludge, treated biowaste and soil - Determination of elements using inductively coupled plasma optical emission spectrometry (ICP-OES)
<input type="checkbox"/>	EN 15172:2015	OW:0	Sludge, treated biowaste and soil - Determination of elements using inductively coupled plasma mass spectrometry (ICP-MS)
<input type="checkbox"/>	EN 15173:2013	OW:0	Sludge, treated biowaste and soil - Digestion of nitric acid soluble fractions of elements
<input type="checkbox"/>	EN 15175-1:2016	OW:0	Sludge, treated biowaste and soil - Determination of mercury - Part 1: Cold-vapour atomic absorption spectrometry (CV-AAS)
<input type="checkbox"/>	EN 15175-2:2016	OW:0	Sludge, treated biowaste and soil - Determination of mercury - Part 2: Cold-vapour atomic fluorescence spectrometry (CV-AFS)
<input type="checkbox"/>	EN 15179:2012	OW:0	Sludge, treated biowaste and soil - Guidance for sample pretreatment
<input type="checkbox"/>	EN 16180:2018	OW:0	Soil, treated biowaste and sludge - Determination of polycyclic aromatic hydrocarbons (PAH) by gas chromatography (GC) and high performance liquid chromatography (HPLC)
<input type="checkbox"/>	EN 16190:2018	OW:0	Soil, treated biowaste and sludge - Determination of dioxins and furans and dioxin-like polychlorinated biphenyls by gas chromatography with high resolution mass selective detection (HR GC-MS)
<input type="checkbox"/>	EN 16377:2013	OW:0	Characterization of waste - Determination of brominated flame retardants (BFR) in solid waste
<input type="checkbox"/>	EN 16624:2018	OW:0	Characterization of waste - Screening methods for the elemental composition by portable X-ray fluorescence instruments



- [EN 15457-2014/AM2](#) Characterization of waste - Framework for the preparation and application of a testing programme - Objectives, planning and report
 - [EN 17572-2020/AM2](#) Environmental Solid Matrices - Determination of polychlorinated biphenyls (PCB) by gas chromatography - mass selective detection (GC-MS) or electron-capture detection (GC-ECD)
 - ISO 15392:20 [EN ISO 15392:2021](#) Soil and waste - Determination of Chromium(VI) in solid material by alkaline digestion and ion chromatography with spectrophotometric detection (ISO 15392:2021)
 - ISO 54321:20 [EN ISO 54321:2021](#) Soil, treated biowaste, sludge and waste - Digestion of aqua regia soluble fractions of elements (ISO 54321:2021)
- Standards under revision or under development
- (WI-00442044) Characterization of waste - Determination of the content of elements and substances in waste



check	no reference	can reference	title
FRUITS AND VEGETABLES, AND FOOD PRODUCTS (EUROPEAN STANDARDS)			
Elements and their chemical species			
<input type="checkbox"/>		EN 13884:2014 [1]	Foodstuffs - Determination of elements and their chemical species - General considerations and specific requirements
<input type="checkbox"/>		EN 13885:2014 [1]	Foodstuffs - Determination of trace elements - Ficcera digestion
<input type="checkbox"/>		EN 13886:2014 [1]	Foodstuffs - Determination of trace elements - Determination of mercury by cold-vapour atomic absorption spectrometry (CVAS) after pressure digestion
<input type="checkbox"/>		EN 14081:2014 [1]	Foodstuffs - Determination of trace elements - Determination of lead, cadmium, chromium and molybdenum by graphite furnace atomic absorption spectrometry (GFAAS) after pressure digestion
<input type="checkbox"/>		EN 14084:2014 [1]	Foodstuffs - Determination of trace elements - Determination of lead, cadmium, zinc, copper and iron by atomic absorption spectrometry (AAS) after microwave digestion
<input type="checkbox"/>		EN 14085:2014 [1]	Foodstuffs - Determination of trace elements - Determination of total arsenic by hydride generation atomic absorption spectrometry (HGAAAS) after dry ashing
<input type="checkbox"/>		EN 14087:2014 [1]	Foodstuffs - Determination of trace elements - Determination of total arsenic and selenium by hydride generation atomic absorption spectrometry (HGAAAS) after pressure digestion
<input type="checkbox"/>		EN 14241:2014 [1]	Foodstuffs - Determination of trace elements - Determination of iodine by ICP-MS (selectively) coupled plasma mass spectrometry
<input type="checkbox"/>		EN 14242:2014 [1]	Foodstuffs - Determination of trace elements - Determination of arsenic, cadmium, mercury and lead in foodstuffs by inductively coupled plasma mass spectrometry (ICP-MS) after pressure digestion
<input type="checkbox"/>		EN 14243:2014 [1]	Foodstuffs - Determination of trace elements - Determination of tin by flame and graphite furnace atomic absorption spectrometry (FAAS and GFAAS) after pressure digestion
<input type="checkbox"/>		EN 14245:2014 [1]	Foodstuffs - Determination of trace elements - Determination of tin by inductively coupled plasma mass spectrometry (ICP-MS) after pressure digestion
<input type="checkbox"/>		EN 14887:2014 [1]	Foodstuffs - Determination of elements and their chemical species - Determination of inorganic arsenic in foodstuffs of marine and plant origin by anion-exchange HPLC-ICP-MS
<input type="checkbox"/>		EN 14893:2014 [1]	Foodstuffs - Determination of calcium, copper, iron, magnesium, manganese, phosphorus, potassium, sodium, sulfur and zinc by XRF-OES
Pesticides			
<input type="checkbox"/>		EN/TF 12644:20	Food analysis - Determination of pesticide residues by LC-MS/MS - tandem mass spectrometric parameters
<input type="checkbox"/>		EN/TF 12646:20	Food analysis - Determination of pesticide residues by GC-MS - Retention times, mass spectrometric parameters and detector response information
<input type="checkbox"/>		EN/TF 12649:20	Foodstuffs - Determination of pesticide residues by GC-MS/MS - Tandem mass spectrometric parameters
<input type="checkbox"/>		EN/TF 12661:20	Foodstuffs of plant origin - Multimethod for the determination of pesticide residues using GC or LC-based analysis following acetonitrile extraction/partitioning and clean-up by dispersive SPE - Validation data of the modular QuChERS-method
<input type="checkbox"/>		EN/TS 42064:20	Foodstuffs - Guidelines for the calibration and quantitative determination of pesticide residues and organic contaminants using chromatographic methods
<input type="checkbox"/>		EN 12881-1:2014	Foodstuffs of plant origin - Multi-residue methods for the determination of pesticide residues by GC or LC-MS/MS - Part 1: General considerations
<input type="checkbox"/>		EN 12881-2:2014	Foodstuffs of plant origin - Multi-residue methods for the determination of pesticide residues by GC or LC-MS/MS - Part 2: Methods for extraction and clean-up
<input type="checkbox"/>		EN 12881-3:2014	Foodstuffs of plant origin - Multi-residue methods for the determination of pesticide residues by GC or LC-MS/MS - Part 3: Determination and confirmatory tests
<input type="checkbox"/>		EN 12884-1:2014	Non-fat food - Determination of dihaloacrylate and thiazole dithiolate residues - Part 1: Spectrometric method
<input type="checkbox"/>		EN 12884-2:2014	Non-fat food - Determination of dihaloacrylate and thiazole dithiolate residues - Part 2: Gas chromatographic method
<input type="checkbox"/>		EN 12884-3:2014	Non-fat food - Determination of dihaloacrylate and thiazole dithiolate residues - Part 3: UV spectrometric xenogenate method
<input type="checkbox"/>		EN 12885-1:2014	Non-fat food - Determination of bromide residues - Part 1: Determination of total bromide as inorganic bromide
<input type="checkbox"/>		EN 12885-2:2014	Non-fat food - Determination of bromide residues - Part 2: Determination of inorganic bromide
<input type="checkbox"/>		EN 14331-1:2014	Non-fat food - Determination of <i>n</i> -nonylcarbonate residues - Part 1: HPLC method with clean-up on a diatomaceous earth column
<input type="checkbox"/>		EN 14331-2:2014	Non-fat food - Determination of chloroacetate and neopiquat - LC-MS method
<input type="checkbox"/>		EN 14333:2014 [1]	Non-fat food - Determination of chlomequat and mepiquat - LC-MS method
<input type="checkbox"/>		EN 14617:2014 [1]	Foodstuffs of plant origin - Determination of pesticide residues using LC-MS/MS following methanol extraction and clean-up using diatomaceous earth
<input type="checkbox"/>		EN 12687:2014 [1]	Foodstuffs of plant origin - Multimethod for the determination of pesticide residues using GC- and LC-based analysis following acetonitrile extraction/partitioning and clean-up by dispersive SPE - Modular QuChERS-method
Toxins			
<input type="checkbox"/>		EN/TF 12638:20	Foodstuffs - Sample preparation for mycotoxins analysis - comparison between dry milling and slurry mixing
<input type="checkbox"/>		EN/TF 14009:20	Food analysis - Performance criteria for single laboratory validated methods of analysis for the determination of mycotoxins
<input type="checkbox"/>		EN 14977:2014 [1]	Foodstuffs - Determination of patulin in clear and cloudy apple juices and puree - HPLC method with liquid/liquid partition clean-up
<input type="checkbox"/>		EN 14999:2014 [1]	Foodstuffs - Determination of patulin in fruit juice and fruit based puree for infants and young children - HPLC method with liquid/liquid partition clean-up and solid phase extraction and UV detection
<input type="checkbox"/>		EN 17389:2014 [1]	Foodstuffs - Determination of aflatoxin in food by HPLC-MS/MS
<input type="checkbox"/>		EN 17329:2014 [1]	Foodstuffs - Multimethod for the screening of aflatoxins B1, deoxyaflatoxin, fumonisin B1 and B2, ochratoxin A, T-2 toxin, HT-2 toxin and zearalenone in foodstuffs, excluding foods for infants and young children, by LC-MS/MS
Nitrates, nitrite			
<input type="checkbox"/>		EN 12014-1:2014	Foodstuffs - Determination of nitrate and/or nitrite content - Part 1: General considerations
<input type="checkbox"/>		EN 12014-1:2014	Foodstuffs - Determination of nitrate and/or nitrite content - Part 1: General considerations
<input type="checkbox"/>		EN 14004-1:2014	Foodstuffs - Determination of nitrate and/or nitrite content - Part 2: HPLC method for the determination of nitrate content of vegetables and vegetable products
<input type="checkbox"/>		EN 12014-7:2014	Foodstuffs - Determination of nitrate and/or nitrite content - Part 7: Continuous flow method for the determination of nitrate content of vegetables and vegetable products after Cadmium reduction
Vitamins and Carotenoids			
<input type="checkbox"/>		EN 12897:2014 [1]	Foodstuffs - Determination of vitamins D by high performance liquid chromatography - Measurement of cholecalciferol (D3) or ergocalciferol (D2)
<input type="checkbox"/>		EN 12892:2014 [1]	Foodstuffs - Determination of vitamins E by high performance liquid chromatography - Measurement of α -, β -, γ - and δ -tocopherol
<input type="checkbox"/>		EN 12893-1:2014	Foodstuffs - Determination of vitamins A by high performance liquid chromatography - Part 1: Measurement of all- <i>cis</i> -retinol and 13- <i>cis</i> -retinol
<input type="checkbox"/>		EN 12893-2:2014	Foodstuffs - Determination of vitamins A by high performance liquid chromatography - Part 2: Measurement of beta-carotene
<input type="checkbox"/>		EN 14942:2014 [1]	Foodstuffs - Determination of vitamins B6 by high performance liquid chromatography
<input type="checkbox"/>		EN 14943:2014 [1]	Foodstuffs - Determination of folate by microbiological assay
<input type="checkbox"/>		EN 14848:2014 [1]	Foodstuffs - Determination of vitamin B1 by HPLC
<input type="checkbox"/>		EN 14817:2014 [1]	Foodstuffs - Determination of vitamin B2 by high performance liquid chromatography
<input type="checkbox"/>		EN 14818:2014 [1]	Foodstuffs - Determination of vitamin B6 by high performance chromatography



