

CO₂ impact

Kg CO₂-eq per meter values for ArmaFlex tubes:

- ArmaFlex Ultima
- NH/ArmaFlex Smart
- AF/ArmaFlex
- HT/ArmaFlex

2023-12-21



EPD

Given values are based on data given from respective products EPD based on ISO 15804 + A2 and ISO 14025. Full EPD reports can be found at local Armacell websites or at: <https://local.armacell.com/en/sustainable-building/epd/>

Different projects and countries demand certain parts from EPD to be considered for the CO2 calculation. In following tables, we show three common options considered for calculations.

[Fow own calculations not covered in below tables, the volume of tube (m3) is = $PI*(o\phi^2-i\phi^2)*1m$
 $o\phi$ = Outside diameter; $i\phi$ = Inside diameter

Multiply your result with the value CO2-EQ given in respective product EPD as the EPD consider 1xm3. You can also contact your local technical support at Armacell for help]

Column 1 consider A1-A5:

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; ND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)																
PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	ND	ND	MNR	MNR	MNR	ND	ND	ND	X	X	ND	X

Column 2 consider A1-A3, C2-C3 and D:

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; ND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)																
PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	ND	ND	MNR	MNR	MNR	ND	ND	ND	X	X	ND	X

Column 3 consider all declared values:

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; ND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)																
PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	ND	ND	MNR	MNR	MNR	ND	ND	ND	X	X	ND	X

ArmaFlex Ultima - EPD-ARM-20200218-IBB1-EN:

Values in tables is per meter tube.

// Tubes: insulation thickness 9mm

Pipe dimension in mm	kg CO2-eq per meter Category A1-A5 "Column 1"	kg CO2-eq per meter Mandatory parts (A1-A3, C1-C4 and D) "Column 2"	kg CO2-eq per meter Full EPD report "Column 3"
12	0,163	0,201	0,227
15	0,186	0,230	0,260
18	0,210	0,259	0,292
22	0,241	0,297	0,336
28	0,287	0,355	0,401
35	0,342	0,422	0,476
42	0,396	0,489	0,552
48	0,443	0,547	0,617
54	0,489	0,604	0,682
60	0,536	0,662	0,747
76	0,660	0,815	0,920
89	0,761	0,940	1,061

// Tubes: insulation thickness 13mm

6	0,213	0,263	0,297
10	0,258	0,319	0,360
12	0,280	0,346	0,391
15	0,314	0,388	0,438
18	0,348	0,429	0,485
22	0,393	0,485	0,547
28	0,460	0,568	0,641
35	0,539	0,665	0,751
42	0,617	0,762	0,860
48	0,684	0,845	0,954
54	0,752	0,928	1,048
60	0,819	1,011	1,141
76	0,998	1,233	1,392
89	1,144	1,413	1,595
114	1,425	1,759	1,986

// Tubes: insulation thickness 19mm

Pipe dimension in mm	kg CO2-eq per meter Category A1-A5 "Column 1"	kg CO2-eq per meter Mandatory parts (A1-A3, C1-C4 and D) "Column 2"	kg CO2-eq per meter Full EPD report "Column 3"
10	0,476	0,587	0,663
12	0,508	0,628	0,708
15	0,557	0,688	0,777
18	0,607	0,749	0,846
22	0,672	0,830	0,937
28	0,771	0,952	1,074
35	0,885	1,093	1,234
42	1,000	1,235	1,394
48	1,099	1,356	1,531
54	1,197	1,478	1,668
60	1,295	1,599	1,805
64	1,361	1,680	1,897
76	1,558	1,923	2,171
89	1,771	2,186	2,468
114	2,181	2,693	3,040

// Tubes: insulation thickness 25mm

12	0,798	0,986	1,113
15	0,863	1,066	1,203
18	0,928	1,145	1,293
22	1,014	1,252	1,413
28	1,143	1,412	1,594
35	1,294	1,598	1,804
42	1,446	1,785	2,015
48	1,575	1,945	2,195
54	1,704	2,104	2,376
60	1,834	2,264	2,556
64	1,920	2,371	2,676
76	2,179	2,690	3,037
89	2,460	3,037	3,428
114	2,999	3,703	4,180

