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# **Agro2Circular**



# D8.8 – Standardization landscape and applicable standards

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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 nutraceutics: extracts quality and safety criteria and characterisation (technological and nutritional capabilities).
- 4. Contaminants in vegetable products, food cosmetics and nutraceutics
- 5. Plastics: recycling, upcycling, biodegradability and characterization (mechanical, thermal & rheological properties), bioplastics using microbes.
- 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 (<u>CEN</u>), the European Committee for Electrotechnical Standardization (<u>CENELEC</u>) and the European Telecommunications Standards Institute



(<u>ETSI</u>), and also the international standardization developed by the International Organization for Standardization (<u>ISO</u>) and the International Electrotechnical Commission (<u>IEC</u>). Other standardization organizations as <u>GSI</u> and <u>ASTM</u> 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.

Туре	International code	European code	National code	Main characteristics
Standard	ISO	EN	UNE, NF, BS, DIN, etc.	Elaboration: 3 years
	IEC		When adopting:	<ul> <li>2 steps for member approval</li> </ul>
			UNE-EN, NF-EN, UNE-	<ul> <li>European: compulsory national</li> </ul>
			ISO, NF-ISO, etc.	adoption
				Revision: every 5 years
Technical	ISO/TS	CEN/TS	When adopting:	Elaboration: 21 months
Specification	IEC/TS	CLC/TS	UNE-CEN/TS, NF-	1 step for member approval or internal
			CEN/TS, UNE-ISO/TS,	approval in TC
			NF-ISO/TS, etc.	European: optional national adoption
				Revision: at 3 years (upgrading to EN or
				deletion)
Technical	ISO/TR	CEN/TR	When adopting:	Elaboration: free timeframe
Report	IEC/TR	CLC/TR	UNE-CEN/TR, NF-	<ul> <li>Internal approval in TC</li> </ul>
			CEN/TR, UNE-ISO/TR,	European: optional national adoption
			NF-ISO/TR, etc.	No revision required

Table 1 – Characteristics	of	different	standardization	documents
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Туре	International code	European code	National code	Main characteristics
Workshop	IWA	CWA	Variable	Elaboration: free timeframe (usually
Agreement				few months)
				<ul> <li>Internal approval in the Workshop</li> </ul>
				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
	ISO/TC 207/SC 1 - Environmental management systems
	ISO/TC 207/SC 5 - Life cycle assessment
Circular economy,	CEN/SS S26 - Environmental management
LCA, biobased	ISO/TC 323 - Circular economy
products	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	CEN/TC 275 Food analysis - Horizontal methods ISO/TC 34 - Food products ISO/TC 34/SC 3 - Fruits and vegetables and their derived products ISO/TC 217 – Cosmetics CEN/TC 392 - Cosmetics ISO/TC 54 - Essential oils
Plastics and environment	CEN/TC 249 - Plastics CEN/TC 249/WG 11 - Plastics/Plastics recycling CEN/TC 249/WG 24 - Plastics/Environmental aspects CEN/TC 249/WG 9 - Plastics/Bio-based and biodegradable plastics ISO/TC 61/SC 14 - Plastics/Environmental aspects
Plastic films and sheets	CEN/TC 249 - Plastics CEN/TC 249/WG 7 - Plastics/Thermoplastic films for use in agriculture ISO/TC 61/SC 11 Plastics/Products
Plastic characterization	CEN/TC 249 - Plastics ISO/TC 61/SC 2 - Mechanical behavior ISO/TC 61/SC 5 - Physical-chemical properties
Packaging	CEN/TC 261/SC 4 - Packaging and Environment ISO/TC 122/SC 4 - Packaging and the environment CEN/TC 194 - Utensils in contact with food CEN/TC 261 - Packaging
Biotechnology	CEN/TC 233 - Biotechnology
IT	ISO/IEC JTC 1/SC 31 - Automatic identification and data capture techniques ISO/TC 307 - Blockchain and distributed ledger technologies GS1 AISBL ETSI Industry Specification Group (ISG) Permissioned Distributed Ledger (PDL). ETSI Industry Specification Group (ISG) Experiential Networked Intelligence (ENI).



#### 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		
	Environmental management - Life cycle assessment - Critical review	
CEN ISO/TS 14071:2016	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)	
ENUSO 1/007/2020	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 14040-2006/41-2020	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		
<u>ISO/WD 59004</u>	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	
<u>ISO/AWI 59040</u>	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	
150 16620 2:2010	Plastics — Biobased content — Part 2: Determination of biobased carbon	
150 10020-2.2019	content	
ISO 16620-3·2015	Plastics — Biobased content — Part 3: Determination of biobased synthetic	
100 10020-3.2013	polymer content	
ISO 16620-4·2016	Plastics — Biobased content — Part 4: Determination of biobased mass	
100 10020 4.2010	content	
ISO 16620-5:2017	Plastics — Biobased content — Part 5: Declaration of biobased carbon	
100 10020 3.2017	content, biobased synthetic polymer content and biobased mass content	
ISO 22526-1:2020	Plastics — Carbon and environmental footprint of biobased plastics — Part	
100 22020 1.2020	1: General principles	
	Plastics — Carbon and environmental footprint of biobased plastics — Part	
ISO 22526-2:2020	2: Material carbon footprint, amount (mass) of CO2 removed from the air	
	and incorporated into polymer molecule	
ISO 22526-3:2020	Plastics — Carbon and environmental footprint of biobased plastics — Part	
100 22020 0.2020	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	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	
	Sludge, treated biowaste and soil - Detection and enumeration of Escherichia	
CEN/TR 16193:2013	coli	
CEN/TS 15937-2013	Sludge, treated biowaste and soil - Determination of specific electrical	
<u>OEN/10/10007.2010</u>	conductivity	
CEN/TS 16177-2012	Sludge, treated biowaste and soil - Extraction for the determination of extractable	
	ammonia, nitrate and nitrite	
	Sludge, treated biowaste and soil - Determination of linear alkylbenzene	
CEN/TS 16189:2012	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	
<u>EN 13002.2013</u>	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 15527-2009	Characterization of waste - Determination of polycyclic aromatic hydrocarbons
<u>LIN 13327.2000</u>	(PAH) in waste using gas chromatography mass spectrometry (GC/MS)
EN 15933:2012	Sludge, treated biowaste and soil - Determination of pH
EN 15024:2012	Sludge, treated biowaste, soil and waste - Calculation of dry matter fraction after
LIN 10004.2012	determination of dry residue or water content
EN 15935:2021	Soil, waste, treated biowaste and sludge - Determination of loss on ignition
EN 15036:2012	Sludge, treated biowaste, soil and waste - Determination of total organic carbon
<u>LIN 13930.2012</u>	(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
<u>EIN 10100.2012</u>	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)
	Soil, treated biowaste and sludge - Determination of polycyclic aromatic
EN 16181:2018	hydrocarbons (PAH) by gas chromatography (GC) and high performance liquid
	chromatography (HPLC)
	Environmental Solid Matrices - Determination of polychlorinated biphenyls (PCB)
EN 17322:2020	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	
	Characterization of waste - Determination of the content of elements and
(WI=00444044)	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 chemi	Elements and their chemical species	
EN 13804:2013	Foodstuffs - Determination of elements and their chemical species - General	
	considerations and specific requirements	
	Foodstuffs - Determination of trace elements - Determination of lead,	
EN 14083:2003	cadmium, chromium and molybdenum by graphite furnace atomic absorption	
	spectrometry (GFAAS) after pressure digestion	
	Foodstuffs - Determination of trace elements - Determination of lead,	
EN 14084:2003	cadmium, zinc, copper and iron by atomic absorption spectrometry (AAS)	
	after microwave digestion	
	Foodstuffs - Determination of trace elements - Determination of total arsenic	
EN 14627:2005	and selenium by hydride generation atomic absorption spectrometry	
	(HGAAS) after pressure digestion	
	Foodstuffs - Determination of trace elements - Determination of arsenic,	
EN 15763:2009	cadmium, mercury and lead in foodstuffs by inductively coupled plasma mass	
	spectrometry (ICP-MS) after pressure digestion	
EN 16042-2017	Foodstuffs - Determination of calcium, copper, iron, magnesium, manganese,	
<u>EN 10943.2017</u>	phosphorus, potassium, sodium, sulfur and zinc by ICP-OES	
Pesticides		
CEN/TR 156/11:2007	Food analysis - Determination of pesticide residues by LC-MS/MS - Tandem	
0210/11(10041.2007	mass spectrometric parameters	
CEN/TP 16/68-2013	Food analysis - Determination of pesticide residues by GC-MS - Retention	
	times, mass spectrometric parameters and detector response information	
CEN/TR 16600.2014	Foodstuffs - Determination of pesticide residues by GC-MS/MS - Tandem	
<u>OLIV/IN 10099.2014</u>	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 14177-2002	Foodstuffs - Determination of patulin in clear and cloudy apple juice and puree
<u>EIN 14177.2005</u>	- HPLC method with liquid/liquid partition clean-up
	Foodstuffs - Determination of patulin in fruit juice and fruit based purée for
EN 15890:2010	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
	Foodstuffs - Multimethod for the screening of aflatoxin B1, deoxynivalenol,
EN 17279:2019	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 1:1007	Foodstuffs - Determination of nitrate and/or nitrite content - Part 1: General
<u>EIN 12014-1.1997</u>	considerations
EN 12014 1:1007/01:1000	Foodstuffs - Determination of nitrate and/or nitrite content - Part 1: General
<u>EN 12014-1.1997/A1.1999</u>	considerations
	Foodstuffs - Determination of nitrate and/or nitrite content - Part 2: HPLC/IC
EN 12014-2:2017	method for the determination of nitrate content of vegetables and vegetable
	products
	Foodstuffs - Determination of nitrate and/or nitrite content - Part 7: Continuous
EN 12014-7:1998	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
<u>EN 12150.1997</u>	individual carotenoid fractions
FRUITS AND VEGETABLE	S, 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
100 1000.1002	(Reference method)
ISO 6635 <sup>.</sup> 1984	Fruits, vegetables and derived products — Determination of nitrite and nitrate
	content — Molecular absorption spectrometric method
	Apple juice, apple juice concentrates and drinks containing apple juice —
ISO 8128-1:1993	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
100 1002.1000	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
	Infant formula and adult nutritionals — Determination of $\beta$ -carotene, lycopene
ISO 23443:2020	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 20621-2017	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
UEN 100/1K 244/0.2013	(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:

- o terminology,
- o test methods,
- o specifications, classifications and designation systems,
- o environmental aspects,
- o 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 ENVIRON	MENTAL ISSUES	
Plastics recycling		
Existing standars		
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)	



	Plastics — Quality requirements for application of plastic recyclates in	
( <u>WI=00249A3E)</u>	products — Part 5 : Poly(ethylene terephtalate) (PET)	
	Plastics — Quality requirements for application of plastic recyclates in	
( <u>VVI=00249A3K)</u>	products — Part 1: General	
	Testing and characterization of mechanically recycled Polypropylene (PP) and	
<u>ISO/CD 5677</u>	Polyethylene (PE) for intended use in different plastics processing techniques	
Plastics, General enviro	onmental aspects	
Existing standars		
	Plastics - Environmental aspects - State of knowledge and methodologies	
CEN ISO/TR 21960:2020	) (ISO/TR 21960:2020)	
100 47400-0040	Plastics — Environmental aspects — General guidelines for their inclusion in	
<u>150 17422:2018</u>	standards	
Standards under revision	on or under development	
FprEN 17615	Plastics - Environmental Aspects - Vocabulary	
	Principles for the analysis of plastics and microplastics present in the	
<u>ISO/DIS 24187</u>	environment	
Biodegradable plastics		
Existing standards		
	Determination of the ultimate biodegradation of plastics materials in an aqueous	
EN 17417:2020	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	scheme for final acceptance and specifications	
EN 1/005-2006	Plastics - Evaluation of compostability - Test scheme and specifications	
LIN 14333.2000	Plastics – Mathada for the preparation of samples for biodegradation testing of	
EN ISO 10210:2017	plastic materials	
100 40075-0040	Plastics — Determination of the ultimate anaerobic biodegradation of plastic	
150 13975:2019	materials in controlled slurry digestion systems — Method by measurement of	
	Determination of the ultimate aerobic biodegradability of plastic materials in an	
EN ISO 14851:2019	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	
	Plastics — Determination of the ultimate anaerobic biodegradation of plastic	
EN ISO 14853:2017	materials in an aqueous system — Method by measurement of biogas production	
	Determination of the ultimate aerobic biodegradability of plastic materials under	
EN ISO 14855-1:2012	controlled composting conditions — Method by analysis of evolved carbon	
	dioxide — Part 1: General method	
	Determination of the ultimate aerobic biodegradability of plastic materials under	
EN ISO 14855-2:2018	controlled composting conditions — Method by analysis of evolved carbon	
	alonatory-scale test	
	Plastics — Determination of the ultimate anaerobic biodegradation under high-	
EN ISO 15985:2017	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
EN 160 10929.2021	defined composting conditions in a pilot-scale test
	Plastics — Determination of the ultimate aerobic biodegradability of plastic
EN ISO 17556:2019	materials in soil by measuring the oxygen demand in a respirometer or the
	amount of carbon dioxide evolved
	Plastics — Determination of aerobic biodegradation of non-floating plastic
EN ISO 18830:2017	materials in a seawater/sandy sediment interface — Method by measuring the
	oxygen demand in closed respirometer
	Plastics — Determination of aerobic biodegradation of non-floating plastic
EN ISO 19679:2020	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
20200.2010	simulated composting conditions in a laboratory-scale test
	Plastics — Assessment of the intrinsic biodegradability of materials exposed to
EN ISO 22403:2021	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
	Plastics — Test methods for determination of degradation rate and disintegration
<u>ISO 23832:2021</u>	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
	Plastics — Determination of the aerobic biodegradation of plastic materials
EN ISO 23977-2:2021	exposed to seawater — Part 2: Method by measuring the oxygen demand in
	closed respirometer
Standards under revision or under development	
	Plastics — Determination of specific aerobic biodegradation rate of solid plastic
ISO/DIS 5148	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		
	Plastics — Determination of tensile properties — Part 3: Test conditions for	
EN ISO 527-3:2018	films and sheets	
	Plastics — Film and sheeting — Determination of average thickness of a	
ISO 4591:1992	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	
150 4502:1002	Plastics — Film and sheeting — Determination of thickness by mechanical	
100 4393.1993	scanning	
	Plastics — Film and sheeting — Determination of tear resistance — Part 2:	
EN ISO 6383-2:2004	Elmendorf method	
	Plastics film and sheeting — Determination of impact resistance by the free-	
EN ISO 7765-1:2004	falling dart method — Part 1: Staircase methods	
190 7765-2:1004	Plastics film and sheeting — Determination of impact resistance by the free-	
100 1103-2.1334	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	
190 15105 1:2007	Plastics — Film and sheeting — Determination of gas-transmission rate —	
150 15105-1.2007	Part 1: Differential-pressure methods	
180 15105 2:2002	Plastics — Film and sheeting — Determination of gas-transmission rate —	
130 13103-2.2003	Part 2: Equal-pressure method	
190 23550.2011	Plastics — Film and sheeting — Guidance on the testing of thermoplastic	
100 2000 2011	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 -	
<u>LIN 17033.2010</u>	Requirements and test methods	
EN 17008-1-2018	Plastics - Barrier films for agricultural and horticultural soil disinfection by	
	fumigation - Part 1: Specifications for barrier films	
	Plastics - Barrier films for agricultural and horticultural soil disinfection by	
EN 17098-2:2018	fumigation - Part 2: Method for film permeability determination using a static	
	technique	
	Plastics — Soil biodegradable materials for mulch films for use in agriculture	
ISO 23517:2021	and horticulture — Requirements and test methods regarding	
	biodegradation, ecotoxicity and control of constituents	

#### FILMS FOR USE IN AGRICULTURE

#### 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	
	Plastics — Determination of the melt mass-flow rate (MFR) and melt	
EN ISO 1133-2:2011	volume-flow rate (MVR) of thermoplastics — Part 2: Method for materials	
	sensitive to time-temperature history and/or moisture	
	Plastics — Determination of melting behaviour (melting temperature or	
EN ISO 3146:2000	melting range) of semi-crystalline polymers by capillary tube and	
	polarizing-microscope methods	
	Plastics — Determination of melting behaviour (melting temperature or	
EN ISO 3146:2000/AC:2003	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 6721-1-2010	Plastics — Determination of dynamic mechanical properties — Part 1:	
	General principles	
ENUSO 6721-2:2010	Plastics — Determination of dynamic mechanical properties — Part 2:	
<u>LINISO 0721-2.2019</u>	Torsion-pendulum method	
ENUSO 6721-3:2021	Plastics — Determination of dynamic mechanical properties — Part 3:	
	Flexural vibration — Resonance-curve method	
ISO 6721-4:2010	Plastics — Determination of dynamic mechanical properties — Part 4:	
150 0721-4.2019	Tensile vibration — Non-resonance method	
ISO 6721-5:2010	Plastics — Determination of dynamic mechanical properties — Part 5:	
100 0721-3.2013	Flexural vibration — Non-resonance method	
150 6721 6:2010	Plastics — Determination of dynamic mechanical properties — Part 6:	
130 0721-0.2019	Shear vibration — Non-resonance method	
190 6721-7:2010	Plastics — Determination of dynamic mechanical properties — Part 7:	
150 0121-1.2019	Torsional vibration — Non-resonance method	
190 6721-8:2010	Plastics — Determination of dynamic mechanical properties — Part 8:	
150 0721-0.2018	Longitudinal and shear vibration — Wave-propagation method	