EN 14166:2009	Foodstuffs - Determination of vitamin B6 by microbiological assay
EN 14661:2005	Foodstuffs - Determination of vitamin B6 (including its glycosylated forms) by HPLC
EN 15667:2009	Foodstuffs - Determination of d-biotin by HPLC
EN 15662:2009	Foodstuffs - Determination of niacin by HPLC
EN 14118:1997	Fruit and vegetable juices - Determination of total carotenoid content and individual carotenoid fractions

FRUITS AND VEGETABLES, AND FOOD PRODUCTS (INTERNATIONAL STANDARDS)

ISO 3174:1995	Fresh fruits and vegetables — Sampling
ISO 1925:1982	Citrus fruits and derived products — Determination of essential oils content (Reference method)
ISO 2442:1986	Fruit and vegetable products — Determination of tin content
ISO 5654:1976	Vegetable products — Determination of chloride content
ISO 5515:1972	Fruits, vegetables and derived products — Decomposition of organic matter prior to analysis — Wet method
ISO 5514:1972	Fruits, vegetables and derived products — Decomposition of organic matter prior to analysis — Aqueous method
ISO 5513:1972	Fruits, vegetables and derived products — Determination of iron content — 1,10-Phenanthroline photometric method
ISO 5512:1972	Fruits, vegetables and derived products — Determination of ascorbic acid — Part 1: Reference method
ISO 5511:1972	Fruits, vegetables and derived products — Determination of ascorbic acid content — Part 2: Routine methods
ISO 5458:1997	Fruits, vegetables and derived products — Determination of carotene content — Part 2: Routine methods
ISO 5456:1997	Fruits, vegetables and derived products — Determination of carotene content — Part 1: Method using graphite furnace atomic absorption spectrometry
ISO 5455:1997	Fruits, vegetables and derived products — Determination of carotene content — Part 2: Method using flame atomic absorption spectrometry
ISO 5454:1994	Fruits, vegetables and derived products — Determination of lead content — Flameless atomic absorption spectrometric method
ISO 5453:1994	Fruits, vegetables and derived products — Determination of arsenic content — Silver diethyldithiocarbamate spectrophotometric method
ISO 5452:1994	Fruits, vegetables and derived products — Determination of nitrite and nitrate content — Molecular absorption spectrometric method
ISO 5451:1994	Fruits, vegetables and derived products — Determination of zinc content — Part 1: Polarographic method
ISO 5450:1994	Fruits, vegetables and derived products — Determination of zinc content — Part 2: Atomic absorption spectrometric method
ISO 5449:1994	Fruit and vegetable products — Determination of zinc content — Part 1: Ethoxone spectrometric method
ISO 5448:1994	Fruits, vegetables and derived products — Determination of mercury content — Flameless atomic absorption method
ISO 5447:1994	Fruit and vegetable products — Determination of 3-hydroxyethylfurfural (3-HMF) content
ISO 7352:1998	Guide to the prepacking of fruits and vegetables
ISO 7350:1998	Fresh fruits and vegetables — Vocabulary
ISO 8178-1:1991	Apple juice, apple juice concentrates and drinks containing apple juice — Determination of pectin content — Part 1: Method using high-performance liquid chromatography
ISO 8178-2:1991	Apple juice, apple juice concentrates and drinks containing apple juice — Determination of pectin content — Part 2: Method using thin-layer chromatography
ISO 8176:1991	Fruits, vegetables and derived products — Determination of iron content by flame atomic absorption spectrometry
ISO 17729:2003	Fruit and vegetable products — Determination of tin content — Method using hydride generation atomic absorption spectrometry
ISO 17728:2003	Fruit and vegetable products — Determination of tin content — Method using flame atomic absorption spectrometry
ISO 20780:2010	Artichokes — Specification and test methods
ISO 5428:1991	Agricultural food products — Determination of crude fibre content — General method
ISO 5426:1991	Agricultural food products — Determination of crude fibre content — Modified Schamer method
ISO 7000:1990	Agricultural food products — Layout for a standard method of sampling from a lot
ISO 7154:2007	Definitions and technical terms for food ingredients to be considered as natural
ISO 7153:2006	Food products — Guidelines on how to express vitamins and their vitamins content
ISO 23463:2020	Infant formulae and adult nutritional — Determination of β -carotene, lycopene and lutein by reversed-phase ultra-high performance liquid chromatography (RP-UHPLC)

COSMETICS

EN ISO 11718:2017	Cosmetics - Good Manufacturing Practices (GMP) - Guidelines on Good Manufacturing Practices (ISO 22118:2007, C0) (Final version 2008-05-15)
EN ISO 17316:2011	Cosmetics - Microbiology - Microbiological limits (ISO 17316:2011)
ISO 22078:1997	Microbiology - Cosmetics - Guidelines for the application of ISO standards on Cosmetic Microbiology (ISO/TR 22078:1997)
EN ISO 24623:2011	Cosmetics - Microbiology - Guidelines for the risk assessment and identification of microbiologically low-risk products (ISO 24623:2011)
ISO 24475:2000	Cosmetics - Good Manufacturing Practices - General training document (ISO/TR 24475:2000)

ESSENTIAL OILS

Existing standards

ISO 7151:2014	Essential oils — General rules for packaging, conditioning and storage
ISO 7152:2014	Essential oils — General rules for labelling and marking of containers
ISO 717:2007	Essential oils — Sampling
ISO 2112:2007/AMEND 1:2011	Essential oils — Sampling — Amendment 1
ISO 719:1998	Essential oils — Determination of relative density at 20 °C — Reference method



