Buy Clean California Act global warming potential adjustment study

January 1, 2025

Contents

Summary

This report describes the methodology used to review and determine if the maximum acceptable global warming potential (GWP) limits for Buy Clean California Act (BCCA) eligible materials should be adjusted downward by Jan. 1, 2025.

Background

DGS established seven maximum acceptable GWP limits for eligible materials on Jan. 1, 2022. These limits reflected the industry average GWP for the four eligible material categories. Due to the limited availability of facility-specific Environmental Product Declarations (EPDs), the current GWP limits were based on available industrywide EPDs as permitted by Public Contract Code (PCC) § 3502(a)(1). The methodology used to establish the initial limits was described in the first BCCA legislative report published on Jan. 1, 2022.

By Jan. 1, 2025, and every three years thereafter, DGS shall review the maximum acceptable GWP for each category of eligible materials. If DGS determines that the industry average GWP has changed, it may adjust the limits downward to reflect industry improvements (PCC § 3502[c]).

Methodology overview

The approach DGS took to review the maximum acceptable GWP is as follows:

1. Check for updated eligible material industrywide EPDs.
2. Identify eligible material facility-specific EPDs and calculate mathematical GWP average.
3. Compare and assess data.
4. Determine if limit should be adjusted.

Updated industrywide Environmental Product Declarations

There have been updates to some eligible material industrywide EPDs since the BCCA GWP limits were posted on Jan. 1, 2022. The industrywide EPDs used to establish the BCCA GWP limits and updates are shown in table 1 below.

Table 1. Updated industrywide EPDs

Material	**Original EPD[1]**	**Release date**	**Unfabricated GWP**	**Updated EPD**	**Release date**	**Unfabricated GWP**
Hot-Rolled Sections	AISC[6] EPD: UL 4789556099.102.1	1/1/21	1010[2]	None		
Hollow Structural Sections	STI[7] EPD: UL 4790021087.101.1	7/1/21	1710[2]	AISC EPD:UL 4789556099.103.1	2/3/22	1713[2][4]
Steel Plate	AISC EPD: UL 4789556099.101.1	1/1/21	1490[2]	None		

Concrete Reinforcing Steel	CRSI[8] EPD: ASTM-EPD070	8/29/17	890[2]	CRSI EPD: ASTM-EPD362	9/20/22	755[2][5]
Flat Glass	NGA[9] EPD: ASTM-EPD121	12/20/19	1430[2]	None		
Light-Density Mineral Wool Board Insulation	NAIMA[10] EPD: UL 4788703029.101.1	11/7/18	3.33[3]	NAIMA EPD: SmartEPD-2023-008-0022-01	12/4/23	2.68[3]
Heavy-Density Mineral Wool Board Insulation	NAIMA EPD: UL 4788703029.101.1	11/17/18	8.16[3]	NAIMA EPD: SmartEPD-2023-008-0023-01	12/4/23	6.82[3]

1. Industrywide EPDs used to establish BCCA limits
2. In kilograms carbon dioxide equivalent (kg CO_2eq.) per metric ton
3. In kilograms carbon dioxide equivalent (kg CO_2eq.) per 1m^2 of insulation with a thermal resistance (R_{SI}) value of 1m^2K/W (square meters x degrees Kelvin per watt)
4. Calculated using an industry waste factor of 8%
5. Calculated using an industry waste factor of 3%
6. American Institute of Steel Construction
7. Steel Tube Institute
8. Concrete Reinforcing Steel Institute
9. National Glass Association
10. North American Insulation Manufacturers Association

Facility-Specific EPDs

DGS searched various EPD repositories (see appendix, Table 5) for this study. To be considered, facility-specific EPDs had to meet the following criteria:

a. It is a publicly available facility-specific EPD that has not expired.
b. It is developed to BCCA Product Category Rules (PCRs).
c. It represents a BCCA eligible product used and/or sold in North America.

A summary of facility-specific EPDs meeting the criteria is shown in Table 2.

