

Sustainability: A Goal Worth Pursuing

By

Dr. Dieter Niederstadt
Technical Marketing Manager



01. Introduction

As the world grows increasingly concerned about the climate crisis, it seems that many governments are still slow to take meaningful action.

As a result, many companies are working to implement their own policies to address climate change with initiatives designed to make their operations carbon neutral. Their actions in the current situation are accelerating as the experts proclaim increasingly dire circumstances for life on planet earth if action is not taken.

“Climate Change”

For many years, Asahi Kasei has recognized that climate change is a serious global issue, impacting both the natural environment and society as a whole. Its group mission has been, and continues to be, to contribute to life and living for people around the world. Even when much of the world's economic and social activity was suspended due to the Covid-19 pandemic, greenhouse gas (GHG) emissions did not decrease greatly, and emissions began increasing again when economic and social activity resumed. This indicates the difficulty of resolving the issue of climate change, and the need to accelerate relevant efforts. It is a key driver in Asahi Kasei's increased drive toward attaining carbon neutrality status in all of its operations by 2050 and the reason Asahi Photoproducts has worked hard to achieve PAS 2050 Carbon Measured certification from the Carbon Trust for its AWP™-DEW water-washable flexographic plates.

“Asahi Kasei's carbon neutrality position is clearly laid out”

In this white paper, Asahi Kasei's carbon neutrality position is clearly laid out, and the work that was done by Asahi Photoproducts in working towards Carbon Neutrality, which was achieved in September 2022, is detailed as well. Asahi Kasei hopes its story will encourage others to take similar steps, thereby stepping up the pressure on governments to take more aggressive actions.

The world is truly changing. We must come together to address it in a meaningful way, and Asahi Kasei is determined to be a leader in these efforts.

In the past one to two years, there has been a marked increase in awareness regarding problems of greenhouse gases, plastic waste, and other issues related to achieving harmony between the development of human society and the global environment. With this wide range of significant issues in mind, Asahi Kasei is focusing on sustainability to find out what it can do to help achieve a sustainable society, then take decisive action.



02.

Asahi Kasei Group Policy for Carbon Neutrality

Asahi Kasei has adopted a new policy regarding efforts toward the ambition of becoming carbon neutral by 2050.

The new policy sets forth objectives with regard to absolute greenhouse gas (GHG) emissions directly from operations of the Asahi Kasei Group as well as indirect emissions from the generation of power and steam purchased from other companies.

While our former target was to reduce GHG emissions relative to sales, we have changed to an absolute emissions reduction target to indicate a clearer path toward the goal of becoming carbon neutral. In addition to reducing GHG emissions from our own operations, the Asahi Kasei Group makes an important contribution to reducing the world's GHG emissions through several of our technologies and businesses. In April 2021, we launched a [*Green Solution Project*](#), under the direct supervision of the President, to study the creation of new businesses for a carbon neutral society.

Contributing to a carbon neutral sustainable society

Reduction of GHG emissions at Asahi Kasei

- Carbon neutral by 2050
- Reducing emissions 30% or more by 2030 (from FY2013)

Major efforts

Reduction of energy consumption, energy decarbonation, manufacturing process innovation, R&D, business portfolio transformation

Contributing to reduced GHG emissions in the world

- Energy
- Mobility
- Home & Living
- Life Material

Key areas

Renewable energy, energy conservation, energy storage, hydrogen, EDVs, CO₂ separation/recovery/use, lightweighting, durability, insulation, net zero emission houses, CO₂ sensors, digital, circular economy

Asahi Kasei Approach to Carbon Neutrality

03. Explaining the Specifications

A key publicly available standard (PAS) companies can look to when measuring greenhouse gas emissions of their goods and services is PAS 2050 as a first step toward achieving Carbon Neutrality.

According to the British Standards Institute, PAS 2050 was developed by BSI in 2008. PAS 2050 was the first consensus-based and internationally applicable standard on product carbon footprinting that has been used as the basis for the development of other standards internationally. The 2011 revision to PAS 2050 was developed through extensive consultation with international stakeholders, and in particular through significant engagement with the wide PAS 2050 user community. Its goal was to provide a consistent methodology for identifying, understanding and managing/reducing emissions.

In its Guide to PAS 2050¹, BSI states: 'Carbon footprint' is a term used to describe the amount of greenhouse gas (GHG) emissions caused by a particular activity or entity, and thus is a way for organizations and individuals to assess their contribution to climate change. Understanding these emissions, and where they come from, is necessary in order to reduce them. In the past, companies wanting to measure their carbon footprints have focused on their own emissions, but



The CO₂ Measured certification was carried out for AWP™-DEW in Japan, China, the USA and Europe.

now they are increasingly concerned with emissions across their entire supply chain.

