DEBOURGH

ALL ★ AMERICAN LOCKERS

DeBourgh's Angle Iron and Sheet Metal Lockers

DeBourgh Manufacturing Co.

ENVIRONMENTAL PRODUCT DECLARATION

ISO 14025:2006

ASTM INTERNATIONAL

DeBourgh is pleased to present this environmental product declaration (EPD) for their Angle Iron and Sheet Metal Lockers. This EPD was developed in compliance with ISO 14025 as well as ISO 21930:2017 and has been verified by Lindita Bushi, Athena Sustainable Materials Institute.

The LCA and the EPD were prepared by Vertima Inc. The EPD includes cradle-to-grave life cycle assessment (LCA) results.

For more information about DeBourgh, visit www.debourgh.com
For any explanatory material regarding this EPD, please contact the program operator.

1 GENERAL INFORMATION

PCR GENERAL INFORMATION	
Reference PCR	PCR for Furniture, Except Seats and Mattresses Product Category Classification: UN CPC 3812/3813/3814 The International EPD® System, 2012:19, version 2.01 Valid Until June 17, 2023
The PCR review was conducted by:	*The Technical Committee of the International EPD® System;* *Chair: Gorka Benito Alonso, IK ingenieria;* *g.benito@ik-ingenieria.com;* *to contact the review panel: info@environdec.com.*

EPD GENERAL INFORMATION		
Program Operator	ASTM International 100 Barr Harbor Drive, West Conshohocken, PA 19428 www.astm.org	
Declared Product	**APEX Angle Iron Lockers**: APEX Hallway School Lockers, APEX Sport Professional Lockers, APEX Athletic Lockers and APEX All Sports Lockers **CORE Sheet Metal Lockers**: CORE Athletic Sports Team Lockers, CORE Athletic Physical Education Lockers, CORE Hallway Corrido Lockers **REBEL Sheet Metal Lockers**: REBEL Athletic PE Room Lockers, REBEL Plus Hallway Lockers **FIRST RESPONDERS Sheet Metal Lockers**: FIRST RESPONDERS Personnel Lockers	
EPD Registration Number EPD - 249	**EPD Date of Issue** October 2021	**EPD Period of Validity**[1] October 2021 - October 2026
EPD Recipient Organization The EPD owner has the sole ownership, liability and responsibility of the EPD.	DeBourgh Manufacturing Co. 27505 Otero Avenue La Junta, CO 81050 USA www.debourgh.com	
EPD Type/Scope and Functional Unit Product-specific cradle-to-grave EPD with function unit one unit of storage in use for 15 years.		**Year of Reported Manufacturer Primary Data** April 1, 2019 – March 31, 2020
LCA Software Open LCA v.1.10.3	**LCI Databases** ecoinvent 3.7, US LCI and Worldsteel data	**LCIA Methodology** TRACI 2.1, CML 2001, v. August 2106, AWARE, ReCiPe 2008 and 2016, USEtox v2.02

This LCA and EPD were prepared by:	Chantal Lavigne, M.A.Sc. Vertima Inc. www.vertima.ca
This EPD and LCA were independently verified in accordance with ISO 14025:2006, ISO14044:2006, ISO 21930:2017 and the International EPD System PCR for Furniture, Except Seats and Mattresses, version 2.01, UN CPC 3812/3813/3814. ☐ Internal ☒ External	*Lindita Bushi* _____ Lindita Bushi, PhD. Athena Sustainable Materials Institute

1. 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 with a program operator.

LIMITATIONS

Environmental declarations within the same product category but from different programs may not be comparable. [1]

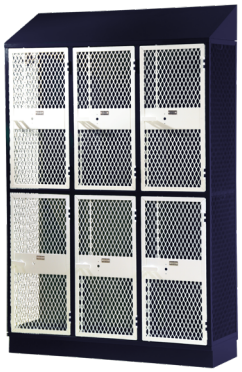
2. PRODUCT SYSTEM DESCRIPTION

DeBourgh Manufacturing is a manufacturer of steel lockers for multiple applications such as schools, hallways, athletic teams, first responders and military lockers. Its manufacturing facility is based in La Junta, Colorado (USA).

2.1. PRODUCT DESCRIPTION

APEX Angle Iron Lockers

DeBourgh angle iron lockers[1] are a steel lockers series that include APEX Hallway School Lockers, APEX Sport Professional Lockers, APEX Athletic Lockers and APEX All Sports Lockers. These are DeBourgh's legacy product to handle high use and abuse where security is paramount. They also provide the highest level of ventilation available in the industry, perfectly balancing physical security and ventilation. Used primarily in athletic and physical education (P.E.) spaces, and sometimes in heavy-use hallways. Framed with 1''x 1''x1/8'' angle iron steel, the lockers are available in different sizes, colors, and configurations.



Angle Iron Lockers: APEX locker with 6 openings [Photo courtesy of DeBourgh]

Sheet Metal Lockers: CORE (6 openings), REBEL (6 openings) and First Responder lockers (1 unit) [Photos courtesy of DeBourgh]

DeBourgh sheet metal lockers[1] are a steel lockers series that include CORE Athletic Sports Team Lockers, CORE Athletic Physical Education Lockers, CORE Hallway Corridor Lockers, REBEL Athletic Physical Education Room Lockers, REBEL Plus Hallway Lockers, and FIRST RESPONDERS Personnel Lockers. The lockers are available in different sizes, colors, and configurations. The lockers are either open front lockers or available with a steel door, both available in a variety of ventilation styles (doors or sides).

[1] UN CPC 3812 other furniture, of a kind used in offices

2.2. MATERIAL COMPOSITION

Materials	Angle Iron Lockers	Sheet Metal Lockers
	% for one functional unit	% for one functional unit
Steel	98.9%	98.6%
Powder paint	1.1%	1.4%
Aluminum plate	0.012%	0.015%
Resin-based parts	0.012%	0.014%
HDPE parts	0.005%	0.006%
Brass parts	0.0002%	0.0003%
Magnets	0.0005%	0.0006%
TOTAL	**100.0%**	**100.0%**

As for details on material content, refer to the health product declaration (HPD) that can be found at http://www.hpd-collaborative.org/hpd-public-repository/ [5]. The recycled content of the lockers under study for the reference year, April 1, 2019 to March 31, 2020, is calculated based on the specific steel supplier recycled content and are shown in the table below.

