

Product Carbon Footprint for AOC Product

QA&CSR/QMD TW/GCM

Project Description

- Project Objectives
 - USI Green Product Lifecycle Assessment – AOC Study
- Project Implementation Framework
 - The Green Product Lifecycle Assessment Project is planned for one year, with the goal of promoting the establishment of product LCA, and strengthening the ability to implement product LCA, to fulfill the corporate social responsibility, to give full play to the influence of the EMS industry, and to improve the performance of international sustainability questionnaires (e.g., DJSI, CDP, etc.).

Project Description

- Anticipated Benefits
 - Perform life cycle assessment on the target product to the USI control subsidiary to more comprehensively identify the environmental impacts associated with the product production process, as well as to identify improvement hotspots in the production process, and to fulfill its corporate social responsibility.

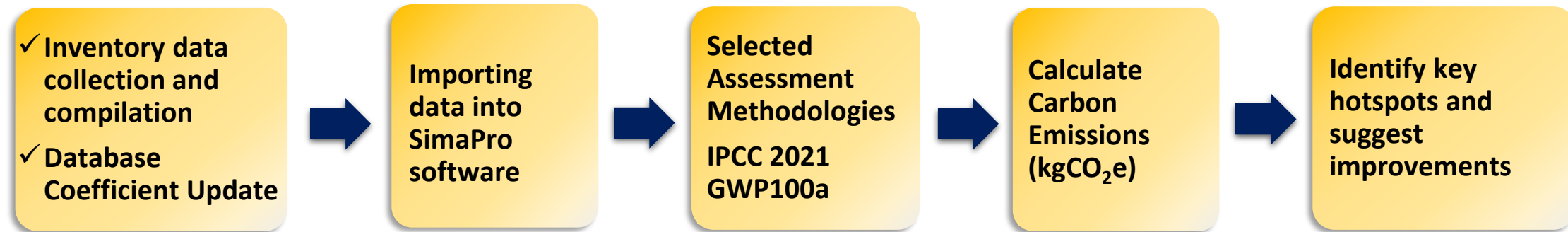
NPI / RMA Summary

Target

| | |
|-------------------------|---|
| Target Product | AOC Cards |
| Functional unit | The production of AOC products |
| System Boundary | B2B (Raw materials, manufacturing, waste) |
| Software | SimaPro 9.4.0.1 |
| Inventory Data | The data collection period is one year |
| Carbon Footprint | IPCC 2021 GWP100a |

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Carbon Footprint Execution Process



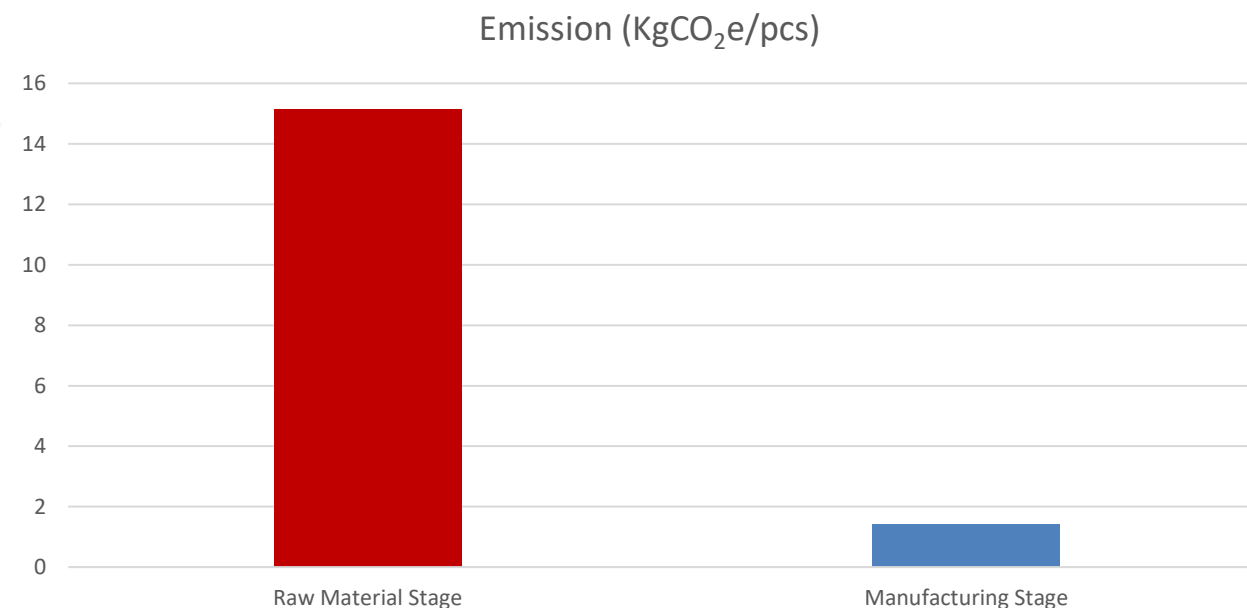
Inventory Data

- 2022/01/01~2022/12/31

| Stages | Use of Information Data Source | | Allocation |
|----------------------------|---------------------------------------|---|---|
| Raw material stage | Raw Material Activity Data | SAP、OA、Replacement of Records | AOC Number of production/all products in production |
| | Transportation Distance, Vehicle Type | Supplier Information、Google Map、ELCD、ICAO | |
| Manufacturing stage | Resources | Electricity Bills, Greenhouse Gas Inventory Data, Meter Reading Records | Floor area of production line/floor area of the whole factory*product quantity distribution |
| Waste Stage | Waste | Statistical Tables, Weigh Bills, Coupons | Floor area of production line/floor area of the whole factory*product quantity distribution |
| | Transportation Distance, Vehicle Type | Supplier Information、Google Map | |

AOC Carbon Footprint Assessment Results (1/2)

- Using the life cycle assessment software SimaPro and the IPCC 2021 100a methodology, we examined the carbon emissions of AOC products and found that the total carbon emissions were **16.56 kgCO₂e/pcs**.
- The raw material stage (15.14 kgCO₂e/pcs) has a higher carbon footprint than the manufacturing stage (1.42 kgCO₂e/pcs).



NPI / RMA Summary

AOC Carbon Footprint Assessment Results (2/2)

- Critical Material

| Number | Categorization | Name | Carbon footprint (kgCO ₂ e/pcs) | Percentage |
|--------|----------------|--------------|--|------------|
| M035 | Raw materials | AL CAPACITOR | 6.09E+00 | 36.8% |
| M103 | Raw materials | IC FPBGA | 3.28E+00 | 19.82% |
| M012 | Raw materials | CER.CAP | 9.98E-01 | 6.03% |

Conclusion and Recommendation

- In the ranking of critical raw materials (except for the process stage), AL CAPACITOR , IC FPBGA , and CER.CAP used in the raw material stage are the hotspots that affect carbon emissions.
 - It is recommended to optimize the ratio of inputs of these critical raw materials to strengthen raw material management and avoid unnecessary consumption, thus improving the environmental impact.

Thank You