

Environmental Product Declaration



In accordance with ISO 14025:2006 for:

Energy tubular products

from

Welded Tube of Canada Corporation




Programme:	The International EPD® System, www.environdec.com
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An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com

ENERGY TUBULARS

Programme information

Programme:	The International EPD [®] System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
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Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
PCR: <i>PCR 2023:01 for Fabricated Metal products UN CPC code 412, Products of iron & steel</i>
PCR review was conducted by: <i>Gorka Benito Alonso, IK INGENIERIA, g.benito@ik-ingenieria.com</i>
Life Cycle Assessment (LCA)
LCA accountability: <i>Rob Sianchuk, Rob Sianchuk Consulting</i>
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: <input checked="" type="checkbox"/> EPD verification by individual verifier  Third-party verifier: Thomas Gloria, Industrial Ecology Consultants LLC Approved by: The International EPD [®] System
Procedure for follow-up of data during EPD validity involves third-party verifier: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see ISO 14025.

Company information

Owner of the EPD: Welded Tube of Canada Corporation

Contact: Jeff Cooper, cooper@weldedtube.com

Description of the organisation: Welded Tube of Canada is a multi-faceted cold formed carbon and HSLA steel tubular producer with producing facilities in the US and Canada.

Founded in 1970, our company enjoys an unparalleled and well-earned reputation for producing tubular products to the highest quality standards across all of our product lines and at each of our four producing facilities.

On time and competitive delivery is ensured with industry leading logistics support through a wholly owned transportation company. An automated warehouse and distribution facility provides the quick loading of Customer's trucks.

With total North American wide manufacturing and ancillary space of 1 million square feet, Welded Tube's commitment to quality products and service is not new – the Company was the first steel tubular producer in North America to be ISO registered.

Whatever the product Hollow Structural Sections (HSS), mechanical tube, or API oil country tubular goods to name a few Welded Tube's dedication to quality and service is complete and unassailable!

Welded Tube is committed to providing or arranging for the provision of accessible formats and communication supports for persons with disabilities, upon request.

Welded Tube is also committed to providing accommodations for persons with disabilities in its recruitment processes.

IN ASSOCIATION WITH



Product-related or management system-related certifications: Welded Tube was the first ERW tube producer in North America registered to the now widespread ISO 9000 business system series of standards.

Name and location of production sites: Four manufacturing locations, including:

- 2 Dona St, Lackawanna, NY 14218, United States
- 50 Bowes Rd, Concord, Ontario, Canada, L4K 1J6, Canada
- 191 Ridge Rd, Welland, ON L3B 5N7, Canada
- 19 Stonebridge Dr, Port Colborne, ON L0S 1V0, Canada

Product information

Product name: Energy tubular products

Product identification: The energy tubular products considered in this EPD are manufactured by WTC according to the following API specification 5CT, and Welded Tube of Canada (WTC) custom grades and sizes.