Materials	Angle Iron Lockers	Sheet Metal Lockers
	% recycled content	% recycled content
Pre-consumer	10.2% - 15.3%	11.8% - 14.3%
Post-consumer	27.7% - 51.4%	25.1% - 32.7%

2.3. PACKAGING

Angle Iron lockers and Sheet Metal lockers are wrapped with polyethylene foam and may be stacked on wood pallets. Wood pallets can be reused, while plastic can be recycled where services are available.

3. LCA CALCULATION RULES

3.1. FUNCTIONAL UNIT

The selected functional unit (FU) for this study is **one (1) storage unit in use for 15 years**.

Item	Unit	Angle Iron Lockers	Sheet Metal Lockers		
		APEX	CORE	REBEL	FIRST RESPONDERS
Volume	m^3	1.15	0.66	0.66	0.80
Dimension (height, length, depth)	mm	1829 x 1372 x 457	1524 x 1143 x 381	1524 x 1143 x 381	upper unit of 1549 x 610 x 610 drawer base of 432 x 610 x 864
Configuration		3 columns of double-tier lockers (6 openings)	3 columns of double-tier lockers (6 openings)	3 columns of double-tier lockers (6 openings)	1 upper unit and 1 drawer base
Mass	kg	123.1	102.6	84.7	161.7

3.2. PRODUCTION AVERAGE

The April 1, 2019 to March 31, 2020 production average is based on total mass of locker production.

3.3. SYSTEM BOUNDARIES

The system boundaries are **cradle-to-grave**, i.e., covers the upstream (from cradle-to gate), core (gate-to-gate) and downstream (gate-to-grave) processes as illustrated in Table 1. Modules considered are thus: Production (A1 to A3), Construction (A4 to A5), Use (B1 to B7) and End-of-Life (C1 to C4). Figure 1 presents the process flow diagram for the DeBourgh lockers under study.

Table 1: Description of the system boundary life cycle stages and related information modules

Upstream processes			Core processes		Downstream processes										
PRODUCTION STAGE			CONSTRUC-TION PROCESS STAGE		USE STAGE							END-OF-LIFE STAGE			
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
Raw material supply	Transport	Manufacturing	Transport from gate to site	Assembly/Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy Use	Operational Water Use	Deconstruction	Transport	Waste Processing	Disposal
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Key: X = included; MND = module not declared (excluded)

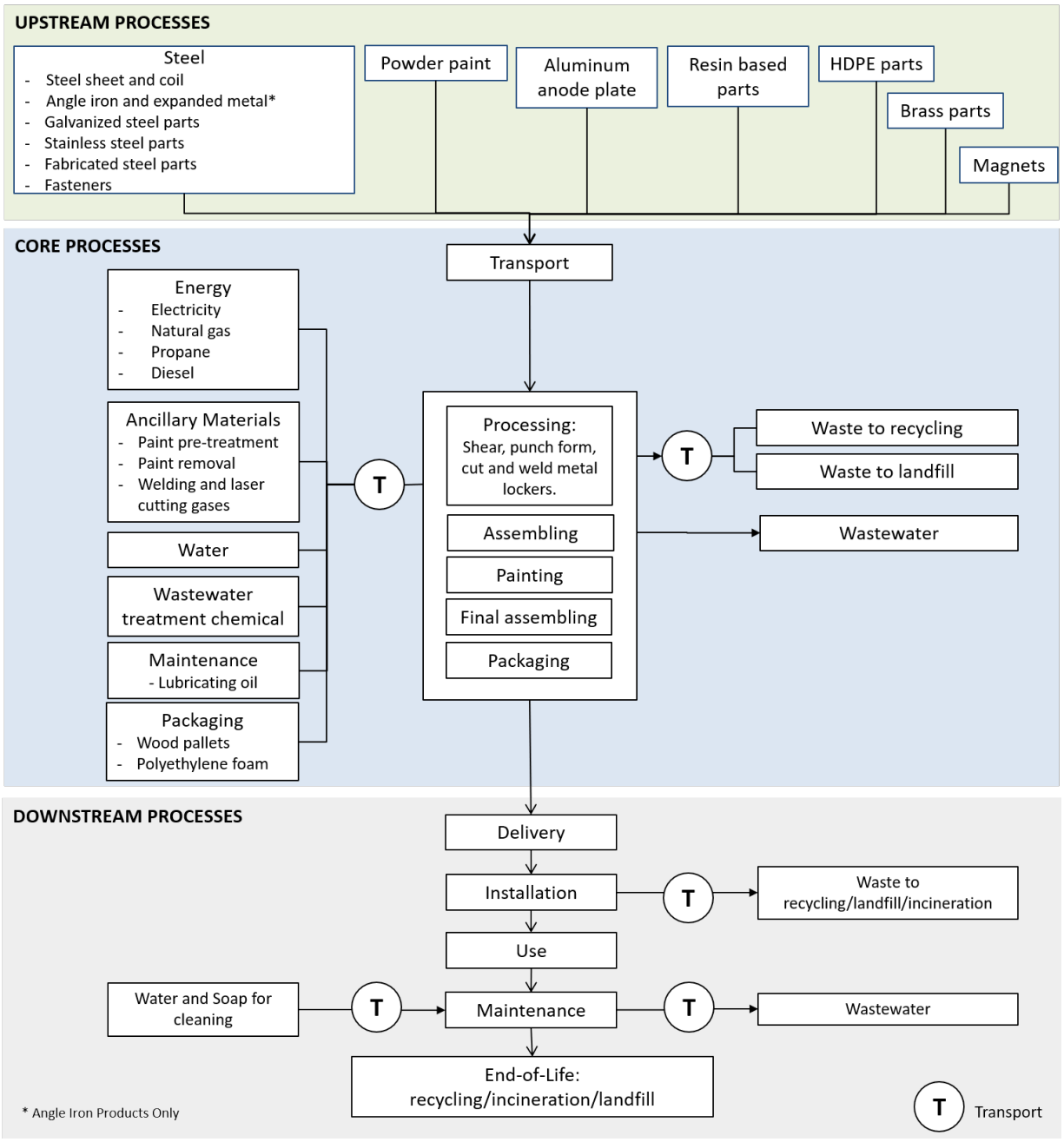


Figure 1: System boundaries of cradle-to-gate LCA of DeBourgh's Angle Iron Lockers and Sheet Metal Lockets produced in La Junta (CO).

