Environmental Product Declaration

FABRICATED INTERMEDIATE METAL CONDUIT

WHEATLAND TUBE, A DIVISION OF ZEKELMAN INDUSTRIES
CHICAGO, IL

Intermediate Metal Conduit (IMC) is intended for use as metal raceways for installation of wires and cables in accordance with the National Electric Code or alternative but equal appropriate standard. These American-made conduit products are also commonly used in residential and commercial construction applications, including, but not limited to, electrical, process, fire suppression, fence framework, and mechanical energy systems

Wheatland Tube

At Wheatland Tube, we've been making it easy for our customers to stock and install our products since we began manufacturing in 1931. We trace our legacy of service all the way back to 1877, when John Maneely, the founder of Wheatland's parent company, began selling pipe, valves and fittings in Philadelphia.

Today, Wheatland is a division of Zekelman Industries, the largest independent steel pipe and tube manufacturer in North America and a leader in modular construction innovations. We're proud to serve the industry with our expansive portfolio of American-made products and best-in-class technologies that MAKE IT eZ for distributors to work with us.

The North American steel industry is the cleanest of all the major steel producing areas of the world. Of the seven largest steel producing countries, the U.S. has the lowest CO_2 emissions per ton of steel produced and the lowest intensity (AISI, 2024). Wheatland Tube is committed to maintain this fact by constantly improving our processes. For more information about Wheatland Tube and the products we offer, please visit www.wheatland.com.

CERTIFIED
ENVIRONMENTAL PRODUCT DECLARATION
UL.COM/EPD

ENVIRONMENTAL PRODUCT DECLARATION

WHEATLAND TUBE
Fabricated Intermediate Metal Conduit
Chicago, IL

According to ISO 14025 and ISO 21930:2017

EPD PROGRAM AND PROGRAM OPERATOR NAME, ADDRESS, LOGO, AND WEBSITE	UL Solutions 333 Pfingsten RoadNorthbrook, IL 60611 www.ul.com www.spot.ul.com
GENERAL PROGRAM INSTRUCTIONS AND VERSION NUMBER	UL Solutions Program Operator Rules v.2.7 2022
MANUFACTURER NAME AND ADDRESS	Wheatland Tube 1 Council Avenue P.O. Box 608 Wheatland, PA 16161
DECLARATION NUMBER	4791523933.111.1
DECLARED PRODUCT & DECLARED UNIT	Fabricated Intermediate Metal Conduit; 1 meter length at a specified diameter and wall thickness
REFERENCE PCR AND VERSION NUMBER	SmartEPD PCR Part A Product Category Rules for Building and Construction Products and Services, v1.01 SmartEPD PCR Part B for for Electrical and Telecommunications Conduit v1.0
DESCRIPTION OF PRODUCT APPLICATION/USE	Intermediate Metal Conduit (IMC) is intended for use as metal raceways for installation of wires and cables in accordance with the National Electric Code or alternative but equal appropriate standard. These American-made conduit products are also commonly used in residential and commercial construction applications, including, but not limited to, electrical, process, fire suppression, fence framework, and mechanical energy systems.
MARKETS OF APPLICABILITY	North America
DATE OF ISSUE	May 29th, 2025
PERIOD OF VALIDITY	5 Years
EPD TYPE	Product-specific, facility specific Type III
EPD SCOPE	Cradle to gate with end of life (A1-A3, C1-C4, D)
ACLCA PCR GUIDANCE CONFORMANCE LEVEL	Transparency, per ACLCA PCR Guidance version 1.0 (ACLCA, 2022)
YEAR(S) OF REPORTED PRIMARY DATA	October 2021 – September 2022
LCA SOFTWARE & VERSION NUMBER	Sphera LCA for Experts 10.7 (formerly GaBi)
LCI DATABASE(S) & VERSION NUMBER	Sphera Managed LCA Content Database 2024.1 (formerly GaBi Database)
LCIA METHODOLOGY & VERSION NUMBER	TRACI 2.1, IPCC AR5 GWP_{100}, CML 2001-Jan 2016 ADP_{fossil}

Part A PCR review was conducted by:	Jack Geibig, Chair Terrie Boguski Hugues Imbeault-Tétrault, Eng., M.A. Sc.
The sub-category PCR review was conducted by:	Nathan Ayer (Chair) Mandy Montazeri Dale Crawford
This declaration and background LCA report were independently verified in accordance with ISO 14025: 2006. The SmartEPD "Part A: Product Category Rules for Building and Construction Products and Services," v1.01, based on ISO 21930:2017, serves as the core PCR. ☐ INTERNAL ☒EXTERNAL	Cooper McCollum, UL Solutions
This life cycle assessment was conducted in accordance with ISO 14044 and the reference PCR by:	WAP Sustainability Consulting

EPDs are only comparable if they comply with ISO 21930, this sub-category PCR, include all relevant information modules, and are based on equivalent scenarios with respect to the construction works context.

