

Our Story of Using LCA at Mitsubishi Chemical Europe

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Who we are (briefly)

- Mitsubishi Chemical Europe (MCE) is a wholly owned subsidiary of Mitsubishi Chemical Group (MCG).
- MCG is one of top 10 chemical corporation globally (depends on the actual exchange rate of the Japanese yen)
- The company, with its headquarter in Düsseldorf, offers and sells advanced chemical-based products and services (from polymer composites to semiconductor solutions).
- MCE works closely with the HQ in Tokyo. Thus, our LCA team faces environment-related issues, from basic chemical production to specialty chemicals.
- MCG has a mission known as KAITEKI.
- KAITEKI can be translated to “well-being of people, society and our planet Earth”.

Why do we need LCA

- Realization of KAITEKI requires an accounting tool to discover “status-quo” and control development
- Increasing voluntary and compulsory environmental reporting (GRI, EcoVadis, CDP, CSRD, upcoming regulations)
- LCA has become business advantage
- Growing environmental awareness of customers
- In some industrial segments no chance for business w/o PCF or LCA reports
- Increasing number of natural disasters awaken people’s environmental awareness



Facing problems, and their solutions?

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| 1. Suddenly growing customer's requirements for LCA | Establishment of "Global LCA Competence Center (GLCC)" @ MCG |
| 2. Obtaining supplier data | Roll-out of "Scope 3 Supplier Program" |
| 3. Dealing with data quality (own measured data, toll manufacturing, suppliers, etc.) | Offering internal and external Webinars about LCA and LCI collection (why, what and how) |
| 4. Transparency in value-chain ^{ref. 4} | Special projects incl. block-chain, e.g. SAP Green Token (easy NDA) |
| 5. Outdated and/or conflicting standards (ISO14044 or ISO 14067, what is waste?) ^{ref. 1,2} | Corporate wide internal standards based on up-to date ISO and int. guidelines |
| 6. Confusing abundance of available guides and recommendations leading to different results (PEF vs. EPD or TfS?) ^{ref. 3, 5} | Following most actual regulatory requirements, joining international associations and initiatives (such as TfS) to act together |
| 7. Weak background knowledge of LCA in the value-chain | Eagerly seeking for cooperation with Universities (UofTokyo, UofPforzheim, RWTH, UNU) + Point 3. |
| 8. Time constraints for a large number of required reports | Preparations for LCA automation incl. actual piloting |

- We need **good trained people** (students) with LCA background (also software knowledge) – Young Minds
- Simple rules for LCA (developing more **PCRs**)
- Global **transparency** of environmental data – LCA must be as important as physical/chemical properties of substances/products – incl. automated calculation, automated exchange – Standards
- Importance of **background data** (see PEF)
- We must unify our forces – all stakeholder in value-chain must act same – **Trust**

Worth to read:

1. Koffler et al. 2020: On the reporting and review requirements of ISO 14044, The International Journal of Life Cycle Assessment volume 25, pages478–482
2. Schaubroeck, 2022: Sustainability assessment of product systems in dire straits due to ISO 14040–14044 standards: Five key issues and solutions, Journal of Industrial Ecology, volume 26, pages 1600-1604
3. Brandao et al. 2022: RED, PEF, and EPD: Conflicting rules for determining the carbon footprint of biofuels give unclear signals to fuel producers and customers, Front. Clim., 12 October 2022 Sec. Climate and Decision Making
4. SAP White Paper 2022: Material traceability for increased circularity in the Chemical Industry; GreenToken by SAP in collaboration with BASF, Mitsubishi Chemical, and SCG Chemicals
5. Heijungs et al. 2021: System Expansion and Substitution in LCA: A Lost Opportunity of ISO 14044, Front. Sustain.