

## Using the Higg MSI Contributor: Submit Data to the Higg MSI

Developed by the Sustainable Apparel Coalition (SAC), the Higg Materials Sustainability Index (MSI) reports the environmental impact of different materials, so design and development teams can make more sustainable choices during materials selection. Technology company Worldly makes the MSI available on the Worldly platform.

The MSI Contributor enables anyone to submit materials production data to Higg MSI. By submitting data to the Higg MSI through the MSI Contributor, you contribute to the development of a common and consistent language about materials sustainability for the apparel, footwear, and home textile industries. This consistent language helps educate and influence brand purchasing and design decisions, and ultimately reduces the significant impact materials production has on the environment.

**This document provides the following information about submitting data to the MSI:**

- [MSI Data Submission Process](#)
- [Submission Options: Type I or Type II](#)
- [MSI Material Categories and Production Phases](#)
- [Type I: Full data submission requirements](#)
- [Type II: LCIA data submission requirements](#)
- [Data Submission Checklist](#)

Learn more about MSI methodology:

- [MSI Methodology](#)
- [MSI FAQ](#)

## MSI Data Submission Process

**You can submit data to the MSI Contributor [here](#).**

1. Create an account.
2. The SAC will approve the account.
3. Determine whether your submission will be a full process submission or an LCIA submission (more in section below).
4. After you submit your data, it will be reviewed by the MSI gatekeeper and MSI Data Manager.
5. When your data is approved, the data submitter will be invoiced for the hours spent on the review.
6. Your data's MSI results and scores will be sent to the submitting company for review and approval.
7. If the submission is approved by the data submitter, the data will be added to the MSI in the next scheduled update. MSI updates take place twice a year.

## *Data Submission & Review Cost*

MSI data submission costs are based on the 3rd party review time. Companies that are not members of the SAC pay \$175 per hour. SAC members receive the first 10 hours for free, then pay \$175 per hour, thereafter. The average data submission takes 5 to 6 hours, but this is largely dependent on the complexity of the data, how it fits into MSI taxonomy, and any questions from the review team.

## *Review & Publication Timeline*

The data review process can take several weeks to several months, depending on the complexity of the data, questions the review team has, and the timely response to our questions. Typically, it takes a few months to go through the gatekeeping process and calculate a data submission score.

Two MSI data updates are published per year. When data submission scores are approved by the data submitter for publication in the MSI, the data will be scheduled to appear in the MSI in the following release schedule.

## *Data Uses*

Material scores and metadata will be available to the public through the Higg MSI on the Worldly platform. In addition, LCIA results will be available for Worldly customers with full MSI access; this includes SAC members. All scores, LCIA, and meta data need to be approved by the data submitter prior to publication in the MSI tool.

## *Data Confidentiality*

Manufacturing information in the LCA report will only be available to staff and contractors (such as the Gatekeeper) who are required to guard the confidentiality of the information. Our platform's [terms of use](#) govern the confidentiality of the exchange of data.

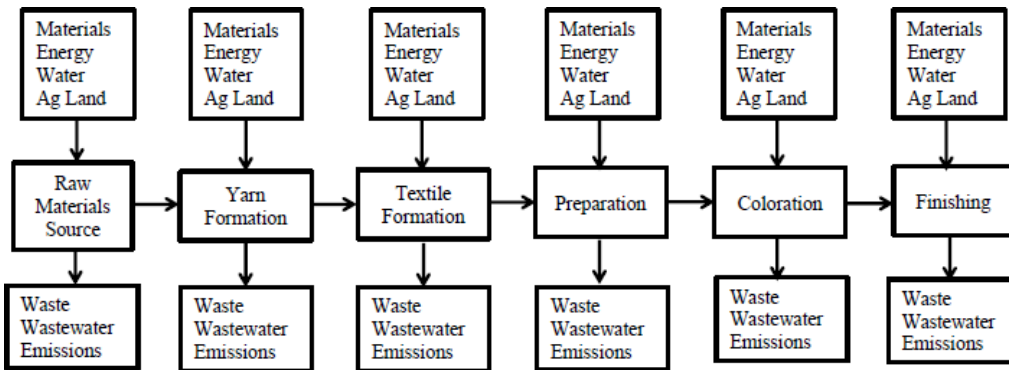
## Submission Options: Type I or Type II

There are two ways to submit data to the MSI:

- Type I: Full Unit Process Submission – primary data can be submitted directly.
- Type II: LCIA Submission – an LCA report can be submitted.

