

**Environmental
Product
Declaration**

according to ISO 14025 and EN 15804



This declaration is for:
Russell

Provided by:
Kvadrat Shade

kvadrat shade



program operator
Stichting MRPI®
publisher
Stichting MRPI®
www.mrpi.nl

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1.1.00139.2020
EPD registration
00001304
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COMPANY INFORMATION

kvadrat shade

Kvadrat Shade
 Vonderweg 48
 7468DC
 Enter
 0547 855 555
 contact@kvadratshade.com
 www.kvadratshade.com

PRODUCT

Russell

DECLARED UNIT/FUNCTIONAL UNIT

m²

DESCRIPTION OF PRODUCT

Fabrics for roller blinds applied to the inside of a window, with a technical life time of 15 years. The textile meets multiple fire resistance standards. Attached materials are excluded.

VISUAL PRODUCT



MRPI® REGISTRATION

1.1.00139.2020

EPD REGISTRATION

00001304

DATE OF ISSUE

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SCOPE OF DECLARATION

This MRPI®-EPD certificate is verified by **Pieter Stadhouders, Ecoreview**.

The LCA study has been done by **Pien van den Heuvel, NIBE**.

The certificate is based on an LCA-dossier according to ISO14025 and NEN-EN15804+A1. It is verified according to the 'EPD-MRPI® verification protocol May 2017.v3.1'. EPDs of construction products may not be comparable if they do not comply with NEN-EN15804+A1. Declaration of SVHC that are listed on the 'Candidate List of Substances of Very High Concern for authorisation' when content exceeds the limits for registration with ECHA.

MORE INFORMATION

<https://kvadratshop.com/en/shade/products/textiles/1331-gonzen>

PROGRAM OPERATOR

Stichting MRPI®
 Kingsfordweg 151
 1043GR
 Amsterdam

ir. J-P den Hollander, Managing director MRPI®

DEMONSTRATION OF VERIFICATION

CEN standard EN15804 serves as the core PCR[a]

Independent verification of the declaration and data,
 according to EN ISO 14025:2010:

internal: external: X

Third party verifier:

Pieter Stadhouders, Ecoreview

[a] PCR = Product Category Rules

DETAILED PRODUCT DESCRIPTION

The Russel textile is a roller blind fabric. The aim of the complete blind system is to control light and provide acoustic and thermal comfort. The product is made out of polyester that has been treated with several finishes. The Russel textile has a fine woven look. It is constructed with a special white backing through which the blind ensures total darkness. The textile has lightfastness of 7 according to ISO 105-b02 and a glare control rating of 4 out of 4. All Russel's color have 0% visual light transmission and the solar reflection, transmission and absorption are dependent on the chosen color. In addition the textile has a 0.24% GTOT/SHGC. Furthermore, the textile has passed multiple flame retardancy tests; BS 5867 part 2 type B, DIN 4102 B1, EN 13 773 class 1, IMO FTP Code 2010 Part 7, NF P 92 507 M1, and NFPA 701. The quality „Russell“ is certificated in accordance to the Öko-Tex Standard 100. The textile has a width of 300 cm, weighs 420 g/m², and has an estimated reference service life of 15 years.

Production process

Raw cloths made of 100% polyester are purchased ready to use. The raw cloths are treated in the factory with dyes and different washing/finishing auxiliaries. The first step of the process is the washing of the raw cloth in order to degrease the fabric. Washing auxiliaries are diluted with water, with a 1:10 ratio. The raw cloth passes through the bath on rollers, continuously moving through the bath. After the raw cloth is washed it is dyed in the desired color. After the dyeing process a finish is applied to the fabric. In the diagram on page 5 the processes that occur in the factory are depicted in the white boxes. There are four finish possibilities, not all of them are applied on every textile. For the Russel fabric the stiffening and black out finishing processes are applied. The stiffening will ensure that the fabric will hang more straight once assembled and won't crease. The stiffening finish is a thin and clear finish, which is applied to make the fabric less flexible and less scratch sensitive. This will prevent the fabric for example from cupping or v-shaping once assembled.