Table 2. Summary of North American and international EPDs surveyed in this study

Eligible material	Total number of facility-specific EPDs meeting criteria	Number of North American facility-specific EPDs	Number of international facility-specific EPDs	Total number of manufacturers represented	Total number of production facilities represented
Hot-Rolled Structural Steel	9	6	3	6	14
Hollow Structural Sections	8	8	0	8	23
Steel Plate	13	11	2	6	14
Concrete Reinforcing Steel	13	13	0	7	27
Flat Glass	1	1	0	1	5
Light-Density Mineral Wool Board Insulation	4	4	0	3	6
Heavy-Density Mineral Wool Board Insulation	1	1	0	1	1

Calculation of industry average Global Warming Potential from facility-specific EPDs

The method to mathematically calculate an industry average GWP from facility-specific EPDs is to add up the reported GWP from each production facility of North American EPDs and divide the result by the total number of production facilities.

The calculated averages for each eligible material are summarized below in Table 3. The data used for the calculation can be found in the appendix (Tables 6-12).

Table 3. Summary of calculated industry average of facility-specific GWP

Eligible material	Sum of reported production facility GWP	Number of production facilities reported	Calculated unfabricated GWP limit	Current BCCA unfabricated GWP limit
Hot-Rolled Structural Steel	5,738 kg CO_2eq.[1]	7	819.7 kg CO_2eq.[1]	1,010 kg CO_2eq.[1]
Hollow Structural Sections	37,903 kg CO_2eq.[1]	23	1,648 kg CO_2eq.[1]	1,710 kg CO_2eq.[1]
Steel Plate	21,491 kg CO_2eq.[1]	12	1791 kg CO_2eq.[1]	1,490 kg CO_2eq.[1]
Concrete Reinforcing Steel	18,605 kg CO_2eq.[1]	27	689.1 kg CO_2eq.[1]	890 kg CO_2eq.[1]
Flat Glass	6,370 kg CO_2eq.[1]	5	1274 kg CO_2eq.[1]	1,430 kg CO_2eq.[1]

Light-Density Mineral Wool Board Insulation	11.778 kg CO_2eq.[2]	6	1.96 kg CO_2eq.[2]	3.33 kg CO_2eq.[2]
Heavy-Density Mineral Wool Board Insulation	8.02 kg CO_2eq.[2]	1	8.02 kg CO_2eq.[2]	8.16 kg CO_2eq.[2]

1. In kilograms carbon dioxide equivalent (kg CO_2eq.) per metric ton
2. In kilograms carbon dioxide equivalent (kg CO_2eq.) per 1m^2 of insulation with a thermal resistance (R_{SI}) value of 1m^2K/W (square meters x degrees Kelvin per watt)

Analysis of data

Hot-Rolled Structural Steel

Since establishing the BCCA GWP limit, there has been no industrywide EPD update for hot-rolled structural steel. However, the industrywide EPD (AISC EPD: 4789556099.102.1) used to establish the BCCA GWP limit of 1,010 kg CO_2eq. is still valid through Jan. 1, 2026. If the BCCA GWP limit were to rely on the industrywide EPD again, it would not change on Jan. 1, 2025.

The number of facility-specific EPDs meeting the evaluation criteria represents six manufacturers and 14 production facilities. The North American facility-specific EPDs used for calculating an industry average represents three manufacturers and seven production facilities. This number meets the BCCA steel product category rule's minimum requirement of three manufacturers and three different production facilities for an industrywide EPD. The calculated GWP average of these facility-specific EPDs is 819.7 kg CO_2eq.

Based on the facility-specific EPDs shown in Table 6, six of six manufacturers and 13 of 14 production facilities are compliant with the current BCCA GWP limit of 1,010 kg CO_2eq. If the GWP limit were to be revised to the calculated average of 819.7 kg CO_2eq., four of six manufacturers and 11 of 14 production facilities would be compliant.

