



Optical Suppliers  
Association

OSA SUSTAINABILITY COMMITTEE  
Glossary of Terms

## Accreditation and Certification

The fact of being officially recognised, accepted, or approved of, or the act of officially recognizing, accepting, or approving of something the process of earning an official document, or The act of providing an official document, as proof that something has happened or been done. \*Cambridge Dictionary  
*Please see page [23](#) for links to websites that provide information on standards, certification, and accreditation.*

## Anaerobic digestion

The chemical process in which organic matter is broken down by microorganisms in the absence of oxygen, which results in the generation of carbon dioxide (CO<sub>2</sub>) and methane (CH<sub>4</sub>). Materials high in organic content, such as municipal wastewater, livestock waste, agricultural waste, and food wastes, may all undergo anaerobic digestion. The methane gas produced may be collected and used directly as a fuel for cooking or heating, or it can be burned to generate electricity. Unlike the production of methane from gas wells, anaerobic digestion is a renewable source of energy.

\*Britannica

## Bio-based plastics

Bio-based plastics are fully or partially made from biological resources (such as wood, castor seed oil, <sup>2</sup> or cotton) rather than fossil raw materials. They are not necessarily compostable or biodegradable.

## Bio-degradable and compostable

Biodegradable and compostable plastics biodegrade in certain conditions. They may be made from fossil-fuel based materials. They can contribute to reducing 'unavoidable' littering, but do not fully solve the littering problem.

**Example in optics: At the time of publishing, demo lenses, polybags, and some frame materials can be biodegradable.**

**ISO 14855-1:2005** specifies a method for the determination of the ultimate aerobic biodegradability of plastics, based on organic compounds, under controlled composting conditions by measurement of the amount of carbon dioxide evolved and the degree of disintegration of the plastic at the end of the test.

**ISO 15985:2014** specifies a method for the evaluation of the ultimate anaerobic biodegradability of plastics based on organic compounds under high-solids anaerobic-digestion conditions by measurement of evolved biogas at the end of the test.

## Bioenergy

Bioenergy refers to electricity and gas that is generated from organic matter, known as biomass. This can be anything from plants and timber to agricultural and food waste – and even sewage.

The term bioenergy also covers transport fuels produced from organic matter. But on this page, we're just focusing on how it's used to generate electricity and carbon-neutral gas. \*goodenergy.co.uk

## **Biomass**

Biomass is biological material derived from living, or recently living organisms. In the context of biomass for energy, this is often used to mean plant-based material, but biomass can equally apply to both animal and vegetable-derived material. \*forestresearch.gov.uk

## **By-products**

An incidental or secondary product made in the manufacture or synthesis of something else. Usually industrial or biological processes. \*Merriam-Webster

## **Carbon/carbon dioxide (CO<sub>2</sub>)**

In the context of climate change, 'carbon' is used as shorthand for 'carbon dioxide' in terms such as carbon emissions, carbon footprint and carbon capture.

Carbon Dioxide (CO<sub>2</sub>) occurs naturally and is vital for many eco systems. For example, plants and trees take in carbon dioxide to create energy via photosynthesis, releasing the oxygen that we breathe in the process.

However, carbon dioxide is also released by burning fossil fuels. More carbon dioxide is being released into the in the atmosphere than can be absorbed by the earth's plant life and oceans. This is a problem because, as a greenhouse gas, carbon dioxide in the atmosphere stops heat energy escaping and causes global heating.

## Carbon Footprint

The amount of greenhouse gases and specifically carbon dioxide emitted by something (such as a person's activities or a product's manufacture and transport) during a given period. Consumption of all the goods and services used. Results are typically presented as a single indicator in equivalent kilograms of carbon dioxide (kg CO<sub>2</sub>e). Guidance is included in the [ISO 14067](#) standard. **Example in optics - reduce carbon footprint through shipping by sea rather than by air. Reduce volume of goods – e.g foldable cases.**

## Carbon Neutral

Having or resulting in no net addition of carbon dioxide to the atmosphere. \*Merriam Webster

## Carbon Offset

An action or activity (such as the planting of trees, seagrass, or carbon sequestration) that compensates for the emission of carbon dioxide or other greenhouse gases into the atmosphere.

**Example in optics – <https://onetreepanted.org/collections/europe/products/united-kingdom>**

## Castor seed oil-based

A material obtained through chemical processes from the renewable raw material castor oil.

