

Standardization on Plastics waste recycling & Biodegradability (*ISO & BIS guidelines*)

by

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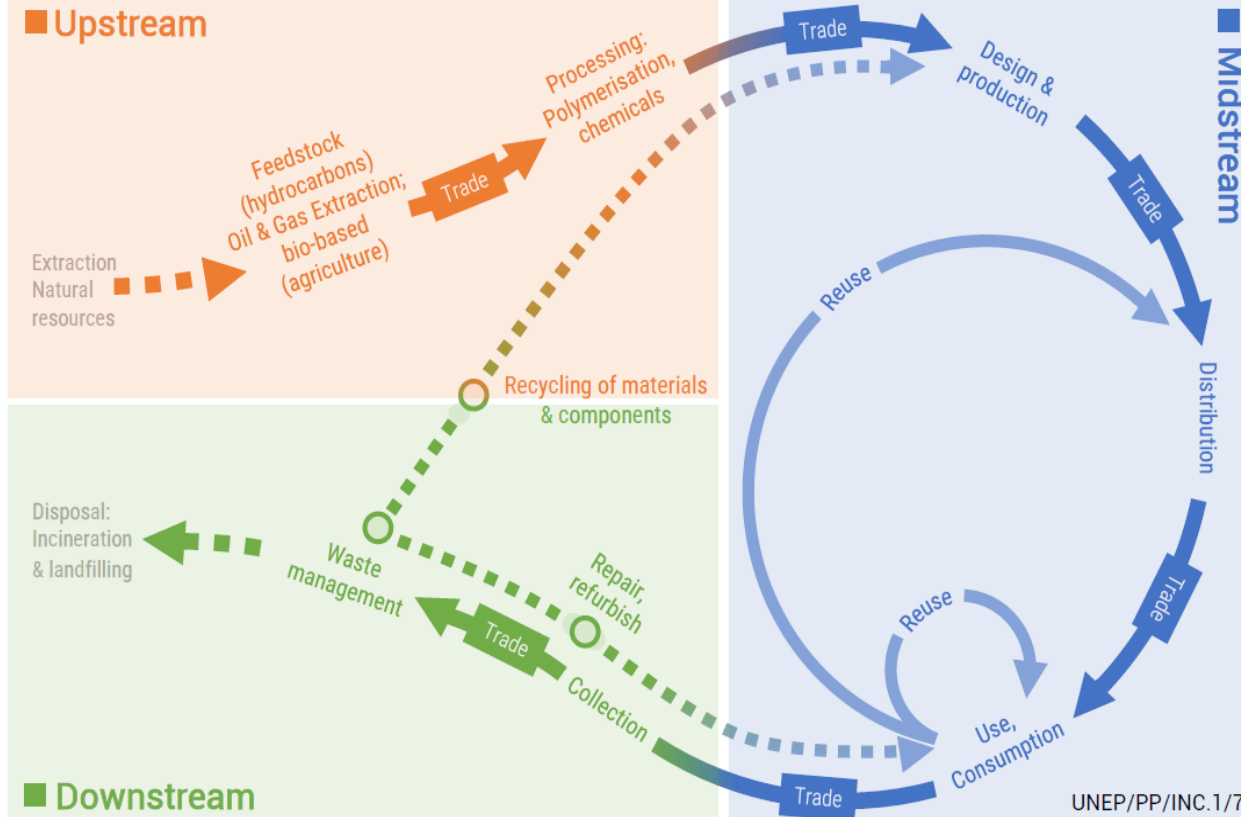
SYNOPSIS OF PRESENTATION

- *Background /Context – UNEP/INC ,SG 4s of INC*
- *Standardization at ISO forum, Subcommittee on Environment (SC 14)*
- *Working groups- inventory of standards on recycling, Biodegradability*
- *PCD 12, BIS proposal at ISO (FDIS 5677)*
- *BIS guidelines :Recycling & biodegradability*