Limitations:
The EPD owner has sole ownership, liability, and responsibility for the EPD.
Environmental declarations from different programs (ISO 14025) may not be comparable. Comparison of the environmental performance of products using EPD information shall be based on the product's use and impacts at the building or construction works level, and therefore EPDs may not be used for comparability purposes when not considering the whole building life cycle. EPD comparability is only possible when all stages of a life cycle have been considered. However, variations and deviations are possible. Example of variations: Different LCA software and background LCI datasets may lead to different results for upstream or downstream of the life cycle stages declared.
The environmental impact results of products in this document are based on a declared unit and therefore do not provide sufficient information to established comparisons. The results shall not be used for comparisons without knowledge of how the physical properties of the product impacts the precise function at the construction level. The environmental impact results shall be converted to a functional unit basis before any comparison is attempted.
For further information or to provide input on the Part A or Part B PCRs, contact SmartEPD at pcr@smartepd.com.
Further Explanatory materials may be obtained from UL Solutions at www.ul.com/businesses/environment.

1. Product Definition and Information

1.1. Description of Organization

At Wheatland Tube, we've been making it easy for our customers to stock and install our products since we began manufacturing in 1931. We trace our legacy of service all the way back to 1877, when John Maneely, the founder of Wheatland's parent company, began selling pipe, valves and fittings in Philadelphia.

Today, Wheatland is a division of Zekelman Industries, the largest independent steel pipe and tube manufacturer in North America and a leader in modular construction innovations. We're proud to serve the industry with our expansive portfolio of American-made products and best-in-class technologies that MAKE IT eZ for distributors to work with us.

1.2. Product Description

Intermediate metal conduit (IMC) weighs approximately 33% less than rigid metal conduit (RMC), so it keeps your customers' costs down and productivity up. Like rigid conduit, it shields against electromagnetic interference (EMI), offers reduced exposure to electromagnetic fields (EMF), and provides an excellent electrical path to the ground, which is recognized as an equipment grounding conductor by the National Electrical Code® (NEC).

This EPD covers fabricated Intermediate Metal Conduit produced and sold from Chicago, IL.

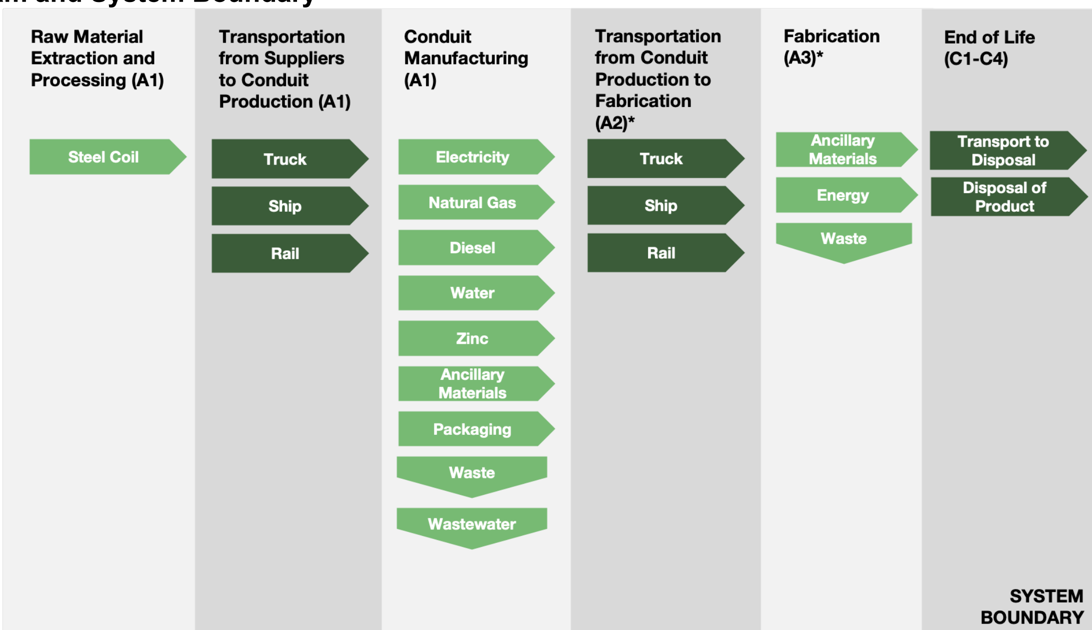
Fabricated Intermediate Metal Conduit falls under CSI divisions 26 05 33, 27 05 33, and 25 05 28. The product falls under UNSPSC code 39131706.

Product Specification

This product is defined by the following standards:

- **UL 1242** – Electrical Intermediate Metal Conduit - Steel

Flow Diagram and System Boundary



All A1 steps represent manufacturing of unfabricated conduit by Wheatland Tube. Stages with an asterisk rely on data from the AISC & STI industry average EPD for fabricated HSS (AISC & STI, 2022). Use of these data is deemed appropriate for conduit since these fabrication data do not differentiate between fabrication of structural sections, steel plate, hollow structural sections, or non-structural steel. The AISC & STI EPD does not declare the modes of transportation used in A2, so it is assumed all common modes (truck, ship, rail) are used.

