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Validation Opinion

VO-4165204

Add value.
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The Carbon Footprint of Products (CFP) systematic approach, implemented by

Brand Group SE & Co. KG
Otto-Schott-Straße 25
97877 Wertheim, Germany,

was validated in accordance with DIN EN ISO 14064-3:2020.

We hereby confirm that Brand Group SE & Co. KG has implemented appropriate procedures to calculate and report the

(partial/cradle-to-gate) Carbon Footprint of laboratory equipment, vacuum pumps and systems
(details in the attached validation report)

in accordance with DIN EN ISO 14067:2019, in particular Annex C (“The CFP systematic approach”; normative).

Level of assurance: reasonable

Materiality threshold: 10% per carbon footprint

This validation opinion is only valid until 31 August 2028 for the scope of assessment and in combination with the objectives, explanations and criteria for evaluation specified in the following validation report and provided there are no significant changes to the production processes or the calculation methodology. This validation opinion refers to the validation of the systematic approach for the calculation and reporting of carbon footprints of products but does not represent the verification of a carbon footprint of a specific product.

TÜV SÜD Industrie Service GmbH
Validation and Verification Body for Greenhouse Gases
accredited by DAkkS according to DIN EN ISO 17029 with DIN EN ISO 14065
Westendstrasse 199, 80686 Munich, Germany

Munich, 28 August 2025

Explanations to the validation opinion

Brief description of the validation process

BRAND INTERNATIONAL GMBH (here also referred to as “BRANDINT“) as *Shared Service* organization of the Brand Group has voluntarily entrusted TÜV SÜD Industry Service GmbH (“validation and verification body”) to carry out an independent (third party) validation of the systematic CFP approach for the calculation and reporting of carbon footprints of the products “laboratory equipment, vacuum pumps and systems” regarding compliance with the DIN EN ISO 14067:2019-02, in particular Annex C (normative).

The production is carried out by the following companies:

- BRAND GMBH + CO KG (in Wertheim, Germany)
- VACUUBRAND GMBH + CO KG (in Wertheim, Germany)
- VITLAB GmbH (in Großostheim, Germany)

This validation is based on the intended scope of application, the goals and criteria as agreed upon with the commissioning on 31 March 2025.

Table 1 - Product groups (and their main raw materials)

▪ Mechanical Liquid Handling Products: plastics, metal, occasionally glass/ceramics
▪ Electronic Liquid Handling Products: plastics, metal, electronic components (such as batteries, displays, motors, circuit boards) and occasionally glass/ceramics
▪ Life Science Consumables: plastics
▪ Pipetting Robots: plastics, metal, electronic components
▪ Glass Volumetric Instruments: glass (mainly Boro 3.3.), printing inks
▪ Plastic Volumetric Instruments: plastics, printing inks
▪ General Lab Products: plastics, glass
▪ Dispensing Systems: plastics, metals, electronic components (such as batteries, displays, motors, circuit boards)
▪ Vacuum Pumps and Systems: plastics, metals, electronic components (such as power supplies, displays, motors, circuit boards)

The staff appointed by the validation and verification body carried out a system review, an on-site inspection and interviews of responsible staff at BRAND GMBH + CO KG production site in Wertheim, Germany, on 03 June 2025 and 04 June 2025. On 5 June 2025, an online audit via MS Teams also took place. In particular, the following installations were inspected:

- Production processes, from receipt of raw material to product completion, final inspection and storage of finished products
- Transfer station and meters for energy consumption (fuels, electricity, water), central office for metering consumptions.
- Compressed air unit
- Central heating system
- Heat exchanger
- Combined heat and power plant (CHP)

The personnel responsible for all production sites took part in the on-site and online audit.

Roles and responsibilities

The quantification and reporting of greenhouse gas (GHG) emissions are the sole responsibility of our client. Our role and responsibility as an accredited verification body was to independently verify the adequacy of the GHG emissions reported by our client, as well as the underlying systems and processes for data collection, analysis and control, in accordance with the requirements of DIN EN ISO 14064-3:2020.

Standard for quantification and reporting of the carbon footprints of the products

DIN EN ISO 14067:2019 (“Greenhouse gases – Carbon footprint of products – Requirements and guidelines for quantification”), especially Annex C (“The CFP systematic approach”; normative)

System boundaries

The declared unit is defined as "a sales unit with packaging". A sales unit (e.g. a pipette or a box of pipette tips) is used as a reference unit for the partial carbon footprint of products (CFP, also referred to here as a "product carbon footprint" or PCF, consistent with the project documentation), as indicated on the product. The product also includes product packaging without outer packaging for transport.

