

ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 and
EN 15804:2012+A2:2021 :



ENVIRONMENTAL FOOTPRINT INSTITUTE



ELECTRIC RESISTANCE WELDED STEEL TUBES (BLACK AND GALVANIZED)

Manufactured by : **APL APOLLO** STEEL PIPES

Programme:
Programme operator:
EPD Reference number:
Issue date:
Valid until:
Geographical Scope

The EFI Program
The Environmental Footprint Institute
240901EDP CR:P-3100
07.09.2024
06.09.2029
Manufactured in Umm Al Quwain (UAE)
and distributed in UAE and foreign countries.

An EPD should provide current information and may be updated if conditions change.
The stated validity is therefore subject to the continued verification and registration at
www.environmentalfootprintinstitute.org



ELECTRIC RESISTANCE WELDED STEEL TUBES (BLACK AND GALVANIZED)

Manufactured by **APL APOLLO TUBES COMPANY LLC**

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1.0 PROGRAM INFORMATION



• Program	The EFI Program
• Product Group Classification	UN CPC 3511
• Product Category Rules (PCR)	P-3100: Construction products in general (EN-15804)
• Registration Number	REF:240901EPD CR:P-3100
• Issue Date	07.09.2024
• Validity Date	06.09.2029
	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.environmentalfootprintinstitute.org
• Geographical Scope	Manufactured in Umm Al Quwain (UAE) and distributed in UAE and foreign countries.

2 INTRODUCTION

This report contains the environmental performance of the manufacturing process of **ERW WELDED STEEL TUBES** Manufactured by **APL APOLLO TUBES COMPANY LLC** . located in Plot No 2069, Sector O5,Al Rafa Umm Derra, Umm Al Quwain, UAE. This Environmental Product Declaration (EPD) has been developed using the Life Cycle Assessment (LCA) methodology. The environmental impact values calculated are expressed to One-Ton of Steel Tubes.

The assessed life cycle includes all phases in the manufacturing process of tubes in a “cradle to gate with options” scope. This LCA covers transportation of raw materials, production, distribution of final product to the customer and end of life stages.

This EPD has been conducted according to the program operator regulations and it has been verified in accordance with The Environmental Footprint Institute. The EPD regulation is a system for the international use of Type III Environmental Declarations, according to ISO 14025:2006. Not only the system, but also its applications, is described in the Programmer’s Product Category Rules (PCR). This report has been made following the specifications given in the European standard EN 15804:2012+A2:2019/AC:2021.

ELECTRIC RESISTANCE WELDED STEEL TUBES (BLACK AND GALVANIZED)

Manufactured by **APL APOLLO TUBES COMPANY LLC**

3.0 COMPANY INFORMATION

APL Apollo Tubes Company L.L.C is the subsidiary of APL Apollo Tubes Limited which is India's largest Structural Steel Tubing Company. With a capacity to produce 3.6 Million Tones per annum, APL Apollo Tubes Limited is the largest producer of Structural Steel Tubes in India. APL Apollo multi-product offerings include over 1,100 varieties of Pre- Galvanized Tubes, Structural Steel Tubes, Galvanized Tubes, MS Black Pipes and Hollow Sections, making APL Apollo is one of leading branded steel products manufacturers in India.

Headquartered at Delhi NCR APL Apollo, with its world-class facilities, widely spread 3-tier distribution network, and over 800 dealers, is committed to strengthening India's infrastructural backbone with its structural tubes and hollow sections.

The Umm ul Quwain Facility has the capacity of 0.50 million ton, producing pipes from 12×12mm to 300×300mm. At present APL Apollo has installed the capacity of 2.6 million ton which will be 4million ton by end of 2024 once the entire expansion project is completed

APL Apollo specializes in the manufacture of wide range of products in circular, square and rectangular tubular for construction and electro-mechanical purposes. All the tubes are categorized as 'non-alloy'.

Certifications



Sustainable Practices

APL APOLLO TUBES COMPANY LLC is committed to green and sustainable practices by using backward and forward integration into its manufacturing processes:

- Sourcing of raw materials from the closest source to reduce the impact on transportation;
- Using recycled materials and minimizing waste which further helps reduce environmental impact and carbon footprint;
- Manufacturing own resin and packing materials.