\*emsgrivory.com **Example in optics: Some injection plastics can use 45% to 62% of castor seed oil.**

**Please note it is not recommended to use alcohol or solvent-based cleaners when using this material. Some manufacturers may stipulate cold glazing.**

## **Circular Economy**

An economic system that replaces the 'end-of-life' concept with reducing, alternatively reusing, recycling, and recovering materials in production/distribution and consumption processes. A circular economy is one that produces no waste and pollution, by design or intention. It keeps products, parts, and materials at their highest use and value at all times.

See also closed loop production.

\*Policies for transitioning towards a circular economy: Expectations from the European Union.  
(Hartley, Van Santen & Kirchherr, 2020)

## **Circular Products**

Physical products (any type of goods that can be physically touched) are designed in ways that are aligned with one or more of the circular economy principles, and remain neutral towards the other(s), not in alignment. The design must be implementable in practice and at scale (e.g. a bottle designed to be recyclable is only circular if it is used in a system where it actually gets recycled in practice and at scale). Criteria for circular design are listed in the indicator list under 6d. Category 1 and 6d. Category 2. \*\*

## Climate Breakdown

A more recent term used to reflect the severity of the impact of carbon emissions. It describes the fact that the climate conditions that have been present for at least the past 10,000 years, during which human civilization has developed, are no longer stable.

## Climate Change

Significant and long-lasting change in the Earth's climate and weather patterns. \*Merriam Webster Climate change refers to changes in the state of global climate that can be measured over an extended period – usually decades or longer. The UN Framework Convention on Climate Change (UNFCCC) defines it as ‘a change which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods’.

Measurable effects of climate change could include heatwaves increasing in frequency or severity; droughts becoming more frequent or longer lasting; average rainfalls decreasing or increasing; storms, hurricanes and cyclones becoming more frequent and severe.

## Closed Loop Production

Closed loop production processes are those that reuse material waste created during the production process for additional products, as well as use the recycled products to create new items.

## Compostable

Can be used as compost when it decays. For anything to be legally labelled compostable, it has to have been certified to break down in industrial (council) composting facilities within 180 days. ISO 17088:2008 specifies procedures and requirements for the identification and labelling of plastics, and products made from plastics, that are suitable for recovery through aerobic composting.

## Corporate Social Responsibility (CSR)

A concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis. \*Commission of the European communities. 2001. *Promoting a European Framework for Corporate Social responsibilities*, COM (2001) 366 final, Brussels.

Example: Code of Conduct or PRAGATI initiative.

## Cotton-based

One of the raw materials for bio-acetate is cotton, more specifically the white 'bolls' of cotton plants. Once harvested, this is refined into purified cellulose and then processed via organic synthesis to create cellulose acetate. Cotton is sustainable and has a comparatively short renewable life cycle.

**Example in optics – bio-based acetates.**

## Deforestation

Clearing or thinning of forests by humans. Deforestation represents one of the largest issues in global land use. Estimates of deforestation traditionally are based on the area of forest cleared for human use, including removal of the trees for wood products and for croplands and grazing lands. Deforestation reduces the amount of carbon dioxide that can be absorbed from the atmosphere.

\*Britannica

## ECONYL®

ECONYL® regenerated nylon is a material produced by Aquafil. It is made entirely from ocean and landfill waste, such as industrial plastic, fabric scraps from clothing manufacturing companies, old carpets and "ghost nets" (lost or abandoned fishing nets). \*econyl.com

## End of Use

When products or assets that are no longer of use to the first user but are still in good working order and must change hands (un-refurbished and un-remanufactured) to a new user in order to remain in use.\*

## Energy Management

The usage and application of technology including planning and operation of both production and consumption of energy with a view to enhance energy efficiency of an organisation. The principal objectives of energy management are conservation of resources, saving budget and preventing climate change. \*Introduction to energy and sustainable development, M.M. Islam, M. Hasanuzzaman, in Energy for Sustainable Development, 2020  
**ISO 14001:2015** specifies the requirements for an environmental management system that an organization can use to enhance its environmental performance.