1.3. Application

Intermediate Metal Conduit (IMC) is intended for use as metal raceways for installation of wires and cables in accordance with the National Electric Code or alternative but equal appropriate standard. These American-made conduit products are also commonly used in residential and commercial construction applications, including, but not limited to, electrical, process, fire suppression, fence framework, and mechanical energy systems.

1.4. Material Composition

Steel conduit products are made of carbon steel with a small percentage of alloy elements included.

1.5. Declaration of Methodological Framework

This LCA uses an attributional approach.

1.6. Manufacturing

Conduit is manufactured by cold-forming (electric-resistance welding, ERW) steel coil into conduit. Hot-rolled coil is first slit into sections of appropriate width. The narrower coils are then uncoiled and passed through a series of rollers that form the continuous sheet into conduit. Then the two edges of the coil are welded together to create a tube.

After welding, the intermediate metal conduit (IMC) is painted on the inside, galvanized in-line, stenciled, cut to length, threaded, and chamfered. After threading, the threads are metallized, a coupling is added to one end, capped on the opposite end and then the conduit is labeled.

The primary input into conduit production is the steel itself, although small amounts of process materials are needed. Electricity is used for manufacturing and to move the materials. Manufacturing produces some metal scrap. This scrap is recycled by an external recycler.

Fabrication requires 1.08 metric tons of conduit per 1 metric ton of fabricated product (AISC & STI, 2022). A1 includes production of all 1.08 metric tons of conduit, A2 represents transportation to the fabrication facility, and A3 represents the fabrication activities.

1.7. Packaging

Conduit is packaged with steel banding and shipped using wood dunnage and plastic film, when applicable.

As required per ISO 21930 and the Part A PCR, information on packaging is provided to specify the end of life scenarios used for packaging or to support development of the end of life scenarios for packaging at the construction works level where the A5 module is not declared. These data are provided in the table below for fabricated conduit per m length at a 2" diameter.

Table 1. Packaging Waste Details for A5 Scenario Development, per Declared Unit of Fabricated Product

PACKAGING WASTE	PRODUCT FROM CHICAGO, IL	UNIT
Plastic Packaging Waste to Landfill	7.30E-05	kg
Plastic Packaging Waste to Incineration	1.68E-05	kg
Plastic Packaging Waste to Recycling	8.88E-06	kg
Steel Packaging Waste to Landfill	2.48E-03	kg
Steel Packaging Waste to Incineration	6.58E-04	kg
Steel Packaging Waste to Recycling	4.17E-03	kg
Wood Packaging Waste to Landfill	8.14E-03	kg
Wood Packaging Waste to Incineration	1.51E-03	kg
Wood Packaging Waste to Recycling	2.05E-02	kg
Biogenic Carbon Content of Packaging, Wood	4.30E-01	kg C/kg wood
GWP Based in Biogenic Carbon Content of Packaging, Wood	4.75E-02	kg CO2e

1.8. Transportation

Transportation distances from suppliers to Wheatland Tube sites in A1 were calculated based on the supplier location and the location of manufacturing and modeled using primary data on the mode of transport.

Transportation from the conduit producer to the fabricator (A2) is included in the analysis and comes from the American Institute of Steel Construction (AISC) and Steel Tube Institute (STI) EPD for fabricated HSS (AISC & STI, 2022).

1.9. Product Installation

Because the declared system boundary is cradle-to-gate with end of life, product installation is not declared in this EPD.

1.10. Use

Because the declared system boundary is cradle-to-gate with end of life, use of product is not declared in this EPD.

1.11. Reference Service Life and Estimated Building Service Life

Because the declared system boundary is cradle-to-gate with end of life, a reference service life is not declared.

1.12. Reuse, Recycling, and Energy Recovery

Module D declares potential loads and benefits of secondary material, secondary fuel or recovered energy leaving the product system based on scenarios. The impacts associated with module D are calculated by identifying the point of substituted functional equivalence where the secondary material substitutes primary production and subtracting the impacts resulting from the substituted production of the product.

For conduit, excess material from manufacturing including scrap steel are all fully recovered and accounted for in module D. A product recycling rate of 100% based on primary data was used for manufacturing scrap.

1.13. Disposal

At end of life, steel conduit can be removed from the ground or construction works and recycled or landfilled. According to the PCR Part B section 9.4.2, the default end of life scenario in this EPD is 100% landfilling with a truck transport distance of 100 km from demolition site to end of life waste treatment site.

2. Life Cycle Assessment Background Information

2.1. Declared Unit

The declared unit of calculation is one meter length of conduit at a specified diameter and wall thickness. For the declared unit, a 2” diameter is used, where wall thickness varies by product. As the LCA system boundary is cradle-to-gate with end of life, a reference service life (RSL) is not declared. Additional details for the declared unit are provided in Table 2 in SI units, and in Table 3 in optional units.