// Tubes: insulation thickness 32mm

Pipe dimension in mm	kg CO2-eq per meter Category A1-A5 "Column 1"	kg CO2-eq per meter Mandatory parts (A1-A3, C1-C4 and D) "Column 2"	kg CO2-eq per meter Full EPD report "Column 3"
12	1,215	1,500	1,694
15	1,298	1,603	1,809
18	1,381	1,705	1,925
22	1,491	1,841	2,078
28	1,657	2,046	2,309
35	1,850	2,284	2,579
42	2,044	2,523	2,848
48	2,209	2,728	3,079
54	2,375	2,932	3,310
60	2,541	3,137	3,541
64	2,651	3,273	3,695
76	2,983	3,682	4,157
89	3,342	4,126	4,657
114	4,032	4,978	5,620
125	4,336	5,353	6,043
140	4,750	5,865	6,620

NH/ArmaFlex SMART - EPD-ARM-20220037-IBB1-EN:

Values in tables is per meter tube.

// Tubes: insulation thickness 9mm

Pipe dimension in mm	kg CO2-eq per meter Category A1-A5 "Column 1"	kg CO2-eq per meter Mandatory parts (A1-A3, C1-C4 and D) "Column 2"	kg CO2-eq per meter Full EPD report "Column 3"
10	0,148	0,151	0,211
12	0,164	0,167	0,233
15	0,187	0,191	0,267
18	0,211	0,214	0,300
22	0,242	0,246	0,344
28	0,289	0,294	0,411
35	0,343	0,349	0,489
42	0,398	0,405	0,566
48	0,445	0,453	0,633

// Tubes: insulation thickness 13mm

10	0,259	0,264	0,369
12	0,282	0,287	0,401
15	0,315	0,321	0,449
18	0,349	0,356	0,497
22	0,394	0,402	0,561
28	0,462	0,470	0,658
35	0,541	0,551	0,770
42	0,620	0,631	0,882
48	0,687	0,700	0,978
54	0,755	0,769	1,075
60	0,822	0,837	1,171
76	1,003	1,021	1,428
89	1,149	1,170	1,636

// Tubes: insulation thickness 19mm

15	0,560	0,570	0,797
18	0,609	0,620	0,867
22	0,675	0,687	0,961
28	0,774	0,788	1,102
35	0,889	0,905	1,266
42	1,004	1,023	1,430
48	1,103	1,123	1,571
54	1,202	1,224	1,711
60	1,301	1,325	1,852
76	1,564	1,593	2,227
89	1,778	1,811	2,532
114	2,190	2,230	3,118

// Tubes: insulation thickness 25mm

Pipe dimension in mm	kg CO2-eq per meter Category A1-A5 "Column 1"	kg CO2-eq per meter Mandatory parts (A1-A3, C1-C4 and D) "Column 2"	kg CO2-eq per meter Full EPD report "Column 3"
12	0,802	0,816	1,141
15	0,867	0,882	1,234
18	0,932	0,949	1,326
22	1,018	1,037	1,450
28	1,148	1,169	1,635
35	1,300	1,324	1,851
42	1,452	1,478	2,067
48	1,582	1,611	2,252
54	1,711	1,743	2,437
60	1,841	1,875	2,622
76	2,188	2,228	3,115
89	2,470	2,515	3,516
114	3,011	3,067	4,288
125	3,250	3,309	4,627

// Tubes: insulation thickness 32mm

15	1,303	1,327	1,856
18	1,387	1,412	1,974
22	1,497	1,525	2,132
28	1,664	1,694	2,369
35	1,858	1,892	2,645
42	2,052	2,090	2,922
48	2,218	2,259	3,159
54	2,385	2,429	3,395
60	2,551	2,598	3,632
76	2,995	3,050	4,264
89	3,355	3,417	4,777
114	4,049	4,123	5,764
125	4,354	4,434	6,199
140	4,770	4,857	6,791

AF/ArmaFlex - EPD-ARM-20200219-IBB1-EN:

Values in tables is per meter tube.