This is the first step in determining how to reduce GHG emissions – understanding the current state and then finding ways to reduce emissions, while at the same time identifying cost-saving and other opportunities for continuous improvement in the future. PAS 2050 takes a process life cycle assessment (LCA) approach to evaluating the GHG emissions associated with goods or services, enabling companies to identify ways to minimize emissions across the entire product system.

¹Guide to PAS 2050: How to assess the carbon footprint of goods and services, a Crown 2008 and the Carbon Trust 2008 copyrighted publication. Content quoted with permission. https://aggie-horticulture.tamu.edu/faculty/hall/publications/PAS2050_Guide.pdf



PAS 2060 is the ultimate goal for Carbon Neutrality.

Achieving PAS 2050 certification is just the beginning of the journey toward Carbon Neutrality in a manner that is credible and verified. For Asahi Photoproducts, this means quantifying and reducing GHG emissions on a specified business area, working with the Carbon Trust to ultimately gain Carbon Neutrality² certification, a goal that was achieved in September 2022 for its AWP-DEW CleanPrint water-washable flexo plates.

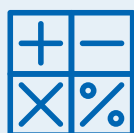
While companies can calculate their footprints and claim carbon neutrality, the Carbon Neutral certification is a way these claims can be validated and credible as companies and governments are moving towards a net zero world. Once certified, companies must demonstrate a commitment to reduce their carbon impact year by year and thus actively drive CO₂ reduction towards zero.

²The Carbon Trust Guide to Carbon Neutral Certification <https://www.carbontrust.com/what-we-do/assurance-and-certification/carbon-neutral-certification>



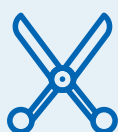
The carbon neutral certification was carried out for AWP™-DEW in Japan, China, the USA and Europe.

