

The Mass Balance Approach



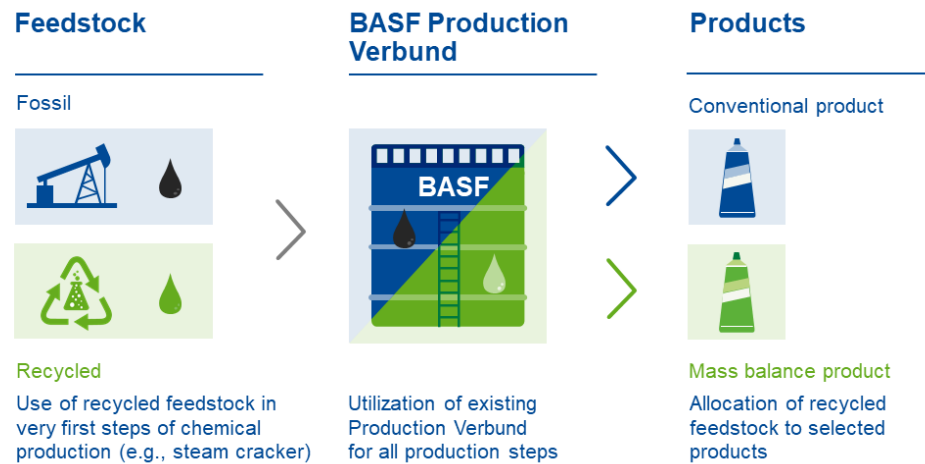
[global/en/who-we- \(/global/en/who-we-/\) \(are/sustainability/contact.html](#)



The chemical industry uses a small number of raw materials to create tens of thousands of different products. The lion's share of chemical production starts in the steam cracker, where steam is used to split or "crack" naphtha, a long-chain hydrocarbon, into smaller molecules. These molecules then serve as the

Related Links

building blocks for downstream production. They include, for example, hydrogen, methane, ethylene and propylene, which are mainly processed into plastics, coatings, solvents and crop protection products.



The principle is therefore similar to when consumers buy “green” or “clean” electricity. Although the consumers cannot be certain that the electricity they use in their homes has come directly from renewable sources, the overall share of green energy in the grid rises in step with demand. In the chemical industry, renewable or recycled feedstock is added at the beginning of the production process and allocated to the end product. This calculation-based principle offers multiple advantages: It reduces greenhouse gas emissions and fossil feedstock inputs, while the quality and properties of a product remain the same. As a result, the products can be processed exactly like conventionally produced materials. There is therefore no need to adapt formulations, plants or processes. And customers who buy mass-balanced products can use them as they would traditional products, while benefiting from the same level of quality.



- Learn more (</global/en/who-we-are/sustainability/whats-BASF's-new/sustainability-contributionnews/2019/EllenMacArthurfoundation-to-the-White-Paper-Mass-balance.html>)
- White Paper “Enabling a circular economy for chemicals with the mass balance approach” by the CE100 network of the Ellen MacArthur Foundation
- [global/en/who-we-are/sustainability/contact.html](/global/en/who-we-are/sustainability/contact.html)



- Learn more (</global/en/who-we-are/sustainability/we-drive-about-sustainable-BASF's-solutions/circular-biomass-economy/mass-balance-approach/biomass-balance.html>)
- Learn more (</global/en/who-we-are/sustainability/we-drive-BASF's-sustainable-ChemCyclingsolutions/circular-project-economy/mass-balance-approach/chemcycling.html>)



Independent bodies audit the allocation (i.e., how the volumes of the sustainable raw material are mathematically assigned to the final product). However, at the moment, experts are still using different methods – also known as standards – for auditing and certification.