<input type="checkbox"/>	90139011999	essential oils — determination of refractive index
<input type="checkbox"/>	90139011999	essential oils — preparation of test samples
<input type="checkbox"/>	90139011999	Essential oils — Determination of optical rotation
<input type="checkbox"/>	90139011999	Essential oils — Determination of ester value
<input type="checkbox"/>	90139011999	Oil of lemon (<i>Citrus limon</i> L.) Burm. f., obtained by expression
<input type="checkbox"/>	90139011999	essential oils — evaluation of miscibility in ethanol
<input type="checkbox"/>	90139011999	Essential oils — Determination of freezing point
<input type="checkbox"/>	90139011999	Essential oils — Determination of ester value, before and after acetylation, and evaluation of the contents of free and total alcohols
<input type="checkbox"/>	90139011999	essential oils — determination of acid value
<input type="checkbox"/>	90139011999	essential oils — determination of Carbonyl value — Free hydroxylamine method
<input type="checkbox"/>	90139011999	essential oils — Determination of content of phenols
<input type="checkbox"/>	90139011999	Essential oils — Determination of carbonyl value — Potentiometric methods using hydroxylamine hydrochloride
<input type="checkbox"/>	90139011999	Oil of grapefruit (<i>Citrus x paradisi</i> Marchal), obtained by expression
<input type="checkbox"/>	90139011999	Essential oil of petitgrain, Paraguayan type (<i>Citrus aurantium</i> L. var. Paraguay) (syn. <i>Citrus aurantium</i> var. bigarade Hook f.)
<input type="checkbox"/>	90139011999	Essential oil of sweet orange expressed (<i>Citrus sinensis</i> L.)
<input type="checkbox"/>	90139011999	Oil of lemongrass (<i>Cymbopogon citratus</i>)
<input type="checkbox"/>	90139011999	essential oils — Principles of nomenclature
<input type="checkbox"/>	90139011999	oil of coriander fruits (<i>Coriandrum sativum</i> L.)
<input type="checkbox"/>	90139011999	Oil of lime distilled, Mexican type (<i>Citrus aurantiifolia</i> (Christm.) Swingle)
<input type="checkbox"/>	90139011999	Oil of bergamot (<i>Citrus aurantium</i> L. subsp. <i>Bergamia</i> (Wight et Arnott) Engler), Italian type
<input type="checkbox"/>	90139011999	Oil of bergamot (<i>Citrus aurantium</i> L. subsp. <i>Bergamia</i> (Wight et Arnott) Engler), Italian type — Technical Compendium 1
<input type="checkbox"/>	90139011999	Essential oil of mandarin, Italian type (<i>Citrus reticulata</i> Blanco)
<input type="checkbox"/>	90139011999	Essential oils (containing tertiary alcohols) — Estimation of free alcohols content by determination of ester value after acetylation
<input type="checkbox"/>	90139011999	Oil of lime (cold pressed), Mexican type (<i>Citrus aurantiifolia</i> (Christm.) Swingle), obtained by mechanical means
<input type="checkbox"/>	90139011999	Essential oil of citronella, Java type
<input type="checkbox"/>	90139011999	oil of citronella, Sri Lankan type (<i>Cymbopogon nardus</i> L.) cf. Watson var. <i>leucatus</i> Stapf.)
<input type="checkbox"/>	90139011999	essential oils — Quantitative evaluation of residues on evaporation
<input type="checkbox"/>	90139011999	Essential oils — Nomenclature
<input type="checkbox"/>	90139011999	oils of citrus — determination of cc value by ultraviolet spectrometric analysis
<input type="checkbox"/>	90139011999	essential oils of bergamot, lemon, bitter orange and lime, fully or partially reduced in bergapten — determination of bergapten content by high performance liquid chromatography (HPLC)
<input type="checkbox"/>	90139011999	Essential oils — Analysis by gas chromatography on packed columns — General method
<input type="checkbox"/>	90139011999	Essential oils — Analysis by gas chromatography on capillary columns — General method
<input type="checkbox"/>	90139011999	Essential oils — Determination of ester value of oils containing difficult-to-esterify esters
<input type="checkbox"/>	90139011999	essential oils — Analysis by high performance liquid chromatography — general method
<input type="checkbox"/>	90139011999	Oil of mandarin petitgrain (<i>Citrus reticulata</i> Blanco)
<input type="checkbox"/>	90139011999	Oil of lemon petitgrain (<i>Citrus limon</i> L.) Burm. f.)
<input type="checkbox"/>	90139011999	oil of bergamot petitgrain (<i>Citrus bergamia</i> (Wight et Arnott))
<input type="checkbox"/>	90139011999	Oil of bitter orange petitgrain, cultivated (<i>Citrus aurantium</i> L.)
<input type="checkbox"/>	90139011999	Aromatic natural raw materials — Vocabulary
<input type="checkbox"/>	90139011999	Oil of bitter orange (<i>Citrus aurantium</i> L.)
<input type="checkbox"/>	90139011999	Oil of sweet orange — Determination of the total carotenoid content
<input type="checkbox"/>	90139011999	essential oils — general guidance on the determination of flashpoint
<input type="checkbox"/>	90139011999	Essential oils — Determination of water content — Karl Fischer method
<input type="checkbox"/>	90139011999	Essential oils — General guidance on chromatographic profiles — Part 1: preparation of chromatographic profiles for presentation in standards
<input type="checkbox"/>	90139011999	Essential oils — General guidance on chromatographic profiles — Part 2: utilization of chromatographic profiles of samples of essential oils
<input type="checkbox"/>	90139011999	Aromatic extracts, flavouring and perfuming compounds — determination of ethanol content — gas chromatographic method on packed and capillary columns
<input type="checkbox"/>	90139011999	essential oils — Determination of peroxide value
<input type="checkbox"/>	90139011999	Essential oils — Characterization
<input type="checkbox"/>	90139011999	essential oil of davana (<i>Citrus densata</i> Horn. ex. Trautv. syn. <i>Citrus reticulata</i> Blanco x <i>Citrus sinensis</i> L.) (cubek), Spanish type
standards under development		
<input type="checkbox"/>	90139011999	Essential oils — Determination of acid value by two titration methods, manual and automatic
<input type="checkbox"/>	90139011999	Essential oil of bergamot (<i>Citrus bergamia</i> Risso & Poit), Calabrian type
<input type="checkbox"/>	90139011999	essential oil of lemon myrtle (<i>Backhousia citriodora</i> F. Muell.), Citral type
<input type="checkbox"/>	90139011999	Essential oils and aromatic extracts — Determination of residual peroxide content
<input type="checkbox"/>	90139011999	essential oils — Name harmonization of components