The system boundaries are according to the cradle-to-gate principle and include the following process modules:

I. **Production and transport of purchased materials:**
   1. Production of the primary materials includes the extraction of primary raw materials and further processing into raw materials and components and assemblies
   2. Transportation to Brand Group locations

II. **Goods receipt and storage**: goods receipt, inspection and storage

III. **Parts manufacturing**: injection molding, CNC manufacturing/milling and drilling/grinding

IV. **Finishing:** printing, coating, adjustment, cleaning/polishing, tempering

V. **Assembly:** pre-assembly, final assembly, final inspection, contract processing

VI. **Storage and outgoing goods:** storage of finished products, picking and preparation for transport

Electricity is generated from natural gas on site in a CHP plant and is also purchased from an energy supplier. There is a contract with the energy supplier for electricity from renewable sources that fully covers consumption at all production sites. This was proven by corresponding proof of origin and cancellation certificates.

The activity data for the products comes from the Bill of Materials (BOM) as well as from hourly rate calculations for machines and manual processes. The addresses of the respective production sites and suppliers per material are used to calculate the transport distances.

The BOMs contain increasing correction factors to account for systematic and unavoidable scrap in production. This includes the sprue as well as the systematic scrap, which is defined by the "in-process controls". Defective products that are detected during the final inspection are usually post-processed in the company – if necessary, manually – so that almost no production errors occur. For this reason, no additional scrap is considered separately in the calculation.

The emission factors for purchased materials (raw materials) are based either on mass/weight or on monetary expenditure ("spend-based") for more complex materials for which no suitable mass- or piece-based emission factors were available. The emission factors come from suitable sources (temporally, geographically and technologically representative) such as the energy suppliers, BAFA, UBA, IINAS, EPA, EXIOBASE, BEIS. Where mass- or energy-based emission factors were available, they were preferentially used, for example for natural gas, electricity and plastic granulate. When using spend-based emission factors, adjustments were made for the respective currency as well as for inflation. Emission factors from UBA were used to calculate transport emissions.

For the calculation of emissions from the production processes on site, so-called "CO_2e tariffs" are estimated, analogous to the hourly rate calculation for financial cost calculation. This approach allocates production-related natural gas emissions across different plants and production areas.

The following materials are excluded from the PCF calculation:

- Auxiliary and operating materials
- Water consumption
- Waste

These exclusions do not constitute a material source of emissions.

Both the activity data and the emission factors were evaluated regarding their data quality. The results of the data quality analysis are transparently documented in the report.

Relevant GHG emissions in the inventory

☒ Carbon dioxide (CO_2),	☐ Perfluorocarbons,
☒ Methane (CH_4),	☐ Sulphur hexafluoride (SF_6),
☒ Nitrous oxide (N_2O),	☐ Nitrogen trifluoride (NF_3)
☐ Hydrofluorocarbons,	☐ other

For upstream processes (outside the BRANDINT's control), other greenhouse gases may be relevant and are included in the emission factors as CO_2 equivalents:

The greenhouse gas inventory was calculated as CO_2 equivalents using the relative global warming potential (GWP-100) according to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change.

For some upstream processes, where only spend-based emission factors were available, greenhouse gas emissions were calculated based on the GWP100 values from the 4th OR 5th Assessment Reports of the Intergovernmental Panel on Climate Change (IPCC). The corresponding emission factors were determined by the respective publisher of the data source and documented in the report as part of the data quality analysis, considering the age of the factors.

Intended user of the carbon footprints and this validation opinion

The aim of the study is to calculate the partial PCF for Brand Group products to inform customers about greenhouse gas emissions, generate sales value and create a basis for product improvements. The target group is customers, sales agents and internal employees.

Standard for the validation

DIN EN ISO 14064-3:2020 ("Specification with guidance for verification and validation of GHG statements")

Objectives of the validation

The assessment was performed with due regard to our impartiality in a risk-based approach. Rational procedures were applied to reach reliable and reproducible conclusions. Within the scope of our audit, a sufficient amount of suitable evidence needed to be collected and explained in the audit by representatives of BRAND INTERNATIONAL GMBH and persons appointed for this purpose. This was to enable sufficient traceability of the information presented with the systematic approach for calculating and reporting the carbon footprints of products.

Criteria

The data review was conducted according to the following criteria:
Relevance, completeness, accuracy, transparency of information and consistency.
The assessment of alternatives according to the quantification model used was carried out according to the principle of conservatism.

Agreed level of assurance: reasonable

Note:
With a reasonable - but not absolute - level of assurance, we verify that the greenhouse gas statement is substantially correct. This includes reviewing the processes, data and evidence for their correctness and accuracy with an appropriately adequate sample size.

Materiality threshold: 10% per carbon footprint

Note:
The materiality threshold is a benchmark for our assessment of data gaps, errors and non-conformities remaining at the end of our review.
Gaps, omissions, and inaccuracies identified during the review that result in quantities greater than the established thresholds constitute a "material deviation", i.e. non-conformities, that must be addressed before a validation opinion can be issued.