**INDIA'S
No. 1***
STRUCTURAL STEEL TUBE COMPANY

55%
Market Share

3.6MT
Capacity

11
Plants

800+
Distributors

2,587
Employees

16
Registered Products

75

Registered
Trademarks



ELECTRIC RESISTANCE WELDED STEEL TUBES (BLACK AND GALVANIZED)

Manufactured by **APL APOLLO TUBES COMPANY LLC**

4.0 PRODUCT INFORMATION

4.1 Analyzed Product

The product covered in this EPD is MS Tubes according to ASTM standards. It is one product and offered in circular, square and rectangular tubular for construction and electro-mechanical purposes as detailed below. All our tubes are categorized 'non-alloy'. The products included in this EPD is :

- Cold Formed Welded Circular Hollow Section
- Cold Formed Welded Square Hollow Section
- Cold Formed Welded Rectangular Hollow Section

Cold-formed Welded Structural Hollow Sections of Non-Alloy and Fine Grain Steels of Circular, Square or Rectangular forms and applies to Structural Hollow Sections formed cold without subsequent heat treatment. CHS: Size 21.30mm to 114.30mm, SHS: Size 12 X 12 to 300 X 300mm; RHS: Size 40 X 20 to 400 X 200mm & Thickness 0.80 – 12.7mm

4.2 Technical Specification

	% by mass, maximum							
	Grade	C	Si	Mn	P	S	N	CEV
EN 10219 Cl No. 6.6, Annex A Table A.1 & Table A.2	S235JRH	0.17	--	1.40	0.040	0.040	0.009	0.35
	S275J0H	0.20	--	1.50	0.035	0.035	0.009	0.40
	S275J2H	0.20	--	1.50	0.030	0.030	--	0.40
	S355J0H	0.22	0.55	1.60	0.035	0.035	0.009	0.45
	S355J2H	0.22	0.55	1.60	0.030	0.030	--	0.45
EN 10219 CL No. 6.7, Annex A Table A.3	Grade	Min. Yield Strength (MPa)	Tensile Strength (Mpa)		Min Elon.	Min. Impact Value		
			<3	≥3 ≤40		-20°C	0°C	20°C
	S235JRH	235	360-510	360-510	24%	-	-	27 J
	S275J0H	275	430-580	410-560	20%	-	27 J	-
	S275J2H					27 J	-	-
	S355J0H	355	510-680	470-630	20%	-	27 J	-
S355J2H	27 J					-	-	

4.3 Product Applications

Electric Resistance Welded (ERW) black and galvanized steel tubes and pipes are widely used across various industries due to their strength, durability, and resistance to corrosion. Black ERW pipes are commonly employed in structural frameworks, scaffolding, and machinery, while galvanized ERW pipes are favored for their enhanced corrosion resistance, making them ideal for water supply systems, oil and gas pipelines, and agricultural irrigation. Both types are integral to construction, automotive, manufacturing, and HVAC applications, offering reliable performance and versatility in diverse environments.

Note: The above values are ranges of the all products. Refer below Technical data sheet for each product technical specifications.

ELECTRIC RESISTANCE WELDED STEEL TUBES (BLACK AND GALVANIZED)

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5.0 LCA INFORMATION

This EPD is intended for diverse applications, including industry databases, publications, and communication within the business-to-business (B2B) landscape. Specifically designed for the environmental assessment of buildings, EPDs allow stakeholders to access crucial information regarding a product's environmental performance. This tailored design facilitates B2B communication, enabling companies to make environmentally conscious decisions when selecting materials and components for construction projects. The primary target audience for EPDs is both business-to-business (B2B) interactions, where companies can exchange and evaluate environmental information, and business-to-consumer (B2C) scenarios, where end-users can make informed, sustainable choices based on the disclosed environmental impact of products.

5.1 Declared Unit

The Declared Unit of the Life Cycle Assessments is One-ton of Steel Tubes plus the proportional part of packaging. All direct and indirect environmental impacts, as well as the use of resources, are reported referred to this unit. This EPD presents the environmental impacts associated to the LCA of the analyzed products

5.2 Time Representativeness

Manufacturing facility specific data from APL APOLLO TUBES COMPANY LLC are based on 1 year average for process data (Reference year January to December 2023). The following rules for time scope of data were applied - < 10 years for background data and < 2 years for manufacturer's data.

5.3 LCA Software and Database

Version 3.17.4.0 of software Air.e LCA™ with Ecoinvent™ 3.10.0 database has been used for LCA modeling and impacts calculations. EN15804 system model is used in this LCA.

