



BWE Insider's Guides to the MSI

Cradle-to-Gate Guidance for Data Preparation and Submission



Brown and Wilmanns Environmental^{LLC}

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Introduction

Brown and Wilmanns Environmental (BWE) welcomes you to *Cradle-to-Gate Guidance for Data Preparation and Submission*, our insider's guide to streamlining the process of incorporating new data into the Materials Sustainability Index (MSI). The MSI feeds materials data into the Higg Index, the Sustainable Apparel Coalition's (SAC's) tool for measuring the environmental and social performance of footwear, apparel, and equipment.

BWE worked with Nike, Inc., over the course of more than eight years to develop all the indicator data for the initial MSI materials, and we have advised the SAC on managing the MSI. This positions us to be your partner in preparing efficient and cost-effective data submissions. We have already addressed virtually every data issue likely to come up, so we can share specific details and insights that will make it easier for you to manage your submissions and get your data included in the MSI and the Higg Index.

We designed this guide as a companion to SAC's documentation, particularly *MSI Data Submission Requirements and Guidelines (SAC Guidelines)*. Familiarity with the original MSI documentation from Nike (*Nike Materials Sustainability Index*) will also make it easier for you to meet submission requirements. Please review these documents, available on the SAC website, before you read through this guidebook.

BWE aims to help minimize any questions the SAC's MSI Gatekeeper might raise about your submission, thereby reducing the need for revisions. To that end, in *Cradle-to-Gate Guidance*, you'll find detailed explanations of what the SAC is seeking as well as extensive examples that show how to address each aspect of the data submission process. We highly recommend that you provide the SAC with a pre-submission description of your material and/or data (see Section 2.2.) You'll have some work to do before you can provide the description, and this guide will help you with that as well.

We appreciate that you have invested in *Cradle-to-Gate Guidance*. Included is up to three hours of BWE consulting to assist with your submission and an opportunity to attend a BWE webinar on the MSI. If you have any questions, please contact us at MSIdatasubmission@bw-environmental.com or +1-805-898-0980.

THANK YOU,

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1.0 Understanding the MSI

The MSI is a tool that materials developers, product designers, and other interested parties can employ to generate relative comparisons among materials that may be considered for use in the manufacture of apparel and footwear products. While the MSI includes a set of built-in base materials, users can add new materials, as well as information about a given material's environmental attributes and the supplier's practices, to calculate overall material scores that allow for rankings of environmental performance.

1.1 BASE MATERIALS

The base material section of the MSI is not the same as a life cycle assessment (LCA), although it incorporates data from LCAs where available and uses similar principles in data collection where LCAs do not exist. Data for base materials cover only the portion of the material life cycle known as cradle-to-gate (from the origin of raw materials to a finished material ready to be sent to a manufacturing facility for assembly into footwear, apparel, and equipment) and does not consider how that material may be used in a final product or what happens to it at the end of the product's useful life. Figure 1 summarizes the cradle-to-gate life cycle.

Figure 1. The cradle-to-gate life cycle



Nike delivered the MSI to the SAC with a set of built-in base materials, listed in Table 1. Each base material serves as a generic version of a material type; for example, polyester fabric, cotton fabric, or polyethylene foam. For most of the materials in the MSI, the material version reflects a "typical supply chain." Some of the materials reflect either a supply chain for which data are available or a specialized supply chain.

Table 1. ORIGINAL MATERIAL SET IN THE MSI

| | | | |
|-----------------------------------|------------------------------|-----------------------------------|---------------------------------------|
| Acrylic fabric | Jute fabric | Polypropylene | Rubber, styrene butadiene (SBR) |
| Aluminum | Leather, corn-fed | Polypropylene fabric | Silk fabric |
| Aramid fabric | Leather, grass-fed | Polyurethane TPU, with solvent | Spandex fabric |
| Carbon fiber | Linen fabric | Polyurethane TPU, without solvent | Steel, carbon |
| Corrugated box | Lyocell fabric | Polyvinyl alcohol (PVA) | Steel, stainless |
| Cotton fabric | Mineral filler | Pulp, wood | Thermoplastic polyurethane, bio-based |
| Down | Modal fabric | Ramie fabric | Triexta fabric |
| Epoxy resin | Nylon-6 fabric | Rayon-viscose fabric, bamboo | Wool fabric |
| Ethylene-vinyl acetate (EVA) foam | Nylon-6,6 fabric | Rayon-viscose fabric, wood | Zinc |
| Glass fiber | Polycarbonate | Rubber, natural latex | |
| Hemp fabric | Polyester fabric | Rubber, polybutadiene (BR) | |
| | Polyethylene foam | | |
| | Polylactic acid (PLA) fabric | | |

COTTON**OIL**

The SAC is opening up the list of base materials to allow for multiple versions of a material type as well as to incorporate new data for an existing material. The new material versions may score higher than existing materials, giving designers alternatives for various applications. New data for existing materials provide an opportunity to improve the accuracy and applicability of the MSI, but must result in a significant difference in the base material score—a change of 2.5 points or more.

1.2 RULES FOR DATA ACCESSIBILITY

Note that a core principle of the MSI is that all data included must be publicly accessible, publicly disclosable, and documented as to its sources, scope, and methods of preparation so that anyone can verify and recreate it. Publicly accessible means any person can access the information (information that requires payment is acceptable). Publicly disclosable means that the entity submitting the data has the legal right to make it available in a manner that assumes that any person can view it and use it. For example, you may have access to “private” utility data that you combine with “public” information to generate data for a new material you wish to submit. If the private information is not accessible to anyone who asks for it or cannot be disclosed publicly, you cannot use it to create data for a new material submission.

This core principle departs from what has become a common practice in LCA: to keep data “locked up” and disclose only relative information or impact information that cannot be evaluated by others as to its validity. Over the long term, the MSI and the Higg Index may contribute to growth in the use of open data sets, which will allow for much broader evaluation and comparison of materials.

**PET BOTTLES****1.3 ENVIRONMENTAL IMPACT AREAS**

The base material scoring structure assesses four environmental impact areas: chemistry, energy and greenhouse gas (GHG) emissions, water and land, and physical waste. Each impact area has specific indicators. For example, the indicators for chemistry include carcinogenicity, acute toxicity, chronic toxicity, and reproductive toxicity/endocrine disruption. Preparing a material submission requires collecting and analyzing data specific to each indicator in each impact area. The MSI uses mathematical functions to transform the indicator data into a percentile score, except for chemistry, which is scored with an algorithm that takes into account the worst substances in different segments of the material life cycle.

1.4 REQUIRED DATA

To develop a new material submission, you need data about the cradle-to-gate supply chain as well as the following categories of information as they apply across the cradle-to-gate life cycle:

- ALL PROCESSES
- SIGNIFICANT CHEMICAL SUBSTANCES
- ENERGY USE
- GHG EMISSIONS
- WATER USE
- YIELD PER HECTARE FOR BIO-BASED RAW MATERIALS
- SOLID WASTE GENERATION

To submit data that apply to an existing material, you can choose to cover some or all of these, and some or all of the stages of the cradle-to-gate life cycle.