Life Cycle Stages

Upstream processes (module A1): This life cycle stage includes the extraction and transformation of raw materials included in the metal lockers, as well as the manufacturing of their packaging.

Core processes (modules A2 and A3): Lockers are made in La Junta (CO) and production data are representative of production year starting April 1, 2019 and ending March 31, 2020.

This life cycle stage includes:

- the transport of packaged raw materials from DeBourgh's suppliers to DeBourgh's facility;
- energy (electricity natural gas), water consumption and waste water treatment for DeBourgh's whole building, which includes the manufacturing processes, heating of the building as well as office and employee needs;
- manufacturing of ancillary materials needed to produce the lockers (e.g., paint pretreatment chemicals and removal) and the manufacturing of their packaging;
- machinery maintenance at DeBourgh (i.e., lubricating oil);
- waste treatment of waste generated during DeBourgh's manufacturing process: steel loss during the production process is sent to recycling, while paint loss is sent to landfill. Sludge from the waste water treatment is also sent to landfill;
- packaging materials, to make DeBourgh's lockers ready for shipment, as well as their transport to DeBourgh's manufacturing plant.

Downstream processes (modules A4 and A5, modules B1 to B7 and modules C1 to C4): DeBourgh lockers have a lifetime warranty. The lockers do not require any energy or water during their use; however, they should be cleaned with soap and water as needed.

This life cycle stage includes:

- transport of the lockers by truck to the clients, which are located in North America;
- waste treatment of product packaging at installation site;
- maintenance of the lockers with soap and water: a consumption of 0.1 l of water/kg of lockers and 0.5 g of detergent/ kg of lockers every year is assumed;
- transport of the lockers to their end-of-life processing facilities and their final disposal.

3.4. CUT-OFF CRITERIA

In the present EPD, no flows were excluded. It should be noted that no data on the manufacturing of production equipment, buildings and other capital goods, daily transport of the employees, office work, business trips and other activities from DeBourgh's employees was included in the model. The model only takes into account the processes associated with infrastructure that are already included in the ecoinvent unit processes.

3.5. ALLOCATION

Data was provided for the whole manufacturing plant and for all products. According to the PCR, section 4.6 allocation rules, if allocation cannot be avoided, "*the inputs and outputs shall be partitioned between its different products or functions in a way that reflects the underlying physical relationships between them*"[6]. In this EPD, mass allocation was used for input and output flows. Allocation was only avoided when material input flows, such as angle iron and expanded metal, were attributable to one product system.

For reuse, recycling, and recovery, the allocation shall follow the polluter pays principle (PPP). "This means that the generator of the waste shall carry the full environmental impact until the point in the product's life cycle at which the waste is transported to a scrapyard or the gate of a waste processing plant (collection site)" [6]. In other words, a cut-off approach was used as further processing of the recycled material is part of raw material preparation of another product system (open loop recycling).

3.6. DATA SOURCES AND QUALITY REQUIREMENTS

Data Quality Parameter	Data Quality Discussion
Source of manufacturing data: Description of sources of data	Manufacturing data was collected from DeBourgh's manufacturing plant located in La Junta (Colorado) from April 1, 2019 to March 31, 2020. This data included total mass production of products produced at the manufacturing plant, raw materials entering the production of the lockers under study, losses of materials, transport distance of materials, energy consumption, water consumption, waste treatment, and packaging. The grid mix used at DeBourgh was modelled with ecoinvent 3.7 data set "market for electricity, medium voltage US-WECC."
Source of secondary data: Description of sources of raw material, energy source, transport, waste and packaging data	Data used for steel manufacturing were taken from Worldsteel data (2006-2010) [7] except for stainless steel which was taken from the US LCI database. Aluminum and powder paint data were taken from published EPDs [8], [9], as was the data for steel part fabrication [10]. Other background data were primarily taken from ecoinvent 3.7 "cut-off" datasets representative of the United States or North America [11]. Otherwise, ecoinvent data representative of the global market or "rest-of-the-world" was selected as proxies. Wood data and transport data were taken from the US LCI database [12], which is specific to a North American context.
Geographical representativeness	The manufacturing facility is based in Colorado; hence electricity consumption is based on the WECC grid mix. Geographical correlation of the material supply and the selected datasets are, in majority, representative of the same area or a larger area.
Temporal representativeness	Primary data was collected so as to be representative of one full year (April 1, 2019 to March 31, 2020). Life cycle inventory datasets selected from published EPDs were published within the last ten years, while it is not always the case for ecoinvent and US LCI datasets. Nevertheless, ecoinvent and US LCI remain the reference LCI databases.
Technological representativeness	Primary data, obtained from the manufacturer, is representative of the current technologies and materials used by this company.
Completeness	All relevant process steps were considered and modelled to satisfy the goal and scope. Cut-off criteria were respected.

4. LIFE CYCLE ASSESSMENT RESULTS

4.1. RESULTS TABLES

Results are presented for **one (1) storage unit in use for 15 years.** It should be noted that Life Cycle Impact Assessment (LCIA) results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks.