### Full Unit Process Submission (Type I)

**Material, energy, water, waste, and emissions can be submitted to the MSI Data Manager to model in LCA software (see Figure 1 below).** See the section MSI Material Categories and Production Phases for taxonomy for each material.



Note: This is an example for Textiles only.

Figure 1: Full Submission (Type I)– data inputs/outputs at the unit process level

### Type I Benefits:

- Type I submissions are typically more cost effective than conducting a full LCA since Worldly will be responsible for modeling the data. Submission costs are based on the hourly rate for review and modeling, while full LCA reports often take much more time.
- The data model will be updated using the most current LCA background datasets, ensuring the best alignment with the rest of the Higg MSI.
- If impact categories are added or changed in the Higg MSI, there are no additional fees associated with re-modelling.
- Midpoints and final scores are integrated into the Higg MSI after approval by the data submitter.

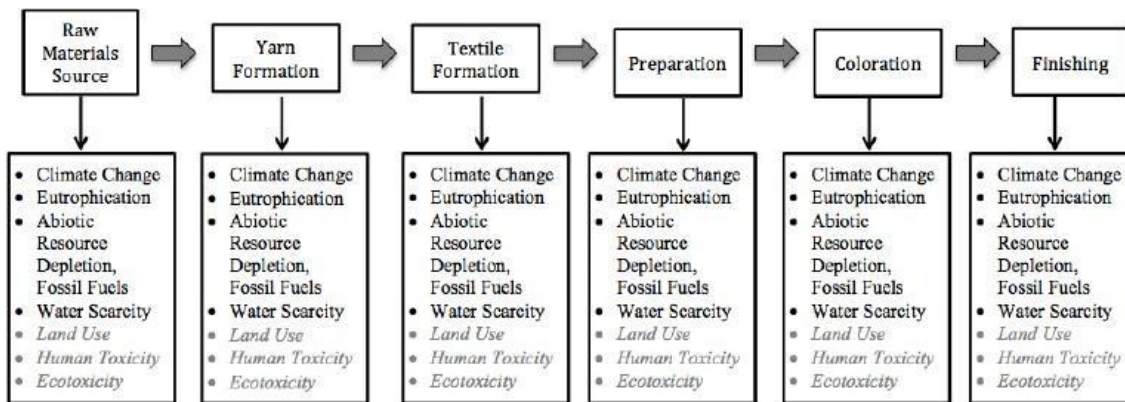
### Type I Drawbacks:

- Detailed production data must be submitted.

- Only results for MSI impact categories and scores will be provided. A full contribution analysis and interpretation of results will not be provided.

### LCIA submission (Type II)

If an LCA has been conducted and it aligns with MSI methodology as outlined in full in the [MSI methodology document](#), characterized results life cycle impact assessment (LCIA) can be submitted to the MSI (see Figure 2 below). In this type of submission, the LCA must have been independently reviewed by someone not involved in the LCA study and a review report must also be submitted. We are looking for a critical review per ISO 14044 (more details of the review requirements/process are in the ISO 14071 standard).



**Notes:**

All production phases could produce midpoint results.

This is an example for Textiles only.

Land Use, Human Toxicity, and Ecotoxicity are not currently included in the MSI score. However, results are still modeled and available to SAC members upon request. Calculating these impacts now will also ease the process of adding them to the MSI score in the future.

Figure 2: Characterized results life cycle impact assessment (LCIA) of the inputs at the process level

### Type II Benefits

- If an LCA has already been conducted, results can be reassessed to comply with Higg MSI methodology (i.e. reuse existing work).
- A full LCA includes a deeper analysis of the results, including contribution and sensitivity analysis
- It is not necessary to provide the same level of production information to the MSI Gatekeeper, MSI Data Manager, SAC, and Worldly as is required for a Type I submission

## *Type II Drawbacks*

- The overall submission involves more steps and tends to be more costly. Supporting documentation of data and the LCA must be made available to and reviewed by an independent third party. A review report must be submitted along with the LCIA results.
- LCIA methodologies must match MSI LCIA methodologies exactly, which can require re-analysis of the existing LCA
- If the Higg MSI assessment methodology changes (e.g. to maintain consistency with the EU-PEF LCIA methods), updated data must be re-submitted. The fee for covering the quality assurance process must be paid each time.