Table 1 Energy tubular product sizes and grades.¹

Dimensions						Grades					
Outside Diameter (in)	Linear density (lbs/ft)	Wall Thickness (in)	Outside Diameter (mm)	Linear density (kg/m)	Wall Thickness (mm)	WTC 60 WTC 65 WTC 80	H40	J55	N80Q	HCL80 L80	HCP110 P110
4.500 (4-1/2")	9.50	0.205	114.3	14.14	5.21	Yes	Yes	Yes	NA	NA	NA
	10.50	0.224		15.63	5.69	Yes	NA	Yes	NA	NA	NA
	11.60	0.250		17.26	6.35	Yes	NA	Yes	Yes	Yes	Yes
	13.50	0.290		20.09	7.37	Yes	NA	NA	Yes	Yes	Yes
	15.10	0.337		22.47	8.56	Yes	NA	NA	NA	Yes	Yes
5.500 (5-1/2")	14.00	0.244	139.7	20.83	6.20	Yes	Yes	Yes	NA	NA	NA
	15.50	0.275		23.07	6.99	Yes	NA	Yes	NA	NA	NA
	17.00	0.304		25.30	7.72	Yes	NA	Yes	Yes	Yes	Yes
	20.00	0.361		29.76	9.17	Yes	NA	NA	Yes	Yes	Yes
	23.00	0.415		34.23	10.54	Yes	NA	NA	Yes	Yes	Yes
	26.80	0.500		39.88	12.70	NA	NA	NA	NA	NA	NA
7.000 (7")	17.00	0.231	177.8	25.30	5.87	Yes	Yes	NA	NA	NA	NA
	20.00	0.272		29.76	6.91	Yes	Yes	Yes	NA	Yes	NA
	23.00	0.317		34.23	8.05	Yes	NA	Yes	Yes	Yes	Yes
	26.00	0.362		38.69	9.19	Yes	NA	Yes	Yes	Yes	Yes
	29.00	0.408		43.16	10.36	Yes	NA	NA	Yes	Yes	Yes
	32.00	0.453		47.62	11.51	Yes	NA	NA	Yes	Yes	Yes
	35.00	0.498		52.09	12.65	NA	NA	NA	Inquire	Inquire	Inquire
8.625 (8-5/8")	24.00	0.264	219.1	35.72	6.71	Yes	NA	Yes	NA	NA	NA
	28.00	0.304		41.67	7.72	Yes	Yes	NA	NA	NA	NA
	32.00	0.352		47.62	8.94	Yes	Yes	Yes	NA	NA	NA
	36.00	0.400		53.57	10.16	Inquire	NA	Inquire	Inquire	Inquire	NA
	40.00	0.450		59.53	11.43	NA	NA	NA	Inquire	Inquire	Inquire
	44.00	0.500		65.48	12.70	NA	NA	NA	Inquire	Inquire	Inquire
9.625 (9-5/8")	32.30	0.312	244.5	48.07	7.92	Yes	Yes	NA	NA	NA	Yes
	36.00	0.352		53.57	8.94	Yes	Yes	Yes	NA	Yes	Yes
	40.00	0.395		59.53	10.03	Yes	NA	Yes	Yes	Yes	Yes
	43.50	0.435		64.74	11.05	Inquire	NA	NA	Yes	Yes	Yes
	47.00	0.472		69.94	11.99	NA	NA	NA	Inquire	Inquire	Inquire

UN CPC code: 412, Products of iron & steel

Geographical scope: USA and Canada

Product description: The energy tubular products considered in this study are intended for use as the main parts of wells constructed for the purpose of oil and gas production. Energy tubular products (i.e. casing) are the major structural component of the well and serves to maintain borehole stability, prevent contamination of water sands as well as isolate ground water from producing formations. Energy tubular products control well pressures during drilling, production and work over operations.

¹ NA = Not a published API Size, Thickness and Grade combination.

Yes = Not a published API Size, Thickness and Grade combination, but WToC manufacture it.

LCA information

Declared unit: 1 kg of energy tubular product. Heat-treated and green (i.e. non-heat treated) energy tubular product indicator results have a difference of less than 10%, so indicator results are declared for the average results weighted according to production volumes of heat-treated and green energy tubular products.

Reference service life: N/A

Time representativeness: January 1, 2023 to December 31, 2023

Database(s) and LCA software used: ecoinvent 3.10 with EN 15804 add-on by GreenDelta and openLCA 2.1.0

System diagram: The processes included within the system boundaries are summarized below with flow diagrams showing an overview of specific product and waste flows by life cycle stage (Figure 1) and core processes at WTC facilities (Figure 2).