Environ-mental indicator	Unit	Angle Iron Lockers				Sheet Metal Lockers			
		APEX Series				CORE Series			
		Upstream processes	Core processes	Downstream processes	Total	Upstream processes	Core processes	Downstream processes	Total
		(per FU)	(per FU)	(per FU)	(per FU)	(per FU)	(per FU)	(per FU)	(per FU)
TRACI 2.1									
GWP[(1)]	kg CO_2 eq.	3.20E+02	1.20E+02	2.48E+01	4.65E+02	2.69E+02	9.97E+01	2.07E+01	3.89E+02
ODP	kg CFC-11 eq.	5.67E-07	1.32E-05	1.14E-06	1.49E-05	5.83E-07	1.10E-05	9.48E-07	1.25E-05
AP	kg SO_2 eq.	1.05E+00	2.70E-01	2.55E-01	1.57E+00	8.98E-01	2.19E-01	2.12E-01	1.33E+00
EP	kg N eq.	7.26E-02	9.41E-02	5.82E-02	2.25E-01	6.84E-02	7.81E-02	4.85E-02	1.95E-01
SFP	kg O_3 eq.	1.73E+01	5.75E+00	6.71E+00	2.98E+01	1.48E+01	4.60E+00	5.59E+00	2.50E+01
ADP-f	MJ Surplus	4.62E+02	2.00E+02	4.17E+01	7.04E+02	2.99E+02	1.66E+02	3.47E+01	5.00E+02

Environ-mental indicator	Unit	Sheet Metal Lockers							
		REBEL Series				FIRST RESPONDERS Series			
		Upstream processes	Core processes	Downstream processes	Total	Upstream processes	Core processes	Downstream processes	Total
		(per FU)	(per FU)	(per FU)	(per FU)	(per FU)	(per FU)	(per FU)	(per FU)
TRACI 2.1									
GWP[(1)]	kg CO_2 eq.	2.22E+02	8.23E+01	1.71E+01	3.21E+02	4.24E+02	1.57E+02	3.26E+01	6.14E+02
ODP	kg CFC-11 eq.	4.82E-07	9.05E-06	7.82E-07	1.03E-05	9.19E-07	1.73E-05	1.49E-06	1.97E-05
AP	kg SO_2 eq.	7.42E-01	1.81E-01	1.75E-01	1.10E+00	1.42E+00	3.46E-01	3.35E-01	2.10E+00
EP	kg N eq.	5.64E-02	6.44E-02	4.00E-02	1.61E-01	1.08E-01	1.23E-01	7.64E-02	3.07E-01
SFP	kg O_3 eq.	1.22E+01	3.80E+00	4.62E+00	2.06E+01	2.33E+01	7.25E+00	8.81E+00	3.94E+01
ADP-f	MJ Surplus	2.47E+02	1.37E+02	2.87E+01	4.12E+02	4.71E+02	2.62E+02	5.47E+01	7.87E+02

GWP: Global warming potential; **ODP**: Ozone layer depletion potential; **AP**: Acidification potential; **EP**: Eutrophication potential; **SFP**: Smog formation potential; **ADP-f**: Abiotic resource depletion potential - fossil fuels.

(1): GWP excludes biogenic CO_2 removals and emissions, i.e. characterization factor for biogenic CO_2 is set at 0 kg CO_2eq./kg CO_2. GWP factors are provided by the IPCC 2007 Fourth Assessment Report (AR4).

Environ-mental indicator	Unit	Angle Iron Lockers				Sheet Metal Lockers			
		APEX Series				CORE Series			
		Upstream processes	Core processes	Downstream processes	Total	Upstream processes	Core processes	Downstream processes	Total
		(per FU)	(per FU)	(per FU)	(per FU)	(per FU)	(per FU)	(per FU)	(per FU)
Resource use									
RPR_E[(1)]	MJ, LHV	1.47E+03	1.88E+02	2.80E+01	1.69E+03	1.22E+03	1.57E+02	2.34E+01	1.40E+03
RPR_M[(2)]	MJ, LHV	1.92E-02	0.00E+00	0.00E+00	1.92E-02	1.97E-02	0.00E+00	0.00E+00	1.97E-02
RPR_T	MJ, LHV	1.47E+03	1.88E+02	2.80E+01	1.69E+03	1.22E+03	1.57E+02	2.34E+01	1.40E+03
$NRPR_E$[(3)]	MJ, LHV	2.79E+03	1.78E+03	3.10E+02	4.89E+03	2.28E+03	1.48E+03	2.58E+02	4.02E+03
$NRPR_M$[(4)]	MJ, LHV	1.55E-02	0.00E+00	0.00E+00	1.55E-02	1.59E-02	0.00E+00	0.00E+00	1.59E-02
$NRPR_T$	MJ, LHV	2.79E+03	1.78E+03	3.10E+02	4.89E+03	2.28E+03	1.48E+03	2.58E+02	4.02E+03
SM[(5)]	kg	1.07E-02	0.00E+00	0.00E+00	1.07E-02	1.11E-02	0.00E+00	0.00E+00	1.11E-02
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
FW[(6)]	m^3	1.91E-02	8.23E-01	9.88E-01	1.83E+00	1.91E-02	6.86E-01	8.24E-01	1.53E+00

RPR_E: Renewable primary resources used as energy carrier (fuel); **RPR_M**: Renewable primary resources with energy content used as material; **RPR_T**: Renewable primary resources total; **$NRPR_E$**: Non-renewable primary resources used as energy carrier (fuel); **$NRPR_M$**: Non-renewable primary resources with energy content used as material; **$NRPR_T$**: Non-renewable primary resources total; **SM**: Secondary materials; **RSF**: Renewable secondary fuels; **NRSF**: Non-renewable secondary fuels; **FW**: Use of net fresh water resources.

(1): $PRR_E = RPR_T - RPR_M$, where RPR_T is equal to the value for renewable energy obtained using the CED methodology (LHV).
(2): Calculated as per ACLCA ISO 21930 Guidance, 6.2 Renewable primary resources with energy content used as a material, RPRM.
(3): $NPRR_E = NRPR_T - NRPR_M$, where $NRPR_T$ is equal to the value for non- renewable energy obtained using the CED methodology (LHV).
(4): Calculated as per ACLCA ISO 21930 Guidance, 6.4 Non-renewable primary resources with energy content used as a material, NRPRM.
(5): Calculated as per ACLCA ISO 21930 Guidance, 6.5 Secondary materials, SM includes aluminum.
(6): Represents the use of net fresh water, i.e., water consumption.

