Cascale

HIGG FEM 2026

FEM 2026 Water and Waste Calculations

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How the in-assessment Higg FEM 2026 water and waste totals are calculated: the answers they read and the aggregates they produce.

Higg Index guidance · cascale.org

Contents

Scope 3
Water Data 3
Water Aggregates 4
Waste Data 5
Waste Aggregates 6

Scope

This document describes the water and waste totals calculated inside the Higg FEM 2026 assessment itself. Answer values referenced here (for example `yes` and `no`) are the option indices stored with the assessment, not the display text shown to the facility.

Water Data

Data about production and domestic water use is collected in the Water section of FEM separated by facility type.

Domestic water use is either reported as a part of production use, in the case that a facility cannot separate the water usage, or separately.

You can determine whether a facility is reporting water values split between domestic and production or combined by looking at the ref_id `wattrackdomprodsep` an answer of `no` means the facility is reporting combined (row 3 in the table below) and `yes` means separated (rows 1 and 2 in the table below). Because a facility will never report using both methods they may safely be summed without risk of double counting.

Raw water use is reported in the follow ref_ids:

Scope	Usage	Unit of Measure
Domestic	wattrackdom[1]quant	wattrackdom[1]unit
Production	wattrack[1]prod[2]quant	wattrack[1]prod[2]unit
Domestic & Production	wattrack[1]all[2]quant	wattrack[1]all[2]unit

Where the wildcards `[1]` and `[2]` represent the water source and facility type which may be any of the following values:

Index	Kind	Reference	Value
1	Water Source	watsourcesurface	Surface Water
1	Water Source	watsourceground	Groundwater
1	Water Source	watsourcemunicipalblue	Municipal Blue Water
1	Water Source	watsourcemunicipalunk	Municipal Water (Origin Unknown)
1	Water Source	watsourcesea	Brackish surface water/seawater
1	Water Source	watsourcecond	Condensate from External Steam Source
1	Water Source	watsourcerain	Rainwater
1	Water Source	watsourcemunicipalgrey	Municipal Grey Water
1	Water Source	watsourcewaste	Treated Wastewater from External Source
1	Water Source	watsourcewasteinternal	Untreated Wastewater from External Sources (treated internally)
1	Water Source	watsourcerecycle	Recycled Water
1	Water Source	watsourcereuse	Reuse Water
2	Facility Type	finalProductAssembly	Finished Product Assembler
2	Facility Type	finishedProductProcessing	Finished Product Processing (Product Printing, Product Painting, Embroidery & Embellishments, Buffing & Polishing, Moulding etc.)

Index	Kind	Reference	Value
2	Facility Type	printingProductDyeingAndLaundering	Finished Product Processing (Product Dyeing, Product Laundering and Product Finishing)
2	Facility Type	hardComponentTrimProduction	Component / Sub-Assembly Manufacturing (incl Packaging)
2	Facility Type	materialProduction	Material Production
2	Facility Type	rawMaterialProcessing	Raw Material Processing
2	Facility Type	rawMaterialCollection	Raw Material Collection & Bulk Refining

So the raw value for usage of surface water in Raw Material Collection & Bulk Refining for production would be found in either the ref_id `wattrackwatsourcesurfaceprodrawMaterialCollectionquant` or `wattrackwatsourcesurfaceallrawMaterialCollectionquant` the former if `wattrackdomprodsep` is `yes` and the latter if it is `no` and, in that case, combined with domestic water use but never both.

Every reported quantity is converted to liters (`gal`, `liter` and `m3` are the allowed units) in a calculation with the ref_id form `wattrack…quant_l`.

Water Aggregates

`[1]total`

Total liters of water across all facility types, and domestic usage from the water source represented by the wild card `[1]`.

`domestic_total_water_l`

Total liters of water from domestic usage across all sources. Only has a value if the facility reported production and domestic usage separately.