Hollow Structural Sections

Since establishing the BCCA GWP limit, a new industrywide EPD for hollow structural sections was issued on Feb. 3, 2022. The new industrywide EPD reports a GWP of 1,850 kg CO_2eq. for fabricated material. This is equivalent to 1,713 kg CO_2eq. for unfabricated material using an industry average waste factor of 8%. If the BCCA GWP were to rely on the industrywide EPD again, the limit would not change from its current value of 1,710 kg CO_2eq. because the BCCA statute only allows the limit to be adjusted downward.

The number of facility-specific EPDs meeting the evaluation criteria represents eight manufacturers and 23 production facilities. All these manufacturers and production facilities were used to calculate a North American industry average. This meets the BCCA steel product category rule's minimum requirement of three manufacturers and three different production facilities for an industrywide EPD. The calculated GWP average of these facility-specific EPDs is 1,648 kg CO_2eq.

Based on the facility-specific EPDs shown in Table 7, six of eight manufacturers and 15 of 23 production facilities are compliant with the current BCCA GWP limit of 1,710 kg CO_2eq. If the GWP limit were to be

revised to the calculated average of 1,648 kg CO_2eq., five of eight manufacturers and 11 of 23 production facilities would be compliant.

Steel Plate

Since establishing the BCCA GWP limit, there has been no industrywide EPD update for steel plate. However, the industrywide EPD (AISC EPD: 4789556099.101.1) used to establish the BCCA GWP limit of 1,490 kg CO_2eq. is still valid through Jan. 1, 2026. If the BCCA GWP were to rely on the industrywide EPD again, the current limit would not change on Jan. 1, 2025.

The number of facility-specific EPDs meeting the evaluation criteria represents six manufacturers and 14 production facilities. The North American facility-specific EPDs used for calculating an industry average represent five manufacturers and 12 production facilities. This number meets the BCCA steel product category rule's minimum requirement of three manufacturers and three different production facilities for an industrywide EPD. The calculated GWP average of these facility-specific EPDs is 1,791 kg CO_2eq.

Based on the facility-specific EPDs shown in Table 8, four of six manufacturers and seven of 14 production facilities are compliant with the current BCCA GWP limit of 1,490 kg CO_2eq. The GWP limit could not be revised to the calculated average since the BCCA statute only allows the limit to be adjusted downward.

Concrete Reinforcing Steel

Since establishing the BCCA GWP limit, a new industrywide EPD for concrete reinforcing steel was issued on Sept. 20, 2022. The new industrywide EPD reports a GWP of 778 kg CO_2eq. for fabricated material. This is equivalent to 755 kg CO_2eq. for unfabricated material using an industry average waste factor of 3%. If the BCCA GWP were to rely on the industrywide EPD again, the current limit would be reduced from its current value of 890 kg CO_2eq. to 755 kg CO_2eq.

The number of facility-specific EPDs meeting the evaluation criteria represents seven manufacturers and 27 production facilities. All these manufacturers and production facilities were used to calculate a North American industry average. This meets the BCCA steel product category rule's minimum requirement of three manufacturers and three different production facilities for an industrywide EPD. The calculated GWP average of these facility-specific EPDs is 689.1 kg CO_2eq.

Based on the facility-specific EPDs shown in Table 9, all seven manufacturers and all 27 production facilities are compliant with the current BCCA GWP limit of 890 kg CO_2eq. If the BCCA GWP limit were to be revised to the new industrywide GWP of 755 kg CO_2eq., five of seven manufacturers and 18 of 27 production facilities would be compliant. If the BCCA GWP limit were to be revised to the calculated average of 689.1 kg CO_2eq., five of seven manufacturers and 13 of 27 production facilities would be compliant.

Flat Glass

Since establishing the BCCA GWP limit, there has been no industrywide EPD update for flat glass. However, the industrywide EPD (NGA EPD: ASTM-EPD121) used to establish the BCCA GWP limit of 1,430 kg CO_2eq. is still valid through Dec. 20, 2024. Unless an updated industrywide EPD is released prior to Jan. 1, 2025, the current limit would not change on Jan. 1, 2025.

