Australia's National
Science Agency

CSIRO response to Productivity Commission's National Competition Policy Analysis Interim Report

CSIRO Submission 25/036

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Summary

CSIRO welcomes the opportunity to provide input to the Productivity Commissions' Competition Policy Analysis Interim Report.

CSIRO provided input via a submission to the Productivity Commission's consultation on National Competition Policy in June 2025, with key points raised in CSIRO's original submission below:

- **Contextual Relevance and Safety:** International standards (e.g. ISO) often lack pass/fail criteria and are developed in different legal, environmental, and regulatory contexts. Direct adoption without modification risks misalignment with Australian safety, quality, and compliance requirements. CSIRO emphasises the necessity of expert oversight and validation to ensure standards are fit-for-purpose locally.
- **Operational and Economic Implications:** Transitioning to international standards would require extensive regulatory reform across federal and state jurisdictions, posing logistical and cost burdens. Australian manufacturers may face mandatory re-testing, reduced access to local certification services, and increased reliance on offshore testing, potentially undermining domestic capability and competitiveness.
- **Strategic and Innovation Risks:** Sole reliance on international standards could constrain Australia's ability to tailor standards to national policy priorities and emerging technologies. CSIRO's leadership in areas such as AI (Artificial Intelligence) safety and blockchain standards demonstrates the strategic value of maintaining locally informed standards than can be adapted to support innovation, regulatory clarity, and global influence.

The June 2025 submission is the basis for CSIRO's response the Interim Report, where CSIRO will only address relevant recommendations or requests for information.

CSIRO response to the Interim report findings, recommendations, call for input

1.1.1 Interim Finding 1: Mandated standards largely align but there are many bespoke standards

The interim report notes that most Australian standards largely align with their international equivalents. However, defining alignment can be vague, especially in digital and AI (Artificial Intelligence) standards. Some Australian standards may appear different because they need to provide more detailed guidance on compliance missing from their international equivalents. This guidance can be misinterpreted as adding extra Australian requirements rather than supplementing the international standard. An example is the Australian AI Safety standard that provides practical 'how to' options to supplement the equivalent ISO standard.

As a further example, the Australian recycling industry, which is rapidly changing, has 11 federal legislative instruments relevant to the sector that do not reference AS, AS/NZS, or ISO standards. Few Australian technical standards refer to plastics recycling with the exception being AS4736/2006 (Biodegradable plastics) being a region-specific standard. Harmonisation with international standards requires inclusion of Australian-specific performance criteria and, in parallel, global harmonisation of recycling labelling requirements.

Informal standards (e.g. proprietary, bilateral, private agreements) significantly influence market practices and there may be benefit in a brief acknowledgement of these standards in the interim report.

1.1.2 Interim Finding 2: Economic benefits from harmonising Australian regulated standards with international or overseas standards

In the packaging and plastics sectors, harmonising standards has the potential to reduce trade barriers:

- Australian exports valued at over $40 billion would benefit from alignment with destination market standards[1].
- 62% of plastic packaging is imported[2]; harmonised standards could improve recyclability and circular economy outcomes.

The potential benefits of harmonising standards should consider potential costs or drawbacks such as loss of local relevance, potential regulatory and operational disruptions, and impact on local testing and assurance:

- International standards may lack pass/fail criteria and may be developed under different legal, environmental and policy requirements. Safety and quality assurance appropriate to Australian conditions should be considered when adopting international standards.

[1] Australian Food and Grocery Council, 2023, Food and Grocery Export Growth Strategy 2023

[2] DCCEEW, Updated 22 August 2025, Australian plastics flows and fates reporting

- Australian manufacturers may face increased costs to retest products to newly adopted international standards. Businesses may need to seek offshore testing if local testing services decline. Offshore testing could present logistics, accessibility and cost issues to Australian manufacturers.
- Importers may bypass local testing altogether, reducing domestic certification opportunities and potentially increasing the risk of non-compliant products entering the Australian market.

In addition to recognising equivalence or harmonisation of standards, it is critical to assess the equivalence in conformance requirements, evidence supplied and assurance processes:

- A standard can harmonised but the evidence required to demonstrate conformance and thresholds provided by assurance bodies also require harmonisation otherwise businesses still face duplication of effort to assure their products.
- In digital and AI standards automated conformance checking could reduce costs only if evidence artefacts and assurance practices are agreed across all jurisdictions.

Within the built environment regulatory framework, many design standards have been developed to ensure safety and amenity for Australian conditions. Specific performance requirements, such as construction methods required to ensure safety of buildings in different climatic regions, are encoded into such standards which are then referenced by legislation and building regulations. Adopting international design standards could, at both state and federal levels:

- Introduce performance requirements unsuitable for Australia, and/or
- Require significant and frequent update of legislation where design standards do not include performance requirements.