## Environmental, Social and Governance (ESG)

Environmental, social, and governance (ESG) criteria are a set of standards for a company's operations that socially conscious investors use to screen potential investments. Environmental criteria consider how a company performs as a steward of nature. Social criteria examine how it manages relationships with employees, suppliers, customers, and the communities where it operates. Governance deals with a company's leadership, executive pay, audits, internal controls, and shareholder rights. \*Investopedia.com

## FSC

Forest Stewardship Council. International non-profit organisation dedicated to promoting responsible forestry. FSC certifies forests all over the world to ensure they meet the highest environmental and social standards. Products made with wood and paper from FSC forests are marked with a 'tick tree' logo. \*fsc-uk.org **Example in Optics: Cardboard packaging, point of sale or cases.**

## G850 Rnew®

Rnew® is produced by Rilsan® (a sub-brand of Arkema), and is a high-performance transparent copolyamide, partially based on renewable resources. This grade has been specially designed for injection moulding applications, ideally suited for optic as high-end eyewear frames. Percentage of renewable carbon according to ASTM D 6866: 45%. Arkema is one of the initiators of Pragati, therefore ensuring the castor seed oil used to make G850 comes from a renewable source.

\* [extremematerials-arkema.com](http://extremematerials-arkema.com)

## Global Recycle Standard (GRS)

The GRS is an international, voluntary, full product standard that sets requirements for third-party certification of recycled content, chain of custody, social and environmental practices and chemical restrictions. *Please see link on page [23](#) for websites on certification for the GRS.*

## Global warming and global heating

An increase in the overall surface temperature of the earth. Climate scientists have tracked an upward trend in temperatures since around 1850, when fossil fuel use rapidly increased due to the industrial revolution. This change in temperature makes it clear that the rapid increase in global temperatures that we are experiencing is caused by human activity. In comparison, natural changes in the earth's temperature (e.g. changes that brought about ice ages) happen over periods of thousands of years.

Global heating has come into use more recently because it more accurately describes the fact that human activity is actively 'heating' the planet, rather than the planet simply warming on its own.

## Green Energy

Any energy type that is generated from natural resources, such as sunlight, wind, or water. The key to these energy resources is that they don't harm the environment through factors such as releasing greenhouse gases into the atmosphere. \*twi-global.com

## Greenhouse gases

Gases (including carbon dioxide and methane) in the earth's atmosphere that absorb infrared radiation (net heat energy) emitted from Earth's surface and reradiate it back to Earth's surface. The increasing concentration of carbon dioxide and methane in the atmosphere causes more heat to be trapped, raising the average temperature of the earth's surface. This is known as the greenhouse effect. [ISO 14064-1:2018](#) specifies principles and requirements at the organization level for quantification and reporting of greenhouse gas (GHG) emissions and removals.

## Greenwashing

Marketing and Advertising activities that mislead consumers and make them believe a company is doing more than they actually are with regards to environmentally friendly products or services.

## LDPE

Low-Density Polyethylene. Thermoplastic is created from the monomer ethylene.

\*Plasticexpert.com

**Example in Optics - Frame bags can be made from LDPE and can be recycled at specialized recycling centers like those found at supermarkets. LDPE can be made biodegradable with an added additive.**

## Life cycle

A life cycle is a course of events that brings a new product into existence and follows its growth into a mature product and eventual critical mass and decline. The most common steps in the life cycle of a product include product development, market introduction, growth, maturity, and decline/stability.

\*Investopedia.com

## Marine plastic

Any plastic material that inadvertently makes its way out to sea. Marine litter is any human-created waste that has been discharged into the coastal or marine environment, either deliberately or accidentally.\*plasticpackagingfacts.org

Examples: Fishing nets, drinking bottles and carrier bags carrier bags that have found their way into the world's seas and oceans.

## **Micro-plastic**

Microplastics are bits of plastic less than 5mm in size. They have been found everywhere from beaches to the deepest parts of the ocean. **Example in optics – residue from lens glazing potentially entering water system.**

## **Naturally derived**

Any ingredient whose starting material originates from plants, minerals, microbes, or animals that may be adapted to provide performance.

\* honest.com

## **Net Zero**

A state in which the greenhouse gases going into the atmosphere are balanced by removal out of the atmosphere. The aim is to reduce emissions to as close to zero as possible, with the small amount of remaining emissions absorbed through natural carbon sinks like forests, and new technologies like carbon capture.

<https://www.gov.uk/government/publications/net-zero-strategy>

## **New Product Development (NPD)**

Original products, product improvements, product modification and new brands that the firm develops through its own research and development efforts. \*economicdiscussion.net

## **Non-toxic plasticiser**

A plasticiser is an additive that is used in acetate to give it stability and flexibility, and a non-toxic plasticiser is naturally derived and less harmful to the environment.