MULTI STAKEHOLDER FORUM UNDER INC-1

Solutions and technologies and their costs and benefits

Life-cycle approach to addressing plastic pollution



Multi-stakeholder Forum under INC-1

4 SGs deliberated by INC-1 UNEP

- **Strategic goal 1:** Reduce the size of the problem by eliminating and substituting problematic and unnecessary plastic items, including hazardous additives
- **Strategic goal 2:** Ensure that plastic products are designed to be circular (reusable, recyclable or compostable)
- **Strategic goal 3:** Close the loop of plastics in the economy by ensuring that plastic products are circulated in practice (reused, recycled or composted)
- **Strategic goal 4:** Managing plastic waste that cannot be reused or recycled in an environmentally sound manner (including existing pollution)

4 SGs deliberated by INC-1 UNEP

Strategic goals to support a systems change to address plastic pollution

<i>Strategic goals for systems change</i>	<i>Sample actions</i>
Strategic goal 1: Reduce the size of the problem by eliminating and substituting problematic and unnecessary plastic items, including hazardous additives	<p>Eliminate problematic or unnecessary polymers and additives.</p> <p>Eliminate problematic or unnecessary plastic products.</p> <p>Substitute virgin inputs with recycled content.</p>
Strategic goal 2: Ensure that plastic products are designed to be circular (reusable, recyclable or compostable)	<p>Provide international guidance or standards for compostable and biodegradable materials and minimum recycled content for plastic.</p> <p>Foster design for circularity (for reuse and recycling) by providing for standardized rules and labelling, as well as information needs and economic incentives, where needed.</p> <p>Develop international guidance, standards and controls on additives and chemicals of concern.</p> <p>Increase investment in new materials, additives, technologies and product design, as well as safe and sustainable alternatives.</p> <p>Encourage the finance sector and markets to stimulate action towards circularity.</p> <p>Create enabling conditions for innovative solutions through policy.</p>
Strategic goal 3: Close the loop of plastic in the economy by ensuring that plastic products are circulated in practice (reused, recycled or composted)	<p>Empower the informal plastics waste sector through inclusive consultation.</p> <p>Establish deposit return schemes for all suitable products.</p> <p>Implement extended producer responsibility, product take-back and right-to-repair requirements to stimulate better product design.</p> <p>Improve transparency and information-sharing, including on chemicals associated with plastics.</p> <p>Promote citizen campaigns to enhance plastic reuse, segregation and collection rates.</p> <p>Increase investment in plastic waste collection.</p> <p>Increase mechanical recycling capability and scale-up sustainable recycling technologies.</p> <p>Remove trade barriers to plastic circularity.</p>
Strategic goal 4: Manage plastic waste that cannot be reused or recycled in an environmentally sound manner (including existing pollution)	<p>Minimize end-of-life plastic disposal.</p> <p>Prevent the export of plastic waste to nations with insufficient capacity to manage that waste (in line with the Basel Convention).</p> <p>Reduce transboundary movement of hazardous wastes and other wastes to the minimum consistent with the environmentally sound and efficient management of such wastes (Basel Convention).</p> <p>Prevent microplastics leakage.</p> <p>Remediate existing plastic pollution hotspots (legacy pollution).</p>

ISOTC61 (Plastics) Subcommittee: Environmental aspects (SC 14)

SCOPE of Subcommittee :

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”

There are 05 Working groups under SC 14 – WG 1, WG 2, WG 3, WG 4, WG 5 – working for developing International standards, guidelines for Terminology, Biodegradability, Microplastics, Mechanical & Chemical recycling etc.

ISOTC 61/SC 14/WG 1 to WG 5

(Scope of standardization activities)

- WG 1 : Terminology, classifications and general guidance
- WG 2 : Biodegradability
- WG 3 : Biobased plastics
- WG 4 : Microplastics
- WG 5 : Mechanical & chemical recycling

ISO/TR 23891 (Technical report)

(Inventory of Standards on Recycling)

Number	Name
ISO 15270:2008	Plastics - Guidelines for the recovery and recycling of plastics waste