There is only one facility-specific EPD that met the evaluation criteria and represents one manufacturer and five production facilities. The North American facility-specific EPD used for calculating an industry average is the same EPD. The calculated GWP average of these facilities is 1,274 kg CO_2eq. However, a single manufacturer does not provide full representation of the flat glass industry.

Based on the facility-specific EPDs shown in Table 10, one manufacturer and four of five production facilities are compliant with the current BCCA GWP limit of 1,430 kg CO_2eq.

Light-Density Mineral Wool Board Insulation

Since establishing the BCCA GWP limit, a new industrywide EPD for light-density mineral wool board insulation was issued on Dec. 4, 2023. The new industrywide EPD reports a GWP of 2.68 kg CO_2eq. for unfabricated material. If the BCCA GWP were to rely on the industrywide EPD again, the current limit would be reduced from its current value of 3.33 kg CO_2eq. to 2.68 kg CO_2eq.

The number of facility-specific EPDs meeting the evaluation criteria represents three manufacturers and six production facilities. All these manufacturers and production facilities were used to calculate a North American industry average. This meets the BCCA insulation product category rule's minimum requirement of two manufacturers and three different production facilities for an industrywide EPD. The calculated average of these facility-specific EPDs is 1.96 kg CO_2eq.

Based on the facility-specific EPDs shown in Table 11, all three manufacturers and five of six production facilities are compliant with the current BCCA limit of 3.33 kg CO_2eq. If the BCCA GWP limit were to be revised to the new industrywide GWP of 2.68 kg CO_2eq., one of three manufacturers and four of six production facilities would be compliant. If the BCCA GWP limit were to be revised to the calculated average of 1.96 kg CO_2eq., one of three manufacturers and three of six production facilities would be compliant.

Heavy-Density Mineral Wool Board Insulation

Since establishing the BCCA GWP limit, a new industrywide EPD for heavy-density mineral wool board insulation was issued on Dec. 4, 2023. The new industrywide EPD reports a GWP of 6.82 kg CO_2eq. for unfabricated material. If the BCCA GWP were to rely on the industrywide EPD again, the current limit would be reduced from its current value of 8.16 kg CO_2eq. to 6.82 kg CO_2eq.

The number of facility-specific EPDs meeting the evaluation criteria represents one manufacturer and one production facility. The North American facility-specific EPD used for calculating an industry average is the same EPD. The calculated GWP average of this facility-specific EPD is 8.02 kg CO_2eq. However, a single manufacturer does not provide full representation of the heavy-density mineral wool board insulation industry.

At the current BCCA limit of 8.16 kg CO_2eq., one manufacturer and one (of one) production facility would be compliant. If the BCCA GWP limit were to be revised to the new industrywide GWP of 6.82 kg CO_2eq., no manufacturers would be compliant.

Conclusion

According to PCC § 3502(c), DGS shall review the maximum acceptable GWP limits for each of the eligible materials based on the process described in PCC § 3502(a)(1) and may adjust the number

downward to reflect industry improvements. DGS assessed a methodology of calculating an average GWP based on facility-specific EPDs surveyed from recognized databases. Although DGS believes there is some merit to determining an industry average this way, the results did not always benefit the BCCA's goal of continuously lowering the GWP limit over time. For example, the calculated average for steel plate resulted in a higher GWP than that of the steel plate industrywide EPD. In other calculations, the resultant average GWP varied significantly from the industrywide GWP. DGS understands that discrepancies between the calculated average GWP and the industrywide GWP (outside of production weighting) could be attributed to variables such as the involvement of multiple program operators and Life Cycle Assessment (LCA) practitioners creating the EPDs, inconsistent period of reviews, different modeling assumptions used, different use of datasets and LCA software, etc.

DGS wanted to use a consistent methodology applied to all eligible materials and not change methodologies only when it benefits the BCCA. Therefore, DGS will adopt the use of industrywide EPDs to determine whether the industry average GWP limits of eligible materials shall change.