Environ-mental indicator	Unit	Sheet Metal Lockers							
		REBEL Series				FIRST RESPONDERS Series			
		Upstream processes	Core processes	Downstream processes	Total	Upstream processes	Core processes	Downstream processes	Total
		(per FU)	(per FU)	(per FU)	(per FU)	(per FU)	(per FU)	(per FU)	(per FU)
Resource use									
RPR_E[1]	MJ, LHV	1.01E+03	1.29E+02	1.93E+01	1.16E+03	1.93E+03	2.47E+02	3.68E+01	2.21E+03
RPR_M[2]	MJ, LHV	1.63E-02	0.00E+00	0.00E+00	1.63E-02	3.11E-02	0.00E+00	0.00E+00	3.11E-02
RPR_T	MJ, LHV	1.01E+03	1.29E+02	1.93E+01	1.16E+03	1.93E+03	2.47E+02	3.68E+01	2.21E+03
$NRPR_E$[3]	MJ, LHV	1.88E+03	1.22E+03	2.13E+02	3.32E+03	3.59E+03	2.33E+03	4.07E+02	6.33E+03
$NRPR_M$[4]	MJ, LHV	1.31E-02	0.00E+00	0.00E+00	1.31E-02	2.51E-02	0.00E+00	0.00E+00	2.51E-02
$NRPR_T$	MJ, LHV	1.88E+03	1.22E+03	2.13E+02	3.32E+03	3.59E+03	2.33E+03	4.07E+02	6.33E+03
SM[5]	kg	9.13E-03	0.00E+00	0.00E+00	9.13E-03	1.74E-02	0.00E+00	0.00E+00	1.74E-02
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
FW[6]	m^3	1.58E-02	5.66E-01	6.80E-01	1.26E+00	3.01E-02	1.08E+00	1.30E+00	2.41E+00

RPR_E: Renewable primary resources used as energy carrier (fuel); **RPR_M**: Renewable primary resources with energy content used as material; **RPR_T**: Renewable primary resources total; **$NRPR_E$**: Non-renewable primary resources used as energy carrier (fuel); **$NRPR_M$**: Non-renewable primary resources with energy content used as material; **$NRPR_T$**: Non-renewable primary resources total; **SM**: Secondary materials; **RSF**: Renewable secondary fuels; **NRSF**: Non-renewable secondary fuels; **FW**: Use of net fresh water resources.

(1): $PRR_E = RPR_T - RPR_M$, where RPR_T is equal to the value for renewable energy obtained using the CED methodology (LHV).
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(3): $NPRR_E = NRPR_T - NRPR_M$, where $NRPR_T$ is equal to the value for non- renewable energy obtained using the CED methodology (LHV).
(4): Calculated as per ACLCA ISO 21930 Guidance, 6.4 Non-renewable primary resources with energy content used as a material, NRPRM.
(5): Calculated as per ACLCA ISO 21930 Guidance, 6.5 Secondary materials, SM includes aluminum.
(6): Represents the use of net fresh water, i.e., water consumption.

Environ-mental indicator	Unit	Angle Iron Lockers				Sheet Metal Lockers			
		APEX Series				CORE Series			
		Upstream processes	Core processes	Downstream processes	Total	Upstream processes	Core processes	Downstream processes	Total
		(per FU)	(per FU)	(per FU)	(per FU)	(per FU)	(per FU)	(per FU)	(per FU)
Output flows and waste categories									
HWD[1]	kg	2.08E-02	7.92E-02	7.31E-02	1.73E-01	2.15E-02	6.54E-02	6.09E-02	1.48E-01
NHWD[2]	kg	1.06E+01	4.25E+01	9.18E+01	1.45E+02	1.11E+01	3.55E+01	7.65E+01	1.23E+02
RWD[3]	kg	2.16E-03	1.58E-06	2.14E-07	2.16E-03	1.05E-03	1.32E-06	1.78E-07	1.05E-03
HLRW[4]	m^3	5.08E-06	4.35E-09	5.89E-10	4.24E-10	2.46E-06	3.63E-09	4.91E-10	2.47E-06
ILLRW[5]	m^3	2.78E-08	9.18E-08	3.91E-08	1.59E-07	2.95E-08	8.29E-08	3.26E-08	1.45E-07
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
MFR[6]	kg	5.75E-03	2.07E+01	3.44E+01	5.51E+01	5.93E-03	1.73E+01	2.87E+01	4.60E+01
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
EE	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

HWD: Hazardous waste disposed; **NHWD**: Non-hazardous waste disposed; **RWD**: Radioactive waste disposed; **HLRW**: High-level radioactive waste, conditioned, to final repository; **ILLRW**: Intermediate- and low-level radioactive waste, conditioned to final repository; **CRU**: Components for re-use; **MRF**: Materials for recycling; **MER**: Materials for energy recovery; **EE**: Exported energy.

(1): Calculated from life cycle inventory results, based on datasets marked as "hazardous."
(2): Calculated from life cycle inventory results, based on waste that is neither "hazardous" nor "radioactive."
(3): Calculated from life cycle inventory results, based on datasets marked as "spent nuclear fuel."
(4): Calculated from life cycle inventory results, based on datasets "treatment of high-level radioactive waste, conditioned, to final repository" and EPD values.
(5): Calculated from life cycle inventory results, based on datasets “treatment of low-level radioactive waste, plasma torch incineration cut-off” and “treatment of low-level radioactive waste, surface or trench deposit cut-off.”
(6): Calculated based on the amounts leaving the system boundary when they have reached the end-of-waste state.

Environ-mental indicator	Unit	Sheet Metal Lockers							
		REBEL Series				FIRST RESPONDERS Series			
		Upstream processes	Core processes	Downstream processes	Total	Upstream processes	Core processes	Downstream processes	Total
		(per FU)	(per FU)	(per FU)	(per FU)	(per FU)	(per FU)	(per FU)	(per FU)
Output flows and waste categories									
HWD[(1)]	kg	1.78E-02	5.40E-02	5.03E-02	1.22E-01	3.40E-02	1.03E-01	9.60E-02	2.33E-01
NHWD[(2)]	kg	9.13E+00	2.93E+01	6.32E+01	1.02E+02	1.74E+01	5.59E+01	1.21E+02	1.94E+02
RWD[(3)]	kg	8.64E-04	1.09E-06	1.47E-07	8.66E-04	1.65E-03	2.08E-06	2.81E-07	1.65E-03
HLRW[(4)]	m^3	2.03E-06	3.00E-09	4.05E-10	2.03E-06	3.88E-06	5.73E-09	7.74E-10	3.88E-06
ILLRW[(5)]	m^3	2.43E-08	6.84E-08	2.69E-08	1.20E-07	4.64E-08	1.31E-07	5.13E-08	2.28E-07
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
MFR[(6)]	kg	4.89E-03	1.43E+01	2.37E+01	3.80E+01	9.34E-03	2.73E+01	4.52E+01	7.25E+01
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
EE	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

HWD: Hazardous waste disposed; **NHWD**: Non-hazardous waste disposed; **RWD**: Radioactive waste disposed; **HLRW**: High-level radioactive waste, conditioned, to final repository; **ILLRW**: Intermediate- and low-level radioactive waste, conditioned to final repository; **CRU**: Components for re-use; **MRF**: Materials for recycling; **MER**: Materials for energy recovery; **EE**: Exported energy.

