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AORA Members Webinar
August 27th, 2020
Bioplastics?
What are bioplastics?

- Bioplastics are a family of materials that are *certified* compostable, *certified* biobased, or both.

- Bioplastics are niche products in the plastics portfolio that offer new properties and application possibilities.

- All certified compostable bioplastics are biodegradable but not all biodegradable plastics are certified compostable.

- Verification is provided in the form of a Certificate of Conformance, issued by the ABA after confirmation from the independent auditor that all requirements of the standard are met.

- Compostability (and therefore biodegradability) is assured as that material or product has passed all relevant tests to the Standard.
Who is the Australasian Bioplastics Association?
Who is the Australasian Bioplastics Association?

- The ABA:
  - is the peak Industry body for the **bioplastics** industry in ANZ, representing producers, converters and users of these materials and advocates for the **appropriate** use of bioplastics.
  - is a registered Incorporated Association, not for profit and administered by volunteers from the Industry.
  - manages the only verification program in ANZ for verification of claims by Members and non-Members alike, to the requirements of the Australian Standards, for commercial and home composting.
  - considering verification programmes addressing on / in soil for biodegradable mulch films; renewable resource content of plastics.; labelling of organic recyclable plastics products.
  - interacts with other global Industry Associations from Europe, USA, China, Japan, Korea, Malaysia, Thailand, India and Taiwan, plus certifying bodies such as DIN CERTCO (Germany) and TUV Sud, and testing laboratories such as Scion (NZ) and OWS (Belgium).
Who is the Australasian Bioplastics Association?

- The ABA:
  - provides education to the public on source separation programs for food waste and composting at end of life of these materials directly and through our website.
  - participates in technical development such as Australian Standards and technical committees on Standards development such as ASTM Working Groups.
  - participates in working groups with APCO addressing packaging and the NRA addressing labelling of organic recyclable plastics e.g. Guidelines for Compostable Packaging recently released.
  - develops submissions on behalf of Industry to inquiries such as Senate Inquiry, Marine Plastic Pollution, and various state parliament enquiries into plastic bags, packaging and microbeads.
  - consults on material selection, education and community engagement for source separation of organic waste.
  - self regulates through a Code of Conduct, signed by Members, to ensure appropriate communication and marketing of bioplastics.
Claiming “biodegradable” is not enough

- The ABA does not endorse labelling of a product or material as “biodegradable” unless the performance of the material at end of life is defined i.e. “certified” compostable.

- The claim “biodegradable” is meaningless unless it includes the conditions – when, where and how.

- Only certified compostable materials are proven to be “biodegradable” in commercial and home composting, at end of life.

- A claim of conformance to a Standard must be substantiated. Conformance must be proven.
What is the verification program of the ABA?

The verification program is administered as voluntary and uses an independent auditor to assess applications.

Currently the ABA provides a Certificate of Conformance to Members and non-Members alike, if their products have passed all the requirements of the Australian Standards AS 4736 – 2006 and AS5810 – 2010.

Suppliers of certified compostable products can provide an ABA Certificate of Conformance to substantiate their compliance.

If a supplier to you cannot provide a certificate of Conformance perhaps you should ask the question, why not?
### Australian Standards


### Test conditions

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<thead>
<tr>
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<th>AS 4736</th>
<th>AS5810</th>
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<tbody>
<tr>
<td><strong>Biodegradation</strong></td>
<td>ISO 14855, 6 months, 58+/-5°C</td>
<td>ISO 14855, 12 months, 25+/-5°C</td>
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<tr>
<td><strong>Disintegration</strong></td>
<td>ISO 16929, 12 weeks, Varied temp</td>
<td>ISO 20200, 180 days, 25+/-5°C</td>
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What do the Australian Standards Include?

- Characterisation including maximum heavy metals limits – minimum volatile solids content.
- Biodegradability – aerobic and anaerobic under specified test methods and conditions.
- Disintegration under specified test methods and conditions.
- Compost Quality according to AS4454 required test methods – density, total dry solids, volatile solids, salt content, pH, total nitrogen, ammonium nitrogen, magnesium, phosphorous and potassium.
- Toxicity
  - plant - OECD Terrestrial Plant Growth Test Guideline 208
  - Earthworm – ASTM E1676 Eisinia Fetida worm toxicity
- Recognisability. The ABA administered looped seedling and home compostability logos provide recognisability
AS4736-2006 and AS5810-2010 compliant bioplastics and organic recycling conditions.

- Organic recycling conditions vary greatly. No standard specification can cover all conditions. It addresses typical conditions, the great majority of conditions.

- Many thousands of tonnes of food and garden organics, including plastics which have been certified to meet the requirements of AS4736, EN13432, ISO 17088, ASTM D6400 have been satisfactorily processed in Australia, Italy, the UK and other jurisdictions to produce high quality and valuable compost and other organic recyclable products with no adverse effect from the certified compostable products.