CEN/CK	ISO reference	ODJ reference	Title
PLASTICS AND ENVIRONMENTAL ISSUES			
Plastics recycling			
existing standards			
14		CEN/TR 15155-2	PLASTICS - Recycled plastics - Guidelines for the development of standards for recycled plastics
14		CEN/TR 16890-2	Plastics - Recycled plastics - Sampling procedures for testing plastics waste and recyclates
12		CEN/TS 18811-2	Plastics - Recycled plastics - Sample preparation
11		CEN/TS 16891-2	Plastics - Recycled plastics - Determination of selected marker compounds in food grade recycled polyethylene terephthalate (PET)
14		CEN/TS 17621-2	Plastics - Recycled plastics - Determination of solid contaminants content
12		EN 18484-2012	Plastics - recycled plastics - characterization of polyethylene (PE) recyclates
14		EN 15347-2007	Plastics - recycled Plastics - plastics recycling traceability and assessment of conformity and recycled content
14		EN 15344-2003	Plastics - recycled plastics - characterization of polyethylene (PE) recyclates
14		EN 15345-2007	PLASTICS - Recycled Plastics - Characterisation of Polypropylene (PP) recyclates
14		EN 15346-2004	Plastics - Recycled plastics - Characterization of poly(vinyl chloride) (PVC) recyclates
14		EN 15347-2007	Plastics - Recycled Plastics - Characterisation of plastics wastes
12		EN 15348-2014	Plastics - Recycled plastics - Characterization of polyethylene terephthalate (PET) recyclates
12	ISO 25479-2008		Plastics — Guidelines for the recovery and recycling of plastics waste
12	ISO 25480-2014		Plastics — organic recycling — specifications for compostable plastics
12	ISO/TS 23891-2009		Plastics — Recycling and recovery — taxonomy of standards
standards under revision or under development			
12		EN 15346-100	Plastics - recycled plastics - Characterization of poly(vinyl chloride) (PVC) recyclates
12		EN 15347-100	Plastics - recycled plastics - characterization of sorted plastic wastes
12		EN 15348-100	Plastics - recycled plastics - characterization of polyethylene terephthalate (PET) recyclates
12		EN 15349-100	Plastics — Quality requirements for application of plastic recyclates in products — Part 3: Polypropylene (PP)
12		EN 15350-100	Plastics — Quality requirements for application of plastic recyclates in products — Part 4: Polycarbonate (PC)
12		EN 15351-100	Plastics — Quality requirements for application of plastic recyclates in products — Part 5: Poly (acrylic butadiene styrene) (ABS)
12		EN 15352-100	Plastics — Quality requirements for application of plastic recyclates in products — Part 2: Polyethylene (PE)
12		EN 15353-100	Plastics — Quality requirements for application of plastic recyclates in products — Part 4: Poly(vinyl chloride) (PVC)
12		EN 15354-100	Plastics — Quality requirements for application of plastic recyclates in products — Part 7: Polyamide (PA)
12		EN 15355-100	Plastics — Quality requirements for application of plastic recyclates in products — Part 6: Polyethylene (PE)
12		EN 15356-100	Plastics — Quality requirements for application of plastic recyclates in products — Part 3: Polyethylene terephthalate (PET)
12		EN 15357-100	Plastics — Quality requirements for application of plastic recyclates in products — Part 1: General
12	ISO/TS 26071		Testing and characterization of mechanically recycled Polypropylene (PP) and Polyethylene (PE) for intended use in different plastic processing techniques
Plastics, General environmental aspects			
Existing standards			
12	CEN/TS 13960-2010	CEN/TS/TR 139	Plastics - Environmental aspects - State of knowledge and methodologies (CEN/TS 13960:2010)
12	ISO 17427-2018		Plastics — Environmental aspects — General guidelines for their inclusion in standards
Standards under revision or under development			
12		EN 17410-100	Plastics - Environmental aspects - Vocabulary
12	ISO/TS 24187		Principles for the analysis of plastics and microplastics present in the environment
12	ISO/TS 4763		Plastics — Environmental aspects — Analysis of relevant terms used in the sector and need for standardization
Biodegradable plastics			
Existing standards			
12		EN 17147-2018 (EN 00248614)	
12		CEN/TS 20151-2018 (EN 00248617)	
12		EN 14387-2004 (EN 00248510)	
12		EN 14392-2004 (EN 00248507)	
12	ISO 20130-2011	EN ISO 65210-2	Plastics — Methods for the preparation of samples for biodegradation testing of plastic material
12	ISO 15675-2018		Plastics — Determination of the ultimate anaerobic biodegradation of plastic materials in controlled anaerobic digestion systems — Method by measurement of biogas production
12	ISO 15674-2018	EN ISO 6491-2	Determination of the ultimate aerobic biodegradability of plastic materials in an aqueous medium — Method by measuring the oxygen demand in a closed respirometer
14	EN 15673-2011	EN ISO 15071-2	Determination of the ultimate aerobic biodegradability of plastic materials in an aqueous medium — Method by analysis of evolved carbon dioxide
14	EN ISO 14073-2	EN ISO 64073-2	Plastics — Determination of the ultimate anaerobic biodegradation of plastic materials in an aqueous system — Method by measurement of biogas production
14	ISO 15676-2-2013	EN ISO 6409-1	Determination of the ultimate aerobic biodegradability of plastic materials under controlled composting conditions — Method by analysis of evolved carbon dioxide — Part 1: General method
12	ISO 15675-2-2013	EN ISO 14073-1	Determination of the ultimate aerobic biodegradability of plastic materials under controlled composting conditions — Method by analysis of evolved carbon dioxide — Part 2: Geometric measurement of carbon dioxide evolved in a laboratory-scale test
14	ISO 15674-2014	EN ISO 15040-2	Plastics — Determination of the ultimate anaerobic biodegradation under high-solids anaerobic digestion conditions — Method by analysis of released biogas
12	ISO 15673-2011	EN ISO 15040-1	Plastics — Determination of the degree of disintegration of plastic materials under defined composting conditions in a pilot-scale test
14	ISO 17198-2018	EN ISO 17516-2	Plastics — Determination of the ultimate aerobic biodegradability of plastic materials in soil by measuring the oxygen demand in a respirometer or the amount of carbon dioxide evolved



<input type="checkbox"/>	ISO 18830:2016	EN ISO 18830:2016 Plastics — Determination of aerobic biodegradation of non-floating plastic materials in a seawater/sandy sediment interface — Method by measuring the oxygen demand in closed respirometer
<input type="checkbox"/>	ISO 19679:2020	EN ISO 19679:2020 Plastics — Determination of aerobic biodegradation of non-floating plastic materials in a seawater/sediment interface — Method by analysis of evolved carbon dioxide
<input type="checkbox"/>	ISO 20200:2015	EN ISO 20200:2015 Plastics — Determination of the degree of disintegration of plastic materials under simulated composting conditions in a laboratory-scale test
<input type="checkbox"/>	ISO 22403:2020	EN ISO 22403:2020 Plastics — Assessment of the intrinsic biodegradability of materials exposed to marine inocula under mesophilic aerobic laboratory conditions — Test methods and requirements
<input type="checkbox"/>	ISO 22404:2019	EN ISO 22404:2019 Plastics — Determination of the aerobic biodegradation of non-floating materials exposed to marine sediment — Method by analysis of evolved carbon dioxide
<input type="checkbox"/>	ISO 22766:2020	EN ISO 22766:2020 Plastics — Determination of the degree of disintegration of plastic materials in marine habitats under real field conditions
<input type="checkbox"/>	ISO 23832:2021	Plastics — Test methods for determination of degradation rate and disintegration degree of plastic materials exposed to marine environmental matrices under laboratory conditions
<input type="checkbox"/>	ISO 23977-1:2020	EN ISO 23977-1:2020 Plastics — Determination of the aerobic biodegradation of plastic materials exposed to seawater — Part 1: Method by analysis of evolved carbon dioxide
<input type="checkbox"/>	ISO 23977-2:2020	EN ISO 23977-2:2020 Plastics — Determination of the aerobic biodegradation of plastic materials exposed to seawater — Part 2: Method by measuring the oxygen demand in closed respirometer
Standards under revision or under development		
<input type="checkbox"/>	ISO/DIS 5148	Plastics — Determination of specific aerobic biodegradation rate of solid plastic materials and disappearance time (DT50) under mesophilic laboratory test conditions
<input type="checkbox"/>	ISO/AWI 20200	Plastics — Determination of the degree of disintegration of plastic materials under simulated composting conditions in a laboratory-scale test

Bio-based plastics

Existing standards

<input type="checkbox"/>	EN 17228:2019	Plastics - Bio-based polymers, plastics, and plastics products - Terminology, characteristics and communication
<input type="checkbox"/>	ISO 16620-1:2015	Plastics — Biobased content — Part 1: General principles
<input type="checkbox"/>	ISO 16620-2:2019	Plastics — Biobased content — Part 2: Determination of biobased carbon content
<input type="checkbox"/>	ISO 16620-3:2015	Plastics — Biobased content — Part 3: Determination of biobased synthetic polymer content
<input type="checkbox"/>	ISO 16620-4:2016	Plastics — Biobased content — Part 4: Determination of biobased mass content
<input type="checkbox"/>	ISO 16620-5:2017	Plastics — Biobased content — Part 5: Declaration of biobased carbon content, biobased synthetic polymer content and biobased mass content
<input type="checkbox"/>	ISO 22526-1:2020	EN ISO 22526-1:2020 Plastics — Carbon and environmental footprint of biobased plastics — Part 1: General principles
<input type="checkbox"/>	ISO 22526-2:2020	EN ISO 22526-2:2020 Plastics — Carbon and environmental footprint of biobased plastics — Part 2: Material carbon footprint, amount (mass) of CO ₂ removed from the air and incorporated into polymer molecule
<input type="checkbox"/>	ISO 22526-3:2020	EN ISO 22526-3:2020 Plastics — Carbon and environmental footprint of biobased plastics — Part 3: Process carbon footprint, requirements and guidelines for quantification

Standards under revision or under development

<input type="checkbox"/>	ISO/AWI 16620-4	Plastics — Biobased content — Part 4: Determination of biobased mass content
<input type="checkbox"/>	ISO/DIS 22526-4	Plastics — Carbon and environmental footprint of biobased plastics — Part 4: Environmental (total) footprint (Life Cycle Assessment)