For some of the eligible materials, the GWP limit will not change because an updated industrywide EPD was not available for this study. For those materials that have an updated industrywide EPD, the BCCA GWP limit will be adjusted to the industrywide value as permitted by statute (i.e., the GWP limit does not increase). Table 4 contains the intended changes to the BCCA GWP limits effective on Jan. 1, 2025.

Table 4. Proposed update to BCCA GWP limits

Eligible material	**BCCA unfabricated GWP limit established Jan. 1, 2022**	**BCCA unfabricated GWP limit as of Jan. 1, 2025**
Hot-Rolled Structural Steel	1,010 kg CO_2eq.[1]	1,010 kg CO_2eq.[1]
Hollow Structural Sections	1,710 kg CO_2eq.[1]	1,710 kg CO_2eq.[1]
Steel Plate	1,490 kg CO_2eq.[1]	1,490 kg CO_2eq.[1]
Concrete Reinforcing Steel	890 kg CO_2eq.[1]	755 kg CO_2eq.[1]
Flat Glass	1,430 kg CO_2eq.[1]	1,430 kg CO_2eq.[1]
Light-Density Mineral Wool Board Insulation	3.33 kg CO_2eq.[2]	2.68 kg CO_2eq.[2]
Heavy-Density Mineral Wool Board Insulation	8.16 kg CO_2eq.[2]	6.82 kg CO_2eq.[2]

1. In kilograms carbon dioxide equivalent (kg CO_2eq.) per metric ton
2. In kilograms carbon dioxide equivalent (kg CO_2eq.) per 1m^2 of insulation with a thermal resistance (R_{SI}) value of 1m^2K/W (square meters x degrees Kelvin per watt)

Appendix

EPD repositories

The EPD repositories surveyed for this study are shown in Table 5.

Table 5. Summary of EPD repositories surveyed

EPD source	**Link to website**
ASTM	PCRs & EPDs - Environmental Product Declarations - Certification - Products & Services (astm.org)
Building Transparency EC3 Tool	EC3 - Login (buildingtransparency.org)
SCS Global Services	Certified Green Products Guide | SCS Global Services
Smart EPD	Smart EPD
Sustainable Minds	Building & Construction Materials (transparencycatalog.com)
UL Spot	SPOT - Sustainable Product Database (ul.com)

EPDs surveyed

Tables 6-12 below identify the EPDs surveyed for this study.

Table 6. List of Hot-Rolled Structural Steel EPDs

No. of production facilities disclosing GWP	EPD product description	Manufacturer	North American EPD?	EPD declaration number	Reported unfabricated GWP[2]
5	Hot-Rolled Structural Shapes	ArcelorMittal	N[1]	SCS-EPD-09966	Belval, Luxembourg - 428 Differdange, Luxembourg - 441 Rodange, Luxembourg - 498 Bergara, Spain - 509 Olaberria, Spain - 532
1	H-Beam	Dongkuk Steel	N[1]	4791067038.103.1	817
1	Fabricated Structural Steel	Gerdau	Y	SCS-EPD-07505	686
1	Fabricated Structural Steel	Gerdau	Y	SCS-EPD-07506	713
1	Fabricated Structural Steel	Gerdau	Y	SCS-EPD-07508	527
1	Fabricated Structural Steel	Gerdau	Y	SCS-EPD-07507	466
2	Fabricated Hot-Rolled Structural Steel Sections	Nucor	Y	4789793365.102.1	Berkeley Huger, SC - 1600 Yamato Blytheville, AR - 816
1	Hot-Rolled Structural Steel Section	Posco Yamato Vina Steel	N[1]	4790599058.101.1	H-beam = 1010, Channel = 1020, Angle = 1070
1	Fabricated Structural Steel Sections	Steel Dynamics	Y	341	930

1. EPDs not used for calculation of revised GWP limit
2. In kilograms carbon dioxide equivalent (kg CO_2eq.) per metric ton

