Annex
For R3BOND® System adhesive

to the

ENVIRONMENTAL PRODUCT DECLARATION
as per /ISO 14025/ and /EN 15804 +A2

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ANNEX: Environmental impacts of R3BOND® System (adhesive + grid)

The R3BOND® System adhesive is used with the R3BOND® System grid to form an innovative bonding system for PVC flooring. Thanks to this combination, during the renovation phase, the PVC covering can be removed and recycled through the traditional channels used by PVC flooring manufacturers.

The functional unit of the R3BOND® System is 0.491 kg/m² (e.g the sum of 0.43 kg/m² of adhesive and 0.061 kg/m² of grid). For informational purpose, the environmental impacts of the R3BOND® System are shared below (Total of A1-A3; A4; A5; C1-C4 steps and module D):

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 0.491 kg/m² of R3BOND® System

Parameter	Unit	Total LCA
Global Warming Potential total (GWP-total)	kg CO_2 eq	1,19
Global Warming Potential fossil fuels (GWP-fossil)	kg CO_2 eq	1,18
Global Warming Potential biogenic (GWP-biogenic)	kg CO_2 eq	7,12E-03
Global Warming Potential luluc (GWP-luluc)	kg CO_2 eq	6,57E-03
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC11 eq	1,45E-06
Acidification potential of land and water (AP)	mol H^+ eq	6,64E-03
Eutrophication potential aquatic freshwater (EP-freshwater)	kg P eq	2,29E-04
Eutrophication potential aquatic marine (EP-marine)	kg N eq	1,64E-03
Eutrophication potential terrestrial (EP-terrestrial)	mol N eq	2,29E-02
Formation potential of tropospheric ozone photochemical oxidants (POCP)	kg NMVOC eq	5,53E-03
Abiotic depletion potential for non fossil resources (ADPE)	kg Sb eq	5,87E-06
Abiotic depletion potential for fossil resources (ADPF)	MJ	26,21
Water use (WDP)	m^3 world eq deprived	0,86

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 0.491 kg/m² of R3BOND® System

Parameter	Unit	Total LCA
Renewable primary energy as energy carrier (PERE)	MJ	5,16
Renewable primary energy resources as material utilization (PERM)	MJ	ND
Total use of renewable primary energy resources (PERT)	MJ	4,99
Non renewable primary energy as energy carrier (PENRE)	MJ	29,52
Non renewable primary energy as material utilization (PENRM)	MJ	ND
Total use of non renewable primary energy resources (PENRT)	MJ	26,23
Use of secondary material (SM)	Kg	ND
Use of renewable secondary fuels (RSF)	MJ	ND
Use of non renewable secondary fuels (NRSF)	MJ	ND
Use of net fresh water (FW)	m^3	6,77E-02

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 0.491 kg/m² of R3BOND® System		
Parameter	**Unit**	**Total LCA**
Hazardous waste disposed (HWD)	kg	2,23E-06
Non hazardous waste disposed (NHWD)	kg	0,61
Radioactive waste disposed (RWD)	kg	8,83E-04
Components for re-use (CRU)	kg	ND
Materials for recycling (MFR)	kg	ND
Materials for energy recovery (MER)	kg	ND
Exported electrical energy (EEE)	MJ	ND
Exported thermal energy (EET)	MJ	ND

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 0.491 kg/m² of R3BOND® System		
Parameter	**Unit**	**Total LCA**
Incidence of disease due to PM emissions (PM)	Disease incidence	8,41E-08
Human exposure efficiency relative to U235 (IR)	kBq U235 eq	0,25
Comparative toxic unit for ecosystems (ETP-fw)	CTUe	16,92
Comparative toxic unit for humans (carcinogenic) (HTP-c)	CTUh	7,19E-10
Comparative toxic unit for humans (noncarcinogenic) (HTP-nc)	CTUh	1,53E-08
Soil quality index (SQP)	SQP	71,15

This EPD was created using a software tool.