The black out coating is done to create a completely dark room. In order to make the fabric black out, several coating layers are applied on the backside of the fabric. First a white coating, then a black coating to create the blackout effect. Finally, a white coating or coating in the colour of the fabric is applied. The coating of this fabric is made on a tenter. The paste is coated with a precision coating tool with knives on the side which is to be coated. The paste supply to the knives is regulated by an electronic sensor. The coating thickness is controlled and recorded "online" during the process by a thickness analyser. In the following the coating is dried and condensed in the tenter.

For most of the part, the energy use can be attributed to the dyeing process which occurs at a high temperature. Furthermore energy is used for the coating process and the cutting process. The latter of which is a hot process. The emissions that occur during the production process are related to the burning of gas. After the textiles are treated they are packaged and transported to the location where the system will be assembled.

COMPONENT (> 1%)	[kg / %]
Polyester resin	0.12 kg
Flame retardant	0.015 kg
Chemicals organic	0.012 kg
Polyvinyl acetate	0.066 kg
Acrylic dispersion	0.053 kg
Antimony	0.026 kg
Titanium dioxide	0.0081 kg
Polyurethane, flexible foam	0.005 kg
Stearic acid	0.022 kg
Melamine formaldehyde resin	0.002 kg
Kaolin	0.0084 kg