Table 2. Declared Unit Details, SI Units

NAME	VALUE	UNIT
Declared Unit	1	meter length
Density	7,850	kg/m^3
Outer Diameter	5.99E-02	m
Inner Diameter	5.46E-02	m
Wall Thickness	2.67E-03	m
Linear Density, μ	3.77	kg/m

Table 3. Declared Unit Details, Optional Units

NAME	VALUE	UNIT
Declared Unit	10	ft length
Density	490	lbs/ft^3
Outer Diameter	2.36	in
Inner Diameter	2.15	in
Wall Thickness	0.105	in
Linear Density, μ	25.3	lbs/10 ft

2.2. System Boundary

The declared system boundary is cradle-to-gate with end of life (A1-A3, C1-C4, D). This includes the PCR life cycle modules A1, A2, and A3. Module A1 represents cradle-to-gate impacts for unfabricated conduit, including raw material supply, transport of raw materials to Wheatland Tube, and manufacturing of conduit by Wheatland Tube. Module A2 represents transport of unfabricated conduit to fabricators, and module A3 represents fabrication of conduit. The declared system boundaries are shown in Table 6.

In primary data collected from the manufacturer, impacts from infrastructure and capital goods are excluded. Environmental impacts from infrastructure, construction, production equipment, and tools that are not directly consumed in the production process are not accounted for in the LCI. Capital equipment and buildings typically account for less than a few percent of nearly all LCIs and this is usually smaller than the error in the inventory data itself. For this project, it is assumed that capital equipment makes a negligible contribution to the impacts as per Frischknecht et al. (Frischknecht, 2007) with no further investigation.

In background datasets sourced from the Sphera MLC database, impacts of infrastructure and capital goods are included based on their relevance to environmental impacts (Sphera, 2024).

2.3. Estimates and Assumptions

All estimates and assumptions are within the requirements of ISO 14040/44. The primary energy and ancillary material data were collected as annual totals including all utility usage and production information. For the LCA, the energy and ancillary usage information was divided by the production to use per metric ton.

Assumptions and limitations to the study have been identified as follows:

- Supplier EPDs utilized in this LCA reported all LCA results as site-specific values. In the case of some suppliers, results for resource use indicators and waste and output flows are reported as production weighted-average results over multiple mills. The site-weighted average results are used in this LCA's results since they are the best data available.
- In absence of fabricator-specific data, industry average results from the AISC & STI EPD for Fabricated HSS were used to represent impacts of transport to fabrication (A2) and fabrication (A3) portions of the life cycle.
- Steel scrap generated in production is accounted for in A1 (raw materials) and A2 (transportation of raw materials), where impacts are modeled for sourcing and transporting the materials that are lost in production.
- Availability of geographically more accurate background LCI datasets would have improved the accuracy of the study.
- Since this LCA uses the cut-off approach to model recycled material in the product, no credit is given to the product system. Instead, the manufacturer realizes reduced environmental impacts through the absence of the burden of extracting virgin material.
- Only known and quantifiable environmental impacts are considered.
- Due to the assumptions and value choices listed above, The LCA does not reflect real-life scenarios and hence cannot assess actual and exact impacts, but only potential environmental impacts.

2.4. Cut-off Criteria

Input and output flows of mass and energy greater than 1% (based on total mass final product and total energy usage of the product system) or greater than 1% of environmental impacts were included within the scope of analysis. Flows less than 1% were included if sufficient data were available to warrant inclusion and/or the flow was thought to have significant environmental impact. Cumulative excluded flows and environmental impacts are less than 5% per module based on total mass, energy usage, and impacts of the product system. Where data gaps were identified, they are filled by conservative assumptions with average, generic, or proxy data and assumptions are documented.

No known flows relevant to the product system are deliberately excluded from this LCA and EPD. Some material inputs may have been excluded within the MLC datasets used for this project. All MLC datasets have been critically reviewed and conform to the exclusion requirement of the PCR, Part A.

2.5. Data Sources

Primary data were collected by facility personnel and from utility bills and were used for all manufacturing processes for fiscal year 2022, defined as October 2021 to September 2022. Whenever available, supplier data were used for raw materials used in the production process. Supplier EPDs were utilized for steel coils purchased by Wheatland Tube, when available. When primary data do not exist, secondary data for raw material production were utilized from the AISI industry average dataset for hot rolled coil in North America (AISI, 2020).

Secondary data for conduit manufacturing energy and materials were sourced from Sphera Managed LCA Content (fka GaBi) Database 2024.1. LCA results for transport to fabricators (A2) and fabrication (A3) were taken from the AISC & STI EPD for fabricated HSS. This data in this EPD represents fabrication activity in 2019 and 2020, intended to represent production in 2020.

Per PCR Part A, dataset details for processes that contribute 30% or more to any disclosed enviromental impact category are disclosed below.

DATABASE NAME/ DATA SOURCE	DATABASE VERSION/ PUBLICATION YEAR	DATASET NAME	GEOGRAPHY	ALLOCATION METHOD
Supplier EPD	2023	Hot rolled coil	US	Physical allocation
Supplier EPD	2023	Hot rolled coil	US	Physical allocation
Supplier EPD	2024	Hot rolled coil	US	Physical allocation
AISI Industry Average LCA	2020	Hot rolled coil	RNA	System expansion
Managed Life Cycle Content	2024.1	Thermal energy from natural gas	US	Physical allocation

2.6. Data Quality

The geographical scope of the conduit manufacturing portion of the life cycle is North America. All primary data were collected from the manufacturer. The geographic coverage of primary data is considered very good.