ISO 6721-9:2019	Plastics — Determination of dynamic mechanical properties — Part 9:
100 0721 0.2010	Tensile vibration — Sonic-pulse propagation method
ISO 6721-10:2015	Plastics — Determination of dynamic mechanical properties — Part 10:
130 0721-10.2013	Complex shear viscosity using a parallel-plate oscillatory rheometer
150 6721 11:2010	Plastics — Determination of dynamic mechanical properties — Part 11:
130 0721-11.2019	Glass transition temperature
ISO 6721-12·2009	Plastics — Determination of dynamic mechanical properties — Part 12:
100 0121 12.2000	Compressive vibration — Non-resonance method
ENUSO 13468-1:2010	Plastics — Determination of the total luminous transmittance of transparent
<u>EN 130 13400-1.2019</u>	materials — Part 1: Single-beam instrument
EN ISO 12469 2:2021	Plastics — Determination of the total luminous transmittance of transparent
<u>EIN ISO 13400-2.2021</u>	materials — Part 2: Double-beam instrument
ISO 14792:1000/COP 1:2005	Plastics — Determination of haze for transparent materials — Technical
150 14762.1999/COR 1.2005	Corrigendum 1
ISO 14782:2021	Plastics — Determination of haze for transparent materials
<u>ISO 26723:2020</u>	Plastics — Determination of total luminous transmittance and reflectance
	Plastics - Differential scanning calorimetry (DSC) - Part 1: General
<u>EIN ISO 11357-1:2016</u>	principles (ISO 11357-1:2016)
	Plastics - Differential scanning calorimetry (DSC) - Part 2: Determination of
<u>EN 150 1 1557-2.2020</u>	glass transition temperature and step height (ISO 11357-2:2020)
	Plastics - Differential scanning calorimetry (DSC) - Part 3: Determination of
EN ISO 11357-3:2018	temperature and enthalpy of melting and crystallization (ISO 11357-
	3:2018)
	Plastics - Differential scanning calorimetry (DSC) - Part 4: Determination of
<u>EN 150 1 1357-4:2021</u>	specific heat capacity (ISO 11357-4:2021)
	Plastics - Differential scanning calorimetry (DSC) - Part 5: Determination of
EN ISO 11357-5:2014	characteristic reaction-curve temperatures and times, enthalpy of reaction
	and degree of conversion (ISO 11357-5:2013)
	Plastics - Differential scanning calorimetry (DSC) - Part 6: Determination of
EN ISO 11357-6:2018	oxidation induction time (isothermal OIT) and oxidation induction
	temperature (dynamic OIT) (ISO 11357-6:2018)
	Plastics - Differential scanning calorimetry (DSC) - Part 7: Determination of
EN ISO 11357-7:2015	crystallization kinetics (ISO 11357-7:2015)
	Plastics - Differential scanning calorimetry (DSC) - Part 8: Determination of
EN ISU 11357-8:2021	thermal conductivity (ISO 11357-8:2021)
	Plastics - Thermogravimetry (TG) of polymers - Part 1: General principles
ENUSD11268-19014	



A STM D2095 17	Standard Test Method for Oxygen Gas Transmission Rate Through Plastic
ASTM D3965-17	Film and Sheeting Using a Coulometric Sensor
ASTM E1240-13	Standard Test Method for Water Vapor Transmission Rate Through Plastic
ASTMIT 1249-13	Film and Sheeting Using a Modulated Infrared Sensor
PLASTIC Mechanical behavi	or
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 170-1:2010	Plastics — Determination of Charpy impact properties — Part 1: Non-
LN 150 173-1.2010	instrumented impact test
EN ISO 170-2:2020	Plastics — Determination of Charpy impact properties — Part 2:
LIN 130 179-2.2020	Instrumented impact test
EN ISO 180:2019	Plastics — Determination of Izod impact strength
EN ISO 306-2013	Plastics — Thermoplastic materials — Determination of Vicat softening
2013	temperature (VST)
190 /58-1:1085	Plastics — Determination of stiffness in torsion of flexible materials — Part
100 400-1.1000	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
211100 000 2.2000	three-point loading
<u>ISO 974:2000</u>	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



	Packaging — Sacks — Vocabulary and types — Part 2: Sacks made from
EN 26590-2:1992	thermoplastic flexible film
Packaging and environ	iment
CEN/TR 13910-2010	Packaging - Report on criteria and methodologies for life cycle analysis of
<u>CEN/TR 13910.2010</u>	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 FOOD	STUFF
Existing standards	
	Validation and interpretation of analytical methods, migration testing and
CEN/TR 15356-1:2006	analytical data for materials and articles in contact with food - Part 1: General
	considerations
	Materials and articles in contact with foodstuffs - Plastics substances subject to
	limitation - Part 1: Guide to test methods for the specific migration of
EN 13130-1:2004	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
LN 13130-2.2004	limitation - Part 2: Determination of terephthalic acid in food simulants
	Materials and articles in contact with foodstuffs - Plastics substances subject to
EN 13130-7:2004	limitation - Part 7: Determination of monoethylene glycol and diethylene glycol
	in food simulants
CEN/TS 13130-	Materials and articles in contact with foodstuffs - Plastics substances subject to
<u>15:2005</u>	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	
<u>LIN 1100-7.2002</u>	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 1186-0.2002	Materials and articles in contact with foodstuffs - Plastics - Part 9: Test methods	
<u>LIN 1100-9.2002</u>	for overall migration into aqueous food simulants by article filling	
	Materials and articles in contact with foodstuffs - Plastics - Part 10: Test	
EN 1184:1997	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	
<u>LIN 1100-11.2002</u>	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	
<u>LIN 1100-12.2002</u>	methods for overall migration at low temperatures	
EN 1186-13-2002	Materials and articles in contact with foodstuffs - Plastics - Part 13: Test	
<u>LIN 1100-13.2002</u>	methods for overall migration at high temperatures	
	Materials and articles in contact with foodstuffs - Plastics - Part 14: Test	
EN 1186-14-2002	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	
	Materials and articles in contact with foodstuffs - Plastics - Part 15: Alternative	
EN 1186-15:2002	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 12075-1007	Biotechnology - Large-scale process and production - Procedures for fermentation	
<u>LIN 12075.1997</u>	and downstream processes	
	Biotechnology - Laboratories for research, development and analysis - Containment	
EN 12128:1998	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 12207-1007	Biotechnology - Large-scale process and production - Guidance for good practice,	
<u>EIN 12307.1997</u>	procedures, training and control for personnel	
EN 12460-1008	Biotechnology - Large-scale process and production - Guidance on equipment	
<u>LIN 12400.1990</u>	selection and installation in accordance with the biological risk	
EN 12461-1008	Biotechnology - Large scale process and production - Guidance for the handling,	
<u>LIN 12401.1990</u>	inactivating and testing of waste	
EN 12462:1998	Biotechnology - Performance criteria for pumps	
EN 12680-1008	Biotechnology - Guidance on assessment of the purity, biological activity and	
<u>LIN 12009.1990</u>	stability of microorganism based products	
EN 12690:1999	Biotechnology - Performance criteria for shaft seals	
EN 12740-1000	Biotechnology - Laboratories for research, development and analysis - Guidance for	
<u>LIN 12740.1999</u>	handling, inactivating and testing of waste	
EN 127/1-1000	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 1800//·2015	Information technology — Automatic identification and data capture	
100/12010	techniques — QR Code bar code symbology specification	
	Information technology — Automatic identification and data capture	
ISO/IEC 15459-4:2014	techniques — Unique identification — Part 4: Individual products and product	
	packages	
	Information technology — Radio frequency identification for item management	
ISO/IEC TR 24729-1:2008	<ul> <li>Implementation guidelines — Part 1: RFID-enabled labels and packaging</li> </ul>	
	supporting ISO/IEC 18000-6C	
ISO 17364-2013	Supply chain applications of RFID — Returnable transport items (RTIs) and	
150 17 504.2013	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	
001/11 010 2.0	event data, both within and across enterprises	
	Comprehensive Business Vocabulary (CBV) Standard specifies the structure	
<u>GS1/CVB 2.0</u>	of vocabularies and specific values for the vocabulary elements to be utilised	
	in conjunction with the GS1 EPCIS standard	
	GS1 Digital Link Standard: enabling consistent representation of GS1	
GS1/Digital Link	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	
100/11(20244.2020	identifiable information protection considerations	
ISO/TS 23258:2021	Blockchain and distributed ledger technologies — Taxonomy and Ontology	
	Blockchain and distributed ledger technologies - Overview of and	
ISO/TR 23455:2019	interactions between smart contracts in blockchain and distributed ledger	
	technology systems	
ISO/TP 23576-2020	Blockchain and distributed ledger technologies — Security management of	
100/11/20070.2020	digital asset custodians	
ETSI GR PDL 001 V1.1.1	Permissioned Distributed Ledger (PDL); Landscape of Standards and	
(2020-03)Published	Technologies	



ETSI GR PDL 004 V1.1.1	Permissioned Distributed Ledgers (PDL); Smart Contracts; System	
(2021-02)Published	Architecture and Functional Specification	
ETSI GR ENI 016 V2.1.1	Experiential Networked Intelligence (ENI); Functional Concepts for Modular	
(2021-07)Published	System Operation	
ETSI GS CIM 004 V1.1.2	Context Information Management (CIM); Application Programming Interface	
(2020-06)Published	(API)	
Standards under revision or under development		
ISO/DTR 3242	Blockchain and distributed ledger technologies – Use cases	
	Blockchain and distributed ledger technologies - Identifiers of subjects and	
<u>130/WD 11( 0039</u>	objects for the design of blockchain systems	
ISO/AWI 7603	Decentralized Identity standard for the identification of subjects and objects	
<u>ISO 23257</u>	Blockchain and distributed ledger technologies — Reference architecture	
ISO/AW/I TS 23516	Blockchain and Distributed Ledger Technology — Interoperability	
150/AWI 13 23310	Framework	
	Blockchain and distributed ledger technologies - Overview of trust anchors	
130/DTK 23044	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.