(*) > 1% of total mass

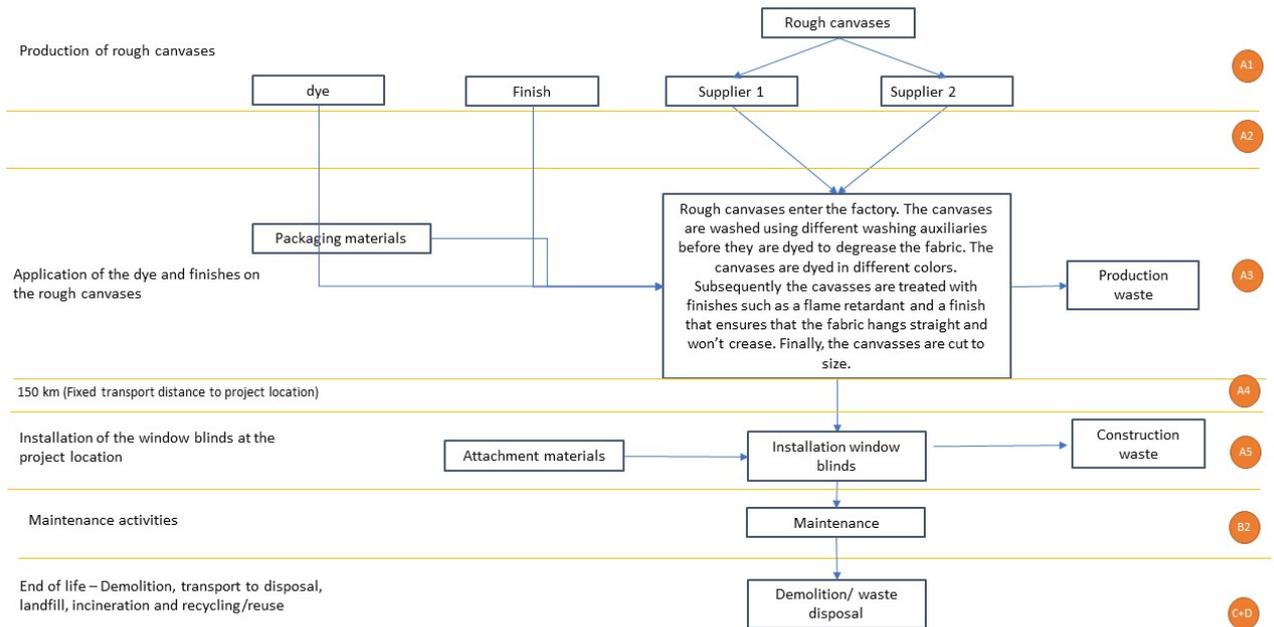
SCOPE AND TYPE

A specific EPD is made for the Russell fabric, which is produced for Kvadrat Shade. The actual names of the producers are not disclosed by Kvadrat Shade because of the competitively sensitive nature of the information. The methodology complies with the MPRI+ EPD and therefore the SBK Bepalingsmethode Milieuprestatie Gebouwen en GWW-werken" version 3.0. and the underlying standards ISO 14040, ISO 14044 and EN 15804+A1. Used background processes are taken from EcolInvent v3.4.

PRODUCT STAGE	CONSTRUCTION					USE STAGE							END OF LIFE				BENEFITS AND
	PROCESS												STAGE				LOADS BEYOND THE
	STAGE																SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport gate to 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	x	x	x	MNA	MNA	MNA	MNA	x	x	x	x	x	

X = Module assessed

MNA = Module not assessed



REPRESENTATIVENESS

The representative product consists of a weighted average based on annual production. The data is representative for a range of 7 roller blind fabrics in a variety of different colors. The fabrics are produced in two production sites: Hamminkeln, Germany and Istanbul, Turkey.

ENVIRONMENTAL IMPACT per functional unit or declared unit

	UNIT	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D
ADPE	kg Sb-eq.	5.85 E-6	0.00	7.89 E-7	6.64 E-6	1.47 E-10	3.36 E-7	0.00	0.00	0.00	0.00	1.74 E-8	7.63 E-8	0.00	-2.49 E-10
ADPF	MJ	2.40 E+1	0.00	8.10 E+0	3.21 E+1	8.05 E-4	1.63 E+0	0.00	0.00	0.00	0.00	9.54 E-2	2.79 E-1	0.00	-5.54 E-1
GWP	kg CO2-eq.	1.35 E+0	0.00	5.36 E-1	1.89 E+0	5.17 E-5	1.46 E-1	0.00	0.00	0.00	0.00	6.13 E-3	7.67 E-1	0.00	-1.61 E-2
ODP	kg CFC11-eq.	1.26 E-7	0.00	4.96 E-8	1.76 E-7	9.65 E-12	8.76 E-9	0.00	0.00	0.00	0.00	1.14 E-9	9.20 E-9	0.00	-9.23 E-12
POCP	kg ethene-eq.	3.45 E-3	0.00	1.89 E-2	2.24 E-2	3.07 E-8	1.11 E-3	0.00	0.00	0.00	0.00	3.63 E-6	1.09 E-5	0.00	-2.15 E-5
AP	kg SO2-eq.	9.41 E-3	0.00	1.41 E-3	1.08 E-2	2.24 E-7	4.97 E-4	0.00	0.00	0.00	0.00	2.65 E-5	1.29 E-4	0.00	-5.26 E-5
EP	kg (PO4)3--eq.	1.01 E-2	0.00	1.11 E-3	1.12 E-2	4.52 E-8	5.44 E-4	0.00	0.00	0.00	0.00	5.35 E-6	3.10 E-5	0.00	-3.50 E-6
Toxicity indicators (Dutch market)															
HTP	kg DCB-eq.	1.50 E+0	0.00	2.11 E-1	1.71 E+0	2.12 E-5	8.36 E-2	0.00	0.00	0.00	0.00	2.51 E-3	3.47 E-2	0.00	-3.27 E-4
FAETP	kg DCB-eq.	6.38 E-2	0.00	2.16 E-1	2.80 E-1	6.15 E-7	1.40 E-2	0.00	0.00	0.00	0.00	7.30 E-5	2.48 E-3	0.00	-2.38 E-5
MAETP	kg DCB-eq.	1.05 E+2	0.00	1.60 E+1	1.21 E+2	2.19 E-3	6.58 E+0	0.00	0.00	0.00	0.00	2.60 E-1	8.51 E+0	0.00	-4.25 E-2
TETP	kg DCB-eq.	7.95 E-3	0.00	2.51 E-2	3.31 E-2	7.31 E-8	1.63 E-3	0.00	0.00	0.00	0.00	8.66 E-6	1.74 E-4	0.00	-6.90 E-7
Environmental Cost Indicator (Dutch market)															
ECI	Euro	3.50 E-1	0.00	1.10 E-1	4.60 E-1	0.00	3.00 E-2	0.00	0.00	0.00	0.00	0.00	4.00 E-2	0.00	0.00