The primary data provided by Wheatland Tube represents all information for October 2021 to September 2022. The Part B PCR requires that primary data be 3 years old or less. While data is greater than 3 years old upon publication, use of this data is justified since it was less than 3 years old upon submission for critical review. Time coverage of this data is considered very good. Primary data provided by Wheatland Tube are specific to technology used in manufacturing their product. They are site-specific and considered of good quality.

Supplier EPDs were utilized for representing steel coil production, where available. This data represents the technology specific to the suppliers and technological representativeness of this data is considered very good. This data represents the site-specific results for the suppliers and geographic coverage of this data is considered very good. Time coverage of EPDs ranges from 2019 to 2022 and is considered of very good quality. While the reference year of a portion of the data is greater than 5 years old at time of study completion, the EPDs used are valid at the time of publication and use of these data is justified in absence of more recent producer-specific data. Supplier EPD consistency is considered good. A majority of steel supplier EPDs reported product- and site-specific results for LCIA impact categories. Supplier EPDs used consistent PCRs and LCIA methodologies for global warming potential (IPCC AR5 GWP_{100}) and other LCA impact categories (TRACI, with CML 2001-2016 for ADP_{fossil}). However, the LCA modeling software and databases used were not consistent across all supplier EPDs. For a majority of the steel supply, supplier EPD results were modeled in LCA FE using MLC datasets. A minority of EPD results were modeled in SimaPro using ecoinvent datasets or modeled in openLCA using ecoinvent datasets. Use of consistent LCA software and background LCA data would improve the consistency of this LCA.

When supplier EPDs were not available, this study utilized the AISI industry average dataset for hot rolled coil produced in North America (AISI, 2020). This dataset represents industry average production for 2017 in the relevant region. In absence of supplier data, time, technological, and geographical coverage of this data is considered good.

Secondary data for transport to fabricators and fabrication from AISC & STI represent fabrication activities in 2019 and 2020, and published in 2022. It represents industry average technology in the relevant region. According to AISC & STI, these fabrication data do not do not differentiate between fabrication of structural sections, steel plate, hollow structural sections, or non-structural steel. Therefore, use of these data is deemed appropriate for conduit. In absence of primary fabrication data, technological and geographical coverage of this data is considered good.

It is worth noting that the electricity, water, and thermal energy used in conduit manufacturing includes overhead energy such as lighting and heating. Sub-metering would improve the technological coverage of data quality. Data necessary to model cradle-to-gate unit processes were sourced from Sphera Managed LCA Content (fka GaBi) datasets and critically reviewed LCAs.

2.7. Period under Review

Period under review is the manufacturer's 2022 fiscal year, defined as October 2021 to September 2022.

2.8. Allocation

General principles of allocation were based on ISO 14040/44. Where possible, allocation was avoided. No co-product allocation was applied to the primary manufacturing data. As a default, Sphera Managed LCA Content datasets use a physical mass basis for allocation.

For fabrication, allocation based on shop hours was used to separate the manufacturing of fabricated structural steel from that of fabricated non-structural steel, according to the AISC & STI industry average EPD.

Of relevance to the defined system boundary is the method in which recycled materials were handled. Throughout the study recycled materials were accounted for via the cut-off method. Under this method, impacts and benefits associated with the previous life of a raw material from recycled stock are excluded from the system boundary. Additionally, impacts and benefits associated with secondary functions of materials at end of life are also excluded (i.e., production into a third life or energy generation from the incineration plant). The study does include the impacts associated with reprocessing and preparation of recycled materials that are part of the bill of materials of the products under study.

3. Life Cycle Assessment Scenarios

Table 4. End of Life (C1-C4) Scenarios

NAME		VALUE	UNIT
Demolition (Module C1)		0	kWh
Transport (Module C2)		100	km
Collection Process (Module C3)	Collected Separately	0	kg
	Collected with Mixed Construction Waste	3.77	kg
Recovery (Module C3)	Reuse	0	kg
	Recycling	0	kg
	Landfill (default)	3.77	kg
	Incineration	0	kg
	Incineration with Energy Recovery	0	kg
	Energy Conversion	-	
Disposal (Module C4)	Final Disposal (Landfill Default)	3.77	kg
Removals of Biogenic Carbon (excluding packaging)		0	kg CO_2

Even though the PCR Part B requires an assumption of 100% landfill for end-of-life (C1-C4), Wheatland Tube believes that steel conduit would be recycled, and users developing their own end-of-life scenarios may consider using a recycling rate of 74% in absence of primary data. This is aligned with the recycling rate in PCR Part A Table 4 'All other metals' category.