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# **7 ANNEXES**

# 7.1 Annex 1

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



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#### A2C – Deliverable D8.8V1.0

CHECK	ISD reference	CEN reference	Tittle
CIRCLE	AR ECONDMY, UFE	CYCLE ASSESSMENT	
Existing	g Standards		
14		CEN ISO/TS 14071	Environmental management - Life cycle accessment - Orbical review processes and reviewer competencies: Additional requirements and guidelines to ISO 14044:3006 (ISO/TS 14071.2014)
10		EN ISO 14006 2020	Environmental management systems - Guidelines for incorporating ecodesign (SO 14005-2020)
. ED .		EN ISO 14007 202	Environmental management - Guidelines for determining environmental costs and benefits (ISO 14007 2019)
13		EN ISO 14008 202	Monetary valuation of environmental impacts and related environmental aspects (ISO 14008:2019)
(E)		EN ISO 14040 200	Environmental management - Life cycle assessment - Principles and framework (ISO 14040 2006)
01		EN ISO 14040 200	Environmental management - Life cycle assessment - Principles and framework - Amendment 1 (ISO 14040:2006/Amd 1:2020)
121		EN ISO 14044 2000	Environmental management - Life cycle assessment - Regularments and guidelines (ISO 14044-2006)
- 23		EN ISO 14044 200	trivironmental management - Life cycle assessment - Requirements and guidelines - Amendment 1 (ISO 14044 2005/Amd 1:2017)
- 14		1N ISO 14044-2008	Environmental management - Life cycle assessment - Requirements and guidelines - Amendment 2 (ISD 14044 2005/Amd 2:2020)
(iii)		EN ISO 14045 2013	Environmential menagement - Eco-efficiency assessment of product systems - Principles, requirements and guidelines (ISO 14045 2012)
12		EN ISO 14046-2019	Environmental management - Water footprint - Principles, requirements and guidelines (ISD 14046 2014)
(iii	190 14167 2018		Greenhouse gases - Carbon footprint of products - Requirements and guidelines for quantification

#### Standards under revision or under development

13	EC/WD 59004	Orcular economy - Framework and principles for implementation
100	ISO/WD 59010.2	Circular economy - Guidelines on business models and value chains
13	GO/WD 59020.2	Grouler economy - Measuring circularity framework
13	ISC/CD TR 50031	Circular economy - Performance-based approach - Analysis of cases studies
10	SO/DTR 59032.2	Circular economy - Review of business model implementation
G	ISO/AWI 59040	Circular Economy - Product Circularity Data Sheet
	Security and second second	prEN 50729 (WI-/T Method to achieve circular designs of products

#### BIO-BASED PRODUCTS

Existin	g standards	
64		CEN/TR 16731:301-Bio-based products - Overview of methods to determine the bio-based content
13		CEN/TR 16957:301/Bio-based products - Guidelines for Life Cycle Invencery (LCI) for the End-of-life phase
1		CEN/TR 17341:201 Bio-based products - Examples of reporting on sustainability oriteria
回		EN 18575-2014 (W) Bio-based products - Vocabulary
13		EN 167512016 (W) Bio-based products - Sustainability otheria
14		tN 16750 2015 (W) Bio-based products - Life Cycle Assessment
12		tN 17228 2019 /W/ Plastics - Bio-based polymers, plastics and plastics products - Terminology, characteristics and communication
	750 16520-1 2025	Flastics Biobased content Part 1: General principles
-	190 16620-2 2019	Plastics — Biobased content — Part 2. Determination of biobased carbon content
0	80 16520-3-2015	Plastics — Biobased content — Part B: Determination of biobased swithetic polymer content
а.	190 16600-4 2015	Flastics — Biobased content — Part 9. Determination of biobased mass content
0	190 16620-5 2017	Plastics — Biobased contern — Part 5: Declaration of biobased carbon content, biobased swithetic polymer content and biobased mass content
17	850 7 2576-1-2020	Plastics — Carbon and environmental footbulint of biobased plastics — Part 1: General principles
÷.	60 22536-2 2020	Plastics — Cathon and environmental footbast of biobaved plastics — Part 7. Material cathon Sociarist, encurst (mass) of CD2 removed from the air and incorporated into polymer molecule
11	ISO 22516-3-2025	Plactics — Cathon and emissionmental formate of historical plactics — Part 3: Process cathon formation requirements and additions for quantification
Standa	ints under revision or	ander develationent
17	SOUTH IN THE PARTY OF	Bastin - Richard contant - Bart & Determination of Nohand man contant
10	KONTER DESIGN	Party - Check on a characterial formation of biological destrict - Section states (constraint) (constraint) (constraint)
- CE	5K2/013 22526-4	Plastics — Carbon and environmental footprint of biobased plastics — Part 4: Environmental (total) footprint (Life Cycle Assessment)



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Contraction of the	na per ani
intaking Stand	eds
H	COVIT 14525 2001 Characteritation of wests - State of the art document - Chromosom VI specification in solid methods
a:	COV/TRI 15018-2005 IP Granecteritation of wester-Digeotion of eache semples voing effeti-fesion techniques
-	CONTR. 15310-1-2000 Onerectentration of wester-Temping of wester materials - Part 1: Outdance on selection and application of criteria for sampling under various conditions -
-	CDV/TR 152(D-2:000) Characterization of waste - Sampling of waste materials - Part 2: Guidance on sampling techniques
<b>H</b>	CDV/TR 152(0-3:200) Characterization of waste - Sampling of waste materials - Part 2: Guidance on procedures for sub-campling in the field
÷.	CDV/TR 152(0-4:20)0 Characterization of waste - Sampling of waste materials - Part 4: Guidance on procedures for sample packaging, storage, preservation, transport and delivery
<u> </u>	CDV/TR 152(0-5:00)6 Characterization of wante - Sampling of wante materials - Part S: Guidance on the process of defining the sampling plan
122	CDV/TR 16110.3010 () Characterization of wants - Guidance on the use of ecotoxicity term applied to wants
±	CDV/TR_16120.2011 # Characterization of wants - On-site verification
11	CONVIN 18379-2011 (Characterisation of vacuum - Scheming methods for elemental composition by K-ray fluorescence spectrumetry for on-site verification
E11	CON/TR 16155:3711 () Dodge, treated bloweste and coll - Detection and examination of Excherichia coll
(正	CONVEX 19997-2013 () Studge, treated bioweste and soil - Deterministien of specific electrical condectivity
(2)	CRN/TS 351/7:2012 /A Skidge, treated bioweste and soil - Extraction for the determination of extractable ammonia, nitrate and nitrits
	CTN/TS 301 82-2012 (), Skidge treated biowayte and solf - Determination of rom/phenois (VP) and non-phyterol-mone- and distinguishes using gas chromatography with mess selective detection (0C-MI)
□	CTM/TE 2012-2012 // Skidge, treated biowests and coll - Deterministics of selected of theistes using capillary gas chrometegraphy with mess spectrometric detection (0C-MI)
11	CITY/TS SELEX.(012.); Skudge, treated biowatte and ani - Determination of linear ally/benzere sufformers (LAS) by high-performance liquid chromotography (HPLC) with fluorescence detection (RLD) or mass selection
CL .	City/T5 settor.colo //, Guideline for the validation of physica-chemical analytical methods
	in 1.3656 2000 (Wind Soil, treated biowarte, cludge and watte - Digestion with a hydrochionic (HCO, nitric (HCO) and tetrafluorobanic (HEP4) or hydrofluoric (HEP4) are hydrof
EU .	in 13657 2002 (Wing Characterization of vactor - Digestion for subsequent determination of aqua regia coulde particle of elements.
C	In 12065 2 2010 [With Characterization of vesite - Terminology - Part 2: Management related terms and definitions
	Civ 14029 3004 WHILE Characterization of vasite - Getermination of hydrocarbon context in the range of CL6 to C40 by gas chromotography
	2/9 14945 2004 (White Quaracterization of waste - Determination of hydrocarbon content by greekestry
G	EN 14532 3006 (White Quaracterization of waste - Halogen and selfue content - Oragen combustion in closed systems and determination methods
CT:	ER 14735 2021 (White Quaracterization of waste - Preservation of waste semalas for ecoloxicity tests
<b>=</b>	EX 14993 3055 (Whith Quaracterization of waste - Sampling of waste materials - Pranawork for the preparation and application of a Sampling Plan
∞	EN 150023015/WHID Overacterization of works - Presentation of text portions from the laboratory same la
12	220 1 5214 2023 (Web Protocemental solid matrices - Determination of total closeland solids (TDS) in order and plantary
-	EX 1502 2007 Wind Overacterization of varies and coll-Determination of elemental correction by X-ray fluorecomes
13	DV 15527-3000 (Wind Cheracterization of easter - Determination of polycyclic argentric hydrocarbons (2441) in warrs using the directory polycyclic argentric hydrocarbons (2441) in warrs using the directory of the directory (32441)
6	EN 15975 2011 (WLD Characterization of wate - Static teer for determination of acid notaevolation extensioning and resultation patential of tailfdic water
-	EX 1572-1011 AC 10 Operativity for of states - Static terr for determination of acid networks and neutralization contential of tables some
19	EX (1923-1912) Aludas magrad binantes and sell - Determination of all
10	EX 1923 FOR AULA Studies manual binances call and users. Calculation of the interact fraction after determination of the random or under more et
10	Fig. 1988 2001 (Min5 Sei) worker treated bioactic and sizes. Determination of two or instance
(T-	Fig. 1984, 2012 Web Studies Tradied Instantia, will and write. Determination of total arguing rankers (IDC) having resolutions
12	EN 16165 2019 (MI-5 Sci ) tracted by some and whether. Determination of advantation provide the same is a feature of a feature of the same is a fe
-	EN 10123 1013 Out of the history to end of Determining of held of the optical state and the section
6	Children and the product structure and set of a construction of Statistic structure structure structure
12	Set 1992 and the product of the set of the s
12	In the control of the product of the set of
22	An ANALYMETER OF DESIGN AND AND AND AND AND AND AND AND AND AN
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1	An Abstract Area (Th) average, there are average line and - unitarity manual or an area (The Area) and the average of the aver
1	An abstraction into an end of which are set as - unterminated or mercury - ver a Los-upper static fubrication performance (LO-AVS)
1	Arr Las results wing swage, traced converte and the - Guidante for throps pretrainment
	LN 1518 2018 (Weg Set, Tretre Dewarts and Budge - Determination of polycyclic anamatic hydrocarbone (PAH) by gat chromatography (SC) and high performance liquid chromatography (HPUC)
-	En Lister russ when set, treater bewaste and sodge - betarmination of dooln's and targes are dooln's like polychorwated bijlineries by gas chrowategraphy with high resolution mass taked we detaction (HS 6C-
-	EN 16577 2025 Web Characteritation of waster - Deterministion of browersted frame ratactants (BFR) in sole waste
har -	EV 14424 2014 (Web Characterization of warte - Screening instructed for the element composition by portable 3-ray fluorescence instruments