(1): Calculated from life cycle inventory results, based on datasets marked as "hazardous."
(2): Calculated from life cycle inventory results, based on waste that is neither "hazardous" nor "radioactive."
(3): Calculated from life cycle inventory results, based on datasets marked as "spent nuclear fuel."
(4): Calculated from life cycle inventory results, based on datasets "treatment of high-level radioactive waste, conditioned, to final repository" and EPD values.
(5): Calculated from life cycle inventory results, based on datasets “treatment of low-level radioactive waste, plasma torch incineration cut-off” and “treatment of low-level radioactive waste, surface or trench deposit cut-off.”
(6): Calculated based on the amounts leaving the system boundary when they have reached the end-of-waste state.

Environ-mental indicator	Unit	Angle Iron Lockers – APEX Series				Sheet Metal Lockers – CORE Series			
		Upstream processes (per FU)	Core processes (per FU)	Downstream processes (per FU)	Total (per FU)	Upstream processes (per FU)	Core processes (per FU)	Downstream processes (per FU)	Total (per FU)
CML 4.8 (August 2016)									
GWP[(1)(2)(3)]	kg CO_2 eq.	3.22E+02	1.22E+02	2.50E+01	4.69E+02	2.71E+02	1.01E+02	2.08E+01	3.93E+02
GWP_{fossil}	kg CO_2 eq.	3.22E+02	1.22E+02	2.21E+01	4.66E+02	2.71E+02	1.01E+02	1.84E+01	3.90E+02
$GWP_{biogenic}$ [(4)]	kg CO_2 eq.	-1.82E+00	1.76E+00	-3.28E+00	-3.35E+00	-1.57E+00	1.46E+00	-2.73E+00	-2.84E+00
$GWP_{LU\&LUT}$	kg CO_2 eq.	3.54E-03	1.88E-02	2.85E+00	2.87E+00	3.60E-03	1.56E-02	2.38E+00	2.40E+00
AP[(1)]	kg SO_2 eq.	1.01E+00	2.68E-01	2.54E-01	1.53E+00	8.67E-01	2.18E-01	2.12E-01	1.30E+00
EP[(1)]	kg PO_4^{3-} eq.	1.08E-01	6.72E-02	6.23E-02	2.38E-01	9.53E-02	5.50E-02	5.19E-02	2.02E-01
POCP[(1)]	kg C_2H_4 eq.	8.03E-02	1.69E-02	7.05E-03	1.04E-01	6.63E-02	1.40E-02	5.87E-03	8.62E-02
ADP-f[(1)]	MJ	2.56E+03	1.66E+03	3.06E+02	4.52E+03	2.08E+03	1.38E+03	2.55E+02	3.71E+03
ADP-e[(1)]	kg Sb eq.	9.38E-04	1.45E-05	3.05E-06	9.55E-04	9.61E-04	1.21E-05	2.54E-06	9.76E-04
ReCiPe 2008 1.11 (2014)									
POFP	NMVOC eq.	8.00E-01	2.73E-01	1.90E-01	1.26E+00	6.92E-01	2.19E-01	1.59E-01	1.07E+00
AWARE Method									
WSF	m^3 H_2O eq.	1.63E+02	2.61E+01	1.45E+01	2.03E+02	1.68E+02	2.17E+01	1.21E+01	2.01E+02
USEtox 2.02 (recommended + interim)									
FWEP	PAF.m3.day	3.22E+04	2.39E+05	3.80E+06	4.07E+06	3.06E+04	2.00E+05	3.18E+06	3.41E+06
HTP,c	cases	1.35E-06	4.15E-06	3.39E-06	8.88E-06	1.45E-06	3.46E-06	2.82E-06	7.73E-06
HTP,nc	cases	1.07E-05	6.59E-06	6.79E-06	2.41E-05	9.54E-06	5.43E-06	5.66E-06	2.06E-05
ReCiPe Endpoint (H) 2016 v. 1.1									
LUP	species.yr	1.43E-09	9.71E-09	2.95E-08	4.07E-08	1.48E-09	8.10E-09	2.46E-08	3.42E-08

GWP: Global warming potential; **GWP_{fossil}**: Global warming potential – fossil; **$GWP_{biogenic}$**: Global warming potential – biogenic; **$GWP_{LU\&LUT}$**: Global warming potential – land use and land use transformation; **AP**: Acidification potential - fate excluded; **EP**: Eutrophication potential; **ADP-f**: Abiotic resource depletion potential - fossil fuels; **ADP-e**: Abiotic resource depletion potential – elements; **POFP**: Photochemical oxidant formation potential; **WSF**: Water Scarcity Footprint; **FWEP**: Freshwater ecotoxicity potential; **HTP,c**: Human toxicity potential, cancer; **HTP,nc**: Human toxicity potential, non-cancer; **LUP**: Land use potential.

(1): Calculated as per CML 4.8, version August 2016.
(2): GWP factors are provided by the IPCC 2013 Fifth Assessment Report (AR5). GWP excludes biogenic carbon dioxide emissions and removals, i.e., the characterization factor for biogenic CO_2 is set at 0 kg CO_2eq./kg CO_2.
(3): GWP = GWP_{fossil} + $GWP_{LU\&LUT}$.
(4): Characterization factor for biogenic CO2 emissions and removals are +1 kg CO2 eq./kg CO2 and -1 kg CO2 eq./kg CO2. Calculated from life cycle inventory results, which includes packaging materials.
*Additional environmental indicators are those required by the PCR for EPDs published in Europe, except for the CML 4.8 POCP indicator which was added to provide complete data on the most cited indicators.