## **Oxo-degradable**

Neither a bioplastic nor biodegradable plastic, but a conventional plastic mixed with an additive to imitate biodegradation. Oxo-degradable plastics fragment into microplastics, but don't break down at the molecular or polymer level like biodegradable and compostable plastics. The resulting microplastics are left in the environment indefinitely until they eventually fully break down.

\*greendotbioplastics.com

## **Packaging Plastics**

The wrapping material around a consumer item that serves to contain, identify, describe, protect, display, promote and otherwise make the product marketable and keep it clean. \* entrepreneur.com

**Example in optics – frame bags, side sleeves, demo lenses and contact lens packaging**

## PRAGATI Initiative

The goal of Pragati is to enhance castor productivity and enable sustainable castor crop production in that country, where the bulk of the world supply is produced. The programme seeks to stimulate the use of good agricultural practices to increase yield and farmer income and the efficient use of water resources, in addition to maintaining soil fertility. Emphasis is also placed on education and the adoption of good waste management practices, enabling better health and safety practices, and respecting human rights. \*sustainableplastics.com

## Recyclable

Able to be recycled. \*dictionary.cambridge.org

Note: this does not necessarily mean that there are facilities to recycle a product or that it is economic to do so. **Example in optics – Teraacyle and Recycline – see links on page [23](#) for full details**

## Recycling

Reduce a product all the way back to its basic material, reprocessing and reusing them to make new products, components, or materials. Significant value and embedded energy are lost in the process. In a circular economy, recycling is the last resort action. \*\*

## Recycled Stainless Steel

Reclaimed or industrial scarp stainless steel that has been recycled accounting for savings of nearly 33% of the energy used in current austenitic stainless-steel production worldwide. If all stainless came from 100% recycled stainless global energy consumption used in stainless steel production would drop a further 51%. \*unifiedalloys.com

## Redistribute

The repeated use of a product or component for its original intended purpose without significant modification, but potentially involving cleaning or small adjustments so it is ready for the next use. \*\*

## Reforestation

Bringing the forest back to an area where it was destroyed. The restoration process of destroyed or damaged forest. \*conservation.org

## Refurbish

Return a product to good working order. This can include repairing or replacing components, updating specifications, and improving cosmetic appearance. For example, a sofa can be refurbished by replacing a worn cover with a new one, perhaps more modern design.

## Renewable

Energy sources that are naturally replenished, rather than getting depleted when used.

\*dictionary.cambridge.org

## Renewable energy sources

This includes wind, solar power, geothermal, hydropower, tidal, biomass and bioenergy (ethanol, biodiesel).

## Renewable materials

Materials that are continually replenished at a rate equal to or greater than the rate of depletion (compare [ISO 14021](#): Environmental labels and declarations – self-declared environmental claims, type II environmental labelling). Renewable materials include, for example, cotton, hemp, maize, wood, wool, leather, agricultural by-products, nitrogen, carbon dioxide, and sea salt. To fit in a circular economy, such materials (where relevant) must be produced using regenerative production practices. \*\* **Example in optics – cotton based acetates or castor seed oil based injections**

## Re-purpose

To find a new use for an idea, product, or building. \*dictionary.cambridge.org

## Research and Development (R&D)

Activities companies undertake to innovate and introduce new products and services. Often the first stage in the development process. The goal is to take new products and services to market and add to the company's bottom line.

\*Investopedia.com

## Re-use

The repeated use of a product or component for its original intended purpose without significant modification, but potentially involving cleaning or small adjustments so it is ready for the next use. \*\*

## rPET

Recycled PET plastic produced without exhausting natural resources anything made from PET can be replaced with rPET. \*preventedoceanplastic.com

**Example in optics -cases and frames can be made out of rPET.**

## Single-use plastic

Used once, or for a short period of time, before being thrown away.

**Examples in optics - frame bags, demo lenses, frame side sleeves, and contact lens packaging.**

## **Sustainable Business**

Where profitability, concern for the environment and social commitment are in harmony. Running a sustainable business involves, for example, using own resources economically and reducing any negative environmental impact.

\*verksamt.se

## **Sustainable Development Goals (SDG)**

A collection of 17 interlinked global goals designed to achieve a better and more sustainable future for all. The SDGs were set in 2015 by the United Nations General Assembly and are intended to be achieved by the year 2030.