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- 11
- In 19557.2014/Wind Characterization of weste Framework for the preparation and application of a testing programme Objectives, planning and report IN 19577-2020 //Wind Environmental Solid Matrices Deterministion of polychlorinated biphenyls (PCB) by get chromosographic mass selective detection (IC-MS) or electron-capitare detection (IC-ECD) 12
- 0 50 15182:00 IV 60 1(182 2011 (Field and yearse - Determination of Chromism(V)) in solid material by abaline digettion and ion divorustigraphy with spectrophotometric detection [50 15191:001]
- B 50 54331.20 (n to 54321.2021 (r lot), trated biowate, cludge and wate Digettion of squa regis colubie fractions of elements (80 54321.2020)

Standards under revision or under development

13 (W1-00803044) Characterization of wests - Determination of the content of elements and substances in wester



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check mito reference	unt orderenze shifts
FRUITS AND VEGETABLE	S, AND FOOD PRODUCTS (FURDIFIER) STANDARDS
Elements and their cher	skal speed as
G	(N-12012-2012 / Foodshift - Determination of elements and their chemical species - General considerations and specific requirements
	19 13235 2014 A ModShifts - Determination of trace elements - Present Reportion
F	Th 11004 2000 [] Product/h - Determinetion of trace elements - Determinetion
0	19 14011 2001 (v Poodstuffs - Determination of trace elements - Determinat
0	In 14014-3000 Is foodstaffs - Determination of trace elements - Determination of lead, cachniers, dive, capper and iron by aloritic absorption spectrometry (AAG) after intercovery diportion
E -	In tanks 2000 (s roodpaffs - presentiation of tance elevents - petermination of tanks attents by hydrift generation atomic absorption spectrometry (estata) after day adving
	2N 14527 2007 Is Foodstuffs - Determination of trace elements - Determination of total assence and selencer by hydride generation atomic absorption spectrometry (HGAAS) after pressure digestion
0	29, 15111 2007 () Foodballs - Determination of bace elements - Determination of indire by ICP-MS (indictive): coupled planma many spectrometry
G	IN 15731-2008 IN Foodstuffs - Determination of trace elements - Determination of traces, cadmium, mercury and lead in foodstuffs by inductively coupled places mass spectrometry (ICP-MS) after pressure dipetion
E	en (5744.3000 in Product/5 - Determination of trace elements - Determination of the to flame and graphite fumace atomic absorption spectrometry (PAAS and GPAAS) after pressure dipaction
C	In 15753 2009 I) Foodstuffs - Determination of trace elements - Determination of the by inductively coupled plasma mass spectrametry (CP-VE) after pressure direction
E	IN 1980/2 300 Is toodsafts - Determination of elements and their dvenical species - Determination of inarcanic antenic in Fundatufts of marine and plant origin by anion-exchange HPLC-CP-MS
	In 10943-2027 is foodshifts - Determination of calcium, copper, iron, magnesise, photohoriza, potazolari, potazolari, patier and pinc by KS-025
Pertides	
G	cm/m towit on read analysis - petermination of perticide redduer by to wrythm - random must spectrometric parameters
<b>E</b>	CDV/78_10406.20 Food analysis - Determination of peritoide residues by GC-MS - Patention times, must spectrometry and datactor response information
C	CDV/78 10689-20 Foodbafts - Determination of periods residues by GC-MS/NG - Tandem man spectrometric parameters
C	proving provide plant argin - waitmethod for the determination of percipie residues using 00-or to-based analysis following acetautilitie estraction/partitioning and cleanue by dispersive pre- variations data of the madular carefuleto-method
0	DV/15 17/05/20 Foodstuffs - Guidelines for the tailoration and quantitative determination of pesticide residues and organic contaminants using chromotographic methods
9	In LING-LINE, woods of plant origin - multi-wides methods for the determination of particule resides: by DE or 10 MW/ME - Part 1 Determinantion
E	TN 12593-2 2015 Foods of plant argin - Multiresides methods for the determination of purchase by GC or ICARS/MS - Part 2. Methods for extraction and clean-up
C	29, 12233, 3 2823, Foods of plant origin - Multimatelian entropy in the determination of particide registrate by GC or UCARS/MS - Net 3, Determination and confirmatory texts
E	IN 1286-11998 Non-Fatty foods - Determination of diffuoraritaments and thiuram disalide resoluto - Part 1: Spectrometric method
0	#W 12504-2 1998 Mon-Fath Foods - topsamination of differentiamente and trainent diselfalle residues - part 1, cas chromotographic method
0	(N (2391-5200) Acm-fatty foots - Determination of difficult branch and that an disalifier residues - Part 3: UV spectrometric surfacements method
E	19 13391-1 2000 transform food - Determination of bronide residues - Part 1: Determination of total bronide as mortanic bronide
C	In 1335-2200 Non-facty feed - Determination of bromde realises - Fert 2: Determination of inorganic bromide
E	10 1010-7 2000 too fatty facts - terrentington of te-methylastamate veldes Part 2: HPUC method with denn-up on a disconservate with column
0	IN 1979 (1979) In the factor - between instance of chicomeasure and mercianers - up with working
E .	PK (2003-2004) New Setty Sock - Determination of chickmeaned and mappenet - (CMS)AS method
G	10 15612-3000 () Foods of plant prein - Determination of pecticide residues using LC-VX. Ad5 following methanol extraction and dean-up using distomaceous earth
	19 1982 2011 Noods of plan arises - Automation of pasticity residues using GC and UC based assists tolowing accontributing and dearway by Repersive SPE - Modular superiors restled
Topina	
C	CPU/IN 19298 20 Poodsaffs - sample convination for microtoxics analysis - comparison between dry milling and starry mixing
0	50/78,10039.20 food analysis - Performance offente for single laboratory neil dated methods of analysis for the data minution of myostocins
G	20. 14127, 2001 () Foodbaffy - Determination of patulin in clear and cloudy apple sizes and parce - MPLC method with legisly/load partition clear-up
G	In 1524-2019 is Foodstuffs - Entermination of patula in that justs and fruit based purie for infants and young children - HPLC method with liquid, liquid particles descup and calid phase sotraction and UV detection
0	EN 17285-2021 IN Prodebulls - Detarmination of othink in Foodby HRLCARE/MS
E	IN 17279-3016 is Foodwards - Multimethod for the screening of affectors B1, decrystivelend, function B1 and B2, ochwards A7-3 toxin, hT-2 toxin, and sessioners in foodstaffs, exclusing foods for infants and young children, by LC-MS/MG
Nicrote, aitrite	
E	19 12014-1 (1927 Foodshifts - Determination of retrate and/or nicros contant - Pert 1. General considerations
C	10 1201-1 1997 Foodputs - personilization of nitrate and/or nitrite context - Part 1: neweral considerations
<b>—</b>	IN 12004 - 2027 Roadcuffs - entermination of nitrate and/or nitrite content - Part 2: HPU2/IC method for the determination of nitrate content of vegetables and vegetables and vegetables and vegetables
	25, 12014-7-1828, Possballing and regatable products after Cadmins reduction
Vitamiss and Carotenoi	
CE SALAR	tw 12521 2008 (a Noodstuffs - betarmination of vitamin b by high parformance liquid chromatography - Measurament of cholectic/fierol (DS) or argocalc/fierol (DS)
C	19-12802-2014 (s Foodstuffs - Determination of vitamin E by high performance liquid chromatography - New anement of or, (-, -, -, - and 8-tocopherol
C	19/12/02/12/054 Foodstuffs - Determination of Vitanin A by high performance liquid chromotography - Part 1. Measurement of all-trictinol and 19/2 retirol
(C)	IN 12023-2 2000 Foodshifts - Determination of vitamin. A by high performance liquid chromatography - Peit 2: Measurements of Beta-carotene
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E	EN 346	81 (1985 % Foodshuffs - Determination of vitamin 86 (including its glycosylated forms) by HPLZ
10	EN 150	27 Jacks & Roodshuffs - Determination of d-bootin by HPLC
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61	EH 421	26 2897 % Profit and vegetable jaloes - Determination of votal canotienoid context and individual carotienoid fractions
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D	190 9517:1878	fruits, vegetables and derived products — Determination of iron content — 1,10- Reerainfactine photometric method
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10	100 0030 1880	fruits, vegetables, and derived products Determination of nitrite and nitrate content Molecular absorption spectrometric method
÷.	112.0418-1 3818	mults, sugetables and derived products tretormisation of sinc contrast wirt 1: Polarographic method
10	100 BHHR-C 1981	main, segetables and derived products tetermination of tirs context Part 2: stornis absorption spectrometric method
Ε.	100 6636-2 5983	Fruit and vegetable products — Determination of sinc content — Part 2: Diffusions operatorsetric method
0	102 0487 1884	truits, vegetables and derived products - cretermination of mercury content - vlameless atomic absorption method
±.	DO 7486 1988	multiand vegetable products — betermination of 5-hydranimethy/furthiral (5+HMP) cantesit
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5	190 20990 2820	Artichokes – specification and test methods
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F.	100/TS 1007-1017	Definitions and technical criterie for fixed ingradients to be considered as natural
100	DO/TR 25004 2013	Food produkta — Geldenia on New to exprete internets and their vitamets concent
1.0		indicate from the surface which is an experiment. The surface we want to be an experiment which is a surface