Table 7. List of Hollow Structural Sections EPDs

No. of production facilities disclosing GWP	EPD product description	Manufacturer	North American EPD?	EPD declaration number	Reported unfabricated GWP[1]
5	Fabricated Hollow Structural Sections	Atlas Tube	Y	4790050508.101.1	Birmingham, AL - 1580 Blytheville, AR - 1650 Chicago, IL - 1620 Harrow, ON - 1780 Plymouth, MI - 1550
7	Steel Pipe and Tube	Bull Moose Tube	Y	SCS-EPD-07425	Burlington, ON - 1750 Casa Grande, AZ - 1910 Chicago Heights, IL - 1680 Elkhart, IN - 1690 Gerald, MO - 1820 Masury, OH - 1720 Trenton, GA - 1750
1	Fabricated Hollow Structural Sections	Maruichi American Corp.	Y	4790026863.101.1	1900
1	Fabricated Hollow Structural Sections	Maruichi Oregon Steel Tube	Y	4790026916.101.1	1620
1	Fabricated Hollow Structural Sections	Maruichi-Leavitt Pipe and Tube	Y	4790146752.101.1	1713
5	Fabricated Hollow Structural Sections	Nucor	Y	4789971302.101.1	Birmingham, AL - 1540 Chicago, IL - 1170 Decatur, AL - 1590 Marseilles, IL - 1350 Trinity, AL - 1590
2	Fabricated Hollow Structural Sections	Searing	Y	4790324337.101.1	Rancho Cucamonga, CA - 1690 Cheyenne, WY - 1610
1	Fabricated Hollow Structural Sections	Vest	Y	4790434237.101.3	1630

1. In kilograms carbon dioxide equivalent (kg CO_2eq.) per metric ton

Table 8. List of Steel Plate EPDs

No. of production facilities disclosing GWP	EPD product description	Manufacturer	North American EPD?	EPD declaration number	Reported unfabricated GWP[2]
1	Steel Plate	Cleveland-Cliffs	Y	SCS-EPD-09058	1480
1	Steel Plate	Cleveland-Cliffs	Y	SCS-EPD-10190	2410
1	Steel Plate (non-heat treatment)	Dongkuk Steel	N[1]	4791067038.101.1	2410
1	Steel Plate (heat treatment)	Dongkuk Steel	N[1]	4791067038.102.1	2550
1	Steel Plate	Evraz Steel	Y	SCS-EPD-07593	1440
1	Steel Plate	Evraz Steel	Y	SCS-EPD-09686	955
1	Carbon Steel Plate (BOF and heat treated)	JSW	Y	SmartEPD-2023-001-0004-01	3490
1	Carbon Steel Plate (BOF)	JSW	Y	SmartEPD-2023-001-0003-01	3480
1	Carbon Steel Plate (EAF and heat treated)	JSW	Y	SmartEPD-2022-001-0001-01	2120
1	Carbon Steel Plate (EAF)	JSW	Y	SmartEPD-2023-001-0002-01	2100
1	Fabricated Steel Plate	Nucor	Y	SCS-EPD-09262	987
1	Fabricated Steel Plate	Nucor	Y	SCS-EPD-09263	1160
2	Steel Plate	SSAB	Y	4790146803.102.1	Mobile, AL - 1020 Montpelier, IA - 849

1. EPDs not used for calculation of revised GWP limit
2. In kilograms carbon dioxide equivalent (kg CO_2eq.) per metric ton