ISO/TR 16218:2013	Packaging and the environment - Processes for chemical recovery
ISO/TR 17098:2013	Packaging material recycling - Report on substances and materials which may impede recycling
ISO 18604:2013	Packaging and the environment - Material recycling
ISO 18605:2013	Packaging and the environment - Energy recovery
ISO 18606:2013	Packaging and the environment - Organic recycling
EN 13440	Packaging - Rate of recycling - Definition and method of calculation
EN 13437	Packaging and material recycling - Criteria for recycling methods - Description of recycling processes and flow chart
CEN/TR 13688:2008	Packaging - Material recycling - Report on requirements for substances and materials to prevent a sustained impediment to recycling
EN 13430:2004	Packaging - Requirements for packaging recoverable by material recycling
EN 13431	Packaging - Requirements for packaging recoverable in the form of energy recovery, including specification of minimum inferior calorific value

ISO/TR 23891 (Technical report)

(Inventory of Standards on Recycling)

Number	Name
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 15344:2007	Plastics - Recycled Plastics - Characterisation of Polyethylene (PE) recyclates
EN 15345:2007	Plastics - Recycled Plastics - Characterisation of Polypropylene (PP) recyclates
EN 15346:2014	Plastics - Recycled plastics - Characterization of poly(vinyl chloride) (PVC) Recyclates
EN 15247:2007	Plastics - Recycled Plastics - Characterisation of plastics wastes
CEN/TR 15353:2007	Plastics - Recycled plastics - Guidelines for the development of standards for recycled plastics
CEN/TS 16010:2013	Plastics - Recycled plastics - Sampling procedures for testing plastics waste and recyclates

ISO TC 61/SC 14 (Ongoing work on New Standards)

WG 1	ISO/CD TR 4763 Plastics - Environmental aspects - Analysis of relevant terms used in the sector and need for standardization	30.92	Ignacy Jakubowicz, Yorimasa Suwa	2023-03-31 (Pub)	2023-05-20 (Pub)	45	Extended, exchange with CEN/TC 249
	ISO/PWI 15270-1 Plastics — Guidelines for the recovery and recycling of plastics waste — Part 1: General principles	00.00	(Kazuhiko Fukuda, Ramani Narayan, Nazdaneh Yarahmadi)	-	-	-	Exchange with WG 2 and WG 5 for other parts of the series
WG 2	ISO/DIS 5430 Plastics — Marine ecotoxicity testing scheme for soluble decomposition intermediates from biodegradable plastic materials in products	40.60	Lars Peters , Yunxuan Weng	2023-02-28 (FDIS)	2023-09-07 (Pub)	36	
	ISO/PWI 15270-5 Plastics — Guidelines for the recovery and recycling of plastics waste — Part 5: Organic recycling	00.00	(Francesco Degli Innocenti, Masao Kunioka)	-	-	-	Exchange with WG 1 and WG 5 for other parts of the series
WG 4	ISO/DIS 24187 Principles for the analysis of plastics and microplastics present in the environment	40.60	Claus Gerhard Bannick	2022-10-17 (FDIS)	2023-03-06 (Pub)	45	Extended

ISO TC 61/SC 14 (WG 5)

(Guidelines for recycling being revised- ISO 15270)

ISO/PWI 15270-2 Plastics — Guidelines for the recovery and recycling of plastics waste — Part 2: Mechanical recycling	00.00	(Harald Lehmann)	-	-	-
ISO/PWI 15270-3 Plastics — Guidelines for the recovery and recycling of plastics waste — Part 3: Physical recycling	00.00	(Marta Heuser)	-	-	-
ISO/PWI 15270-4 Plastics — Guidelines for the recovery and recycling of plastics waste — Part 4: Chemical recycling	00.00	(Travis Keever, Julia Farber)	-	-	-

ISO TC 61/SC 14 (WG 5)

PCD 12, BIS, India's proposal at ISO

WG 5	ISO/DIS 5677 Testing and characterization of mechanically recycled Polypropylene (PP) and Polyethylene (PE) for intended use in different plastics processing techniques	40.60	Rajeev Kumar Dwivedi	2022-11-09 (FDIS)	2023-10-26 (Pub)
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RECENTLY FINALIZED ISO STANDARD for publication

ISO 5412:2022 (60.00, under publication)	Plastics — Industrial compostable plastic shopping bags	Yunxuan Weng, Yingxin Zhou
ISO 5424:2022	Plastics — Industrial compostable plastic drinking straws	Yunxuan Weng