1.1.3 Information Request 1: Specific examples of Australian legislation where international or overseas standards could be adopted or recognised as equivalent

International digital and AI standards can be adopted as voluntary standards, but legislative differences may require adaptation, breaking formal alignment.

In the Australian recycling industry, the Recycling and Waste Reduction Act 2020 (Cth) is a candidate for international standard adoption. A listing of technical standards that might be applied in this context is supplied in Appendix A. Technical standards may have significant impact in industries with slower rates of change.

1.1.4 Interim Recommendation 1: Priority areas for reviews of standards

There could be benefit in reviewing legislation mandating Australian Standards that are not aligned with international standards, with a view to harmonising or removing unnecessary references. It is important to rigorously define alignment, consistency, and harmonisation, particularly in digital and AI standards.

For the recommendation point "*review legislation in the manufacturing, construction and professional, scientific and technical services sectors mandating Australian Standards where there is no international equivalent, with a view to harmonising with appropriate overseas standards, or removing references that*

are not required", a suggested edit to clarify the situation where an equivalent international doesn't exist is "*review legislation in the manufacturing, construction, and professional, scientific, and technical services sectors that mandates Australian Standards without international equivalents. The aim is to either harmonise these with suitable overseas standards or remove references to Australian Standards that are not required*".

1.1.5 Interim Recommendation 2: Governments should fund access to standards in legislation

In the digital and AI field, funding or support for automated conformance tools, detailed guidance and examples could reduce conformance costs, especially for SMEs and in safety-critical domains such as AI safety and critical digital infrastructure (e.g. 6G communications) and in the area of plastics design, use and reuse. CSIRO's work with Home Affairs in the 6G space is a useful model that could inform the support required.

APPENDIX A: Recycling and Waste Reduction Act 2020 – potentially applicable technical standards

The following standards are likely to influence the development of plastics recycling in Australia and the broader transition to a circular economy. This document is informed by sectoral, technical, and standards analysis. It does not include/result from cross referencing technical standards that are referred to by current legislation. Inclusion in this list does not imply that we suggest any of these documents must or should be referred to by any current or future legislation.

At a strategic level, promoting access to formalised business and quality management systems is beneficial. However, the cost of developing and maintaining such systems - for example by sustaining certification to a technical standard - can be prohibitive for many businesses, especially SMEs.

The ISO technical standards are among the most widely adopted globally and are designed to assist businesses in maintaining the quality and sustainability of their products, services, and operations. For example, ISO 9001 certification supports consistent quality assurance. Similarly, ISO 14001 certification obliges entities to uphold environmental sustainability within their operations, & ISO 59001 certification supports good innovation practice.

It is important to note that not all entities choose to pursue certification to technical standards. Decisions to establish compliant quality or environmental management systems vary widely and are influenced by factors such as cost, organisational capacity, and strategic priorities. While the economic effectiveness of these systems is generally regarded as high, their impact at a business level remains the subject of ongoing discussion and analysis.

Enabling the implementation of quality, business, or environmental management systems in businesses that are amenable to them would represent a positive step toward enhancing the technological maturity and sustainability of the Australian economy. Facilitating this uptake—by reducing barriers for capable businesses - could be considered as a complementary measure to the essential task of creating equitable access pathways to mandated technical standards.

Category	Potentially applicable standards
Recycling general	ISO 18601, ISO 22015 – dealing with packaging design. ISO 24161, ISO 14050 – Waste management ISO 17088 – Composting ISO 14044– Life Cycle Assessment ISO 14009 – Ecodesign ISO 24161 – Remanufacturing
Plastic recycling general	ASTM D 5577 - Standard Guide for Techniques to Separate and Identify Contaminants in Recycled Plastics ASTM D 8519 - Standard Test Method for Determination of Hydrocarbon Types in Waste Plastic Process Oil Using Gas Chromatography with Vacuum Ultraviolet Absorption Spectroscopy Detection (GC-VUV). ISO 11469 - Plastics Generic identification and marking of plastics products ISO 14021 - Environmental labels and declarations - Self-declared environmental claims (Type II environmental labelling) ISO/TR 21960 – plastics sizing – macro/microplastics ISO 18263-1, 2 - Plastics Mixtures of polypropylene (PP) and polyethylene (PE) recyclate derived from PP and PE used for flexible and rigid consumer packaging Part 1: Designation system and basis for specification. Part 2: Preparation of test specimens and determination of properties. ISO 5677 - Testing and characterization of mechanically recycled polypropylene (PP) and polyethylene (PE) for intended use in different plastics processing techniques ISO/TR 16355-8 - Applications of statistical and related methods to new technology and product development process. Part 8: Guidelines for commercialization and life cycle ISO 17422 - Plastics Environmental aspects - General guidelines for their inclusion in standards. ISO/TR 21960 - Plastics Environmental aspects - State of knowledge and methodologies ISO 8887-1 - Technical product documentation - Design for manufacturing, assembling, disassembling and end-of-life processing. Part 1: General concepts and requirements ISO/TR 23891 - Plastics Recycling and recovery - Necessity of standards.