Table 9. List of Concrete Reinforcing Steel EPDs

No. of production facilities disclosing GWP	EPD product description	Manufacturer	North American EPD?	EPD declaration number	Reported unfabricated GWP[1]
1	Reinforcing Bar	Cascade	Y	4790066131.101.1	435
7	Concrete Reinforcing Steel	CMC	Y	EPD 191	Mesa, AZ - 598 Jacksonville, FL - 789 Sayreville, NJ - 783 Durant, OK - 725 Cayce, SC - 614 Knoxville, TN - 686 Seguin, TX - 734
1	Reinforcing Bar	EVRAZ	Y	SCS-EPD-06643	650
1	Fabricated Reinforcing Bar	Gerdau	Y	SCS-EPD-07287	566[2]
1	Fabricated Reinforcing Bar	Gerdau	Y	SCS-EPD-07288	708[2]
1	Fabricated Reinforcing Bar	Gerdau	Y	SCS-EPD-07289	759[2]
1	Fabricated Reinforcing Bar	Gerdau	Y	SCS-EPD-07290	618[2]
1	Fabricated Steel Reinforcing Bar and Merchant Bar used in Construction	Nucor	Y	EPD 439	678
9	Fabricated Steel Reinforcing Bar and Merchant Bar used in Construction	Nucor	Y	4790372675.101.1	Auburn, NY - 575 Birmingham, AL - 659 Connecticut, CT - 907 Jackson, MS - 782 Kankakee, IL - 718 Kingman, AZ - 817 Marion, OH - 838 Texas, TX - 713 Utah, UT - 645
1	Fabricated Steel Reinforcing Bar and Merchant Bar used in Construction	Nucor	Y	4790291557.101.1	413
1	Fabricated Steel Reinforcing Bar and Merchant Bar used in Construction	Nucor	Y	EPD 378	667

1	Fabricated Steel Reinforcing Bar (Rebar)	Steel Dynamics	Y	ASTM-EPD367	768
1	Fabricated Steel Reinforcing Bar (Rebar)	Vinton Steel	Y	SCS-EPD-09168	760

1. In kilograms carbon dioxide equivalent (kg CO_2eq.) per metric ton
2. Calculated using industry waste factor of 3%

Table 10. List of Flat Glass EPDs

No. of production facilities disclosing GWP	**EPD product description**	**Manufacturer**	**North American EPD?**	**EPD declaration number**	**Reported unfabricated GWP[1]**
5	Flat Glass	Cardinal Glass Industries	Y	ASTM-EPD149	Durant, OK - 1270 Menomonie, WI - 1360 Mooresville, NC - 1160 Portage, WI - 1330 Winlock, WA - 1250

1. In kilograms carbon dioxide equivalent (kg CO_2eq.) per metric ton

Table 11. List of Light-Density Mineral Wool Board Insulation

No. of production facilities disclosing GWP	EPD product description	Manufacturer	North American EPD?	EPD declaration number	Reported unfabricated GWP[1]
2	Thermafiber Mineral Wool	Owens Corning	Y	4790011847.101.1	Wabash, IN 1.33 Joplin, MO 0.878
2	Thermafiber Formaldehyde-Free Mineral Wool	Owens Corning	Y	4790011847.102.1	Wabash, IN 2.03 Joplin, MO 1.03
1	Mineral Wool Insulation Light Density Board Product	Johns Manville	Y	SmartEPD-2024-022-128-01	2.9
1	Unfaced Earthwool® Insulation Board	Knauf Insulation	Y	Sustainable Minds Earthwool® Insulation Board_EPD_KnaufInsulation_12222023_2024-01-05-201517	3.61

1. In kilograms carbon dioxide equivalent (kg CO_2eq.) per 1m^2 of insulation with a thermal resistance (R_{SI}) value of 1m^2K/W (square meters x degrees Kelvin per watt)

Table 12. List of Heavy-Density Mineral Wool Board Insulation

No. of production facilities disclosing GWP	EPD product description	Manufacturer	North American EPD?	EPD declaration number	Reported unfabricated GWP[1]
1	Mineral Wool Insulations Heavy Density Board Product	Johns Manville	Y	SmartEPD-2024-022-0129-01	8.02

1. In kilograms carbon dioxide equivalent (kg CO_2eq.) per 1m^2 of insulation with a thermal resistance (R_{SI}) value of 1m^2K/W (square meters x degrees Kelvin per watt)