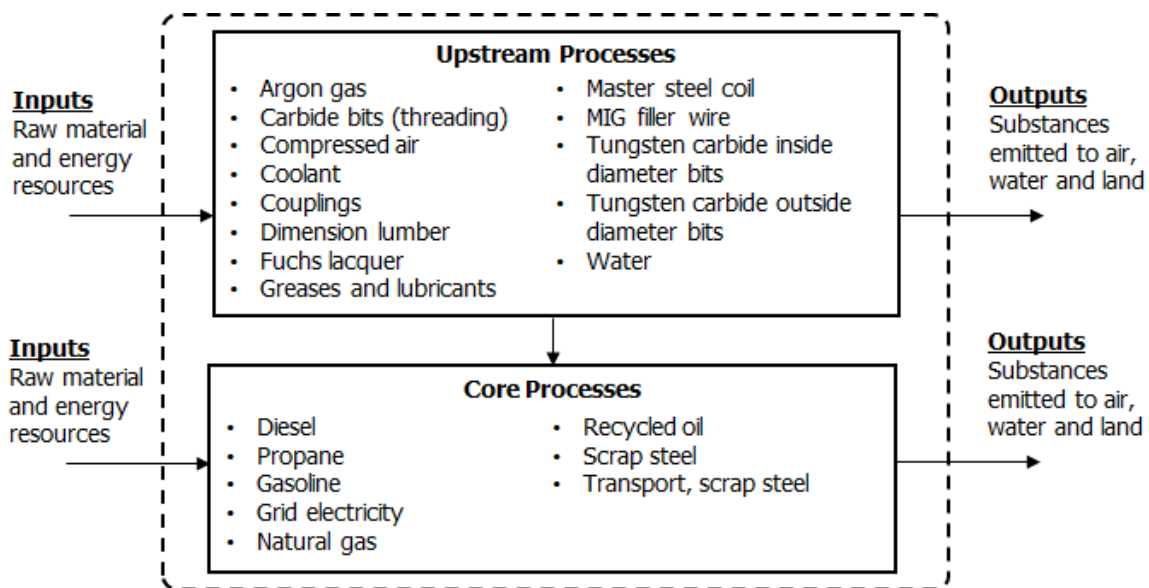


Figure 1 Energy tubular product system boundary diagram by life cycle stage.