Table 5. Reuse, Recovery, and/or Recycling (D) Scenarios

NAME	CONDUIT FROM CHICAGO, IL	UNIT
Recycling Rate of Manufacturing Scrap*	100	%
Recycled Content of Product (Plant Average)	73	%
Net energy benefit from energy recovery from waste treatment declared as exported energy in C3	0	MJ
Net energy benefit from thermal energy due to treatment of waste declared as exported energy in C4	0	MJ
Net energy benefit from material flow declared in C3 for energy recovery	0	MJ
Process and conversion efficiencies	0	N/A

4. Life Cycle Assessment Results

Table 6. Description of the system boundary modules

PRODUCT STAGE			CONSTRUCT-ION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Raw material supply	Transport	Manufacturing	Transport from gate to site	Assembly/Install	Use	Maintenance	Repair	Replacement	Refurbishment	Building Operational Energy Use During Product Use	Building Operational Water Use During Product Use	Deconstruction	Transport	Waste processing	Disposal	Reuse, Recovery, Recycling Potential
X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X

X=module is declared, MND=module not declared

4.1. Life Cycle Assessment Results – Fabricated Intermediate Metal Conduit (IMC), Chicago, IL

LCIA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks. These six impact categories are globally deemed mature enough to be included in Type III environmental declarations. Other categories are being developed and defined and LCA should continue making advances in their development. However, the EPD users shall not use additional measures for comparative purposes.

Table 7. North American Impact Assessment Results: 1 meter length of Fabricated Intermediate Metal Conduit (IMC), Chicago, IL

IPCC AR5 GWP_{100}, TRACI, AND CML 2001-2016	A1	A2	A3	C1	C2	C3	C4	D
GWP [kg CO_2 eq]	6.64E+00	1.68E-01	3.64E-01	0.00E+00	3.08E-02	0.00E+00	8.31E-02	-1.72E-01
ODP [kg CFC 11 eq]	5.72E-08	3.27E-16	6.10E-12	0.00E+00	8.99E-17	0.00E+00	3.90E-15	-9.80E-16
AP [kg SO_2 eq]	2.18E-02	6.89E-04	5.73E-04	0.00E+00	8.65E-05	0.00E+00	5.28E-04	-5.04E-04
EP [kg N eq]	6.33E-03	6.18E-05	4.63E-05	0.00E+00	9.06E-06	0.00E+00	6.21E-05	-2.59E-05
SFP [kg O_3 eq]	3.30E-01	1.67E-02	8.40E-03	0.00E+00	1.96E-03	0.00E+00	7.55E-03	-6.22E-03
ADP_{fossil} [MJ, LHV]	3.65E+01	2.70E-01	3.92E-01	0.00E+00	4.00E-01	0.00E+00	1.20E+00	-1.74E+00

Comparisons cannot be made between product-specific or industry average EPDs at the design stage of a project, before a building or construction works has been specified. Comparisons may be made between product-specific or industry average EPDs at the time of product purchase only when product or construction works performance and specifications have been established and serve as a functional unit for comparison. Environmental impact results shall be converted to a functional unit basis before any comparison is attempted. Any comparison of EPDs shall be subject to the requirements of ISO 21930 or EN 15804. EPDs are not comparative assertions and are either not comparable or have limited comparability when they have different system boundaries, are based on different product category rules or are missing relevant environmental impacts. Such comparisons can be inaccurate and could lead to erroneous selection of materials or products that are higher-impact, at least in some impact categories.

Table 8. Resource Use: 1 meter length of Fabricated Intermediate Metal Conduit (IMC), Chicago, IL

Parameter	A1	A2	A3	C1	C2	C3	C4	D
RPR_E [MJ, LHV]	6.85E+00	2.35E-01	8.14E-01	0.00E+00	1.78E-02	0.00E+00	1.53E-01	-1.68E-01
RPR_M [MJ, LHV]	6.15E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR_T [MJ]	7.46E+00	2.35E-01	8.14E-01	0.00E+00	1.78E-02	0.00E+00	1.53E-01	-1.68E-01
$NRPR_E$ [MJ, LHV]	9.46E+01	2.60E+00	5.54E+00	0.00E+00	4.03E-01	0.00E+00	1.23E+00	-1.79E+00
$NRPR_M$ [MJ, LHV]	1.19E+00	0.00E+00	4.75E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
$NRPR_T$ [MJ]	9.58E+01	2.60E+00	5.59E+00	0.00E+00	4.03E-01	0.00E+00	1.23E+00	-1.79E+00
SM [kg]	3.27E+00	0.00E+00	2.87E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF [MJ, LHV]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF [MJ, LHV]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RE [MJ, LHV]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW [m^3]	4.28E-02	6.82E-04	2.57E-03	0.00E+00	5.93E-05	0.00E+00	1.59E-04	-1.26E-02
BCRK [kg CO_2][1]	5.69E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 9. Output Flows and Waste Categories: 1 meter length of Fabricated Intermediate Metal Conduit (IMC), Chicago, IL

Parameter	A1	A2	A3	C1	C2	C3	C4	D
HWD [kg]	4.16E-04	0.00E+00	1.25E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NHWD [kg]	5.98E-03	0.00E+00	3.64E-02	0.00E+00	0.00E+00	0.00E+00	3.77E+00	0.00E+00
HLRW [kg]	4.23E-06	1.19E-07	4.45E-07	0.00E+00	1.44E-09	0.00E+00	1.47E-08	-3.96E-08
ILLRW [kg]	3.55E-03	9.95E-05	3.71E-04	0.00E+00	1.21E-06	0.00E+00	1.31E-05	-3.48E-05
CRU [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MR [kg]	2.93E-01	0.00E+00	2.90E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MER [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE [MJ, LHV]	1.52E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET [MJ, LHV]	4.85E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

[1] Other biogenic carbon indicators are equal to 0 and are therefore not reported in results tables.