We engage in collaborating in different stakeholder platforms:

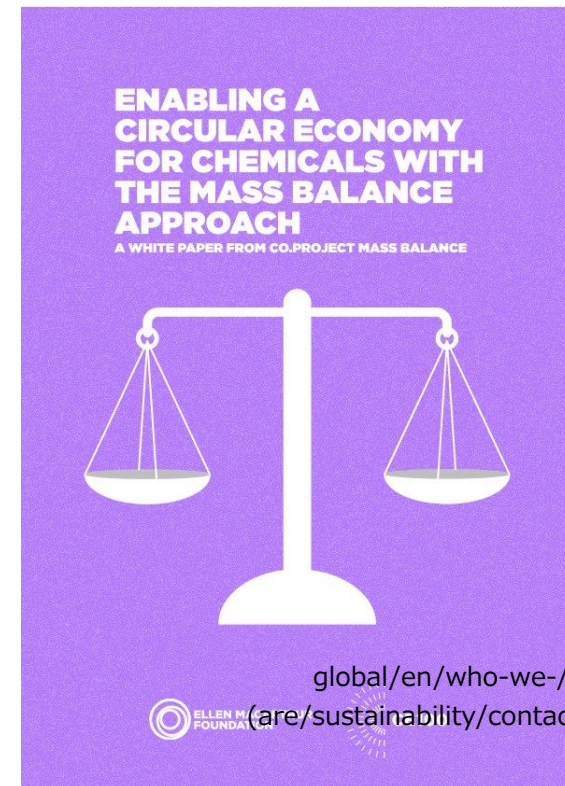
- Associations, e.g. Joint Task Force on mass balance at European Chemical Industry Council (CEFIC) and PlasticsEurope
- Certification schemes: Active participant/member in leading scheme gives like ISCC (International Sustainability & Carbon Certification), REDcert, and RSB (Roundtable on Sustainable Biomaterials)
- Member of different public private partnership initiatives, e.g. Circular Plastics Alliance initiated by the EU Commission, Green Deal initiated by the Dutch government
- Norming: Member of different working groups like ISO PC 308 (chain of custody), ISO TC 323 (circular economy), ISO TC 207 (environmental management), ISO TC 61 (plastics)

Mass Balance workshop at BASF in Ludwigshafen

More than 90 international experts on recycling and standardization representing industry, nongovernmental organizations, certification bodies and government came together at BASF in Ludwigshafen on September 23, 2019, for a workshop on the mass balance approach.

Here's the common sense emerging in the discussion:

- A mass balance approach is needed to ensure a higher use of renewable and recycled feedstocks in the chemical industry
 - There is a strong wish of harmonizing voluntary standards
 - The brands and industry desired a stable multi-stakeholder standard with a clear label and claim (e.g. ISO/CEN)
 - The participants clearly expressed their support for active cooperation in order to achieve the goal of a single standard
- 🔗 [More\(/global/en/who-we-are/sustainability/whats-new/sustainability-news/2019/mass-balance-workshop-ludwigshafen.html\)](https://global/en/who-we-are/sustainability/whats-new/sustainability-news/2019/mass-balance-workshop-ludwigshafen.html)



Download the Whitepaper "Enabling a circular economy for chemicals with the mass balance approach" by the CE100 network of the Ellen MacArthur Foundation

📄 PDF (9.4 MB) (/global/documents/de/sustainability/w-responsibly/ellenmacarthur_White%20Paper_2019_ei)

Impressions from the workshop on September 23, 2019



MASS BALANCE APPROACH TO ACCELERATE THE USE OF RENEWABLE FEEDSTOCKS IN CHEMICAL PROCESSES

Climate protection, reduction of greenhouse gas emissions and saving of fossil resources are key elements for a more sustainable future. The use of renewable feedstocks in historically solely fossil based chemical processes can contribute to meet these challenges. This view paper aims to introduce key criteria when applying mass balance and to ensure a verifiable and certified approach is applied for companies willing to accelerate the use of renewable feedstocks along the value chain. Standards owners should show the application of these key criteria in their standards.