DEBOURGH
ALL ★ AMERICAN LOCKERS

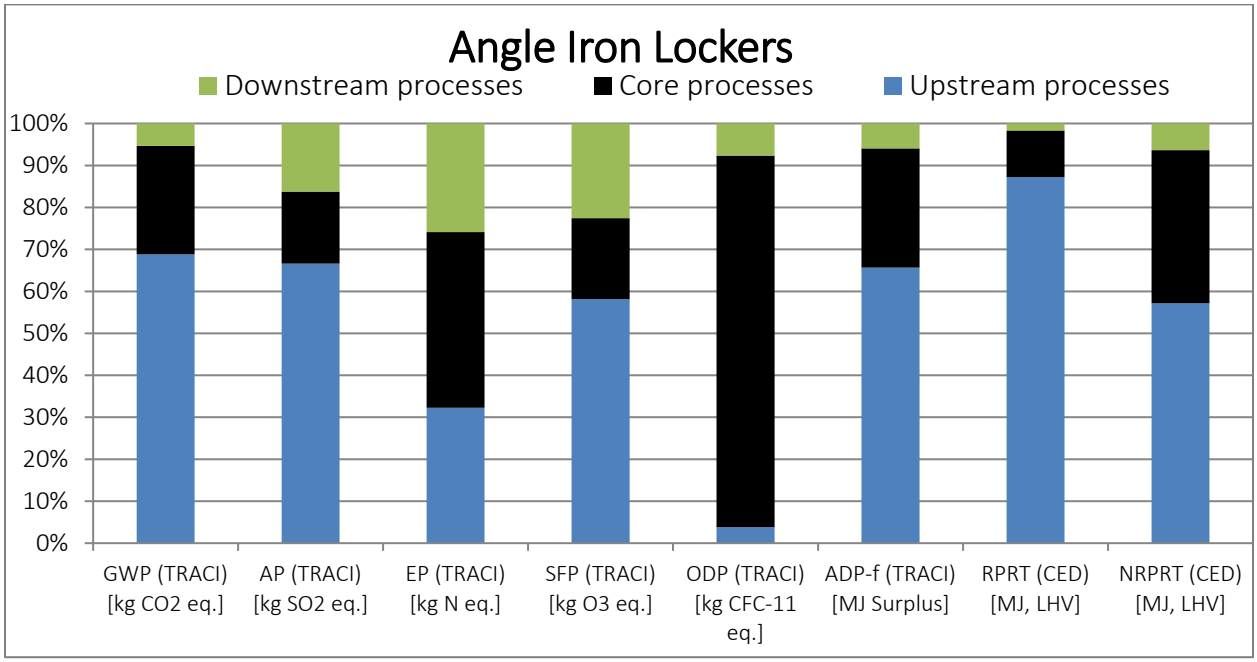
Environ-mental indicator	Unit	Sheet Metal Lockers							
		REBEL Series				FIRST RESPONDERS Series			
		Upstream processes	Core processes	Downstream processes	Total	Upstream processes	Core processes	Downstream processes	Total
		(per FU)	(per FU)	(per FU)	(per FU)	(per FU)	(per FU)	(per FU)	(per FU)
CML 4.8 (August 2016)									
GWP[(1)(2)(3)]	kg CO_2 eq.	2.24E+02	8.34E+01	1.72E+01	3.24E+02	4.27E+02	1.59E+02	3.28E+01	6.19E+02
GWP_{fossil}	kg CO_2 eq.	2.24E+02	8.34E+01	1.52E+01	3.22E+02	4.27E+02	1.59E+02	2.90E+01	6.15E+02
$GWP_{biogenic}$ [(4)]	kg CO_2 eq.	-1.30E+00	1.21E+00	-2.26E+00	-2.35E+00	-2.48E+00	2.31E+00	-4.31E+00	-4.48E+00
$GWP_{LU\&LUT}$	kg CO_2 eq.	2.97E-03	1.29E-02	1.96E+00	1.98E+00	5.67E-03	2.46E-02	3.75E+00	3.78E+00
AP[(1)]	kg SO_2 eq.	7.16E-01	1.80E-01	1.75E-01	1.07E+00	1.37E+00	3.43E-01	3.33E-01	2.04E+00
EP[(1)]	kg PO_4^{3-} eq.	7.87E-02	4.54E-02	4.29E-02	1.67E-01	1.50E-01	8.67E-02	8.18E-02	3.19E-01
POCP[(1)]	kg C_2H_4 eq.	5.48E-02	1.16E-02	4.85E-03	7.12E-02	1.05E-01	2.21E-02	9.25E-03	1.36E-01
ADP-f[(1)]	MJ	1.72E+03	1.14E+03	2.10E+02	3.06E+03	3.28E+03	2.17E+03	4.01E+02	5.85E+03
ADP-e[(1)]	kg Sb eq.	7.94E-04	1.00E-05	2.10E-06	8.06E-04	1.51E-03	1.91E-05	4.00E-06	1.54E-03
ReCiPe 2008 1.11 (2014)									
POFP	NMVOC eq.	5.71E-01	1.81E-01	1.31E-01	8.83E-01	1.09E+00	3.45E-01	2.50E-01	1.68E+00
AWARE Method									
WSF	m^3 H_2O eq.	1.38E+02	1.79E+01	1.00E+01	1.66E+02	2.64E+02	3.42E+01	1.91E+01	3.17E+02
USEtox 2.02 (recommended + interim)									
FWEP	PAF.m3.day	2.53E+04	1.65E+05	2.62E+06	2.81E+06	4.82E+04	3.15E+05	5.01E+06	5.37E+06
HTP,c	cases	1.19E-06	2.86E-06	2.33E-06	6.38E-06	2.28E-06	5.45E-06	4.45E-06	1.22E-05
HTP,nc	cases	7.88E-06	4.48E-06	4.67E-06	1.70E-05	1.50E-05	8.56E-06	8.92E-06	3.25E-05
ReCiPe Endpoint (H) 2016 v. 1.1									
LUP	species.yr	1.22E-09	6.68E-09	2.03E-08	2.82E-08	2.33E-09	1.28E-08	3.88E-08	5.39E-08