4.2. Life Cycle Impact Assessment Results – Unfabricated Product

Table 10. Cradle-to-Gate Global Warming Potential (GWP_{100}) per IPCC AR5: 1 m length of Unfabricated Conduit

PRODUCT	SITE	CRADLE-TO-GATE, MILL PRODUCT	UNIT
Intermediate Metal Conduit	Chicago, IL	6.15E+00	kg CO_2 eq

5. Life Cycle Assessment Interpretation

For all the impact categories and products included in this EPD, conduit manufacturing (A1) has the highest contribution, 93% or more, to cradle-to-gate impacts. Transportation of conduit to fabricators (A2) and conduit fabrication (A3) each contribute contributes less than 10% to all impact categories.

Across all impact categories, end of life stage (C1-C4) contributes minimally to environmental impacts over the system boundary. For most impact categories, C1-C4 contributes up to 2%. At a maximum, C1-C4 contributes 4% to ADPF.

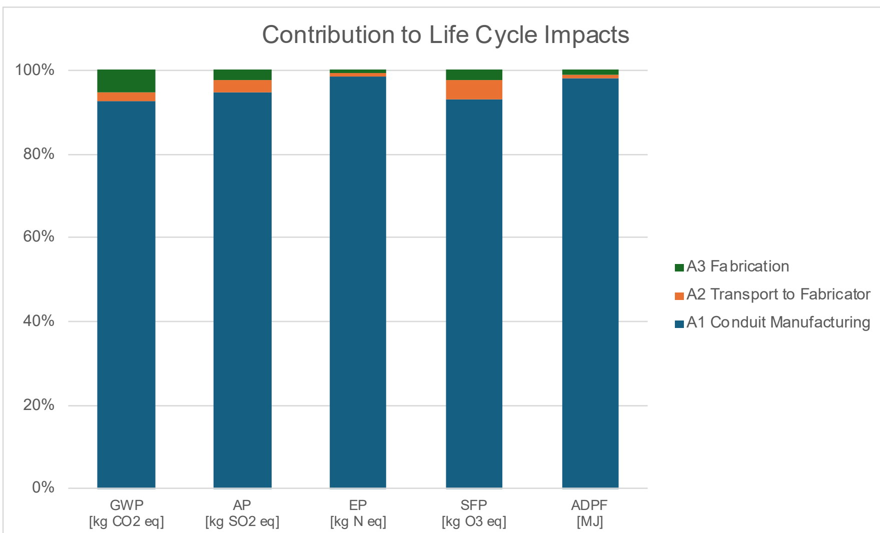


Figure 1: Cradle-to-Gate Impacts for Fabricated Intermediate Metal Conduit, Chicago, IL

Module D contributions to impacts across a majority of impact categories are dominated by zinc scrap sent to recycling in the galvanizing process at Chicago. One exception is FW, dominated by steel scrap sent to recycling because of the dataset used to estimate benefits in the next product system for steel scrap sent to recycling. Contributions to module D from other materials recycled or recovery of energy from disposal of manufacturing waste are insignificant.

6. Additional Environmental Information

6.1. Environment and Health During Manufacturing

Wheatland Tube maintains an SDS of the product which contains specific Environmental, Health and Safety information of finished goods as it relates to local and international regulations. An SDS database is a centralized location in which recommended handling and regulatory exposure limits and recommended control measures can be found.

Wheatland Tube always implements compliance focused measures with regulatory requirements in mind. A proactive compliance approach is used as a guidance tool at all Wheatland Tube facilities. Each facility is accountable and held to a proactive compliance standard.

See Appendix for information on regulated substances.

6.2. Environmental Activities and Certifications

Waste/Recycling: Wheatland Tube facilities generate very little hazardous waste streams. All locations are classified as being a small quantity generator or very small quantity generator. Where feasible, Wheatland Tube recycles what would otherwise be deemed a waste, with a goal of diverting wastes from landfill. All facilities have a procedure in place to extend the life expectancy of coolant minimizing overall generated industrial waste while reducing the introduction of virgin coolant. Contaminants are continuously removed from the process allowing coolants to be reused in a closed loop system for an extended period of time.

Emissions: The process at Wheatland Tube generates minimal air emissions. Rust inhibitors used are generally water based with a very low organics content. All cleaners are either water based or federally exempt organic based materials.

Safety: Zekelman Industries understands that health and safety of its teammates are critical to the success of the organization and strives to provide a safe and healthy workplace that exceeds the most established health and safety standards. Our consistent improvements to safety and health are accomplished through the integration of safety in all teammates' daily duties and responsibilities. This has resulted in a sustainable level of safety, engagement, empowerment, and accountability throughout the organization.