## *Previously Conducted LCA Report*

If an LCA has been previously conducted, the results from the LCA report with an LCA submission (Type II) with a few additional steps required. You will need to review and submit the following:

1. Review the methodology in the existing LCA report. The LCA must follow the methodological guidelines of the MSI outlined in this document and the methodology document. It is recommended to pay particular attention to the modeling approach (attributional), allocation/multi-function processes, cut off at recycling.
2. Review the impact categories included in the original LCA report. There are many impact methods and the categories reported in the LCA likely do not match exactly with the required impact categories in MSI.
3. Contact the person or group that conducted the LCA and request that the results for the MSI required impact categories are produced. As the models have already been built in the full LCA, this is typically a simple task.
4. Attach a short addendum to the original report to state that the original models were used to produce the results for MSI and include the table of MSI results in the addendum.
5. This addendum should be third party reviewed before submission.
6. Submit results, LCA report, and report addendum through MSI Contributor for gatekeeper review.

Optional stage: Prior to step 1, MSI Data Manager can briefly review the report to ensure that the methodology is consistent and that no modeling updates will be required.

## MSI Material Categories and Production Phases

All data submission types must align with the MSI taxonomy. The MSI taxonomy separates Production Phases.

**MSI data submissions are included in the MSI as production processes. MSI users use production processes in the MSI tool to design materials with unique properties.**

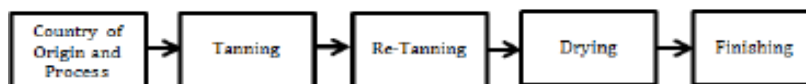
Batch dyeing is an example of a process. Polyester Fabric is an example of a material.

Submissions may be applicable to more than one Base Material (e.g. a spinning process may be possible for various textiles), but they must fit within the boundaries of one Production Phase. Any submission that covers more than one Production Phase must be split into separate submissions. See the MSI Material Categories and Production Phases in the Figure below.

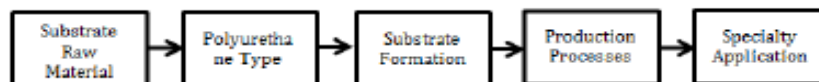
Textile:



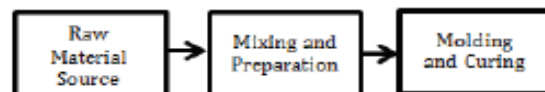
Leather:



Synthetic Leather:



Plastics:



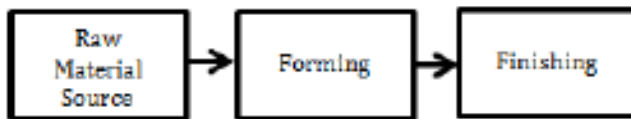
Rubber/Elastomer:



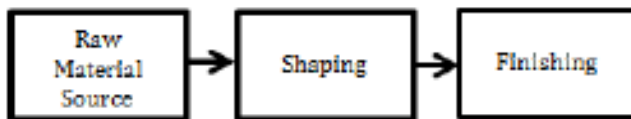
Foam:



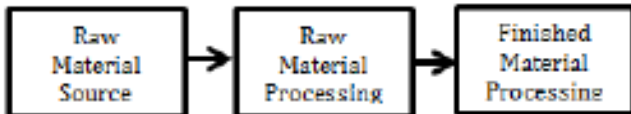
**Metal:**



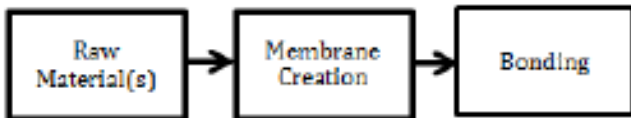
**Wood-based materials (non-textiles):**



**Insulation Materials:**



**Coatings and Laminations:**



## **Type I: Full Submission Requirements**

To submit a Type I Full Submission, data submitters must submit the data outlined below. All data must be submitted on a mass basis (per kilogram, ton, etc.)

### *Metadata and descriptive information*

General information about the submission, additional details about the raw material or production process, and any supporting documentation, must be provided. A description of the source and year of the data, and how the data was gathered, must also be included. Descriptive information is important to ensure a complete understanding of the data in the Higg MSI, and to ensure compatibility and comparability with other materials and processes in the database and other Higg Index Product Tools.

Inclusion of a process flow chart is encouraged. It should also be noted where the material or process fits into the MSI taxonomy.