01



Measure

02



Reduce

03



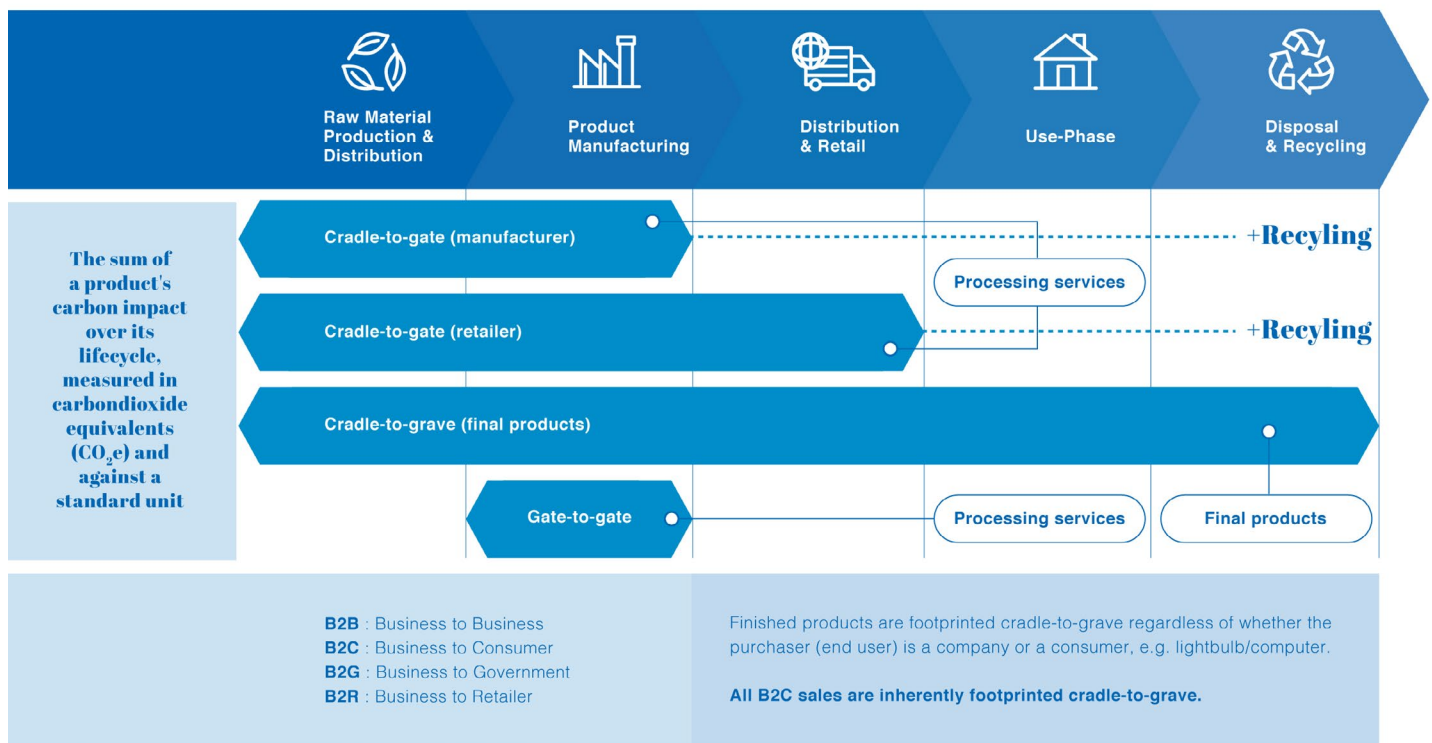
Document
& Validate

The main benefits of Carbon Neutral certification are:

- An internationally recognized certification for organisational carbon neutrality.
- A guide for companies to quantify their carbon footprint and support subsequent reduction of emissions with a 12-month review.
- A demonstration of a voluntary and ambitious commitment to climate action.
- A proactive approach to reducing their products' CO₂ impact over the product life cycle.

Getting to Carbon Neutrality includes three key stages:

- 1. Measure.** Calculate the carbon footprint of the product using internationally recognized methodologies.
- 2. Reduce** these emissions and make a public commitment to achieve carbon neutrality.
- 3. Document and Validate.** The final stage is documentation and verification of carbon neutrality. This requires a declaration that standards have been met, supported by a set of statements known as "Qualifying Explanatory Statements" (QES).



The Carbon Trust certification service allows organizations such as Asahi Photoproducts with its AWP™-DEW water-washable flexo plates to report environmental claims and data with confidence and credibility, avoiding accusations of greenwashing.

Products that achieve a carbon neutral certification demonstrate an organisation's commitment to decarbonisation, and the neutralisation of remaining impact through the support of environmental projects.

Progress is audited and checked on a yearly basis, with a goal of continual improvement to maintain Carbon Neutrality. Companies must proactively plan product improvement year by year and think hard about how to continuously transform products and the manufacturing and distribution processes.



04.

The Road to Carbon Neutral Supported by the Carbon Trust



In its efforts to support the overall corporate push toward carbon neutrality, Asahi Photoproducts has partnered with the Carbon Trust to define and certify its goals and performance against those goals.

In doing so, it is important to understand that this effort is not one-and-done. It requires ongoing year-over-year improvements in reduction of greenhouse gas emissions. The point of a carbon neutral certification is that a company is actively driving its product development to be increasingly in balance with the environment.

The Carbon Trust is an international climate change and sustainability consultancy with the mission to accelerate the transition to a low carbon economy by helping governments, businesses, and organisations to reduce carbon emissions and achieve greater resource efficiency. A leader in environmental footprinting, the Carbon Trust certifies the footprint of products, organisations, and value chains across the globe.

A Carbon Neutral Approach Requires Accountability

As the effects of the climate crisis have become ever clearer, many companies are jumping in to the “Carbon Neutral” fray. Everywhere you look, companies are claiming some sort of green credentials. But these claims require closer examination. To be able to truly claim carbon neutrality, a company should work with a certifying organization such as the Carbon Trust. To simply claim you are Carbon Neutral, or will be by some date certain, is not enough. In fact, in many cases that is simply greenwashing.

What is different about working with a certifying organization such as the Carbon Trust is that there is a formal process for achieving certification. It comprises two stages. First, the Carbon Trust works with organisations to establish an accurate measurement of their current carbon footprint; in other words, Carbon Measured Certification, in accordance with the PAS 2050 standard. Unless you truly know where you are starting from, you can’t accurately measure your progress to Carbon Neutrality. It is a stringent and fully documented process.



The second part of the process is compliance with the PAS 2060 standard, which is achievement of Carbon Neutral status.

These standards or specifications are fully described in the next chapter of this white paper. But the bottom line is that these processes are time sensitive. There is a specific timeframe for achievement of PAS-2060 compliance, or Carbon Neutral status, following your PAS-2050 Carbon Measured Certification.