E	EN DO 11/18 20 Connectes - Good Manufacturing Practices (GMP) - Guidelines on Good Manufacturing Practices (SD 22138 2007, Composed Version 2008-05-15)	
(D)	<u>EM (20, 175)6 29)</u> Cosmitte: - Microbiological Timits (50, 17538, 2014)	
E .	224/20/18 1323 Microbiology - Cosmerics - Guidelines for the application of 3D standards on Cosmeric Microbiology (35/18 19838 2018)	
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<b>_</b>	50 592-1990	Essential olia - Detarmination of optical rotation
	50 700 1001	Essential oib - Determination of ester value
-	50 855 2005	Oil of lencer (Chrus Imon (L.) Burn. (L.) obtained by expression
-	100 STR 1800	expected all - evaluation of misciplity in ethanol
0	50 1041-1971	Essential oils - Determination of freezong point
12	50,1381:1998	Exerctal oft - Determination of externatives, before and efter acet/lation, and evaluation of the contents of free and total alcoholi
C	100 12127 1999	material alls Determination of acid value
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- E	30 1272 2000	essential ais - betermination of content of phenols
0	30 1275-1006	Essential 6% - Determination of carbonyl value - Potentiometric methods using hydronylammonium chloride
	50.3653:3604	Of at grapetrait (Citrux x pandat Macha), obtained by repression
C	30 3084 2013	Essential oli of petitgrain, Paraguayan type (Citrus aurantium L. var. Paraguay (sun. Citrus aurantium var. bigaradia Hook f.)
5	50 3148 2033	Economical oil of several concepts apprecised (Critrue simencies (L.))
10	90 5717-1971	Of offerrorgian (Cyrthopogon ditratus)
6	10 1211 2111	Excertial oil: — Misciples of non-exclusion
E	30 13 28 1992	oli sf carlander fruitic (carlandhum carlanas L)
1	50 3533 2005	cili affirme distilied, Mexican type (Clinis aurantibilia (Christon ) swinged
	50,3528;1998	Of of bergeinot (Citrus exercitiem L. subup, bergemie (Wight et Arrott) Engler), itelien type
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C	50.3528.2002	essential oil of monitarin, maian type (otrus retioulato stanco)
-	50 3764-1678	Essential oils (containing tertiary elothols) — Estimation of free alcohols content by determination of ester value after acetyletion
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-	50 MIII 2016	Exercise of of otherwells, level type
- E -	102 1010 3100	od af czronella, tri Lankan type (cyndepagon nardus (L.) w. Watsze var. lenatatu ttapf.)
	2010/10/10/10/10	Essential ois - Quantizative evaluation of residue on evaluation
-	50,4728,2011	Elsental dia fermenciatare
1.0	100 1111 3000	DBL of Circle — Determination of CI value by allowed specifications in a state of a second state of the se
1	50 1558 2021	Essential de lo dergardo, sente, onder valge alle relación y partier relación en tergarden o tergardo, center de legis de la deración de la deración de tergardo de tergar
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-	100 1000 1000	Concrete visit - Analysis of the second structure and second se
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=	52 2644 2006	Of a faither private (Otrop assertant L)
6	50 9912-1993	Dil of tweet artigg - Deterministion of the lotal caroline dift content
5	30/TE 13018 1977	tistential oils - steneral guidance on the determination of flashpoint
Ē.	(50 1100 1 1999	Essential oils - Datamination of water contant - Kat Pischer method
1	50 1100 4-1: 1998	Eccentral oils - General guidance on chromotographic profiles - Part 1: Preparation of chromotographic profiles for presentation in standards
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10	200 17084 2003	drawards estracts, favouring and perfuming compounds - metermination of estrand coverest - star chromatographic method on packed and capillary columns.
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t	30/0/0 1 242	essential oils - beterminiation of acid value by two Istration methods, manual and automatic
-	modeline analysis	Executive of of bergement (Ofrus bergemen Rises & Port), Calabrien 1994
	30/2015 5085	essential oil of lemon myrtia (Baddhoesia citriofiera P. Mauli ), ditrai tapa
Ξ.	130/AWI 34734	Essential oils and assentiate extracts — betermination of residual bencere content
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14		IN 1942 (2021) Red (1) - Revoluti Particis - Classification of Parlamenters (Privace)
10		Phylipson 2014 (Review, Revolution Advantage) on the physical district (Revolution
1.64		(N 1537 200) Retto: - Revoled Platto - Cheverentation of platto water
a .		7N (3384-30)4) Restrict - Recycled electrics - Characterization of policiet/views temph/fueletel (2027) recycletes
131	0025220200	Flatics - Guidelines for the recovery and societying of plantics waite
11	150 57069 2021	Plantici - myganic recycling - mpecifications for componential plantici
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13		pt101 153(d) rev. Rectice - Recycled plastics - Characterization of poly(viny) chloride) (PVC) recyclates
17		antic state two what is a second plattice - characterization of corted plattice waster
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11		(01/00240632) Reptice—Quality requirements for application of plants: recyclates in products — Part 3 : Polypropylane (PP)
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-12		Wei-002554.3rd, Redrics — Gaelity requirements for application of plantic recycletes in products — Part 8 : Poly (acrylo betadiane styrane) (ABS)
13		With 2022/Bully Plantics - Quality requirements for application of plantic recyclates in products - Part 2 : Polyethylene (PC)
(日)		<u>International and</u> Matrice — sparing requirements for application of plantic recyclassic is producte — Part a: Poly(Aint) (Prec)
- Bo		MUSA29526 Rest/s - Calify repairements for application of plastic reciclates in products - Port 7: Polyamide (PA)
1		(MidMANARE) Particle — Quality requirements for application of positic recyclose in products — Parts : Polytylene (Pc)
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Existing	standars	
	00/18 21990.203	CPN (DV/III) [13 Rectics - trainavental aueros - state of knowledge and methodologies insolfm [1990;3001]
12	150 57422-2018	Platics - Invérgencement agents - conserve auditions for their inclusion in constants.
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12		000478 20100 (0004 044-0630410977)
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14	DO 13031-7 1017	CY LOD (HID 12) HID 12
-11	50 14895-7 2013	PN ICC 1875-1 Interview of the effects active based activity of place resteries and comparing control on particle activity activity of endormal activity and comparing control on activity activity of endormal activity ac
1.0	SO 15885 2014	EN ED 12083.2 Heats - Determination of the ultimate enservoir. Biology idation under hist-polisk enservoir. displaying conditions Method by analysis of released biogen
10	KD 16829-2014	DN HD 1900 # 20 Partice - Determination of the dense of clotheration of plantic material, under defined connective conditions in a plant-scale test
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2	150 18830:2016	EN ISO 18830:20 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
2	150 19679:2020	EN ISO 19679:20 Plastics — Determination of aerobic biodegradation of non-floating plastic materials in a seawater/sediment interface — Method by analysis of evolved carbon dioxide
L:I	ISO 20200:2015	EN ISO 20200:20 Plastics — Determination of the degree of disintegration of plastic materials under simulated composting conditions in a laboratory-scale test
L:I	ISO 22403:2020	EN ISO 22403:20 Plastics — Assessment of the intrinsic biodegradability of materials exposed to marine inocula under mesophilic aerobic laboratory conditions — Test methods and requirements