Lackawanna, NY and Concord, ON Core Processes

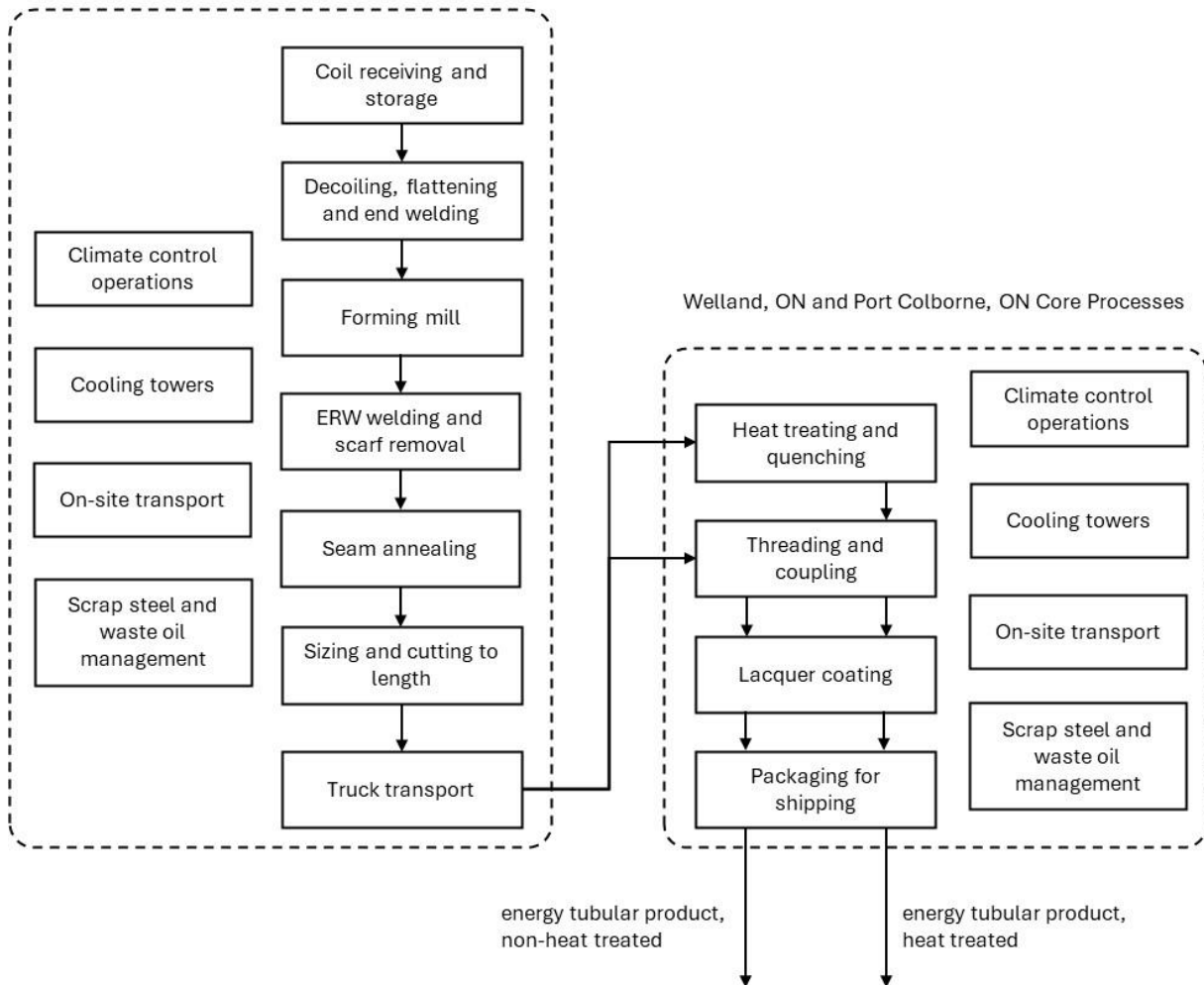


Figure 2 System boundary diagram of core processes included at WTC facilities.

Description of system boundaries: cradle-to-gate, including upstream and core processes.

Excluded lifecycle stages: downstream processes

More information:

Products from the same company - The energy tubular product, for which results are calculated in this LCA study, are calculated from the specific data collected as an average weighted by production mass of heat-treated and green (i.e. non-heat treated) energy tubular product indicator results. This option from the PCR for Fabricated metal products was selected as none of the declared environmental impact indicator results differ by more than 10% between the heat treated and non-heat treated energy tubular products.

Impact assessment method - The LCI results for this study are characterized using the openLCA EN 15804+A2 (EF 3.1) method.

Content declaration

Product

Product components	%, by mass
Master steel coil	96
Coupling	4
Lacquer	<1
TOTAL	100

No substance in the “Candidate List of Substances of Very High Concern (SVHC) for authorization” exceeds 0.1% wt in the final product.

Packaging

Distribution packaging: Plastic wrap, steel strapping, solid wood dunnage.

Consumer packaging: N/A



Results of the environmental performance indicators

Impact category indicators

PARAMETER		UNIT	Upstream	Core	TOTAL
Global warming potential (GWP)	Fossil	kg CO ₂ eq.	2.65E+00	1.53E-01	2.81E+00
	Biogenic	kg CO ₂ eq.	-2.87E-03	8.33E-05	-2.78E-03
	Land use and land transformation	kg CO ₂ eq.	1.35E-03	9.56E-04	2.31E-03
	TOTAL	kg CO ₂ eq.	2.65E+00	1.54E-01	2.81E+00
Ozone layer depletion (ODP)		kg CFC 11 eq.	1.50E-08	1.26E-09	1.62E-08
Acidification potential (AP)		mol H ⁺ eq.	1.10E-02	2.13E-04	1.12E-02
Eutrophication potential (EP)	Aquatic freshwater	kg P eq.	1.06E-03	5.36E-06	1.07E-03
	Aquatic marine	kg N eq.	2.50E-03	8.07E-05	2.58E-03
	Aquatic terrestrial	mol N eq.	2.55E-02	8.39E-04	2.63E-02
Photochemical oxidant creation potential (POCP)		kg NMVOC eq.	9.03E-03	4.26E-04	9.45E-03
Abiotic depletion potential (ADP)*	Metals and minerals	kg Sb eq.	7.74E-06	1.14E-07	7.86E-06
	Fossil resources	MJ, net calorific value	2.80E+01	3.56E+00	3.16E+01
Water deprivation potential (WDP)*		m ³ world eq. deprived	1.26E+00	1.38E-01	1.39E+00

* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

Additional impact category indicators (optional)

PARAMETER	UNIT	Upstream	Core	TOTAL
Ecotoxicity, freshwater*	CTUe	8.30E+01	2.13E-01	8.32E+01
Human toxicity, cancer effects*	CTUh	2.51E-07	3.61E-10	2.52E-07
Human toxicity, non-cancer effects*	CTUh	5.50E-08	6.50E-10	5.57E-08
Ionising radiation, HH**	kBq U-235 eq	9.08E-02	1.00E-01	1.91E-01
Land use*	Pt	8.85E+00	3.66E-01	9.22E+00
Particulate matter, HH	disease inc.	2.28E-07	1.72E-09	2.30E-07

* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

** Disclaimer: This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator

Additional impact category indicators according to TRACI 2.1 (optional)

PARAMETER	UNIT	Upstream	Core	TOTAL
Global warming potential	kg CO ₂ eq	2.61E+00	1.52E-01	2.76E+00
Ozone depletion potential	kg CFC-11 eq	1.94E-08	1.35E-09	2.08E-08
Eutrophication potential	kg N eq	1.11E-02	7.67E-05	1.12E-02
Acidification potential	kg SO ₂ eq	9.36E-03	1.90E-04	9.55E-03
Photochemical oxidant creation potential	kg O ₃ eq	1.39E-01	4.80E-03	1.44E-01

Resource use indicators

PARAMETER		UNIT	Upstream	Core	TOTAL
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	2.50E+00	2.65E-01	2.77E+00
	Used as raw materials	MJ, net calorific value	0.00E+00	0.00E+00	0.00E+00
	TOTAL	MJ, net calorific value	2.50E+00	2.65E-01	2.77E+00
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	2.72E+01	3.40E+00	3.06E+01
	Used as raw materials	MJ, net calorific value	7.67E-01	1.58E-01	9.25E-01
	TOTAL	MJ, net calorific value	2.80E+01	3.56E+00	3.16E+01
Secondary material (optional)		kg	4.79E-01	4.19E-03	4.83E-01
Renewable secondary fuels (optional)		MJ, net calorific value	1.41E-02	2.10E-03	1.62E-02
Non-renewable secondary fuels (optional)		MJ, net calorific value	0.00E+00	0.00E+00	0.00E+00
Net use of fresh water (optional)		m ³	1.88E-02	3.21E-03	2.20E-02

Waste indicators (optional)

PARAMETER	UNIT	Upstream	Core	TOTAL
Hazardous waste disposed	kg	8.27E-01	1.79E-03	8.29E-01
Non-hazardous waste disposed	kg	6.99E+00	9.90E-03	7.00E+00
Radioactive waste disposed	kg	2.27E-05	3.00E-05	5.26E-05

Output flow indicators (optional)

PARAMETER	UNIT	Upstream	Core	TOTAL
Components for reuse	kg	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	3.11E-01	1.12E-01	4.23E-01
Materials for energy recovery	kg	6.36E-06	9.42E-07	7.30E-06
Exported energy, electricity	MJ per energy carrier	8.02E-03	5.92E-05	8.08E-03
Exported energy, thermal	MJ per energy carrier	1.34E-02	5.26E-05	1.35E-02

Differences versus previous versions

This is the first version of the energy tubular products EPD.

References

EN 15804:2012+A2:2019 E “Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products”

International EPD[®] System, 2021. General Programme Instructions for the International EPD System, version 4.0

International EPD[®] System, 2023. PCR 2023:01 for Fabricated metal products, version 1.0.1

ISO 14040:2006 “Environmental management – Life cycle assessment – Principles and framework”

ISO 14044:2006 “Environmental management – Life cycle assessment – Requirements and guidelines”

ISO 14025:2006 “Environmental labels and declarations – Type III environmental declarations – Principles and procedures”

Rob Sianchuk Consulting, 2024. Project report: Life cycle assessment of energy tubular products version 1.0