5.4 System Boundaries

This EPD covers all product stages from “cradle to gate with options”, i.e this LCA covers Production stage A1-A3, Transportation A4, Application of Steel Pipes A5, End of life stages C1-C4 and Resource recovery stage D according to EN 15804 + A2/AC:2021.

The system boundaries of this environmental study encompass not only the company-controlled processes but also include upstream and downstream activities such as fuel extraction, material production, and electricity generation, which are not directly managed by the company.

All related direct and indirect environmental impacts related to these elements have been calculated and were included in the LCAs in this EPD. The stage B1,B2,B3,B4,B5,B6 and B7 is not included in this EPD.

Upstream Processes (A1: Raw Material Supply): Production of the product starts with mainly raw material production and transportation from different parts of the world and some locally sourced. 'Raw material supply' includes raw material extraction before production.

ELECTRIC RESISTANCE WELDED STEEL TUBES (BLACK AND GALVANIZED)

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5.0 LCA INFORMATION

Core Processes (A2: Transportation, A3: Manufacturing and A4: Transport, A5 Application): Transport is relevant for delivery of raw materials to the plant and the transport of materials within the plant. Electricity is consumed in the production process. Steel Tubes are distributed to customer's places. Steel Tubes production starts with receipt of raw materials, Coil Slitting, pipe tube forming, tube welding, cutting & end facing, quality inspection, marking & packaging and transport to warehouse. To create a scenario of the A4 phase, all the steel tubes sold from January – December 2023 has been analyzed as representative of the international transport. The transport means 3.5-7.5t & >32t trucks, Euro 5. While Stage A5, the application factors of steel tubes are not applicable whereas the transportation and disposal/recycle of the wooden pallets and Nylon strap wastes are included.

Scenario Details	Description
Vehicle used for transport	3.5-7.5t & >32t trucks, Euro 5.
Vehicle capacity	3.5 -7.5 tons and 25 tons
Fuel type and consumption	Diesel, 0.38 liters per km
Capacity utilization (including empty drums)	50% as assumed in Ecoinvent
Bulk transportation	Mass of the transported product.

Module C1: 95% of the steel is removed during demolition with diesel consumption of machineries: (60.8 liters/hour; capacity approx. 15 m³/h) and 40% is dismantled with hydraulic excavator and tongs (diesel consumption of excavator: 36.1 liters/hour; capacity approx. 20 m³/h). The ratio of steel to concrete content is 4.8 %, corresponding to 120 kg reinforcing steel per m³ reinforced concrete (Source: German Environment Agency). Calculated diesel consumption for the demolition of 1 kg steel is 0.0013 liters.

Module C2: Module C2 assumes that the entire waste steel tubes is transported to a nearby waste treatment facility in a Euro 6 truck. Distance to a nearby waste treatment facility can be averaged at 5 kms.

Module C3: Module C3 assumes that none of the produced tubes is passed on to waste processing. Hence, the environmental impact of this module is set to be zero.

Module C4 Disposal - Steel Tubes waste is usually collected as part of the substrate in construction materials. Hence, module C4 assumes that 100% of the tubes that is applied to the substrate is transported to a recycling facility.

Scenario Details	Description
Collection Process by type	1 ton of collected product mixed with construction waste
Recovery	100% of the tubes that is applied to the substrate is transported to a recycling facility.

Module D Reuse, Recycling & Recovery Potential - Module D contains credits from the recycling of steel in module C3. Corresponding potentials and avoided loads are assigned to module D. As a result of the recycling process the production of steel is avoided.