### ***Production Inputs/outputs***

#### *Production outputs*

The primary product (or product being submitted) and any co- and by-products from the production process (See Scope of Data below for further details on allocation) must be provided.

#### *Material Inputs*

Inputs from the Bill of Materials (BOM), recipe, or product design parameters must be provided. Inputs may be in the form of unit process outputs from upstream processes. Include the total amount of inputs used, including any losses during the production process. Any material inputs that are greater than 1% of the total mass of the finished product must be included. This includes any packaging, chemical, or intermediary inputs into the product system.

#### *Transportation of Materials*

Transportation must include the inbound transportation required to move the materials to the manufacturing location.

#### *Energy Inputs*

Include all energy used for manufacturing or processing, plus any energy used as feedstock, as inputs to this process. All energy inputs over 1% of total energy inputs must be provided. Electricity use must be identified by wattage (high, medium, or low voltage) and must also be identified by geography.

#### *Water Inputs*

Include total water inputs to the process. The total amount of water inputs must be included; water that is returned to the system or discharged will be accounted for in the water outputs section.



### *Direct Emissions*

Direct emissions to air, water, or soil from the process, except for emissions related to combustion of energy (these are counted in the energy inputs) must be provided.

### *Waste Products*

All wastes or non-valuable by-products must be provided, by type of waste and by type of waste disposal method. This includes packaging and any materials sent to recycling.

### *Water Outputs*

Include any water discharged from the process. This includes any water that is discharged directly to the environment, back to the municipality or is treated onsite. The net difference between inputs and outputs will be used to calculate total water consumption.

### *Biogenic Carbon content*

Biogenic carbon refers to the carbon sequestered from the atmosphere due to biomass growth. It can be determined by radiocarbon analysis or stoichiometric analysis. It is reported in kilogram C per kilogram of material. *Note: This is different from the percentage of carbon in the material that is biogenic in origin as different materials can have different carbon content.*

## **Data Scope**

### *Inclusion of data*

All known inputs should be included. Minor inputs (accounting for less than 1% of total material or energy inputs or outputs) may be excluded. Any exclusions must be noted and justified. Total exclusions may not exceed 5% of total energy and material inputs or outputs. Additionally, the following inputs can be excluded:

- Labor, commuting and travels of employees and seasonal workers
- Administrative overhead
- Processes that can reasonably be assumed to contribute to less than 1% of the environmental impact (cut-off criterion), when no data are available.

### *Multiple output processes*

For processes that produce multiple valuable outputs, the total amount of each output, using the same units for each output stream, must be provided.

### *Handling multi-functional processes*

Two main modeling approaches exist for the LCA methodology: attributional and consequential.

The MSI follows the attributional LCA approach. The attributional life cycle model depicts the actual or anticipated specific or average supply chain, use and end-of-life scenarios. The consequential life cycle model depicts the anticipated generic supply chain as a consequence of a potentially relevant decision. The attributional and the consequential life cycle models differ with the manner

in which multi-functional processes are considered. In the attributional approach, coproduction processes are allocated based on physical or economic relationships; in the consequential approach, system expansion including avoided processes is applied.

The following multi-functional decision hierarchy shall be applied for resolving all multi-functional problems:

1. Subdivision or system boundary expansion;
2. Allocation based on a relevant underlying physical relationship (substitution may apply here);
3. Allocation based on some other relationship.

The specific allocation method used should be documented and Data Submitters must justify their chosen allocation method if not a prescribed method.

#### *Carbon Storage and Sequestration*

Results from carbon sequestration or storage modeling cannot be included in the data submissions, unless the models can clearly demonstrate that carbon is permanently removed from the atmosphere for a minimum of 100 years. If carbon sequestration or storage is claimed, detailed documentation must be provided.

#### *Other Nutrient Removals*

No net removals from additional emissions to water, such as nitrogen (NH<sub>3</sub>, N<sub>2</sub>O, and NO<sub>3</sub>) and phosphorus (PO<sub>4</sub> and P) will be included, in accordance with PEFCR guidance on agricultural modeling. Any negative emissions will be removed and set to 0.

#### *Recovered and Recycled Wastes*

Wastes that are reused or recycled back into the process should not be counted as an input. In such cases, include only the net additions to the process. For example, the total amount of a catalyst used in a production process should not be reported, only the portion that is depleted by that process. Another example would be excess product material that can be directly used as an input to the next process. For the two examples above, include only the additional amounts needed for the process, and not the total reused portion.