// Tubes: Serie AF-1

Pipe dimension in mm	kg CO2-eq per meter Category A1-A5 "Column 1"	kg CO2-eq per meter Mandatory parts (A1-A3, C1-C4 and D) "Column 2"	kg CO2-eq per meter Full EPD report "Column 3"
6	0,080	0,083	0,108
8	0,092	0,096	0,125
10	0,115	0,120	0,156
12	0,128	0,134	0,174
15	0,162	0,169	0,218
18	0,183	0,191	0,247
22	0,228	0,238	0,308
25	0,250	0,261	0,338
28	0,273	0,285	0,368
30	0,308	0,322	0,416
32	0,324	0,339	0,438
35	0,348	0,363	0,470
38	0,372	0,388	0,502
42	0,403	0,421	0,545
45	0,427	0,446	0,577
48	0,451	0,471	0,609
54	0,498	0,520	0,673
57	0,522	0,545	0,705
60	0,546	0,570	0,737
64	0,613	0,641	0,828
7	0,663	0,693	0,896
76	0,714	0,745	0,964
80	0,747	0,780	1,009
89	0,822	0,859	1,110
102	0,931	0,972	1,257
108	0,981	1,024	1,324
110	0,997	1,042	1,347
114	1,031	1,076	1,392
125	1,122	1,172	1,516
140	1,318	1,376	1,780
160	1,493	1,560	2,017

// Tubes: Serie AF-2

Pipe dimension in mm	kg CO2-eq per meter Category A1-A5 "Column 1"	kg CO2-eq per meter Mandatory parts (A1-A3, C1-C4 and D) "Column 2"	kg CO2-eq per meter Full EPD report "Column 3"
6	0,129	0,135	0,175
8	0,158	0,165	0,214
10	0,203	0,212	0,274
12	0,222	0,232	0,300
15	0,268	0,280	0,362
18	0,298	0,311	0,403
22	0,358	0,374	0,484
25	0,412	0,430	0,556
28	0,445	0,464	0,601
30	0,467	0,487	0,630
32	0,514	0,537	0,694
35	0,548	0,573	0,740
40	0,634	0,663	0,857
42	0,658	0,687	0,889
48	0,729	0,762	0,985
50	0,753	0,787	1,017
54	0,800	0,836	1,081
57	0,873	0,912	1,179
60	0,910	0,951	1,229
64	0,959	1,002	1,296
70	1,033	1,079	1,395
76	1,107	1,156	1,495
80	1,204	1,257	1,626
89	1,318	1,377	1,781
102	1,484	1,550	2,004
108	1,560	1,630	2,107
110	1,647	1,720	2,225
114	1,700	1,775	2,296
125	1,845	1,927	2,492
133	2,022	2,112	2,731
140	2,117	2,211	2,860
160	2,474	2,584	3,341

// Tubes: Serie AF-3

Pipe dimension in mm	kg CO2-eq per meter Category A1-A5 "Column 1"	kg CO2-eq per meter Mandatory parts (A1-A3, C1-C4 and D) "Column 2"	kg CO2-eq per meter Full EPD report "Column 3"
10	0,247	0,258	0,334
12	0,285	0,298	0,386
15	0,357	0,373	0,482
18	0,394	0,411	0,532
22	0,465	0,486	0,628
28	0,592	0,619	0,800
35	0,717	0,749	0,968
42	0,848	0,886	1,145
48	0,935	0,976	1,263
54	1,060	1,107	1,432
60	1,150	1,201	1,553
64	1,210	1,263	1,634
70	1,345	1,405	1,817
76	1,437	1,501	1,941
89	1,692	1,767	2,285
108	1,992	2,081	2,691
110	2,024	2,114	2,734
114	2,153	2,249	2,908
125	2,332	2,436	3,150
133	2,462	2,572	3,325
140	2,654	2,772	3,584
160	2,988	3,120	4,035

// Tubes: Serie AF-4

Pipe dimension in mm	kg CO2-eq per meter Category A1-A5 "Column 1"	kg CO2-eq per meter Mandatory parts (A1-A3, C1-C4 and D) "Column 2"	kg CO2-eq per meter Full EPD report "Column 3"
6	0,293	0,306	0,395
10	0,347	0,363	0,469
12	0,394	0,411	0,532
15	0,478	0,499	0,645
18	0,546	0,570	0,737
22	0,632	0,661	0,854
25	0,707	0,738	0,955
28	0,784	0,819	1,060
30	0,818	0,854	1,105
32	0,882	0,921	1,192
35	0,934	0,975	1,261
40	1,090	1,138	1,472
42	1,126	1,176	1,520
45	1,180	1,232	1,593
48	1,273	1,329	1,719
50	1,310	1,368	1,769
54	1,384	1,445	1,869
57	1,483	1,549	2,002
60	1,539	1,608	2,079
64	1,615	1,687	2,181
70	1,778	1,857	2,401
76	1,894	1,978	2,558
80	2,026	2,116	2,736
89	2,204	2,302	2,977
102	2,526	2,638	3,411
108	2,647	2,764	3,575
110	2,687	2,807	3,629
114	2,838	2,965	3,834
125	3,066	3,202	4,141
133	3,310	3,457	4,471
140	3,540	3,698	4,782
160	4,063	4,243	5,487
168	4,239	4,427	5,725