CHECK	ISO reference	CEN reference	Title
PLASTIC FILMS AND SHEETING			
<input type="checkbox"/>	ISO 527-3:2018	EN ISO 527-3:2018	Plastics – Determination of tensile properties – Part 3: Test conditions for films and sheets
<input type="checkbox"/>	ISO 4991:1997		Plastics – Film and sheeting – Determination of average thickness of a sample, and average thickness and yield of a roll, by gravimetric techniques (gravimetric thickness)
<input type="checkbox"/>	ISO 4992:1997		Plastics – Film and sheeting – Determination of length and width
<input type="checkbox"/>	ISO 4993:1993		Plastics – Film and sheeting – Determination of thickness by mechanical scanning
<input type="checkbox"/>	ISO 6383-1:2015	EN ISO 6383-1:2015	Plastics – Film and sheeting – Determination of tear resistance – Part 1: Trouser tear method
<input type="checkbox"/>	ISO 6383-2:2015	EN ISO 6383-2:2015	Plastics – Film and sheeting – Determination of tear resistance – Part 2: Elmendorf method
<input type="checkbox"/>	ISO 7765-1:1998	EN ISO 7765-1:2010	Plastics film and sheeting – Determination of impact resistance by the free-falling dart method – Part 1: Staircase methods
<input type="checkbox"/>	ISO 7765-2:1994		Plastics film and sheeting – Determination of impact resistance by the free-falling dart method – Part 2: Instrumented puncture test
<input type="checkbox"/>	ISO 8235:1995	EN ISO 8235:2004	Plastics – Film and sheeting – Determination of the coefficients of friction
<input type="checkbox"/>	ISO 8296:2003		Plastics – Film and sheeting – Determination of wetting tension
<input type="checkbox"/>	ISO 8570:1991		Plastics – Film and sheeting – Determination of cold-crack temperature
<input type="checkbox"/>	ISO 11760:1995	EN ISO 11501:2002	Plastics – Film and sheeting – Determination of dimensional change on heating
<input type="checkbox"/>	ISO 11902:2018	EN ISO 11502:2011	Plastics – Film and sheeting – Determination of blocking resistance
<input type="checkbox"/>	ISO 11833-1:2010	EN ISO 11833-1:2010	Plastics – Unplasticized poly(vinyl chloride) sheets – Part 1: Types, dimensions and characteristics for sheets of thickness not less than 1 mm
<input type="checkbox"/>	ISO 11833-2:1998	EN ISO 11833-2:2010	Plastics – Unplasticized poly(vinyl chloride) sheets – Types, dimensions and characteristics – Part 2: Sheets of thickness less than 1 mm
<input type="checkbox"/>	ISO 14963:2019	EN ISO 11363:2011	Plastics – Polycarbonate sheets – Types, dimensions and characteristics
<input type="checkbox"/>	ISO 13106:2014		Plastics – Blow-moulded polypropylene containers for packaging of liquid foodstuffs
<input type="checkbox"/>	ISO 13036:2012		Plastics – Film and sheeting – Non-oriented poly(ethylene terephthalate) (PET) sheets
<input type="checkbox"/>	ISO 14616:1997	EN ISO 14616:2002	Plastics – Heatshrinkable films of polyethylene, ethylene copolymers and their mixtures – Determination of shrinkage stress and contraction stress
<input type="checkbox"/>	ISO 14631:2021	EN ISO 14631:2021	Extruded sheets of impact-modified polystyrene (PS-I) – Requirements and test methods
<input type="checkbox"/>	ISO 14632:2021	EN ISO 14632:2021	Extruded sheets of polyethylene (PE-HD) – Requirements and test methods
<input type="checkbox"/>	ISO 15013:2007	EN ISO 15013:2007	Plastics – Extruded sheets of polypropylene (PP) – Requirements and test methods
<input type="checkbox"/>	ISO 15014:2007		Plastics – Extruded sheets of poly(vinylidene fluoride) (PVDF) – Requirements and test methods
<input type="checkbox"/>	ISO 15015:2011	EN ISO 15015:2011	Plastics – Extruded sheets of impact-modified acrylonitrile-styrene copolymers (ABS, AEPDS and ASA) – Requirements and test methods
<input type="checkbox"/>	ISO 15105-1:2007		Plastics – Film and sheeting – Determination of gas transmission rate – Part 1: Differential-pressure methods
<input type="checkbox"/>	ISO 15105-2:2007		Plastics – Film and sheeting – Determination of gas transmission rate – Part 2: Equal-pressure method
<input type="checkbox"/>	ISO 15106-1:2007	EN ISO 15106-1:2007	Plastics – Film and sheeting – Determination of water vapour transmission rate – Part 1: Humidity detection sensor method
<input type="checkbox"/>	ISO 15106-2:2007	EN ISO 15106-2:2007	Plastics – Film and sheeting – Determination of water vapour transmission rate – Part 2: Infrared detection sensor method
<input type="checkbox"/>	ISO 15106-3:2007	EN ISO 15106-3:2007	Plastics – Film and sheeting – Determination of water vapour transmission rate – Part 3: Electrolytic detection sensor method
<input type="checkbox"/>	ISO 15106-4:2008		Plastics – Film and sheeting – Determination of water vapour transmission rate – Part 4: Gas-chromatographic detection sensor method
<input type="checkbox"/>	ISO 15106-5:2015		Plastics – Film and sheeting – Determination of water vapour transmission rate – Part 5: Pressure sensor method
<input type="checkbox"/>	ISO 15106-6:2015		Plastics – Film and sheeting – Determination of water vapour transmission rate – Part 6: Atmospheric pressure ionization mass spectrometer method
<input type="checkbox"/>	ISO 15106-7:2015		Plastics – Film and sheeting – Determination of water vapour transmission rate – Part 7: Calcium corrosion method
<input type="checkbox"/>	ISO 15537:2018	EN ISO 15537:2018	Plastics – Compression-moulded sheets of polyethylene (PE-UHMW, PE-HD) – Requirements and test methods
<input type="checkbox"/>	ISO 15987:2008		Plastics – Film and sheeting – Biaxially oriented polyamide (nylon) films
<input type="checkbox"/>	ISO 15988:2009		Plastics – Film and sheeting – Biaxially oriented poly(ethylene terephthalate) (PET) films
<input type="checkbox"/>	ISO 15989:2004		Plastics – Film and sheeting – Measurement of water-contact angle of corona-treated films
<input type="checkbox"/>	ISO 15989:2004/COB 1:2007		Plastics – Film and sheeting – Measurement of water-contact angle of corona-treated films – Technical Corrigendum 1
<input type="checkbox"/>	ISO 17555:2021		Plastics – Film and sheeting – Biaxially oriented polypropylene (PP) films
<input type="checkbox"/>	ISO 17557:2016		Plastics – Film and sheeting – Cast polypropylene (PP) films
<input type="checkbox"/>	ISO 19559:2011		Plastics – Film and sheeting – Guidance on the testing of thermoplastic films
<input type="checkbox"/>	ISO 19560:2015		Woven polypropylene sacks for bulk packaging of foodstuffs
<input type="checkbox"/>	ISO 1556:1974		Plastics – Determination of the gas transmission rate of films and thin sheets under atmospheric pressure – Manometric method
FILMS FOR USE IN AGRICULTURE			



- [CEN/TR 17229:20](#) Plastics - Biodegradable thermoplastic mulch films for use in agriculture and horticulture - Guide for the quantification of alteration of films
- [EN 13305:2017+A](#) Plastics - Thermoplastic covering films for use in agriculture and horticulture
- [EN 13307:2018 \(V\)](#) Plastics - Thermoplastic silage films and tubes for use in agriculture
- [EN 13655:2018 \(V\)](#) Plastics - Thermoplastic mulch films recoverable after use, for use in agriculture and horticulture
- [EN 14937:2018 \(V\)](#) Plastics - Thermoplastic stretch films for wrapping silage bales
- [EN 17098:2018 \(V\)](#) Plastics - Biodegradable mulch films for use in agriculture and horticulture - Requirements and test methods
- [EN 17098-1:2018](#) Plastics - Barrier films for agricultural and horticultural soil disinfection by fumigation - Part 1: Specifications for barrier films
- [EN 17098-2:2018](#) Plastics - Barrier films for agricultural and horticultural soil disinfection by fumigation - Part 2: Method for film permeability determination using a static technique
- [ISO 20517:2021](#) Plastics — Soil biodegradable materials for mulch films for use in agriculture and horticulture — Requirements and test methods regarding biodegradation, ecotoxicity and control of constituents