Category	Potentially applicable standards
	ISO 7683 - Design criteria and test methods for removable shrink labels applied to PET bottles ISO 1043-1, 2 - Plastics Symbols and abbreviated terms Part 1: Basic polymers and their special characteristics. - Part 2: Fillers and reinforcing materials ISO 16294 - Basic chemical products Basic chemicals resulting from chemical recycling - General principles. ISO 18604 - Packaging and the environment - Material recycling ISO/TS 26762 Packaging and the environment - Processes for chemical recovery ISO/TR 17098 - Packaging material recycling - Report on substances and materials which may impede recycling ISO/TR 23891 - Plastics Recycling and recovery - Necessity of standards ISO 18616-1 - Transport packaging -Reusable, rigid plastic distribution boxes. Part 1: General purpose application ISO 18616-2 - Transport packaging Reusable, rigid plastic distribution boxes. Part 2: General specifications for testing ISO 15270 - Plastics Guidelines for the recovery and recycling of plastics waste EN 15342 (PS), 15344 (PE), 15345 (PP), 15346 (PVC), 15348 (PET) Covering plastic – Recycled plastics – Characterisation of recyclates ISO 12418-1 - Plastics Post-consumer poly(ethylene terephthalate) (PET) bottle recyclates - Part 1: Designation system and basis for specifications ISO 6775 - Plastics identification using Raman spectrometric methods AS 2001.7.18 - Methods of test for textiles (polyolefins – relevant when large-scale AR comes on line) ISO 14040/44 or ISO 14067 Greenhouse gases – Carbon footprint of products – requirements and guidelines for quantification – general environmental assessment of new technologies.
Plastic recycling Chain of custody and assurance	ASTM D7611 - Coding of plastic resins ISO/DIS 13662 - Chain of custody - Mass balance - Requirements and guidelines – draft standard ISO 22095 Chain of Custody Traceability – GS1 Australia GS1 Global Location Number GS1 Global Document Type Identifier

Category	Potentially applicable standards
	GS1 Global Data Synchronisation Network GS1 General Specifications Standard GS1 Global Traceability Standard ISO/IEC TR 24729-1, 2 - Information technology Radio frequency identification for item management - Implementation guidelines Part 1, Part 2. AS/NZS ISO 8601.1:2021 Date and time – Representations for information interchange Part 1: Basic rules AS ISO/IEC 17025 General requirements for the competence of testing and calibration laboratories AS 14021:2018 Environmental labels and declarations (or ISO 14021) Type I and II environmental labelling
Plastic recycling Compostables and biopolymers	AS 4736 (Industrial compostable), AS 5810 (Home compostable). ISO17088 Plastics — Organic recycling — Specifications for compostable plastics. ISO15985 With respect to organics recycling, wider nationally consistent adoption of AS3743 Potting mixes, AS4419 Soils for landscaping and garden use, and AS4454 Composts, Soil Conditioners and Mulches would provide some gains. Internation technical standards do not replace the fully range of product quality criteria of the AS series. EN 13432 - REQUIREMENTS FOR PACKAGING RECOVERABLE THROUGH COMPOSTING AND BIODEGRADATION. TEST SCHEME AND EVALUATION CRITERIA FOR THE FINAL ACCEPTANCE OF PACKAGING. ASTM D6400 - Standard Specification for Labeling of Plastics Designed to be Aerobically Composted in Municipal or Industrial Facilities ASTM D6868 - Standard Specification for Labeling of End Items that Incorporate Plastics and Polymers as Coatings or Additives with Paper and Other Substrates Designed to be Aerobically Composted in Municipal or Industrial Facilities ISO 16620-5 - Plastics Biobased content Part 5: Declaration of biobased carbon content, biobased synthetic polymer content and biobased mass content
Recycling - Special materials, fibre	TGA poisons standard – “Packaging containers that held Harmful Chemicals & Automotive Oils or Aerosols products indicated as S6 or above” AS 1301.220:2024. Methods of test for pulp and paper, Method 220: Test method for repulpability.

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