#### *Cutoff at Recycling*

The Higg MSI utilizes the recycling cut-off approach. For recycled products, the transportation of the waste product to the recycling facility, and burdens of the recycling process, must be provided. No other upstream inputs are included.

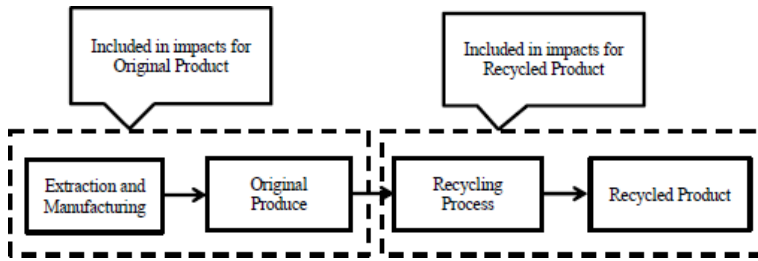


Figure 3: Recycling System Boundary

**Recycled Content:** Proportion, by mass, of recycled material in a product or packaging. Only pre-consumer and post-consumer materials shall be considered as recycled content, consistent with the following usage of terms.

**Pre-Consumer Material:** Material diverted from the waste stream during a manufacturing process. Excluded is reutilization of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it.

**Post-Consumer Material:** Material generated by households or by commercial, industrial, and institutional facilities in their role as end-users of the product which can no longer be used for its intended purpose. This includes returns of material from the distribution chain

## Type II: LCIA Data Submission Requirements

If input and output data are not available, LCIA (midpoint) results may be submitted instead. **The LCA must meet the requirements in the [Type I Full Submission Requirements section](#).** The midpoints submitted must use the listed LCIA methods and the prescribed version listed in the *Impact Categories* section below.

### *LCA Report Requirements*

The LCA report must include:

- Goal and scope
- Functional unit
- Product system and system boundaries (including system diagram and process flow)
- Declaration of system model used (attributorial)
- Data collection process
- Modeling approach including background data and software
- Assumptions and limitations
- Cut-off criteria
- LCIA impact methods and results
- Interpretation must include the percentage of water scarcity impact from foreground vs background processes

### *LCA Report Review Requirements*

Since data is less transparent for review, Type II LCIA Data Submissions must be independently reviewed either by a sole reviewer or a review panel prior to submission, and a review report must also be submitted to the MSI Gatekeeper. The reviewer or review panel do not have to be a third party, only independent of the analysis. The submission must include the LCA project report and review results. Any update to the LCA requires a resubmission of a revised report and review report.

Every submission must appropriately fit into the MSI taxonomy, which separates Production Phases. Submissions may be applicable to more than one Base Material (e.g. a spinning process may be possible for various textiles), but they must fit within the boundaries of one Production Phase. Any submission that covers more than one Production Phase must be split into separate submissions.

If different impact categories are reported in the LCA report (because the LCA was conducted before submitting to the MSI), an addendum to the original report must be provided and the review report must be revised.

### *Impact Categories*

Impacts for products and processes are first calculated from a “midpoint” methodology. These approaches come directly from LCIA. The individual impact categories listed in Table B4 are calculated based on methodologies currently available and widely used by the LCA community.

These impact categories were chosen based on their scientific accuracy; their applicability to the apparel, footwear, and home textile industries; and their compatibility with other global product sustainability programs.

There are also two inventory metrics displayed for each process that are not included in the scoring:

- Water Consumption (kg)
- Biogenic carbon content (kg C)

Table 2: MSI required Impact Categories

Impact Category	LCIA Method	Unit	Reference	Notes
Climate Change	IPCC AR6 GWP 100, excl biogenic CO2	kg CO2 eq.	Intergovernmental Panel on Climate Change. 2021. IPCC Sixth Assessment Report. The Physical Science Basis. <a href="https://www.ipcc.ch/report/ar6/wgl">https://www.ipcc.ch/report/ar6/wgl</a>	Updated from AR5 to AR6 in 2023 starting with MSI 3.7
Eutrophication	CML-IA baseline 2013	kg PO4 eq.	<a href="https://www.universiteitleiden.nl/en/research/research-output/science/cml-ia-characterisation-factors">https://www.universiteitleiden.nl/en/research/research-output/science/cml-ia-characterisation-factors</a>	
Abiotic Depletion (fossil fuels)	CML-IA baseline 2013	MJ eq.	<a href="https://www.universiteitleiden.nl/en/research/research-output/science/cml-ia-characterisation-factors">https://www.universiteitleiden.nl/en/research/research-output/science/cml-ia-characterisation-factors</a>	
Water Scarcity	AWARE*	m3	<a href="https://wulca-waterlca.org/">https://wulca-waterlca.org/</a>	
Ecotoxicity	USEtox 2.12 (recommended only)	CTUe	Usetox ( <a href="https://usetox.org/">https://usetox.org/</a> ) & SAC Chemistry Task Team. 2018. See Appendix D of <a href="#">SAC Higg MSI Methodology</a>	
Water Consumption	Inventory metric	m3 or kg	Blue Water Consumption	
Biogenic carbon content	Inventory metric	kg C/kg	<a href="https://howtohigg.org/higg-msi/faq/">https://howtohigg.org/higg-msi/faq/</a>	