- **However only AS certified products are suitable for Australia and New Zealand**

- The performance of certified compostable products has been proven over 20 years or more, so many times. If the conditions are right, consistent with those described in all of these standards, they will
  - Disintegrate
  - Biodegrade to CO2, water and biomass
  - Leave no harmful residue
The Origin of AS4736-2006

- AS4736 working group (EV-017) was formed in 2004 comprised of
  - Australian Chamber of Commerce and Industry
  - Australian Conservation Foundation Inc.
  - Australian Retailers Association
  - Department of Environment and Heritage (Federal) - chair
  - Keep Australia Beautiful National Association
  - NSW Advisory Council on Recreational Fishing
  - National Association of Testing Authorities Australia
  - Packaging Council of Australia
  - Plastics and Chemicals Industries Association Incorporated
  - Swinburne University of Technology
  - Waste Management Association of Australia

- Reference documents included EN13432, ASTM D6400, OK Compost, GreenPla
- AS4736-2006 is consistent with organics recycling of plastics Standards in other parts of the world, with an additional worm toxicity test.
The Origin of AS5810-2010

- AS5810 working group (EV-017) was formed in 2007 comprised of
  - Australasian Bioplastics Association
  - CSIRO
  - National Association of Testing Authorities Australia
  - National Environment Protection and Heritage Council
  - NSW Advisory Council on Recreational Fishing
  - Planet Ark Foundation
  - Plastics and Chemicals Industries Association
  - Queensland University of Technology
  - Waste Management Association of Australia

- Reference documents included AS4736, EN13432, ASTM D6400, OK Compost Home, OK Biodegradable Soil, UNI 11183

- AS5810 is consistent with OK Compost Home and other home compostability standards with an additional worm toxicity test
What do AS4736-2006 and AS5810-2010 verification mean for the organics recycler?

- Collection and delivery of organic waste in compostable bags has been shown to be affective and attractive to the consumer.
- The organics recycler can be confident that a plastic bag or packaging product which carries the AS4736 looped seedling logo or the AS5810 home compostable logo will disintegrate and biodegrade in a composting cycle with no adverse affect on compost quality.
- Without those labels, he cannot be confident of processability or effect on compost quality.
- The establishment of an organic waste recycling stream in compostable bags that food waste can link into, will in turn allow certified compostable packaging to follow, facilitating circular economy principles for the organic fraction and bioplastic products, diverting much from landfill or incineration.
Australian consumer law

- According to the Australian Competition and Consumer Commission (ACCC), it is essential that consumers are provided with accurate information to make informed decisions.

- Businesses that make environmental or “green” claims should ensure that they are scientifically sound and appropriately substantiated.

- Australian Consumer law states that businesses must not mislead or deceive customers in any way and it contains serious penalties for businesses that fail to meet these requirements. The ABA endorses ACCC Guidelines including the document “Green Marketing and the Australian Consumer Law”.

- Can a product carry a claim that it is compostable or biodegradable without qualification or substantiation?
Australian Consumer Law - AS4736-2006 AS5810-2010

- The ABA has no role in the monitoring or enforcement of consumer law.

- A certificate of compliance with the requirements of the AS4736 or AS5810 and appropriate labelling demonstrate an effort to prove performance claims and inform the consumer.

- Whether that is sufficient to substantiate a claim of biodegradability or compostability will be assessed by the ACCC.

- Marketers of organic recyclable plastic products should be read relevant ACCC documents including “Green Marketing and the Australian Consumer Law”. There are other requirements than proof of conformance.
More than 100 Certificates of Conformance recognising compliance with the requirements of the AS4736-2006 have been issued. Products include bioplastics resins, bioplastics film and bag products and products of natural origin - bagasse, paper composites.

More than 50 Certificates of Conformance recognising compliance with the requirements of AS5810-2010 have been issued with a similar range of products.

Some Certificates have more than one product on same, for example food serviceware.

A listing of verified products can be found on the ABA website www.bioplastics.org.au.
Global Market Production Capacities
Evolution of production capacities

Global production capacities of bioplastics

Source: European Bioplastics, nova-Institute (2019)
Global Production Capacities

Global production capacities of bioplastics

Source: European Bioplastics, nova-Institute (2019)
Global Production Capacities

Bio-based & durable bioplastics 2019 vs. 2024

- PE
- PET
- PA
- PP
- PEF*
- PTT
- Others

*PEF is currently in development and predicted to be available in commercial scale in 2023.

Source: European Bioplastics, nova-Institute (2019)
Global Production Capacities

Biodegradable bioplastics 2019 vs. 2024

Source: European Bioplastics, nova-Institute (2019)
Global Production Capacities

Bio-based plastics (by market segment) 2019

- Rigid packaging: 30 in %
- Textiles: 19 in %
- Flexible packaging: 14 in %
- Automotive & transport: 7 in %
- Consumer goods: 3 in %
- Building & construction: 3 in %
- Coatings & adhesives: 7 in %
- Electrics & electronics: 1 in %
- Others: 1 in %

Global Production Capacities

Biodegradable plastics (by market segment) 2019

- Flexible packaging: 43%
- Rigid packaging: 9%
- Agriculture & horticulture: 14%
- Coatings & adhesives: 8%
- Consumer goods: 5%
- Textiles: 2%
- Building & construction: 1%
- Automotive & transport: 1%
- Others: 12%

Bioplastics and Circular Economy – so much more than a “plastic bag”.

Australasian Bioplastics association
Further information?

- Please visit our website at http://www.bioplastics.org.au

- Please visit European Bioplastics at http://www.european-bioplastics.org/

- Or contact the ABA directly by email at

  info@bioplastics.org.au

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