## **Sustainable Production**

The material was grown in a way that preserves the ecosystem without degrading it further but falls short of being regeneratively produced. Sustainable production is considered a transitional stage towards a regenerative way of producing materials. Most well-known sustainability certification schemes fall under this category (e.g, FSC 100%, Rainforest Alliance). \*\*

## UK Plastic Tax

Tax that will apply to plastic packaging manufactured in, or imported into the UK, that does not contain at least 30% recycled plastic. Plastic packaging is packaging that is predominantly plastic by weight. It will not apply to any plastic packaging which contains at least 30% recycled plastic, or any packaging which is not predominantly plastic by weight. Imported plastic packaging will be liable to the tax, whether the packaging is unfilled or filled. See <https://www.gov.uk/guidance/check-if-you-need-to-register-for-plastic-packaging-tax> for full information.

## Water consumption

The amount of water that is taken (or withdrawn) from the source is called the water intake, and the amount that is returned is called the water discharge. The difference between the water intake and the water discharge is the amount consumed.

\*safewater.org

Disclaimer: this list is non-exhaustive. These definitions are provided to assist in understanding issues relating to sustainability but should not be treated as definitive. Different organisations can offer different definitions of certain terms. We have sought to use those that are most widely used/understood. We have also avoided including any comment when providing definitions for items that are perceived differently in terms of value – for example the pros and cons of carbon offsetting. None of the definitions provided can be taken to assume a particular belief or recommendation on the part of the OSA.

\*\*Definitions from Circulytics, the Ellen MacArthur Foundation. <https://ellenmacarthurfoundation.org/resources/circulytics/overview>

Other un-noted definitions are based on literature from European Bioplastics Environmental Communications Guide, Earth Shift Global, Global Bright Futures and Sustainable Review.

# Relevant Standards

*OSA members are entitled to a 15% discount off most standards. Please contact [mmacritchie@osa-uk.co.uk](mailto:mmacritchie@osa-uk.co.uk) for more information*

**ISO 14001:2015** – Environmental Management Systems

**ISO 14064** – Greenhouse Gas Emissions and Removals Quantification and Reporting

**ISO 14064-1:2018** – Greenhouse Gases – Part 1 Quantification and Reporting of Greenhouse Gas Emissions and Removals

**14064-2:2019** – Greenhouse Gases – Part 2 - Quantification, Monitoring and Reporting of Greenhouse Gas Emission Reductions or Removal Enhancements

**ISO 14064-3:2019** – Greenhouse Gases – Part 3 - Verification and Validation of Greenhouse Gas Statements

**ISO 14021:2016** - Environmental labels and declarations — Self-declared environmental claims (Type II environmental labelling)

**PAS 2060** Carbon Neutrality Standard

**ISO 14067:2018** - Greenhouse gases — Carbon Footprint of Products

**PAS 2050:2011** - Specification for the Assessment of the Lifecycle of Greenhouse Gas Emissions of Goods and Services

**ISO 50001** – Energy Management Systems

**Modern Slavery Act 2015** – Slavery, Human Trafficking and Exploitation Legislation

**B Corp** – Social and Environmental Impacts Standards (*B Corporation status can be achieved by receiving accreditation from B Lab (a non-profit organisation). Certification requires a score of at least 80 (out of 200) against 5 areas of impact: Governance, Community, Workers, Environment and Customers.*)

# Links

## General

<https://www.gov.uk/government/publications/net-zero-strategy>

[www.defra.gov.uk](http://www.defra.gov.uk)

<https://www.england.nhs.uk/greenernhs/a-net-zero-nhs/>

<https://www.carbontrust.com/resources/sme-carbon-footprint-calculator>

Free Futurelearn course: [How to Measure, Reduce, and Offset your Company's Carbon Footprint.](#)

## Accreditation and Certification

<https://bcorporation.net/>

<https://certifications.controlunion.com/en/certification-programs/certification-programs/grs-global-recycle-standard>

<https://www.c2ccertified.org/get-certified/product-certification>

## Marketing and Business

<https://www.asa.org.uk/news/misleading-by-emissions-environmental-claims-and-the-cap-code.html>

## Recycling and waste solutions

<https://www.terracycle.com/en-GB/>

<https://www.recycline.co.uk/>