\*In the GaBi software there are multiple AWARE methods that represent different characterizations of the unknown geographies. For this category, the most recent EF Water scarcity method is used.

In an attempt to not require more frequent data updates from the Data Submitter, we recommend the following midpoints also be submitted. These are the additional categories required for the European Product Environmental Footprinting (PEF) to date:

Table 3: MSI Optional Impact Categories

Impact Category	Method	Unit
Acidification	EF 3.1	Mole of H+ eq.
Climate Change - total	EF 3.1	kg CO2 eq.
Climate Change, biogenic	EF 3.1	kg CO2 eq.
Climate Change, fossil	EF 3.1	kg CO2 eq.
Climate Change, land use and land use change	EF 3.1	kg CO2 eq.
Ecotoxicity, freshwater - total	EF 3.1	CTUe
Ecotoxicity, freshwater inorganics	EF 3.1	CTUe
Ecotoxicity, freshwater organics	EF 3.1	CTUe
Eutrophication, freshwater	EF 3.1	kg P eq.
Eutrophication, marine	EF 3.1	kg N eq.
Eutrophication, terrestrial	EF 3.1	Mole of N eq.
Human toxicity, cancer - total	EF 3.1	CTUh
Human toxicity, cancer inorganics	EF 3.1	CTUh
Human toxicity, cancer organics	EF 3.1	CTUh
Human toxicity, non-cancer - total	EF 3.1	CTUh
Human toxicity, non-cancer inorganics	EF 3.1	CTUh
Human toxicity, non-cancer organics	EF 3.1	CTUh
Ionising radiation, human health	EF 3.1	kBq U235 eq.
Land Use	EF 3.1	Pt
Ozone depletion	EF 3.1	kg CFC-11 eq.
Particulate matter	EF 3.1	Disease incidences
Photochemical ozone formation, human health	EF 3.1	kg NMVOC eq.
Resource use, fossils	EF 3.1	MJ
Resource use, mineral and metals	EF 3.1	kg Sb eq.
Water use	EF 3.1	m <sup>3</sup> world equiv.

## Data Submission Checklist

Review this checklist when submitting your data. Ensure all information is included in your submission.

### Type I and Type II Submissions

- The data were correctly entered into the online platform
- Explanations of material production are clear and relevant production processes are accounted for
- The scope of the data is consistent with the defined boundary conditions
- Sources, vintage of the data (timeframe represented), source types, and methods for data collection are documented
- Methods used for data collection and decision making are scientifically and technically valid
- Assumptions and limitations are identified and plausible
- All calculations are correct
- All data are verifiable and reproducible
- The processes are organized into the life cycle stages in the Higg MSI taxonomy
- The data quality is at a minimum “fair” or higher quality rated
- Contain a draft description of process to be included in the MSI tool including link to company website for more information

### Additional criteria for Type II LCIA Submissions

- LCA project report third-party review results
- Meets requirements listed for the LCA Report in [LCA Report Requirements](#) section above
- Third-party review statement

If there are any issues with the data submission, the MSI Gatekeeper will communicate any outstanding issues to the data submitter, who may choose to update or revise the submission.

## More Questions?

[See additional FAQs and guidance on the Higg MSI here](#)

MSI Contributor team can be reached at: [datasubmission@worldly.io](mailto:datasubmission@worldly.io)

## Document Change Log

Document version	Change from previous version	Date
MSI_Contributor_guidance _ v1.1	<ul style="list-style-type: none"><li>Updated IPCC Impact Assessment method from AR5 to AR6</li></ul>	09/10/2023