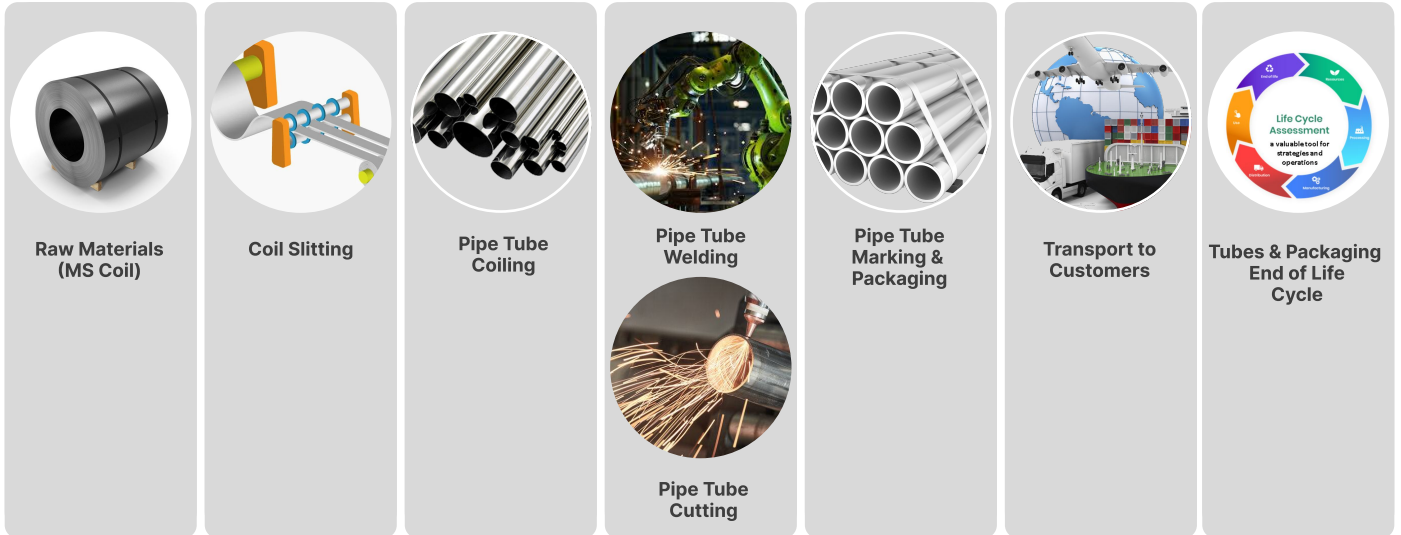


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5.0 LCA INFORMATION

5.5 MANUFACTURING FLOW AND SYSTEM BOUNDARIES DIAGRAM



The scope of this EPD is "cradle to gate with options".







Possible scopes of the LCA defined in the European standard EN 15804:2012+A2:2019/AC:2021 are :

Module	Production Stage			Construction Stage		Use Stage						End of Life Stage				Resource Recovery Stage	
	Raw Materials	Transport	Manufacturing	Transport	Construction Installation	Use Stage	Maintenance	Repair	Replacement	Refurbishment	Operational Energy Use	Operational Water Use	Deconstruction & Demolition	Transport	Waste Processing	Disposal	Reuse Recovery Recycling Potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Module Declared	X	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	UAE GLO	UAE GLO	UAE	UAE	UAE	-	-	-	-	-	-	-	GLO	GLO	GLO	GLO	GLO
Specific Data	GWP>90%				-	-	-	-	-	-	-	-	-	-	-	-	-
Variation Products	GWP<10%				-	-	-	-	-	-	-	-	-	-	-	-	-
Variation Sites	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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5.0 LCA INFORMATION

Scope of this Life Cycle Assessment 'Cradle to Gate with Options'					
A1 Raw Materials Production	A2 Transport raw materials	A3 Manufacture	A4 Distribution	C1-C4 End of use Stage	D Recovering & Recycling
					
Raw Materials and Chemicals	Transport from supplier by land or sea	Pipe & Tube Manufacturing	Transport to customers by trucks & Ships	Demolition, transport, disposal.	Reuse, recovery and recycling potential

5.6 Content Declaration

Product Components	%	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Mild Steel Coils	99.64	0	0
Oxygen	0.024	0	0
Acetylene	0.028	0	0
Rust Prevention Oil	0.123	0	0
Soluble Cutting Oil	0.125	0	0
Hydraulic Oil	0.050	0	0

Packaging Materials			
Packaging Materials	Weight(kg) per DU	Weight % (Versus the Product)	Weight biogenic carbon, kg C/kg
Wooden Pallet	470.38	0.0470	0*
Nylon Straps	12.5	0.0012	0

*Biogenic carbon content is not presents since the packaging weights less than a 5% over the product's weight.