Furthermore, once Carbon Neutral status has been achieved, it is not one-and-done. Ongoing interaction with the certifying body is required to maintain this status over time through the development, execution and monitoring of a very specific carbon management plan. With each renewal period, carbon reduction requirements escalate. For example, you might be able to achieve Carbon Neutral status by purchasing carbon offsets without making any change to your manufacturing or distribution processes. Typically, this means paying for a reduction in greenhouse gases through projects that are in process or have already occurred, such as supporting community-based projects for planting trees, renewable energy, etc. There are a variety of organizations that can aggregate your carbon offset purchases with those of other companies, exponentially increasing the results of the project. This is a stopgap measure a company can take while it continues to reduce its actual carbon footprint, and is not the ideal long-term solution.

At Asahi Photoproducts, our flexographic plates are based on fossil raw materials. We can purchase carbon credits to offset that, but it does not really change the product. The purpose of a carbon management plan is to engage in a whole-of-company process to reduce the actual carbon footprint of the product, from sourcing raw materials through packing and shipping the product, and then ensuring its use results in a carbon reduction for the customer as well as considering what happens to the plate – and the packaging – at end of life. That requires changing the mindset of people in research and development, product management and more. In fact, the journey to becoming Carbon Neutral requires changing the culture and the mindset of the entire company. At Asahi Photoproducts, we have the full support of our parent company, Asahi Kasei, in creating this cultural change.

This is where the importance of accountability comes in. We can say we have, for example, improved the impact of our production and made it more efficient or looked for e.g. new product solutions such as by adding a recycling unit to the plate washout process. But that statement is meaningless without oversight by a certifying body such as the Carbon Trust. They hold us accountable for our commitments to ongoing reductions of our carbon footprint across the life of the product being certified. Furthermore, without standards there is no accountability either. You must know what you are measuring against and whether you are in actual compliance with the standards. That's the important role organizations like the Carbon Trust play in this global journey to Carbon Neutrality.

Using carbon offsets in the beginning is a good first step; but the longer-term goal of the carbon management plan is to make changes in the manufacturing and distribution of the product. In this way, the product itself, during its life cycle, ultimately becomes carbon neutral with a reduced need for the offsets. And we are proud that we have been able to achieve Carbon Neutral status for our AWP-DEW CleanPrint plates. We look forward to continuing to work to further improve our carbon footprint for this product family in partnership with the Carbon Trust.



05.

Carbon Footprinting of Asahi AWP™-DEW Water-Washable Flexo Plates

Asahi Kasei Group is a leading multinational Japanese company specializing in materials science, chemicals, and electronics.

Asahi Kasei Group is a leading multinational Japanese company specializing in materials science, chemicals, and electronics. The products, technologies and services provided by Asahi Kasei Group ensure sustainable contribution to life and living for people around the world. Asahi Photoproducts, in partnership with the Carbon Trust, undertook a study of the carbon footprint of its AWP™-DEW CleanPrint water-washable flexographic printing plates with a view toward gaining a Carbon Neutral certification for these products. PAS 2050 was achieved in November 2021, and PAS 2060 in September 2022. The company received both the CO₂ Measured and the Carbon Neutral certification for its AWP™-DEW plate.



The study provides a cradle-to-grave life cycle assessment (LCA) of the environmental performance of Asahi Photoproducts unique flexographic photopolymer plate systems, AWP™-DEW.

The LCA study considered all aspects of the product system, from acquisition of raw materials used through to the end of life of the product.

Asahi Photoproducts collected primary data from their manufacturing facilities for all processes in the product life cycle. Where primary data was not available, it was supplemented by secondary data provided by the Carbon Trust.

The results show that the carbon footprint is primarily driven by the raw materials and manufacturing, followed by outbound distribution and end of life. The impact of the plastics used in the products provided the most significant burden. When the printing plates are reused, the carbon footprint begins to decrease significantly. Asahi AWP™-DEW printing plates are designed to be reused several times.



As noted, Carbon Neutral certification from the Carbon Trust requires ongoing reduction of the carbon footprint for the products being certified. To improve the product carbon footprint, Asahi Photoproducts will continue to pursue more sustainable primary materials. Extending the product lifespan

to enable more uses from the product will instead also improve the carbon footprint proactive efforts to reduce product impacts by incorporating eco-design and adjusting material choices and are being strongly pursued as the leading action by Asahi Photoproducts.

Life cycle processes for the plates incorporated in the study include:

- **Raw materials**, including forming and moulding as well as inbound transport;
- **Manufacturing** of the plates, including waste management;
- **Both primary packaging** of finished products and shipping packaging for distribution of the products;
- **Transport** for distribution of products and retailing at point of sale;
- **The washing process** for used printing plates, a water-wash system that uses no solvents; and
- **End of life disposition** of used printing plates and packaging.