CHECK	ISO reference	CEN reference	Title
PLASTIC Physical-chemical properties			
<input type="checkbox"/>	ISO 171-1:1990		Plastics — Determination of bulk factor of moulding materials
<input type="checkbox"/>	ISO 458-1:1992		Plastics — Determination of refractive index
<input type="checkbox"/>	ISO 1133-1:2011	EN ISO 1133-1:2011	Plastics — Determination of the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastics — Part 1: Standard method
<input type="checkbox"/>	ISO 1133-2:2011	EN ISO 1133-2:2011	Plastics — Determination of the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastics — Part 2: Method for materials sensitive to time-temperature history and/or moisture
<input type="checkbox"/>	ISO 1198:2000	EN ISO 1198:2000	Plastics — Determination of melting behaviour (melting temperature or melting range) of semi-crystalline polymers by capillary tube and polarizing-microscope methods
<input type="checkbox"/>	ISO 1146:2000/C1	EN ISO 1146:2000	Plastics — Determination of melting behaviour (melting temperature or melting range) of semi-crystalline polymers by capillary tube and polarizing-microscope methods — Technical Corrigendum 1
<input type="checkbox"/>	ISO 6185:1998	EN ISO 6185:1998	Plastics — Determination of pourability
<input type="checkbox"/>	ISO 6721-1:2013	EN ISO 6721-1:2013	Plastics — Determination of dynamic mechanical properties — Part 1: General principles
<input type="checkbox"/>	ISO 6721-2:2013	EN ISO 6721-2:2013	Plastics — Determination of dynamic mechanical properties — Part 2: Torsion-pendulum method
<input type="checkbox"/>	ISO 6721-3:2013	EN ISO 6721-3:2013	Plastics — Determination of dynamic mechanical properties — Part 3: Flexural vibration — Resonance-curve method
<input type="checkbox"/>	ISO 6721-4:2013		Plastics — Determination of dynamic mechanical properties — Part 4: Tensile vibration — Non-resonance method
<input type="checkbox"/>	ISO 6721-5:2013		Plastics — Determination of dynamic mechanical properties — Part 5: Flexural vibration — Non-resonance method
<input type="checkbox"/>	ISO 6721-6:2013		Plastics — Determination of dynamic mechanical properties — Part 6: Shear vibration — Non-resonance method
<input type="checkbox"/>	ISO 6721-7:2013		Plastics — Determination of dynamic mechanical properties — Part 7: Torsional vibration — Non-resonance method
<input type="checkbox"/>	ISO 6721-8:2013		Plastics — Determination of dynamic mechanical properties — Part 8: Longitudinal and shear vibration — Wave-propagation method
<input type="checkbox"/>	ISO 6721-9:2013		Plastics — Determination of dynamic mechanical properties — Part 9: Tensile vibration — Sonic-pulse propagation method
<input type="checkbox"/>	ISO 6721-10:2013		Plastics — Determination of dynamic mechanical properties — Part 10: Complex shear viscosity using a parallel-plate oscillatory rheometer
<input type="checkbox"/>	ISO 6721-11:2013		Plastics — Determination of dynamic mechanical properties — Part 11: Glass transition temperature
<input type="checkbox"/>	ISO 6721-12:2013		Plastics — Determination of dynamic mechanical properties — Part 12: Compressive vibration — Non-resonance method
<input type="checkbox"/>	ISO 12468-1:2011	EN ISO 12468-1:2011	Plastics — Determination of the total luminous transmittance of transparent materials — Part 1: Single-beam instrument
<input type="checkbox"/>	ISO 12468-2:2011	EN ISO 12468-2:2011	Plastics — Determination of the total luminous transmittance of transparent materials — Part 2: Double-beam instrument
<input type="checkbox"/>	ISO 14793-1:1999/C09 1:2006		Plastics — Determination of haze for transparent materials — Technical Corrigendum 1
<input type="checkbox"/>	ISO 14793:2004		Plastics — Determination of haze for transparent materials
<input type="checkbox"/>	ISO 25337:2010		Plastics — Production quality control — Statistical method for using single measurements
<input type="checkbox"/>	ISO 26793:2000		Plastics — Determination of total luminous transmittance and reflectance
<input type="checkbox"/>	ISO 11357-1:2015	EN ISO 11357-1:2015	Plastics — Differential scanning calorimetry (DSC) — Part 1: General principles (ISO 11357-1:2015)
<input type="checkbox"/>	ISO 11357-2:2015	EN ISO 11357-2:2015	Plastics — Differential scanning calorimetry (DSC) — Part 2: Determination of glass transition temperature and step height (ISO 11357-2:2015)
<input type="checkbox"/>	ISO 11357-3:2015	EN ISO 11357-3:2015	Plastics — Differential scanning calorimetry (DSC) — Part 3: Determination of temperature and enthalpy of melting and crystallization (ISO 11357-3:2015)
<input type="checkbox"/>	ISO 11357-4:2015	EN ISO 11357-4:2015	Plastics — Differential scanning calorimetry (DSC) — Part 4: Determination of specific heat capacity (ISO 11357-4:2015)
<input type="checkbox"/>	ISO 11357-5:2015	EN ISO 11357-5:2015	Plastics — Differential scanning calorimetry (DSC) — Part 5: Determination of characteristic reaction-curve temperatures and times, enthalpy of reaction and degree of conversion (ISO 11357-5:2015)
<input type="checkbox"/>	ISO 11357-6:2015	EN ISO 11357-6:2015	Plastics — Differential scanning calorimetry (DSC) — Part 6: Determination of oxidation induction time (isothermal OIT) and oxidation induction temperature (dynamic OIT) (ISO 11357-6:2015)
<input type="checkbox"/>	ISO 11357-7:2015	EN ISO 11357-7:2015	Plastics — Differential scanning calorimetry (DSC) — Part 7: Determination of crystallization kinetics (ISO 11357-7:2015)
<input type="checkbox"/>	ISO 11357-8:2015	EN ISO 11357-8:2015	Plastics — Differential scanning calorimetry (DSC) — Part 8: Determination of thermal conductivity (ISO 11357-8:2015)
<input type="checkbox"/>	ISO 11358-1:2014	EN ISO 11358-1:2014	Plastics — Thermogravimetry (TG) of polymers — Part 1: General principles (ISO 11358-1:2014)
<input type="checkbox"/>	ASTM D3585-17		Standard Test Method for Oxygen Gas Transmission Rate Through Plastic Film and Sheeting Using a Coulometric Sensor
<input type="checkbox"/>	ASTM F1249-13		Standard Test Method for Water Vapor Transmission Rate Through Plastic Film and Sheeting Using a Modulated Infrared Sensor
PLASTIC Mechanical behavior			
<input type="checkbox"/>	ISO 75-1:2010	EN ISO 75-1:2010	Plastics — Determination of temperature of deflection under load — Part 1: General test method
<input type="checkbox"/>	ISO 75-2:2010	EN ISO 75-2:2010	Plastics — Determination of temperature of deflection under load — Part 2: Plastics and ebonite
<input type="checkbox"/>	ISO 75-3:2004	EN ISO 75-3:2004	Plastics — Determination of temperature of deflection under load — Part 3: High-strength thermosetting laminates and long-fibre-reinforced plastics
<input type="checkbox"/>	ISO 178:2019	EN ISO 178:2019	Plastics — Determination of flexural properties
<input type="checkbox"/>	ISO 179-1:2010	EN ISO 179-1:2010	Plastics — Determination of Charpy impact properties — Part 1: Non-instrumented impact test
<input type="checkbox"/>	ISO 179-2:2010	EN ISO 179-2:2010	Plastics — Determination of Charpy impact properties — Part 2: Instrumented impact test
<input type="checkbox"/>	ISO 180:2019	EN ISO 180:2019	Plastics — Determination of Izod impact strength
<input type="checkbox"/>	ISO 306:2011	EN ISO 306:2011	Plastics — Thermoplastic materials — Determination of Vicat softening temperature (VST)
<input type="checkbox"/>	ISO 458-1:1992		Plastics — Determination of stiffness in torsion of flexible materials — Part 1: General method



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- [ISO 458-2:1985](#) Plastics — Determination of stiffness in torsion of flexible materials — Part 2: Application to plasticized compounds of homopolymers and copolymers
- [ISO 527-1:2019](#) EN ISO 527-1:2019 Plastics — Determination of tensile properties — Part 1: General principles
- [ISO 527-2:2012](#) EN ISO 527-2:2012 Plastics — Determination of tensile properties — Part 2: Test conditions for moulding and extrusion plastics
- [ISO 604:2002](#) EN ISO 604:2003 Plastics — Determination of compressive properties
- [ISO 899-1:2017](#) EN ISO 899-1:2017 Plastics — Determination of creep behaviour — Part 1: Tensile creep
- [ISO 899-2:2003](#) EN ISO 899-2:2003 Plastics — Determination of creep behaviour — Part 2: Flexural creep by three-point loading
- [ISO 899-2:2003/A1](#) EN ISO 899-2:2003 Plastics — Determination of creep behaviour — Part 2: Flexural creep by three-point loading — Amendment 1
- [ISO 974:2000](#) Plastics — Determination of the brittleness temperature by impact
- [ISO 2039-1:2001](#) EN ISO 2039-1:2001 Plastics — Determination of hardness — Part 1: Ball indentation method
- [ISO 2039-2:1987](#) EN ISO 2039-2:1987 Plastics — Determination of hardness — Part 2: Rockwell hardness
- [ISO 3167:2014](#) EN ISO 3167:2014 Plastics — Multipurpose test specimens
- [ISO 6601:2002](#) Plastics — Friction and wear by sliding — Identification of test parameters
- [ISO 6603-1:2000](#) EN ISO 6603-1:2000 Plastics — Determination of puncture impact behaviour of rigid plastics — Part 1: Non-instrumented impact testing
- [ISO 6603-2:2000](#) EN ISO 6603-2:2000 Plastics — Determination of puncture impact behaviour of rigid plastics — Part 2: Instrumented impact testing
- [ISO 8256:2004](#) EN ISO 8256:2004 Plastics — Determination of tensile-impact strength
- [ISO 9352:2012](#) Plastics — Determination of resistance to wear by abrasive wheels
- [ISO 10350-1:2017](#) EN ISO 10350-1:2017 Plastics — Acquisition and presentation of comparable single-point data — Part 1: Moulding materials
- [ISO 10350-2:2020](#) EN ISO 10350-2:2020 Plastics — Acquisition and presentation of comparable single-point data — Part 2: Long-fibre-reinforced plastics
- [ISO 11403-1:2021](#) EN ISO 11403-1:2021 Plastics — Acquisition and presentation of comparable multipoint data — Part 1: Mechanical properties
- [ISO 11403-2:2021](#) EN ISO 11403-2:2021 Plastics — Acquisition and presentation of comparable multipoint data — Part 2: Thermal and processing properties
- [ISO 11403-3:2021](#) EN ISO 11403-3:2021 Plastics — Acquisition and presentation of comparable multipoint data — Part 3: Environmental influences on properties
- [ISO 13586:2018](#) Plastics — Determination of fracture toughness (GIC and KIC) — Linear elastic fracture mechanics (LEFM) approach
- [ISO 13802:2015](#) EN ISO 13802:2015 Plastics — Verification of pendulum impact-testing machines — Charpy, Izod and tensile impact-testing
- [ISO 15850:2014](#) Plastics — Determination of tension-tension fatigue crack propagation — Linear elastic fracture mechanics (LEFM) approach
- [ISO 16012:2015](#) EN ISO 16012:2015 Plastics — Determination of linear dimensions of test specimens
- [ISO 17281:2018](#) Plastics — Determination of fracture toughness (GIC and KIC) at moderately high loading rates (1 m/s)
- [ISO 17282:2004](#) Plastics — Guide to the acquisition and presentation of design data
- [ISO 17541:2014](#) Plastics — Quantitative evaluation of scratch-induced damage and scratch visibility
- [ISO 18872:2007](#) Plastics — Determination of tensile properties at high strain rates
- [ISO 19252:2008](#) Plastics — Determination of scratch properties
- [ISO/TS 19278:2019](#) Plastics — Instrumented micro-indentation test for hardness measurement
- [ISO 20329:2020](#) Plastics — Determination of abrasive wear by reciprocating linear sliding motion
- [ISO 20753:2018](#) EN ISO 2039-2:1987 Plastics — Test specimens
- [ISO 25217:2009](#) Adhesives — Determination of the mode I adhesive fracture energy of structural adhesive joints using double cantilever beam and tapered double cantilever beam
- [ISO 29221:2014](#) Plastics — Determination of mode I plane-strain crack-arrest toughness