// Tubes: Serie AF-5

Pipe dimension in mm	kg CO2-eq per meter Category A1-A5 "Column 1"	kg CO2-eq per meter Mandatory parts (A1-A3, C1-C4 and D) "Column 2"	kg CO2-eq per meter Full EPD report "Column 3"
18	0,944	0,986	1,275
22	1,032	1,078	1,394
28	1,164	1,216	1,572
30	1,279	1,336	1,728
35	1,471	1,536	1,986
42	1,637	1,709	2,210
48	1,824	1,905	2,463
54	2,065	2,157	2,790
60	2,267	2,368	3,062
64	2,369	2,475	3,200
70	2,578	2,693	3,483
76	2,793	2,918	3,773
89	3,202	3,344	4,324
108	3,785	3,954	5,113
114	4,026	4,205	5,438
125	4,331	4,523	5,849
140	4,835	5,050	6,530
168	5,622	5,872	7,594

// Tubes: Serie AF-6

10	1,181	1,233	1,595
12	1,237	1,292	1,671
15	1,321	1,380	1,784
18	1,406	1,468	1,898
22	1,633	1,706	2,206
28	1,937	2,023	2,616
35	2,152	2,248	2,907
42	2,517	2,629	3,400
48	2,817	2,942	3,804
54	3,071	3,208	4,148
57	3,230	3,373	4,362
60	3,392	3,542	4,581
64	3,591	3,751	4,851
70	3,865	4,037	5,221
76	4,145	4,329	5,598
89	4,757	4,969	6,426
102	5,395	5,635	7,287
108	5,619	5,869	7,589
114	5,930	6,194	8,010
125	6,532	6,823	8,823
133	6,841	7,146	9,240
140	7,212	7,533	9,741
160	8,104	8,464	10,945
168	8,420	8,794	11,372

HT/ArmaFlex - EPD-ARM-20200222-IBA1-EN:

Values in tables is per meter tube.

// Tubes: insulation thickness 10mm

Pipe dimension in mm	kg CO2-eq per meter Category A1-A5 "Column 1"	kg CO2-eq per meter Mandatory parts (A1-A3, C1-C4 and D) "Column 2"	kg CO2-eq per meter Full EPD report "Column 3"
10	0,209	0,226	0,298
12	0,230	0,248	0,328
15	0,262	0,282	0,373
18	0,293	0,316	0,418
22	0,335	0,361	0,477
28	0,398	0,429	0,567
35	0,471	0,508	0,671
42	0,545	0,587	0,775

// Tubes: insulation thickness 13mm

10	0,313	0,338	0,446
12	0,340	0,367	0,485
15	0,381	0,411	0,543
18	0,422	0,455	0,601
22	0,476	0,514	0,679
28	0,558	0,602	0,795
35	0,653	0,704	0,931
42	0,749	0,807	1,066
48	0,830	0,895	1,183
54	0,912	0,983	1,299
6	0,994	1,071	1,415
76	1,212	1,306	1,725
89	1,389	1,497	1,977

// Tubes: insulation thickness 19mm

12	0,617	0,665	0,878
15	0,676	0,729	0,963
18	0,736	0,794	1,048
22	0,816	0,879	1,162
28	0,935	1,008	1,332
35	1,074	1,158	1,530
42	1,214	1,308	1,728
48	1,333	1,437	1,898
54	1,452	1,566	2,068
60	1,572	1,695	2,238
76	1,890	2,038	2,692
89	2,149	2,317	3,060

// Tubes: insulation thickness 25mm

Pipe dimension in mm	kg CO2-eq per meter Category A1-A5 "Column 1"	kg CO2-eq per meter Mandatory parts (A1-A3, C1-C4 and D) "Column 2"	kg CO2-eq per meter Full EPD report "Column 3"
15	1,047	1,129	1,491
18	1,126	1,214	1,603
22	1,230	1,327	1,752
28	1,388	1,496	1,976
35	1,571	1,693	2,237
42	1,754	1,891	2,498
48	1,911	2,060	2,722
54	2,068	2,230	2,945
60	2,225	2,399	3,169
76	2,644	2,851	3,765
89	2,984	3,218	4,250