The carbon neutral certification was carried out for AWP™-DEW in Japan, China, the USA and Europe.

06. Results and Looking Ahead

Asahi Photoproducts is proud to have achieved the Carbon Neutral certification from the Carbon Trust for its AWP™-DEW CleanPrint water-washable flexographic printing plates.

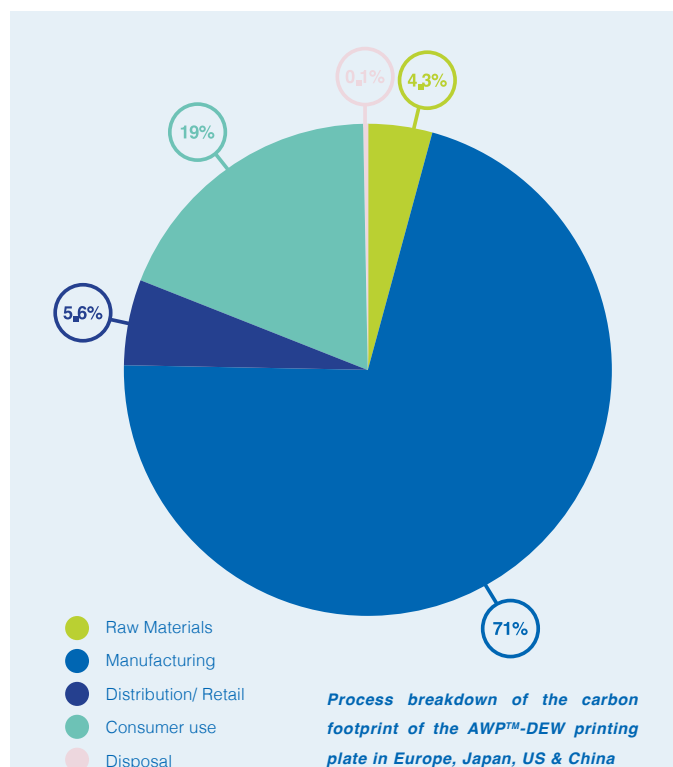
We are proud to announce, that in September 2022, the Photoproducts division has achieved the Carbon Neutral certification from the Carbon Trust for its AWP™-DEW CleanPrint water-washable flexographic printing plates.

The Result is:



The carbon footprint of this product has been certified carbon neutral

The carbon neutral certification was carried out for AWP™-DEW in Japan, China, the USA and Europe.



The result of the PAS 2050 and PAS 2060 work with the Carbon Trust has been a measurement of the CO₂ life cycle emissions for the designated Asahi Photoproducts product. Asahi Photoproducts provided the primary data for all materials utilities and outputs for these plates. The emission factors are secondary sources provided by the Carbon Trust. The use phase assumption did not include any processes related to the flexo printing operation within which the printing plates will be installed; however, to account for the reusability of the product, a washing process is included to clean up the plate from debris, ahead of a subsequent job reuse.



In line with the corporate sustainability objectives of Asahi Kasei, the next step is to maintain the Carbon Neutral certification status.

The company is confident that its highly skilled and extremely knowledgeable chemists and scientists are up to this task, and we expect to be able to achieve these important goals.

Asahi Photoproducts has reached a new industry sustainability milestone: achieving carbon neutrality in flexographic printing. We hope by leading the way that many others will follow, further establishing flexography as the printing technology of choice for packaging brands and consumer product companies worldwide.

There will be an immediate benefit for our customers – repro shops, flexo printing operations and consumer product companies – who use Carbon Neutral printing plates. Now that we have concluded all the work to make our AWP™-DEW plates carbon neutral, customers will be able to deduct the total carbon footprint amount from their printed product and reduce their own carbon footprint to improve overall sustainability. It should be noted that AWP™ plates are already delivering significant environmental value to the companies that use them due to the fact that no VOC-based washout solvents are used and there is less waste in the pressroom, among other things. Asahi Photoproducts will also be working with customers to provide assistance and advice where appropriate to help them reduce their CO₂ footprint and to communicate those benefits to their brand owner customers.

No one individual, company or government can single-handedly cure the climate crisis. It takes universal, global collaboration and cooperation to get the world to a point where climate deterioration is mitigated, or even fully abated. Asahi Kasei, and its subsidiary Asahi Photoproducts, are proud to be contributors to this worldwide effort.