In those so-called mass balance approaches, renewable feedstocks are used instead of fossil feedstocks in existing efficient, complex and interlinked multi-step chemical production systems and supply chains thereby contributing to the bio-economy, the renewable segment of the circular economy.

This view paper focuses on mass balance approaches for renewable feedstocks.

Background

Mass balance is one of several well-known Chain of Custody approaches which can be used to trace the flow of materials through the value chain resulting in associated claims. Other chain of custody models include: Identity preserved, segregation and book and claim with certificate trading within open markets. These different Chains of Custody vary in terms of detailed knowledge of the source of the product, the complexity of implementation, and the renewable content in the end-product, which will in turn affect the allowed claims.

For the use of renewable feedstocks, specific production technologies may be developed and applied, which transform a renewable feedstock like e.g. sugar, vegetable oils, wood waste in segregated production plants into a bio-based chemical being used in various applications. The Chain of Custody linked to those approaches is identity preserved or segregation. These approaches are not part of this view paper because of the [global/en/who-we-/\) \(are/sustainability/contact.html](#)



[global/en/who-we-/\) \(are/sustainability/contact.html](#)




Download the PlasticsEurope position paper on the "Mass balance approach to accelerate the use of renewable feedstocks in chemical processes" - 29 January 2020 here

↓ PDF (500.9 kB) ([/global/documents/en/sustainability/sustainable-solutions/circular-economy/Mass_Balance_Approach_Renewable_Feed](#)

Follow us

in (<https://www.linkedin.com/company/basf>)

f (<https://www.facebook.com/basf>)  (<https://twitter.com/BASF>)

You (<http://www.youtube.com/user/basf>)

 (<http://www.slideshare.net/basf>)

 (https://www.instagram.com/basf_global/)

Company

[Career \(/global/en/careers.html\)](/global/en/careers.html)

[Media \(/global/en/media.html\)](/global/en/media.html)

[Sustainability \(/global/en/who-we-are/sustainability.html\)](/global/en/who-we-are/sustainability.html)


Service

[Multimedia \(/global/en/media/multimedia.html\)](/global/en/media/multimedia.html)


[eBusiness \(/global/en/legal/e-business.html\)](/global/en/legal/e-business.html)

[Publications \(/global/en/media/publications.html\)](/global/en/media/publications.html)

Products

[Product Finder \(https://products.basf.com/global/en.html\)](https://products.basf.com/global/en.html)  [global/en/who-we-are/](/global/en/who-we-are/)

[Industries \(/global/en/products.html\)](/global/en/products.html) [are/sustainability/contact.html](/are/sustainability/contact.html)

[Innovation \(/global/en/who-we-are/innovation.html\)](/global/en/who-we-are/innovation.html) 

Customer Service

[Latest News \(/global/en/media/news-releases.html\)](/global/en/media/news-releases.html)

[Compliance Hotline \(/global/en/who-we-are/organization/management/code-of-conduct.html\)](/global/en/who-we-are/organization/management/code-of-conduct.html)

[Data protection @BASF \(/global/en/legal/data-protection-at-basf.html\)](/global/en/legal/data-protection-at-basf.html)

Copyright © BASF SE 2020

[Disclaimer \(/global/en/legal/disclaimer.html\)](/global/en/legal/disclaimer.html) | [Credits \(/global/en/legal/credits.html\)](/global/en/legal/credits.html) | [Privacy policy \(/global/en/legal/data-protection.html\)](/global/en/legal/data-protection.html) | [Data protection @BASF \(/global/en/legal/data-protection-at-basf.html\)](/global/en/legal/data-protection-at-basf.html) |

[Responsible Disclosure Statement \(/global/en/legal/responsible-disclosure-statement.html\)](/global/en/legal/responsible-disclosure-statement.html) | [Contact \(/global/en/legal/contact.html\)](/global/en/legal/contact.html)

[global/en/who-we-/\) \(are/sustainability/contact.html](#)