`watsourcewithdrawal`

Total liters of water across all facility types, and domestic usage from the water sources:

```
watsourceground
watsourcemunicipalblue
watsourcemunicipalunk
```

`watsourcerecycled`

Total liters of water across all facility types, and domestic usage from the water sources:

```
watsourcemunicipalgrey
watsourcecond
watsourcerecycle
watsourcereuse
watsourcewaste
watsourcewasteinternal
```

`watsourcetotaltotal`

Total water use in liters across all sources, facility types, and domestic use.

`[2]_water_l`

Total liters of water used across all sources for the facility type represented by the wild card `[2]`. Does not include domestic usage.

`[2]_total_water_l`

Total liters of water used across all sources for the facility type represented by the wild card `[2]`. Includes domestic usage divided evenly across the facility's reported facility types (`water_adjusted_facility_type`).

`[2]_normalized_water_l`

Total liters of water used per unit produced across all sources for the facility type represented by the wild card `[2]`. Includes domestic usage divided evenly across each facility type. The unit total and unit of measure can be found in `sipfacilityannualprodvolquant[2]` and `sipfacilityannualprodvolunits[2]` respectively.

Waste Data

Data about waste generation is collected in the Waste section of FEM separated by hazardous and non-hazardous waste type. Unlike energy and water it is not reported by facility type.

Raw waste generation is reported in the follow ref_ids:

Scope	Usage	Unit of Measure
Hazardous	wstsourceh[1]quant	wstsourceh[1]unit
Non Hazardous	wstsourcenh[1]quant	wstsourcenh[1]unit

Where the wildcard `[1]` represents the waste stream which may be any of the following values (the reference is the table row name used in the ref_id; the display text of the corresponding answer option may differ slightly):

Waste Stream	Reference	Value
Non-Hazardous	cans	Cans
Non-Hazardous	cartons	Cartons
Non-Hazardous	foams	Foams (EVA, etc.)
Non-Hazardous	food	Food Waste
Non-Hazardous	general	General or unspecified waste
Non-Hazardous	glass	Glass
Non-Hazardous	leather	Leather Waste
Non-Hazardous	metal	Metal
Non-Hazardous	other	Other
Non-Hazardous	paper	Paper
Non-Hazardous	plastic	Plastic
Non-Hazardous	rubber	Rubber Waste
Non-Hazardous	slagnh	Slag (Non-Hazardous)
Non-Hazardous	textile	Textile Waste
Non-Hazardous	wastewaterTreatmentSludge	Pre-water Treatment Sludge (Non-Hazardous)
Non-Hazardous	wood	Wood
Hazardous	dombatteries	Batteries
Hazardous	domcoalcomb	Coal combustion residuals (fly ash and bottom ash/coal slag)
Hazardous	domelectronic	Electronic Waste
Hazardous	domflolight	Fluorescent light bulb
Hazardous	dominkcart	Ink cartridges

Waste Stream	Reference	Value
Hazardous	domoilgrease	Waste oil and grease (from cooking)
Hazardous	emptyother	Empty containers (cleaning, sanitizing, pesticides, etc.)
Hazardous	metalsludge	Metal Sludge
Hazardous	other	Other
Hazardous	prodchem	Expired/unused/used chemicals (waste oil, solvents, reactants, etc.)
Hazardous	prodchemdrum	Empty chemical drums and containers (without proper cleaning)
Hazardous	prodcompgas	Compressed gas cylinders (refrigerants, etc.)
Hazardous	prodcontammat	Contaminated materials
Hazardous	prodfilmprint	Film and Printing Frame
Hazardous	prodsludge	Pre-water Treatment Sludge (Hazardous)
Hazardous	productionoil	Waste oil and grease (from production, maintenance, etc. - not cooking)
Hazardous	slag	Slag (Hazardous)

Waste Aggregates

Waste quantities are converted to kilograms from the reported units (`g`, `kg`, `lb`, `oz`, `tonmetric`, `tonshort`) in calculations with the ref_id form `wstsource…quant_kg`, and aggregations are provided in the following calculations:

`wstsourcetotalnonhaz`

Total kilograms of non hazardous waste.

`wstsourcetotalhaz`

Total kilograms of hazardous waste.

`wstsourcetotal`

Total kilograms of all waste, both hazardous and non hazardous.