5.7 Substance listed in the "Candidate List of SVHC"

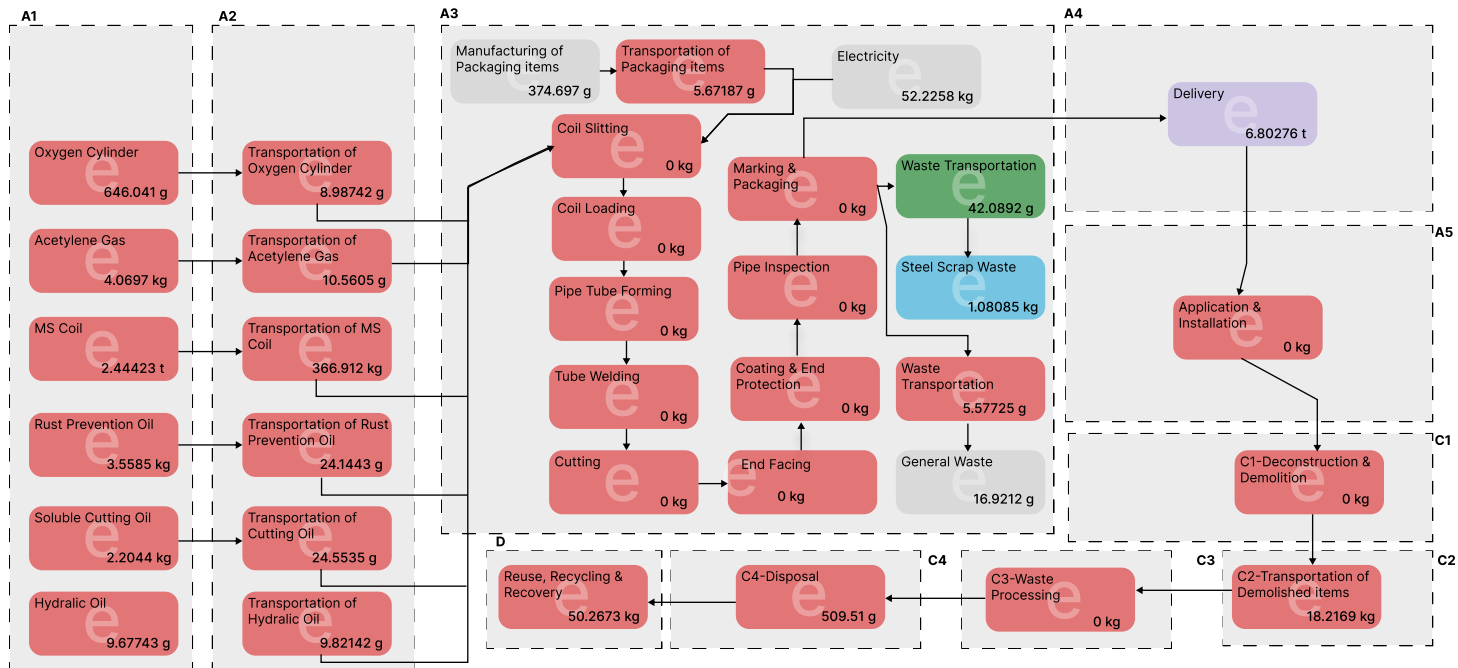
During the life cycle of the product no hazardous substance listed in the "Candidate List of Substances of Very High Concern (SVHC) for authorization" has been used in a percentage higher than 0.1% of the weight of the product.

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5.0 LCA INFORMATION

5.8 Life Cycle Assessment Modeling



5.9 More information

Cut-off rules: more than 99% of the materials and energy consumption have been included. The Polluter Pays Principle and the Modularity Principle have been followed.

Allocations: The allocation of common inputs and outputs is based on the general allocation rule what represents the proportion of production of every specific product in overall production expressed in kg. Generic process data for production of input materials were used.

Electricity: A specific dataset with the Life Cycle Inventory (LCI) corresponding to the electricity mix in United Arab Emirates, has been used for this LCA.

- **Source :** 2020: IEA World Energy Statistics and Balances, United Arab Emirates, Total primary energy supply, 2020
- **Global warming potential (excluding biogenic Carbon) :** 0.6279 kg of CO₂ eq /kWh (based on Climate Change (fossil) indicator)

Calculation Rules: Datasets from Ecoinvent 3.10.0 with emission factors for raw materials and generic chemicals have been characterized to adjust them to the characteristics of manufacturing of suppliers or counties where suppliers are located. Specific datasets with the emissions factors corresponding to the fuel combustion of production plant and machinery have been developed for these LCAs. Indirect emissions due to diesel production and transportation are also included in the environmental impact. Minor components are not directly related to the product, with less than 1% impact, such as office supplies, has been excluded from the assessment.