ISOTC 61/SC 14/WG 1 to WG 5

(India's proposal being finalized at ISO level)

The screenshot shows a web browser window displaying the ISO website. The address bar shows the URL <https://www.iso.org/standard/81522.html>. The page content includes the ISO logo, navigation links for Standards, About us, News, Taking part, and Store, and a search bar. The main heading is **ISO/FDIS 5677**, with a breadcrumb trail: ← ICS ← 83 ← 83.080 ← 83.080.01. Below the heading is the title: **Testing and characterization of mechanically recycled polypropylene (PP) and polyethylene (PE) for intended use in different plastics processing techniques**. The Windows taskbar at the bottom shows the search bar, application icons, and system tray with the date 05-11-2022 and time 15:28.

DIN SPEC 91446:2021-12 (*German Standard for Recycled plastics- referred in ISO FDIS 5677*)

- This spec defines a system for the classification of recycled plastics based on the available data depth (Data Quality Levels, DQL) and provides guidelines for the labelling of the recyclate type and recycled content in compounds.
- This document also gives guidance for the characterization of plastic waste as feedstock material for recycling.

Standardization by PCD 12, BIS

(On recycling & Biodegradability-present context)

- IS 14534: 2016 **GUIDELINES FOR THE RECOVERY AND RECYCLING OF PLASTICS WASTE (Revised draft is under finalization)**
- IS 14535: 1998 **Recycled plastics for the manufacturing of products - Designation (Under revision)**
- IS /ISO 17088:2021 **Specifications for compostable plastics (Organic recycling)**
- IS /ISO 17556:2019 **determination of ultimate aerobic biodegradability in soil**
- IS /ISO 15985:2014 **determination of ultimate anaerobic biodegradability**

Standardization by PCD 12, BIS

(New provisional standard on Assessment of Biodegradability- IS 17899T referred in MoEFCC notification and SoP of CPCB)

IS 17899 T : 2022

प्रयोगात्मक भारतीय मानक
Tentative Indian Standard

परिवर्तीय अवस्थाओं में प्लास्टिक की
जैवनिम्निकरणता का आंकलन
Assessment of Biodegradability of
Plastics in Varied Conditions

(1)	(2)
1	IS / ISO 14851: 2019 Determination of the Ultimate Aerobic Biodegradability of Plastic Materials in an Aqueous Medium — method by measuring the Oxygen demand in a closed respirometer (First Revision)
2	IS / ISO 14852: 1999 Determination of the ultimate aerobic biodegradability of plastic materials in an aqueous medium—method by analysis of evolved Carbon dioxide
3	IS / ISO 14853: 2016 Plastics — Determination of the ultimate anaerobic biodegradation of plastic materials in an aqueous system —method by measurement of biogas production (First Revision)
4	IS /ISO 14855-1: 2012 Determination of the ultimate aerobic biodegradability of plastic materials under controlled composting conditions — method by analysis of evolved Carbon dioxide: Part 1 General method (First Revision)
5	IS / ISO 14855-2: 2018 Determination of the ultimate aerobic biodegradability of plastic materials under controlled composting conditions — method by analysis of evolved carbon dioxide: Part 2 Gravimetric measurement of Carbon dioxide evolved in a laboratory- scale test (First Revision)
6	IS / ISO 15985: 2014 Plastics — Determination of the ultimate anaerobic biodegradation under high-solids anaerobic-digestion conditions — methods by analysis of released biogas (First Revision)
7	IS /ISO 16929: 2019 Plastics — Determination of the Degree of Disintegration of Plastic Materials under Defined Composting Conditions in a Pilot-Scale Test (Second Revision)
8	IS / ISO 17556: 2019 Plastics — Determination of the Ultimate Aerobic Biodegradability of plastic materials in soil by measuring the Oxygen demand in a Respirometer or the amount of Carbon Dioxide Evolved (Second Revision)
9	IS / ISO 20200 : 2015 Plastics — Determination of degree of disintegration of plastic materials under simulated composting conditions in a laboratory - Scale test (First Revision)”

From Atharva Veda - Prithvi Sukta

***“O Pure Earth May that We
utilize your soil well without
causing you injury or
disturbing any vital element in
you.”***

THANK YOU