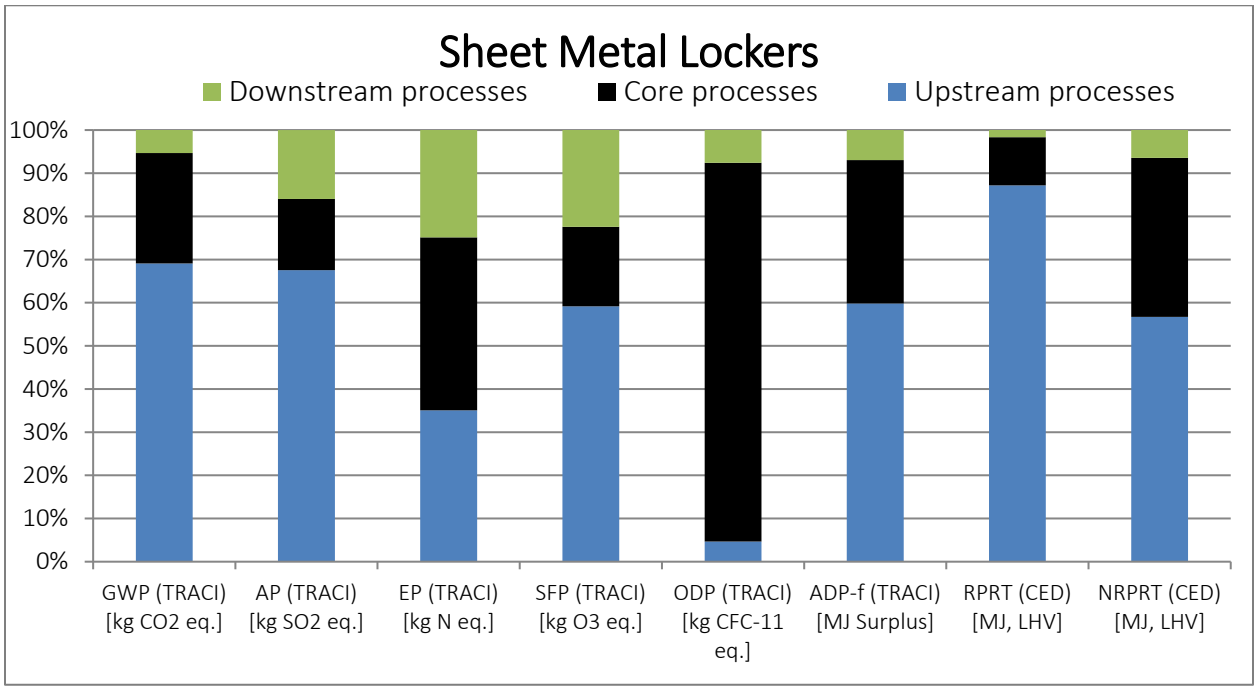
GWP: Global warming potential; **GWP_{fossil}**: Global warming potential – fossil; **$GWP_{biogenic}$**: Global warming potential – biogenic; **$GWP_{LU\&LUT}$**: Global warming potential – land use and land use transformation; **AP**: Acidification potential - fate excluded; **EP**: Eutrophication potential; **ADP-f**: Abiotic resource depletion potential - fossil fuels; **ADP-e**: Abiotic resource depletion potential – elements; **POFP**: Photochemical oxidant formation potential; **WSF**: Water Scarcity Footprint; **FWEP**: Freshwater ecotoxicity potential; **HTP,c**: Human toxicity potential, cancer; **HTP,nc**: Human toxicity potential, non-cancer; **LUP**: Land use potential

(1): Calculated as per CML 4.8, version August 2016.
(2): GWP factors are provided by the IPCC 2013 Fifth Assessment Report (AR5). GWP excludes biogenic carbon dioxide emissions and removals, i.e., the characterization factor for biogenic CO_2 is set at 0 kg CO_2eq./kg CO_2.
(3): GWP = GWP_{fossil} + $GWP_{LU\&LUT}$.
(4): Characterization factor for biogenic CO2 emissions and removals are +1 kg CO2 eq./kg CO2 and -1 kg CO2 eq./kg CO2. Calculated from life cycle inventory results, which includes packaging materials.
*Additional environmental indicators are those required by the PCR for EPDs published in Europe, except for the CML 4.8 POCP indicator which was added to provide complete data on the most cited indicators.

4.2. CONTRIBUTION ANALYSIS

For Angle Iron and Sheet Metal lockers, upstream processes have the highest contribution to four out of six environmental impact indicators, and to total use of renewable and non-renewable primary energy resources (RPR_T, $NRPR_T$). The core processes are the highest contributors to the environmental indicators eutrophication potential (EP) and ozone layer depletion potential (ODP).





5. ADDITIONAL ENVIRONMENTAL INFORMATION

5.1. CONTENT OF REGULATED HAZARDOUS SUBSTANCES

No substances required to be reported as hazardous are associated with the production of these lockers.

5.2. RELEASE OF DANGEROUS SUBSTANCES

No dangerous substances are known to be released from the lockers under study. The lockers are mainly composed of powder-coated steel, and as such, are considered inherently non-emitting products by LEED® v4 [13].

5.3. VALIDATED ECO-DECLARATION® AND HEALTH PRODUCT DECLARATION®

In addition, DeBourgh is part of a third-party verification process with Vertima Inc. where DeBourgh's lockers and its entire supply chain are assessed. At the end of the process, they have received a Validated Eco-Declaration® summarizing verified environmental claims.

DeBourgh has also published a Health Product Declaration® for its Angle Iron Lockers and Sheet Metal Lockers. More details are available on the HPDC public repository: https://www.hpd-collaborative.org/hpd-public-repository/.

6. REFERENCES

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DEBOURGH

ALL ★ AMERICAN LOCKERS

DeBourgh Manufacturing

27505 Otero Avenue

La Junta (Colorado) 81050

USA

www.debourgh.com

EPD

This LCA and EPD were prepared by Vertima Inc.

604 Saint Viateur Street,
Quebec, QC
(418) 990-2800
G2L 2K8 CANADA

vertima

Environmental certification experts

vertima.ca