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5.0 LCA INFORMATION

All transports of components have been included in the LCA considering real distances travelled by materials used for production. It is estimated in a global scale according to Ecoinvent™ criteria. As exact port locations are not known in detail, transport distances have been calculated from a one of the ports in the country of origin to the factory. Operation in port has also been excluded. Road distances calculated using Google Maps. Maritime distances calculated using Marine Traffic Voyage Planner. By Products Assignment There are no By Products in this Environmental Product Declaration. Hence, no allocation had to be applied.

6.0 ENVIRONMENTAL PERFORMANCE

6.1 Potential Environment Impacts

In the following tables, the environmental performance of the declared units “One-ton of Steel Tubes ” is presented for the APL APOLLO TUBES COMPANY LLC product totalized and for every sub-phase of the life cycles. During the assessment it was not evident to distinguish the differences in the consumption of electricity, water, diesel, raw material and chemicals during the manufacturing process of the steel tubes. Hence, the calculation is based on total production vs total consumption against production of the product. This EPD values are applicable to specifically ERW tubes.

MS Tubes

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding thresholds values, safety margins or risks.

EN 15804+ A2 disclaimers for Abiotic depletion and Water use indicators and all optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

Core Environmental Impact Indicators

Impact Category	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D	Total
Climate change (GWP) –fossil	kg CO2e	2.45E+03	3.67E+02	5.31E+01	6.72E+03	0.00E+00	0.00E+00	0.00E+00	1.82E+01	0.00E+00	0.00E+00	2.07E+01	9.63E+03
Climate change (GWP) –biogenic	kg CO2e	1.28E+00	5.63E-02	6.53E-01	1.04E+00	0.00E+00	0.00E+00	0.00E+00	2.85E-03	0.00E+00	0.00E+00	2.95E+01	3.25E+01
Climate change (GWP) –LULUC	kg CO2e	1.24E+00	1.67E-01	4.95E-03	3.97E+00	0.00E+00	0.00E+00	0.00E+00	7.41E-03	0.00E+00	0.00E+00	1.78E-02	5.41E+00
Climate change (GWP) – total	kg CO2e	2.45E+03	3.67E+02	5.38E+01	6.73E+03	0.00E+00	0.00E+00	0.00E+00	1.82E+01	0.00E+00	0.00E+00	5.03E+01	9.67E+03
Ozone depletion	kg CFC-11e	1.29E-05	5.14E-06	1.24E-06	9.53E-05	0.00E+00	0.00E+00	0.00E+00	2.70E-07	0.00E+00	0.00E+00	1.18E-07	1.15E-04
Acidification	mol H+e	1.01E+01	3.15E+00	1.09E-01	1.42E+02	0.00E+00	0.00E+00	0.00E+00	4.17E-02	0.00E+00	0.00E+00	1.33E-01	1.56E+02
Eutrophication, aquatic freshwater	kg Pe	9.74E-01	2.53E-02	3.01E-03	3.12E-01	0.00E+00	0.00E+00	0.00E+00	1.44E-03	0.00E+00	0.00E+00	9.02E-03	1.32E+00
Eutrophication, aquatic marine	kg Ne	2.52E+00	8.11E-01	2.35E-02	3.30E+01	0.00E+00	0.00E+00	0.00E+00	9.81E-03	0.00E+00	0.00E+00	6.33E-02	3.64E+01
Eutrophication, terrestrial	mol Ne	2.33E+01	8.92E+00	2.42E-01	3.66E+02	0.00E+00	0.00E+00	0.00E+00	1.05E-01	0.00E+00	0.00E+00	3.89E-01	3.99E+02
Photochemical ozone formation	kg NMVOCe	8.28E+00	2.87E+00	1.49E-01	1.04E+02	0.00E+00	0.00E+00	0.00E+00	5.84E-02	0.00E+00	0.00E+00	1.28E-01	1.15E+02
Abiotic depletion, minerals & metals	kg Sbe	1.43E-02	1.00E-03	3.66E-04	1.09E-02	0.00E+00	0.00E+00	0.00E+00	5.94E-05	0.00E+00	0.00E+00	3.89E-04	2.70E-02
Abiotic depletion of fossil resources	MJ	2.70E+04	5.26E+03	8.74E+02	8.94E+04	0.00E+00	0.00E+00	0.00E+00	2.70E+02	0.00E+00	0.00E+00	1.80E+02	1.23E+05
Water use	m³ W.ed	9.63E+02	2.51E+01	4.98E+00	3.32E+02	0.00E+00	0.00E+00	0.00E+00	1.44E+00	0.00E+00	0.00E+00	3.35E+00	1.33E+03

