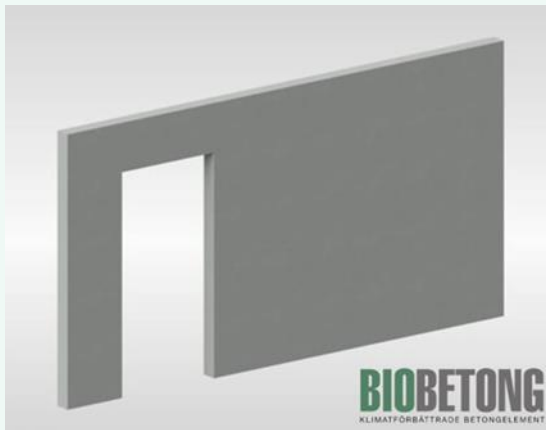


**PREFABRICATED HOMOGENEOUS WALL ELEMENTS BIOBETONG II**  
**HEIDELBERG MATERIALS PRECAST ABETONG**



**ORIGINAL DOCUMENT: [HUB-0391](#)**

**CHANGE: THICKNESS OF ELEMENT 200 MM INSTEAD OF 150 MM AND REINFORCEMENT FROM CELSA S-P-00305 INSTEAD OF REINFORCEMENT STEEL (REBAR), GENERIC, 100% RECYCLED CONTENT, A615 (ONE CLICK LCA).**

**THIS DOCUMENT HAS BEEN INTERNALLY PRODUCED AND VERIFIED BY ANDREAS LIDÖ, HEIDELBERG MATERIALS PRECAST ABETONG.**

**ADDITIONAL DOCUMENT TO ENVIRONMENTAL PRODUCT DECLARATION**  
 IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930



**CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF**

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total	kg CO <sub>2</sub> e	1,02E+02	3,77E+00	5,86E+00	1,12E+02	8,70E+00	MND	MND	MND	MND	MND	MND	MND	MND	3,31E+00	4,35E+00	3,54E+00	1,04E+00	-6,67E+00
GWP – fossil	kg CO <sub>2</sub> e	1,02E+02	3,76E+00	5,71E+00	1,11E+02	8,70E+00	MND	MND	MND	MND	MND	MND	MND	MND	3,31E+00	4,35E+00	3,54E+00	1,04E+00	-6,64E+00
GWP – biogenic	kg CO <sub>2</sub> e	5,24E-01	1,51E-03	4,5E-02	5,71E-01	3,61E-03	MND	MND	MND	MND	MND	MND	MND	MND	6,06E-04	1,81E-03	2,28E-03	6,77E-04	-1,86E-02
GWP – LULUC	kg CO <sub>2</sub> e	1,00E-01	1,64E-03	1,04E-01	2,06E-01	3,26E-03	MND	MND	MND	MND	MND	MND	MND	MND	3,30E-04	1,63E-03	8,17E-04	9,81E-04	-8,65E-03
Ozone depletion pot.	kg CFC <sub>11</sub> e	1,84E-06	9,06E-07	1,99E-06	4,74E-06	2,17E-06	MND	MND	MND	MND	MND	MND	MND	MND	7,07E-07	1,08E-06	7,22E-07	4,20E-07	-5,26E-07
Acidification potential	mol H <sup>+</sup> e	2,32E-01	2,23E-02	1,7E-02	2,71E-01	2,77E-02	MND	MND	MND	MND	MND	MND	MND	MND	3,44E-02	1,39E-02	3,76E-02	9,77E-03	-4,19E-02
EP-freshwater	kg Pe	6,64E-04	2,57E-05	7,78E-05	7,68E-04	6,21E-05	MND	MND	MND	MND	MND	MND	MND	MND	1,10E-05	3,11E-05	3,10E-05	1,09E-05	-3,72E-04
EP-marine	kg Ne	3,36E-02	4,93E-03	3,69E-03	4,22E-02	6,12E-03	MND	MND	MND	MND	MND	MND	MND	MND	1,52E-02	3,06E-03	1,55E-02	3,38E-03	-9,10E-03
EP-terrestrial	mol Ne	8,33E-01	5,48E-02	4,28E-02	9,31E-01	6,78E-02	MND	MND	MND	MND	MND	MND	MND	MND	1,67E-01	3,39E-02	1,71E-01	3,72E-02	-1,18E-01
POCP (“smog”)	kg NMVOCe	2,21E-01	1,77E-02	1,27E-02	2,51E-01	2,67E-02	MND	MND	MND	MND	MND	MND	MND	MND	4,59E-02	1,34E-02	4,70E-02	1,08E-02	-3,14E-02
ADP-minerals & metals	kg Sbe	7,13E-05	9,67E-06	1,88E-05	9,98E-05	2,13E-05	MND	MND	MND	MND	MND	MND	MND	MND	1,68E-06	1,07E-05	5,32E-05	2,39E-06	-6,15E-05
ADP-fossil resources	MJ	3,89E+02	5,81E+01	2,75E+02	7,22E+02	1,39E+02	MND	MND	MND	MND	MND	MND	MND	MND	4,45E+01	6,95E+01	4,76E+01	2,85E+01	-9,38E+01
Water use	m <sup>3</sup> e depr.	1,69E+01	2,63E-01	3,71E+00	2,09E+01	6,41E-01	MND	MND	MND	MND	MND	MND	MND	MND	1,20E-01	3,21E-01	2,15E-01	9,03E-02	-1,21E+01

**ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF**

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	2,58E-06	3,81E-07	1,53E-07	3,11E-06	1,01E-06	MND	MND	MND	MND	MND	MND	MND	MND	9,22E-07	5,05E-07	6,78E-06	1,97E-07	-5,45E-07
Ionizing radiation	kBq U235e	5,35E+03	2,97E-01	6,67E+00	5,36E+03	7,16E-01	MND	MND	MND	MND	MND	MND	MND	MND	2,05E-01	3,58E-01	2,53E-01	1,29E-01	-1,33E+00
Ecotoxicity (freshwater)	CTUe	1,58E+02	4,75E+01	9,18E+01	2,97E+02	1,16E+02	MND	MND	MND	MND	MND	MND	MND	MND	2,68E+01	5,78E+01	4,90E+01	1,86E+01	-1,25E+02
Human toxicity, cancer	CTUh	1,46E-07	1,47E-09	1,79E-09	1,49E-07	3,00E-09	MND	MND	MND	MND	MND	MND	MND	MND	1,03E-09	1,50E-09	1,70E-09	4,64E-10	-1,75E-09
Human tox. non-cancer	CTUh	1,24E-06	4,68E-08	4,17E-08	1,33E-06	1,18E-07	MND	MND	MND	MND	MND	MND	MND	MND	1,94E-08	5,88E-08	5,06E-08	1,21E-08	-1,24E-07
SQP	-	7,49E+02	5,84E+01	2,37E+01	8,31E+02	1,62E+02	MND	MND	MND	MND	MND	MND	MND	MND	5,79E+00	8,10E+01	1,60E+01	6,09E+01	-8,81E+01

**ADDITIONAL DOCUMENT TO ENVIRONMENTAL PRODUCT DECLARATION**  
 IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930



**USE OF NATURAL RESOURCES**

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy	MJ	1,38E+02	7,43E-01	7,79E+01	2,17E+02	1,80E+00	MND	MND	MND	MND	MND	MND	MND	MND	2,54E-01	9,00E-01	1,16E+00	2,47E-01	-8,08E+00
Renew. PER as material	MJ	3,83E-01	0,00E+00	0,00E+00	3,83E-01	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	-3,52E-01	0,00E+00
Total use of renew. PER	MJ	1,38E+02	7,43E-01	7,79E+01	2,17E+02	1,80E+00	MND	MND	MND	MND	MND	MND	MND	MND	2,54E-01	9,00E-01	1,16E+00	-1,04E-01	-8,08E+00
Non-re. PER as energy	MJ	4,72E+02	5,81E+01	2,75E+02	8,05E+02	1,39E+02	MND	MND	MND	MND	MND	MND	MND	MND	4,45E+01	6,95E+01	4,76E+01	2,85E+01	-9,39E+01
Non-re. PER as material	MJ	7,66E+00	0,00E+00	0,00E+00	7,66E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	-7,37E+00	0,00E+00
Total use of non-re. PER	MJ	4,79E+02	5,81E+01	2,75E+02	8,12E+02	1,39E+02	MND	MND	MND	MND	MND	MND	MND	MND	4,45E+01	6,95E+01	4,76E+01	2,11E+01	-9,39E+01
Secondary materials	kg	7,34E+01	1,83E-02	1,32E-03	7,34E+01	3,92E-02	MND	MND	MND	MND	MND	MND	MND	MND	1,74E-02	1,96E-02	2,24E-02	5,98E-03	1,51E-01
Renew. secondary fuels	MJ	8,29E+01	1,51E-04	0,00E+00	8,29E+01	3,45E-04	MND	MND	MND	MND	MND	MND	MND	MND	5,70E-05	1,73E-04	3,55E-04	1,56E-04	-7,06E-04
Non-ren. secondary fuels	MJ	1,46E+02	0,00E+00	0,00E+00	1,46E+02	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m <sup>3</sup>	1,36E+00	7,37E-03	1,1E-01	1,48E+00	1,84E-02	MND	MND	MND	MND	MND	MND	MND	MND	2,70E-03	9,22E-03	5,62E-03	3,12E-02	-2,91E-01

**END OF LIFE – WASTE**

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	8,53E-01	6,57E-02	1,66E-01	1,08E+00	1,49E-01	MND	MND	MND	MND	MND	MND	MND	MND	5,96E-02	7,45E-02	9,21E-02	0,00E+00	-5,15E-01
Non-hazardous waste	kg	5,52E+02	1,07E+00	5,03E+01	6,03E+02	2,59E+00	MND	MND	MND	MND	MND	MND	MND	MND	4,19E-01	1,30E+00	1,53E+00	1,97E+02	-1,62E+01
Radioactive waste	kg	8,36E-03	4,01E-04	3,02E-03	1,18E-02	9,58E-04	MND	MND	MND	MND	MND	MND	MND	MND	3,13E-04	4,79E-04	3,29E-04	0,00E+00	-4,51E-04

**END OF LIFE – OUTPUT FLOWS**

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	1,49E-03	0,00E+00	0,00E+00	1,49E-03	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	3,13E+00	0,00E+00	0,00E+00	3,13E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	8,03E+02	0,00E+00	0,00E+00
Materials for energy rec	kg	1,89E-02	0,00E+00	0,00E+00	1,89E-02	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00