CHECK	ISO reference	CEN reference	Title
PACKAGING			
<input type="checkbox"/>	ISO 6590-2:1986	EN 26590-2:199	Packaging – Sacks – Vocabulary and types – Part 2: Sacks made from thermoplastic flexible film
<input type="checkbox"/>	ISO 6591-2:1985	EN 36591-2:199	Packaging – Sacks – Description and method of measurement – Part 2: Empty sacks made from thermoplastic flexible film
<input type="checkbox"/>	ISO 7002:1983	EN 77023:1992	Packaging – Sacks – Method of sampling empty sacks for testing
<input type="checkbox"/>	ISO 7865-2:1983		Sacks – Drop test – Part 2: Sacks made from thermoplastic flexible film
<input type="checkbox"/>	ISO 8351-2:1994	EN ISO 8351-2:1	Packaging – Method of specification for sacks – Part 2: Sacks made from thermoplastic flexible film
<input type="checkbox"/>	ISO 8367-2:1993	EN ISO 8367-2:1	Packaging – Dimensional tolerances for general purpose sacks – Part 2: Sacks made from thermoplastic flexible film
<input type="checkbox"/>	ISO 11887:1996	EN ISO 11887:2	Packaging – Sacks made from thermoplastic flexible film – Tear propagation on edge folds
<input type="checkbox"/>	ISO 15393:2017		Packaging – Bar code and two-dimensional symbols for shipping, transport and receiving labels
<input type="checkbox"/>	ISO/TR 17330:2019		Application Guideline on Data Carriers for Supply Chain Management
<input type="checkbox"/>	ISO 19309:2017		Packaging – Accessible design – Information and marking
<input type="checkbox"/>	ISO 22742:2010		Packaging – Linear bar code and two-dimensional symbols for product packaging
<input type="checkbox"/>	ISO 28219:2017		Packaging – Labelling and direct product marking with linear bar code and two-dimensional symbols
Packaging and environment			
Existing standards			
<input type="checkbox"/>	CEN/TR 13910:2		Packaging - Report on criteria and methodologies for life cycle analysis of packaging
<input type="checkbox"/>	CEN/TR 14520:2		Packaging - Reuse - Methods for assessing the performance of a reuse system
<input type="checkbox"/>	CR 12340:1996		Packaging - Recommendations for conducting life-cycle inventory analysis of packaging systems
<input type="checkbox"/>	CR 14311:2002		Packaging - Marking and material identification system
<input type="checkbox"/>	EN 13193:2000		Packaging - Packaging and the environment - Terminology
<input type="checkbox"/>	EN 13427:2004		Packaging - Requirements for the use of European Standards in the field of packaging and packaging waste
<input type="checkbox"/>	EN 13429:2004		Packaging - Reuse
<input type="checkbox"/>	EN 14187:2007		Packaging - Terminology - Basic terms and definitions
<input type="checkbox"/>	ISO/TR 16218:2013		Packaging and the environment – Processes for chemical recovery
<input type="checkbox"/>	ISO/TR 17068:2013		Packaging material recycling – Report on substances and materials which may impede recycling
<input type="checkbox"/>	ISO/TR 18568:2021		Packaging and the environment – Marking for material identification
<input type="checkbox"/>	ISO 18601:2013		Packaging and the environment – General requirements for the use of ISO standards in the field of packaging and the environment
<input type="checkbox"/>	ISO 18602:2013		Packaging and the environment – Optimization of the packaging system
<input type="checkbox"/>	ISO 18603:2013		Packaging and the environment – Reuse
<input type="checkbox"/>	ISO 18604:2013		Packaging and the environment – Material recycling
<input type="checkbox"/>	ISO 18605:2013		Packaging and the environment – Energy recovery
<input type="checkbox"/>	ISO 18606:2013		Packaging and the environment – Organic recycling
<input type="checkbox"/>	ISO 21067-2:2013		Packaging – Vocabulary – Part 2: Packaging and the environment terms
Standards under revision or under development			
<input type="checkbox"/>	prCEN/TR 1460		Packaging - Energy recovery from used packaging
<input type="checkbox"/>	ISO/JAWI 6924		Eco-design principle, requirement and guideline for espresso packaging
<input type="checkbox"/>	ISO/JAWI TR 18607		Packaging—Packaging and the environment –Guidebook for environment conscious designing of packaging based on ISO 18600 series of standards
CONTACT WITH FOODSTUFF			
Existing standards			
<input type="checkbox"/>	CEN/TR 15956-1		Validation and interpretation of analytical methods, migration testing and analytical data for materials and articles in contact with food - Part 1: General considerations
<input type="checkbox"/>	EN 13139-1:200		Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 1..
<input type="checkbox"/>	EN 13139-2:200		Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 2: Determination of terephthalic acid in food simulants