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6.0 ENVIRONMENTAL PERFORMANCE

Additional Environmental Impact Indicators

Impact Category	UNIT	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D	Total
Particulate matter	Incidence	2.24E-04	2.46E-04	0.00E+00	0.00E+00	0.00E+00	1.08E-06	0.00E+00	0.00E+00	1.13E-05	4.82E-04
ionizing radiation, human	kBq U234e	8.29E+01	5.17E+01	0.00E+00	0.00E+00	0.00E+00	2.13E-01	0.00E+00	0.00E+00	9.30E-01	1.36E+02
Eco-toxicity (freshwater)	CTUe	7.74E+04	1.78E+04	0.00E+00	0.00E+00	0.00E+00	6.79E+01	0.00E+00	0.00E+00	6.85E+02	9.60E+04
Human toxicity, cancer effects	CTUe	2.33E-04	3.37E-05	0.00E+00	0.00E+00	0.00E+00	9.57E-08	0.00E+00	0.00E+00	3.01E-07	2.68E-04
Human toxicity, non-cancer	CTUe	4.55E-05	2.95E-05	0.00E+00	0.00E+00	0.00E+00	1.61E-07	0.00E+00	0.00E+00	1.08E-06	7.63E-05
Land use related impacts/soil	Dimensionless	1.02E+04	1.76E+04	0.00E+00	0.00E+00	0.00E+00	1.55E+02	0.00E+00	0.00E+00	8.60E+02	2.88E+04

EN 15804+A2 disclaimer for Ionizing radiation, human health. 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.

Environmental Impact -GWP-GHG

Impact Category	UNIT	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D	Total
GWP-GHG	kg CO2e	2.97E+03	6.77E+03	0.00E+00	0.00E+00	0.00E+00	1.84E+01	0.00E+00	0.00E+00	5.28E+01	9.81E+03

This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013) This indicator is almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

Use of Natural Resources

Impact Category	UNIT	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D	Total
Renewable PE used as energy	MJ	9.34E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.40E+00	0.00E+00	0.00E+00	2.28E+01	9.60E+02
Renewable PE used as materials	MJ	9.95E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.95E+00
Total use of renewable PE	MJ	9.44E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.40E+00	0.00E+00	0.00E+00	2.28E+01	9.70E+02
Non-renew. PE used as energy	MJ	9.06E+04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.56E+02	0.00E+00	0.00E+00	1.72E+02	9.10E+04
Non-renew. PE used as materials	MJ	1.10E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.10E+00
Total use of non-renewable PE	MJ	9.06E+04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.56E+02	0.00E+00	0.00E+00	1.72E+02	9.10E+04
Use of secondary materials	Kg	4.83E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.16E-01	0.00E+00	0.00E+00	3.05E-01	4.87E+01
Use of renewable secondary fuels	MJ	4.81E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.49E-03	0.00E+00	0.00E+00	2.41E-02	5.06E-01
Use of non-renew. Secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m3	8.87E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.52E-02	0.00E+00	0.00E+00	8.68E-02	8.99E+00

ELECTRIC RESISTANCE WELDED STEEL TUBES (BLACK AND GALVANIZED)

Manufactured by **APL APOLLO TUBES COMPANY LLC**

6.0 ENVIRONMENTAL PERFORMANCE

End of Life - waste

Impact Category	UNIT	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D	Total
Hazardous waste	Kg	1.46E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.51E-01	0.00E+00	0.00E+00	1.75E+00	1.48E+02
Non-hazardous waste	Kg	2.21E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.48E+00	0.00E+00	0.00E+00	6.90E+01	2.29E+03
Radioactive waste	Kg	1.36E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.20E-05	0.00E+00	0.00E+00	2.27E-04	1.39E-02

Note: No radioactive waste is produced during APL Apollo Tubes operation

End of Life - Outflows

Impact Category	UNIT	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D	Total
Components for reuse	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	0.00E+00	0.00E+00
Materials for recycling	Kg	3.05E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.91E-03	0.00E+00	0.00E+00	9.60E+02	9.91E+02
Materials for energy recovery	Kg	3.03E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.68E-05	0.00E+00	1.62E-03	3.27E-05	4.70E-03
Exported energy - electricity	MJ	5.50E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.88E-02	0.00E+00	0.00E+00	6.97E-02	5.59E+00
Exported energy - thermal	MJ	6.11E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.82E-02	0.00E+00	0.00E+00	2.45E-02	6.17E+00