Methods of validation

- Strategic analysis and risk assessment for the systematic approach to the calculation and reporting of the products under consideration
- Detailed audit planning and scheduling
- Interviews with responsible personnel of BRAND INTERNATIONAL GMBH
- Inspection of the production at the site of BRAND GMBH + CO KG (in Wertheim, Germany)
- Review of purchasing documents (invoices) relevant to the materials and energy consumption

- Review of the data and information systems and methodology for collecting, aggregating, analyzing, and verifying the information used to determine greenhouse gas emissions (for all production sites)
- Sampling of data and evidence for the determination of greenhouse gas emissions (for all production sites)
- Plausibility check of carbon footprints of selected products (from all production sites), by recalculating the emissions of relevant materials and energy consumption
- The following products were used as examples during validation that are considered representative of production at the sites:
  - Brand Product 705200 - Repetitive pipettes HandyStep® touch
  - Brand Product 705880 - Single-channel micropipette Transferpette® S 100-1000µl
  - Brand Product 732228 - Pipette tips, 2 - 200 µl TipRack 2-200 µl steril 960
  - Brand Product 10732228 - Pipette tips, 2 - 200 µl TipRack 2-200 µl nonsteril 960
  - VITLAB Product 1332819 VITsafe™ safety wash bottles, narrow-mouth, 500 ml
  - VACUUBRAND Product 20721005 Diaphragm pump ME 1 100-230/56 CUS
- Independent audit (quality assurance by an auditor not involved in the audit process)

Limitations

The document "Internal Report of the PCF Study" in the final version dated 22 August 2025 was used for validation (as the main document). As this document contains detailed information and extracts that have been classified as confidential by the Client, the document "External Report of the PCF Study" dated 22 August 2025 has been prepared for external communication. This document has also been revised to ensure that all required information for communication with third parties is included and that it remains consistent with the internal report. The systematic approach for CFP calculation has the following limitations:

Emission factor for natural gas: The emission factor for natural gas for the production sites in Wertheim is only available as CO_2, not CO_2 equivalent. This restriction is not material.

Biogenic share of emissions: Due to a lack of information on the biogenic content in emissions, the conservative assumption was made that everything comes from fossil sources.

Spent-based calculation for complex materials: Due to limited data availability for complex products, some of the emission factors for raw materials are based on the "spend-based" methodology. These are usually less precise than mass-based emission factors and are partly based on older versions of the IPCC Assessment Report (AR). The "spend-based" factors have been adjusted with regard to the exchange rate and inflation to improve data quality. As part of the annual internal review – and as described in the PCF study – all emission factors are planned to be regularly updated, so that the suitability of the "spend-based" factors is checked in accordance with the review. Priority should be given to improving these factors by using the original data sources as much as possible (e.g. EPA USAEIO instead of Climatiq) and continuously updating all factors to the latest available versions.

Exclusions: The following materials and consumptions were not taken into account in the PCF calculation. The reason: they are not included in the bill of materials and are therefore not systematically allocable to the products:

- Auxiliary materials
- Water consumption in production
- Produktion waste

Based on an initial analysis of emissions from these material flows at the organizational level within the system boundary, these combined emissions represent less than 5% of total

emissions and are to be classified as non-material. An in-depth review at the product level has not been possible at present due to the complexity of the product range.

As part of the annual review and for the further development of the methodology, an appropriate allocation of these consumptions, in particular of ancillary materials, should be implemented. Otherwise, a verification of the footprint at the organizational level is recommended to be able to continue to justify the exclusions.

Separate reporting of transport emissions: The systematic approach for the calculation of the PCFs currently does not allow separate automatic reporting of transport emissions. This is due to limitations in the existing SAP system to which the PCF calculation is connected. An analysis of the contribution of transport emissions to the life phase "raw material extraction and supply" showed that this share is in average 1.6% of emissions in this phase – and thus an even lower share of the total PCF. For this reason, the company communicates the PCF with an average transport share and transparently points out this limitation in the PCF reports as well as in the PCF communication. As part of a future update of the systematic approach or during the annual reviews, an adjustment in the SAP system should be sought in order to enable a separate product-specific disclosure of transport emissions to customers.

Conclusions

With our review of the systematic approach for the calculation and reporting of the Carbon Footprints of the products “laboratory equipment, vacuum pumps and systems” of BRAND GMBH + CO KG, VACUUBRAND GMBH + CO KG und VITLAB GmbH, we conclude that, in all material respects, the greenhouse gas emissions are calculated and presented fairly and factually in accordance with the specifications of the DIN EN ISO 14067:2019-02.

Based on the results of our validation process, we confirm that the responsible organization has developed appropriate procedures to calculate and report the carbon footprint (cradle to exit-gate /partial) of the products “laboratory equipment, vacuum pumps and systems” in accordance with the DIN EN ISO 14067:2019-02, including the achievement of the agreed level of assurance and compliance with materiality thresholds.

Our validation opinion solely refers to mentioned tools and documents for the calculation and reporting of carbon footprints of the products but does not represent the verification of a carbon footprint of a specific product.

This opinion is issued in accordance with the agreement reached with the client and within the framework of our validation and verification program. The results documented here are based on our internal documentation dated 25 August 2025, for this validation with project no. 4165204.