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1	150 22766:2020	EN ISO 22766:20 Plastics — Determination of the degree of disintegration of plastic materials in marine habitats under real field conditions
4	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
4	ISO 23977-1:2020	EN ISO 23977-1: Plastics — Determination of the aerobic biodegradation of plastic materials exposed to seawater — Part 1: Method by analysis of evolved carbon dioxide
4	ISO 23977-2:2020	EN ISO 23977-2: Plastics — Determination of the aerobic biodegradation of plastic materials exposed to seawater — Part 2: Method by measuring the oxygen demand in closed respirometer
Standar	ds under revision or u	nder development
	ISO/DIS 5148	Plastics — Determination of specific aerobic biodegradation rate of solid plastic materials and disappearance time (DT50) under mesophilic laboratory test conditions
4	ISO/AWI 20200	Plastics — Determination of the degree of disintegration of plastic materials under simulated composting conditions in a laboratory-scale test
Bio-bas	ed plastics	
Existing	standards	
4		EN 17228:2019   Plastics - Bio-based polymers, plastics, and plastics products - Terminology, characteristics and communication
4	150 16620-1:2015	Plastics — Biobased content — Part 1: General principles
2	150 16620-2:2019	Plastics — Biobased content — Part 2: Determination of biobased carbon content
4	ISO 16620-3:2015	Plastics — Biobased content — Part 3: Determination of biobased synthetic polymer content
4	ISO 16620-4:2016	Plastics — Biobased content — Part 4: Determination of biobased mass content
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	150 22526-1:2020	EN ISO 22526-1: Plastics — Carbon and environmental footprint of biobased plastics — Part 1: General principles
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	ISO 22526-2:2020 ISO 22526-3:2020	EN ISO 22526-2: Plastics — Carbon and environmental footprint of biobased plastics — Part 2: Material carbon footprint, amount (mass) of CO2 removed from the air and incorporated into polymer molecule EN ISO 22526-3: Plastics — Carbon and environmental footprint of biobased plastics — Part 3: Process carbon footprint, requirements and guidelines for quantification
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.0	HECK	ISO reference	CEN reference	Title
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	D.	ISO 527-3-2018	EN ISO 527-3:20	1:Pletiks — Determination of teroile properties — Part 3: Test conditions for films and sheets
	Ð	150 (591-1992		Platitis - Film and sheeting - Determination of everage thickness of a semple, and everage thickness and yield of a roll, by gravimetric techniques (gravimetric thickness)
	8	50 4592-1992		Plattics — Film and sheeting — Determination of length and width
	10	SO 4593:1993		Plastics — Film and sheeting — Determination of thickness by mechanical scanning
	0	50 6383-1:2015	EN 80 6389-1.2	<ol> <li>Plastiks — Film and sheeting — Determination of tear resistance — Part 1: Trauser tear method</li> </ol>
	۵.	150 6581-7 1983	EN 60 6883-2.2	OrPlastics — Film and sheeting — Determination of tear resistance — Part 2: Elmendorf method
	南	50 7765-1-1956	EN IDO 7765-1.2	0 Plastics film and sheeting — Determination of impact resistance by the free falling dart method — Part 1: Staircase methods
	11	50 7765-2 1994	The second	Plastics film and sheeting — Determination of impact resistance by the free falling dart method — Part 2: Instrumented puncture test
	Ð	50 8295 1995	CN 640 8295-200	4 Plastics — Nini and sheeting — Determination of the coefficients of fraction
	D	50 8296:2003		Platitis - Nim and sheeting - Determination of writing tension
		50 8570:1991		Plastics - Film and sheating - Determination of cold-crack temperature
	0	50 11501 1995	EN ISO 11501 20	© Plastics — Film and sheeting — Determination of dimensional change on heating
	TD .	ISO 11902 2018	EN ISO 11502:20	12 Plastics — Film and sheeting — Determination of blocking resistance
		50 11839-1 201	EN 60 11833-1:	2) Plastics — Unplasticized poly(vivy) chiloride) sheets — Part 1: Types, dimensions and characteristics for sheets of thickness not less than 1 mm
		50 11839-2 199	EN DO 11833-21	2 Plastics — Unplasticized poly/vinvi chiloride) sheets — Types, dimensions and characteristics — Part 2: Sheets of thiokness less than 1 mm
		50 11963 2019	EN 60 11363 20	<ol> <li>Plantics — Polycarbonate sheets — Types, dimensions and characteristics</li> </ol>
	ti i	150 13106 2014		Platics — Blow-moulded polypropylene containers for packaging of liquid foodstuffs
	D :	150 13636 2012		Plastics — Film and sheeting — Non-oriented poly(ethylene terephthalate) (PET) sheets
	0	50 14616 1997	EN IBO 14616-20	IQ Plastics — Heatshrinkable films of polyethylene, ethylene copolymers and their mixtures — Determination of shrinkage stress and contraction stress.
	D	50 14631 2021	EN ISO 14681-20	12 Extruded sheets of impact-modified polystyrene (PS-0) — Requirements and test methods
		50 14532 2011	EN ISO 14652.25	2 Extruded sheets of polyethylene (PE-HD) — Requirements and test methods
	Π.	150 15018 2007	EN ISO 15013.20	C Plantics — Entrudied sheets of polypropylene (PP) — Requirements and test methods
	0	50 15014 2007		Platics — Enruded sheets of poly(viny)idene fluoride) (PVDF) — Requirements and test methods
	0	50 15015 2011	EN ISO 15015-20	If Plastics — Extruded sheets of impact-modified acrylonitrile-styrene copolymens (ABS, AEPDS and ASA) — Requirements and test methods
	12	50 151 (5-1 200	Z	Plastics — Film and sheeting — Determination of gas-transmission rate — Part 1: Differential-pressure methods
	D.	2015105-1200	1	Plastics — Film and sheeting — Determination of gas-transmission rate — Part 2: Equal-pressure method
	0	150 15106-1 200	EN 60 15100-1.	2/Plastiks — Film and sheeting — Determination of water vapour transmission rate — Part 1: Humidity detection sensor method
		50 15106-2 200	EN BO 15106-2:	2/Platitics — Nim and sheeting — Determination of water vapour transmission rate — Part 2: Infrared detection service method
	P.	50 15106 3 200	EN BO 15106-8:	2/Plactics — Film and sheeting — Determination of water vapour transmission rate — Part 3: Electrolytic detection sensor method
		50 15106-4 200	State of the state of the	Plattics — Nim and sheeting — Determination of water vapour transmission rate — Part 4: Gas-chrometographic detection sensor method
	0	50 15106-5 201	5	Plastics - Film and sheeting - Determination of water vapour transmission rate Part 5: Pressure sensor method
	Π.	150 151 06-6 201	2	Plastics — Film and sheeting — Determination of water vapour transmission rate — Part 8: Atmospheric pressure ionization mass spectrometer method
	Ð	50 151 06-7 201	2	Plastics — Film and sheeting — Determination of water vapour transmission rate — Part 7: Caldium corrosion method
	0	50 15517 2018	EN IEO 15527:20	<ol> <li>Plastics — Compression-moulded sheets of polyethylene (PE-UHMW, PE-HD) — Requirements and test methods</li> </ol>
		50 15987 2008		Plastics — film and sheeting — Blastally ortented polyamide (nyton) films
		50 15968 2003		Plantics — Film and sheeting — Blackelly oriented poly(ethylene temphotelate) (PCT) films
		150 15989 2004		Plastics — Film and sheating — Measurement of water-contact angle of corona-treated films
		150 15989 2004/	008 1:2007	Plastics — Film and sheeting — Measurement of water contract angle of corona-treated films — Technical Corrigendum 1
		50 17555 2021	14-32270	Ptastics — Film and sheeting — Biolially oriented polypropylene (PP) films
		\$0,17557,2068		Plastics — Film and sheeting — Cast polypropylene (PP) films
	11	50 29559 2011		Plestics - film and sheeting - Guidance on the testing of thermoplestic films
		50 29560 2015		Woven polypropylene sacks for bulk packaging of foodstuffs
	0	50 2558:1974		Platics — Determination of the gas transmission rate of films and thin sheets under atmospheric pressure — Maxometric method