7. References

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8. Impact Scaling Factors

For each product, results are provided for 1 m length of conduit at 2” diameter and specified wall thickness. To account for application-specific contexts, declared unit scaling factors are provided for each product based on the following formula from Part B PCR section 5.3.3.

The conduit impacts are equal to the conduit scaling factor in the following tables, multiplied by the impact per m for the 2” diameter product.

For example, to find the cradle-to-gate GWP of *1 m* of unfabricated 3” diameter Intermediate Metal Conduit produced at Chicago, GWP of unfabricated 2” diameter conduit (6.15) is multiplied by the scaling factor *per m* for 3” size (2.11). This calculation is equal to 13.0 kg CO_2 eq/m unfabricated conduit with 3” diameter.

Similarly, to find the cradle-to-gate GWP of *10 ft* of unfabricated 2” diameter Intermediate Metal Conduit produced at Chicago, GWP of unfabricated 2” diameter conduit (6.15) is multiplied by the scaling factor *per 10 ft* for 2” size (3.05). This calculation is equal to 18.8 kg CO_2 eq/m unfabricated conduit with 2” diameter.

Table 11. Impact Scaling Factors

Trade Size (in)	Outer Diameter (m)	Inner Diameter (m)	Wall Thickness (m)	Linear Density µ (kg/m)	Scaling Factor (per m)	Scaling Factor (per 10 ft)
½	2.07E-02	1.68E-02	1.97E-03	9.09E-01	2.41E-01	7.36E-01
¾	2.62E-02	2.19E-02	2.11E-03	1.25E+00	3.32E-01	1.01E+00
1	3.28E-02	2.82E-02	2.29E-03	1.72E+00	4.56E-01	1.39E+00
1 ¼	4.17E-02	3.68E-02	2.41E-03	2.34E+00	6.20E-01	1.89E+00
1 ½	4.78E-02	4.27E-02	2.54E-03	2.83E+00	7.52E-01	2.29E+00
2	5.99E-02	5.46E-02	2.67E-03	3.77E+00	1.00E+00	3.05E+00
2 ½	7.26E-02	6.50E-02	3.81E-03	6.47E+00	1.72E+00	5.23E+00
3	8.84E-02	8.08E-02	3.81E-03	7.95E+00	2.11E+00	6.43E+00
3 ½	1.01E-01	9.32E-02	3.81E-03	9.12E+00	2.42E+00	7.38E+00
4	1.14E-01	1.06E-01	3.81E-03	1.03E+01	2.74E+00	8.34E+00

Appendix: Regulated Substances

Per the PCR Part A section 8.4.1 Regulated Hazardous Substances, the substances contained in the construction product that are identified as hazardous according to normative requirements in standards and regulations in the applicable EPD market shall be disclosed in this report and the EPD. The description of regulated substance, CAS number, and reference regulations shall be identified as below.

Materials or chemicals required to be disclosed on a product safety data sheet per OSHA Hazardous Communication Standard, RCRA Subtitle C, EPCRA Section 302, CERCLA Hazardous Substances, and California State Proposition 65 are listed in the SDS at https://www.wheatland.com/wp-content/uploads/2017/12/Safety-Data-Sheet-1.pdf.

To demonstrate compliance with the Regulation (EU) 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants (POPs Regulation), Wheatland Tube, LLC to the best of its knowledge does not use any listed POPs in any of its processes and they are not a component of finished products. Please note the POPs list is subject to change therefore this declaration applies to the pollutants list as of March 7, 2025.

The following chemical agents are required to be reported per the US EPA Toxic Release Inventory, EPCRA section 313, and EPA Clean Air Act by site:

REGULATION	SUBSTANCE	CAS	CHICAGO, IL
EPA TRI, EPCRA, EPA CAA	1,2,4 trimethylbenzene	95-63-6	x
EPA CAA	Acetone	67-64-1	x
EPA CAA	Carbon Dioxide	124-38-9	x
EPA CAA	Carbon Monoxide	630-08-0	x
EPA CAA	Dimethyl Carbonate	616-38-6	x
EPA TRI, EPCRA, EPA CAA	Glycol ethers	N230	x
EPA TRI, EPCRA, EPA CAA	Hydrochloric acid aerosols	7647-01-0	x
EPA TRI, EPCRA, EPA CAA	Lead	7439-92-1	x
EPA CAA	Methane	74-82-8	x
EPA CAA	Nitrous Oxide	10024-97-2	x
EPA CAA	NOx	10102-44-0	x
EPA CAA	PM unspecified	n/a	x
EPA CAA	PM10	n/a	x
EPA CAA	PM2. 5	n/a	x
EPA CAA	Sulfur Dioxide	7446-09-5	x
EPA TRI, EPCRA, EPA CAA	Toluene	108-88-3	x
EPA CAA	Volatile Organic Materials	n/a	x
EPA TRI, EPCRA, EPA CAA	Xylene	1330-20-7	x
EPA TRI, EPCRA, EPA CAA	Zinc (fume or dust)	7440-66-6	x
EPA TRI, EPCRA	Zinc compounds	N982	x