ELECTRIC RESISTANCE WELDED STEEL TUBES (BLACK AND GALVANIZED)

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6.0 ENVIRONMENTAL PERFORMANCE

Biogenic Carbon Content

Details	Unit	A1-A3
Biogenic carbon content in product	Kg C	0
Biogenic carbon content in accompanying packaging	Kg C	0

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO₂. "Reading example: 1.57E-03 = 1.57*10⁻³ = 0.00157"

Disclaimer: "According to the EN 15804:2012+A2:2019 standard, the LCIA results are relative expressions translating impacts into environmental themes such as climate change, ozone depletion, etc. (midpoint impact categories). Thus, the LCIA results do not predict impacts on category endpoints such as impact on the extinction of species or human health. In addition, the results do not provide information about the exceeding of thresholds, safety margins or risks".

6.2 Interpretation of LCA Study Results

In general terms, as it is shown in the table of core environmental impact indicators, A1-A3 modules have the higher impact, representing above 80% of the whole impact. A4 module has a less impact. C2 and C4 module has little impact too, representing at most 5% and 5% respectively of the whole impact. Finally, Module D represents savings between 10% of the total impact.

7.0 Mandatory Statements

Explanatory material can be obtained from EPD owner and/or LCA author. Contact information can be found below. The verifier and The Program Operator do not make any claim or present any responsibility about the legality of the product.

The EPD owner has the sole ownership, liability, and responsibility for the EPD. The LCA Author shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

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 characterization factors); have equivalent content declarations; and be valid at the time of comparison.

ELECTRIC RESISTANCE WELDED STEEL TUBES (BLACK AND GALVANIZED)

Manufactured by **APL APOLLO TUBES COMPANY LLC**

8.0 CONTACT INFORMATION

EPD Owner

APL APOLLO TUBES COMPANY LLC

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LCA Author

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Verifier Details

Name : Manuel Rama

Location : Spain

Accredited By :

Environmental Footprint Institute



ENVIRONMENTAL FOOTPRINT INSTITUTE

9.0 ADDITIONAL INFORMATION

9.1 Action against Erosion, Environmental Restoration, and Landscaping of the work.

Application of measures to prevent erosion, restore the environment, and landscape the job includes restoring all elements immediately connected to it. The restoration of other related items indirectly is also suggested, including work roads, auxiliary facilities, and loan and landfill lands.

In the areas of air protection, APL APOLLO TUBES COMPANY LLC makes an effort to stop pollution and lessen its damaging effects on the environment management of both waste and water. The foundation of quality and environmental policy is a long-term growth plan built on recognized and global trends that have been expertly evaluated in relation to the development of potential clients' needs.

Instruction for proper use of the product, e.g. To minimize the energy or water consumption or to improve the durability of the product;- Increasing product quality and value without raising production's energy intensity or environmental burdens through ongoing technical advancements and equipment replacement.

9.2 Information on Recycling

All the regulations related to the disposal are followed. Circular Economy Strategy is deployed to ensure the open and close loop recycling is done



ELECTRIC RESISTANCE WELDED STEEL TUBES (BLACK AND GALVANIZED)

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9.0 ADDITIONAL INFORMATION

9.3 Information related to Sector EPD

This is not a sector EPD.

9.4 Differences versus previous versions

This is the first version of the EPD.

10.0 References

LCA Report: Life Cycle Inventory of ERW WELDED STEEL TUBES by APL APOLLO TUBES COMPANY LLC.

Software: Air.e LCA Version 3.17.4.0 www.solidforest.com

Main database: Ecoinvent 3.10.+0 www.ecoinvent.org

Geographical scope of the EPD: United Arab Emirates.

ISO 14040:2006 "Environmental management -- life cycle assessment -- principles and framework";

ISO 14044:2006 "Environmental management -- life cycle assessment -- requirements and guidelines";

ISO 14020:2000 "Environmental Labels and declarations - General Principles

ISO 14025:2006 "Environmental labels and declarations -- type III environmental declarations - principles and procedures".

EN 15804+A2:2019/AC:2021 European Committee for Standardization: Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products.

General Programme Instructions of the Environmental Footprint Institute
Product Category Rules: P-3100: Construction products in general (EN-15804)