FILMS FOR USE IN AGRICULTURE



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10		CEN/TE 17229.20 Pleates - Biodegradable thermopleatic match films for use in agriculture and horticulture - Guide for the quantification of alteration of films
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Ο.		EN 15207 2018 (V Plastics - Thermoplestic sleep films and tabes for use in agriculture
E.		EN 13655 2018 (V) Plastics - Thermoplastic mulch films recoverable after use, for use in agriculture and honiculture
Π.		EN 14932 2018 IV Plastics - Thermoplastic stretch films for wrapping silage bales
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61		EN 17008-1: 2018, Plastics - Barrier films for agricultural and horticultural cell disinfection by fumigation - Part 1: Specifications for barrier films
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m	180 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



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0	10 413 1975		Pleatica -	- Determination of refractive index
œ	80 1155-1-2011	EN 100 1133-1-20	Fiastica -	<ul> <li>Determination of the melt mate-flow rate (MFR) and melt volume-flow rate (MVR) of thermoglaptics — Part 1: Standard method</li> </ul>
3	001133-2:2011	EN 60 1133-2:20	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
0	10.5146.2000	LTH 650 3 546 200	Plastica -	<ul> <li>Determination of melting behaviour (melting temperature or melting range) of semi-crystal line polymers by capillary tube and polarizing microscope methods</li> </ul>
•	150 3145:2000/0	EN 60 1146 200	O Plagtica -	- Determination of melting behaviour (melting temperature or melting range) of semi-crystalline polyment by capillary tube and polarizing-microscope methods Technical Configendum 1
	005185-1958	EN ISO 6185 198	Plastics -	- Determination of pounability
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G	160 6721-2 3019	EN ISO 6723-2-20	Plastics -	Determination of dynamic mechanical properties — Part 2: Torsion-pendulum method
13	60 6721-3:2021	EN 850 6721-3-20	Plastics -	Outerministion of dynamic mechanical properties — Part 3: Revenal vibration — Resonance-curve method
12	50 5721-4:2019	and the second	Plaetics -	Determination of dynamic mechanical properties: — Part 4: Tensile vibration — Non-reconsists method
(2)	80 6721-5:2019	1	Plastics -	<ul> <li>Determination of dynamic mechanical properties — Part 5: Revural vibration — Non-resonance method</li> </ul>
GR	150 6721-6-2019		Plastics -	- Determination of dynamic mechanical properties - Part 5. Shear volvation - Non-resonance method
CB.	80 \$121-7:2014		Plastics -	Determination of dynamic mechanical properties — Part 7: Torsional vibration — Non-resonance method
3	50 6721-8 2019	2	Plastics -	<ul> <li>Determination of dynamic mechanical properties — Part 8: Longitudinal and shear vibration — Wave-propagation method</li> </ul>
10	004771-9-2014	(* C	Fiastica "	<ul> <li>Determination of dynamic mechanical properties — Part 3: Tenule vibration — Sonic-pube propagation method</li> </ul>
(3)	80 6721-10 201	5	Plastics -	<ul> <li>Determination of dynamic mechanical properties — Part 10: Complex shear viscosity using a parallel-plate oscillatory mechanical properties</li> </ul>
3	50 5721-21 201	2	Plastics -	<ul> <li>Determination of dynamic mechanical properties — Part 11: Glass transition temperature</li> </ul>
(3)	000171-12200	2	Firstics *	<ul> <li>Determination of dynamic mechanical properties — Part 12: Compressive vibration — Non-resonance method</li> </ul>
12	5013461-1201	5 EN ISO 13468-1:	Plestics -	<ul> <li>Determination of the total luminous transmittance of transporent materials — Part 1. Single beam instrument</li> </ul>
a	150 13455 2 292	1111 100 19468-2.3	Pisatica *	<ul> <li>Determination of the total luminous transmittance of transparent materials — Part 2. Double-beam instrument</li> </ul>
03	150 14782-1999/	0081-1006	Plactics -	- Determination of haze for transporent materials Technical Configendum 1
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(2)	80 11357.2 202	CEN 180 11357-24	Piestica+	Offerential scenning calorimetry (DSC) - Part 2: Determination of glass transition temperature and step height (ISO 11357-2:2020)
8	10 11257 2 201	1 EN ISO 11357-3	Plastics -	Differential scanning calorimenty (DSC) - Part 3: Determination of temperature and enthalpy of evelting and srystalization (SO 11257-2:0018)
<u>(</u> 2,	10 11 357, 4 202	1 EN ISO 11357-4	Plastica -	Differential scenning calorimetry (DSC) - Part 4. Determination of specific heat capacity (ISO 11357-4:3021)
9	8011257-5-201	1 EN EO 11457-5:	Plastics -	Differential scenning calorimetry (DSC) - Part 5: Determination of characteristic reaction-curve temperatures and times, enthalpy of reaction and degree of conversion (IDO 11257-5/2012)
	90 11357-8 201	8 EN IBO 11357-61	Plastics -	Differential scalering calorimetry (DSC) - Part 6: Determination of exidation induction time (softeemail OF) and exidation induction temperature (dynamic OF) (ISO 11357-6:2018)
項	30 11357 7 201	5 EN ISO 11357-70	Plastics -	Differential scanning calorimenty (DSC) - Part 7: Determination of crystallisation kinetics (ISO 11357-7:2015)
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<u>.</u>	8011354-1:201	EN 180 11358-11	Plastics -	Thermogravimetry (T6) of polymers - Part 1: General principles (60:11358-1:2014)
9	ASTM D1985-	17	Scienclard	Teut Nethod for Oxygen Gai Transmission Tate Through Plaotic Film and Sheeting Using a Coulometric Sensor
Gr.	A0TM F1249-1	в	Standard	Test Method for Water Vapor Transmission Bate Through Plastic Film and Sheeting Using a Modulated Infrared Sensor
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12	BIS 28-1-2020	EN 845 15-1-100	Diantics -	- Determination of recoversions of defected under cost - Part 1 General text method
ā	DOLT PLANED	EN ED 75-1-2013	District	Conservation of the provide of exceptions and node of the table of the second s
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-	ISO 2039-1:2001	EN ISO 2039-1:201 Plastics — Determination of hardness — Part 1: Ball indentation method
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	150 15394 2017		Packaging — Bar code and two-dimensional symbols for shipping, transport and receiving labels
(T)	150/TR 17870-201	2	Application Guideline on Data Carriers for Supply Chain Management
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Package	ng and anvironmen	r.	
Existing	standars		
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- 150 18603-2013 Packaging and the environment - Reute
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- 12 150 21087-2 2015 Packaging - Vocabulary - Part 2: Packaging and the environment terms
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13	onCEN/TR 1460 Packaging - Energy recovery from	used packaging
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CONTACT WITH FOODS	TUFF
Existing standards	
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田	EN 13130-1-200 Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 1:
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0	Th 11/20-4 200 Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 4 Determination of 1,3-butadiene in plastics
0	EN 11106-5 200 Materials and articles in contact with foodstuffs - Plastics substances subject to imilation - Part 5: Determination of vinylidene chloride in food simulants
12	EN 13130-6 200 Waterials and articles in contact with foodstuffs - Plastics substances subject to imitation - Part 6: Determination of vinyidene chloride in plastics
10	ER 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 simularits
11	Th 15120-8 200 Medenials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 8: Determination of isocyanates in plastics
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CI	CEW/T5 19130-1 Materials and articles in contact with foodstuffs - Plestics substances subject to imitation - Part 10: Determination of acrylamide in food simulants
Π	CEN/15 15130-1 Materials and articles in contact with foodstuffs - Plastics substances subject to imitation - Part 11. Determination of 11-aminoundecancic acid in food simulants
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0	CTN/15 15130-1 Meteriels and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 13: Determination of 2,2-bis(4-hydroxypheny(propane (Bisphenol A) in food simulants
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<b>II</b>	CEW/IS 13(3)-1 Meteriels and articles in contact with foodstuffs - Plantics substances subject to limitation - Part 15: Determination of 1,3-butadiene in food simulants
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10	TH L108-1/2002 Materials and articles in contact with foodstuffs - Plastics - Part 1: Guide to the selection of conditions and test methods for overall migration
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桓	EN 12462:1998	Biotechnology - Performance criteria for pumps
14	EN 12689:1998	Biotechnology - Guidance on assessment of the purity, biological activity and stability of microorganism based products
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101	EN 13092:1999	Biotechnology - Equipment - Guidance on sampling and inoculation procedures
E	EN 13095:1999	Biotechnology - Performance criteria for off-gas systems
14	EN 13311-1:200	Biotechnology - Performance criteria for vessels - Part 1: General performance criteria
Ð	EN 13311-2:200	Biotechnology - Performance criteria for vessels - Part 2: Pressure protection devices
12	EN 13311-3:200	Biotechnology - Performance criteria for vessels - Part 3: Glass pressure vessels
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12	EN 13311-5:200	Biotechnology - Performance criteria for vessels - Part 5: Kill tanks
ED	EN 13311-0:200	Biotechnology - Performance criteria for vessels - Part 6: Chromatography columns
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B	EN 13312-2:200	Biotechnology - Performance criteria for piping and instrumentation - Part 2: Couplings
Ē	EN 13312-3:200	Biotechnology - Performance criteria for piping and instrumentation - Part 3: Sampling and inoculation devices
Ð	EN 13312-4:200	Biotechnology - Performance criteria for piping and instrumentation - Part 4: Tubes and pipes
140	EN 13312-5:200	Biotechnology - Performance criteria for piping and instrumentation - Part 5: Valves
	EN 13312-6:200	Biotechnology - Performance criteria for piping and instrumentation - Part 6: Equipment probes
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