<input type="checkbox"/>	EN 13130-3:200	Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 3: Determination of acrylonitrile in food and food simulants
<input type="checkbox"/>	EN 13130-4:200	Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 4: Determination of 1,3-butadiene in plastics
<input type="checkbox"/>	EN 13130-5:200	Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 5: Determination of vinylidene chloride in food simulants
<input type="checkbox"/>	EN 13130-6:200	Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 6: Determination of vinylidene chloride in plastics
<input type="checkbox"/>	EN 13130-7:200	Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 7: Determination of monoethylene glycol and diethylene glycol in food simulants
<input type="checkbox"/>	EN 13130-8:200	Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 8: Determination of isocyanates in plastics
<input type="checkbox"/>	CEN/TS 33130-9	Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 9: Determination of acetic acid, vinyl ester in food simulants
<input type="checkbox"/>	CEN/TS 33130-1	Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 10: Determination of acrylamide in food simulants
<input type="checkbox"/>	CEN/TS 33130-3	Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 11: Determination of 11-aminoundecanoic acid in food simulants
<input type="checkbox"/>	CEN/TS 33130-1	Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 12: Determination of 1,3-benzenedimethanamine in food simulants
<input type="checkbox"/>	CEN/TS 33130-1	Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 13: Determination of 2,2-bis[4-hydroxyphenyl]propane (Bisphenol A) in food simulants
<input type="checkbox"/>	CEN/TS 33130-1	Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 14: Determination of 3,3-bis[3-methyl-4-hydroxyphenyl]-2-indoline in food simulants
<input type="checkbox"/>	CEN/TS 33130-1	Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 15: Determination of 1,3-butadiene in food simulants
<input type="checkbox"/>	CEN/TS 33130-3	Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 16: Determination of caprolactam and caprolactam salt in food simulants
<input type="checkbox"/>	CEN/TS 33130-1	Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 17: Determination of carbonyl chloride in plastics
<input type="checkbox"/>	CEN/TS 33130-1	Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 18...
<input type="checkbox"/>	CEN/TS 33130-1	Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 19: Determination of diethylaminoethanol in food simulants
<input type="checkbox"/>	CEN/TS 33130-1	Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 20: Determination of epichlorohydrin in plastics
<input type="checkbox"/>	CEN/TS 33130-1	Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 21: Determination of ethylenediamine and hexamethylenediamine in food simulants
<input type="checkbox"/>	CEN/TS 33130-1	Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 22: Determination of ethylene oxide and propylene oxide in plastics
<input type="checkbox"/>	CEN/TS 33130-1	Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 23: Determination of formaldehyde and hexamethylenetetramine in food simulants
<input type="checkbox"/>	CEN/TS 33130-1	Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 24: Determination of maleic acid and maleic anhydride in food simulants
<input type="checkbox"/>	CEN/TS 33130-1	Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 25: Determination of 4-methyl-1-pentene in food simulants
<input type="checkbox"/>	CEN/TS 33130-1	Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 26: Determination of 1-octene and tetrahydrofuran in food simulants
<input type="checkbox"/>	CEN/TS 33130-1	Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 27: Determination of 2,4,6-triamino-1,3,5-triazine in food simulants
<input type="checkbox"/>	CEN/TS 33130-1	Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 28: Determination of 1,1,1-trimethylolpropane in food simulants
<input type="checkbox"/>	CEN/TS 14713-1	Materials and articles in contact with foodstuffs - Polymeric coatings on paper and board - Guide to the selection of conditions and test methods for overall migration
<input type="checkbox"/>	CEN/TS 14713-1	Materials and articles in contact with foodstuffs - Polymeric coatings on metal substrates - Guide to the selection of conditions and test methods for overall migration
<input type="checkbox"/>	CEN/TS 14577-1	Materials and articles in contact with foodstuffs - Plastics - Polymeric additives - Test method for the determination of the mass...
<input type="checkbox"/>	EN 1186:1997 (1)	Materials and articles in contact with foodstuffs - Test methods for thermal shock and thermal shock endurance
<input type="checkbox"/>	EN 1186-1:2002	Materials and articles in contact with foodstuffs - Plastics - Part 1: Guide to the selection of conditions and test methods for overall migration
<input type="checkbox"/>	EN 1186-2:2002	Materials and articles in contact with foodstuffs - Plastics - Part 2: Test methods for overall migration into olive oil by total immersion
<input type="checkbox"/>	EN 1186-3:2002	Materials and articles in contact with foodstuffs - Plastics - Part 3: Test methods for overall migration into aqueous food simulants by total immersion
<input type="checkbox"/>	EN 1186-4:2002	Materials and articles in contact with foodstuffs - Plastics - Part 4: Test methods for overall migration into olive oil by cell
<input type="checkbox"/>	EN 1186-5:2002	Materials and articles in contact with foodstuffs - Plastics - Part 5: Test methods for overall migration into aqueous food simulants by cell
<input type="checkbox"/>	EN 1186-6:2002	Materials and articles in contact with foodstuffs - Plastics - Part 6: Test methods for overall migration into olive oil using a pouch
<input type="checkbox"/>	EN 1186-7:2002	Materials and articles in contact with foodstuffs - Plastics - Part 7: Test methods for overall migration into aqueous food simulants using a pouch
<input type="checkbox"/>	EN 1186-8:2002	Materials and articles in contact with foodstuffs - Plastics - Part 8: Test methods for overall migration into olive oil by article filling
<input type="checkbox"/>	EN 1186-9:2002	Materials and articles in contact with foodstuffs - Plastics - Part 9: Test methods for overall migration into aqueous food simulants by article filling
<input type="checkbox"/>	EN 1186:1997 (1)	Materials and articles in contact with foodstuffs - Plastics - Part 10: Test methods for overall migration into olive oil...
<input type="checkbox"/>	EN 1186-11:2002	Materials and articles in contact with foodstuffs - Plastics - Part 11: Test methods for overall migration into mixtures of C-labeled synthetic triglycerides
<input type="checkbox"/>	EN 1186-12:2002	Materials and articles in contact with foodstuffs - Plastics - Part 12: Test methods for overall migration at low temperatures
<input type="checkbox"/>	EN 1186-13:2002	Materials and articles in contact with foodstuffs - Plastics - Part 13: Test methods for overall migration at high temperatures
<input type="checkbox"/>	EN 1186-14:2002	Materials and articles in contact with foodstuffs - Plastics - Part 14: Test methods for 'substitute tests' for overall migration from plastics...
<input type="checkbox"/>	EN 1186-15:2002	Materials and articles in contact with foodstuffs - Plastics - Part 15: Alternative test methods to migration into fatty food simulants...
<input type="checkbox"/>	EN 14681:2003	Materials and articles in contact with foodstuffs - Plastics - Test methods for the determination of fatty content



- [EN 15196:2006](#) Materials and articles in contact with foodstuffs - Certain epoxy derivatives subject to limitation - Determination of BADGE, BFDGE and their hydroxy and ...
 - [EN 15197:2006](#) Materials and articles in contact with foodstuffs - Certain epoxy derivatives subject to limitation - Determination of NOGE and its hydroxy and chlorinated derivatives
- Standards under revision or under development
- [prEN 1186-2 \(W\)](#) Materials and articles in contact with foodstuffs - Plastics - Part 2: Test methods for overall migration in vegetable oils
 - [prEN 1186-3 \(W\)](#) Materials and articles in contact with foodstuffs - Plastics - Part 3: Test methods for overall migration in evaporable simulants



CHECK	CEN reference	Title
BIOTECHNOLOGY		
<input type="checkbox"/>	EN 12075:1997	Biotechnology - Large-scale process and production - Procedures for fermentation and downstream processes
<input type="checkbox"/>	EN 12128:1998	Biotechnology - Laboratories for research, development and analysis - Containment levels of microbiology laboratories, areas of risk, localities and physical
<input type="checkbox"/>	EN 12296:1998	Biotechnology - Equipment - Guidance on testing procedures for cleanability
<input type="checkbox"/>	EN 12297:1998	Biotechnology - Equipment - Guidance on testing procedures for sterilizability
<input type="checkbox"/>	EN 12298:1998	Biotechnology - Equipment - Guidance on testing procedures for leaktightness
<input type="checkbox"/>	EN 12307:1997	Biotechnology - Large-scale process and production - Guidance for good practice, procedures, training and control for personnel
<input type="checkbox"/>	EN 12460:1998	Biotechnology - Large-scale process and production - Guidance on equipment selection and installation in accordance with the biological risk
<input type="checkbox"/>	EN 12461:1998	Biotechnology - Large scale process and production - Guidance for the handling, inactivating and testing of waste
<input type="checkbox"/>	EN 12462:1998	Biotechnology - Performance criteria for pumps
<input type="checkbox"/>	EN 12689:1998	Biotechnology - Guidance on assessment of the purity, biological activity and stability of microorganism based products
<input type="checkbox"/>	EN 12690:1999	Biotechnology - Performance criteria for shaft seals
<input type="checkbox"/>	EN 12740:1999	Biotechnology - Laboratories for research, development and analysis - Guidance for handling, inactivating and testing of waste
<input type="checkbox"/>	EN 12741:1999	Biotechnology - Laboratories for research, development and analysis - Guidance for biotechnology laboratory operations
<input type="checkbox"/>	EN 12884:1999	Biotechnology - Performance criteria for centrifuges
<input type="checkbox"/>	EN 12885:1999	Biotechnology - Performance criteria for cell disrupters
<input type="checkbox"/>	EN 13091:1999	Biotechnology - Performance criteria for filter elements and filtration assemblies
<input type="checkbox"/>	EN 13092:1999	Biotechnology - Equipment - Guidance on sampling and inoculation procedures
<input type="checkbox"/>	EN 13095:1999	Biotechnology - Performance criteria for off-gas systems
<input type="checkbox"/>	EN 13311-1:200	Biotechnology - Performance criteria for vessels - Part 1: General performance criteria
<input type="checkbox"/>	EN 13311-2:200	Biotechnology - Performance criteria for vessels - Part 2: Pressure protection devices
<input type="checkbox"/>	EN 13311-3:200	Biotechnology - Performance criteria for vessels - Part 3: Glass pressure vessels
<input type="checkbox"/>	EN 13311-4:200	Biotechnology - Performance criteria for vessels - Part 4: Bioreactors
<input type="checkbox"/>	EN 13311-5:200	Biotechnology - Performance criteria for vessels - Part 5: Kill tanks
<input type="checkbox"/>	EN 13311-6:200	Biotechnology - Performance criteria for vessels - Part 6: Chromatography columns
<input type="checkbox"/>	EN 13312-1:200	Biotechnology - Performance criteria for piping and instrumentation - Part 1: General performance criteria
<input type="checkbox"/>	EN 13312-2:200	Biotechnology - Performance criteria for piping and instrumentation - Part 2: Couplings
<input type="checkbox"/>	EN 13312-3:200	Biotechnology - Performance criteria for piping and instrumentation - Part 3: Sampling and inoculation devices
<input type="checkbox"/>	EN 13312-4:200	Biotechnology - Performance criteria for piping and instrumentation - Part 4: Tubes and pipes
<input type="checkbox"/>	EN 13312-5:200	Biotechnology - Performance criteria for piping and instrumentation - Part 5: Valves
<input type="checkbox"/>	EN 13312-6:200	Biotechnology - Performance criteria for piping and instrumentation - Part 6: Equipment probes
<input type="checkbox"/>	EN 1619:1996	Biotechnology - Large-scale process and production - General requirements for management and organization for strain conservation procedures
<input type="checkbox"/>	EN 1620:1996	Biotechnology - Large-scale process and production - Plant building according to the degree of hazard
<input type="checkbox"/>	EN 1826:1996	Biotechnology - Large-scale process and production - Control procedures for raw materials