ADPE = Abiotic Depletion Potential for non-fossil resources
ADPF = Abiotic Depletion Potential for fossil resources
GWP = Global Warming Potential
ODP = Depletion potential of the stratospheric ozone layer
POCP = Formation potential of tropospheric ozone photochemical oxidants
AP = Acidification Potential of land and water
EP = Eutrophication Potential

HTP = Human Toxicity Potential
FAETP = Fresh water aquatic ecotoxicity potential
MAETP = Marine aquatic ecotoxicity potential
TETP = Terrestrial ecotoxicity potential
ECI = Environmental Cost Indicator

RESOURCE USE per functional unit or declared unit

	UNIT	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D
PERE	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERM	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERT	MJ	2.15 E+0	0.00	1.23 E+0	3.38 E+0	8.46 E-6	-8.07 E-1	0.00	0.00	0.00	0.00	1.00 E-3	2.15 E-2	0.00	-7.24 E-3
PENRE	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PENRM	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PENRT	MJ	2.42 E+1	0.00	8.16 E+0	3.24 E+1	8.58 E-4	1.64 E+0	0.00	0.00	0.00	0.00	1.02 E-1	2.69 E-1	0.00	-6.14 E-1
SM	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RSF	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NRSF	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FW	m3	2.45 E-2	0.00	2.82 E-3	2.73 E-2	1.37 E-7	1.42 E-3	0.00	0.00	0.00	0.00	1.62 E-5	4.39 E-4	0.00	-1.08 E-4

PERE = Use of renewable energy excluding renewable primary energy resources

PERM = Use of renewable energy resources used as raw materials

PERT = Total use of renewable primary energy resources

PENRE = Use of non-renewable primary energy resources excluding non-renewable energy resources used as raw materials

PENRM = Use of non-renewable primary energy resources used as raw materials

PENRT = Total use of non-renewable primary energy resources

SM = Use of secondary materials

RSF = Use of renewable secondary fuels

NRSF = Use of non renewable secondary fuels

FW = Use of net fresh water

OUTPUT FLOWS AND WASTE CATEGORIES per functional unit or declared unit

	UNIT	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D
HWD	kg	6.65 E-5	0.00	1.33 E-5	7.98 E-5	5.13 E-10	2.27 E-6	0.00	0.00	0.00	0.00	6.08 E-8	1.20 E-6	0.00	-1.17 E-9
NHWD	kg	2.28 E-1	0.00	4.11 E-2	2.69 E-1	4.92 E-5	2.28 E-2	0.00	0.00	0.00	0.00	5.83 E-3	1.20 E-2	0.00	-1.91 E-4
RWD	kg	4.71 E-5	0.00	9.62 E-6	5.67 E-5	5.43 E-9	2.89 E-6	0.00	0.00	0.00	0.00	6.44 E-7	8.95 E-7	0.00	-2.17 E-9
CRU	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MFR	kg	0.00	0.00	0.00	0.00	0.00	3.68 E-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MER	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EEE	MJ	0.00	0.00	0.00	0.00	0.00	1.57 E-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ETE	MJ	0.00	0.00	0.00	0.00	0.00	2.71 E-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

HWD = Hazardous Waste Disposed

NHWD = Non Hazardous Waste Disposed

RWD = Radioactive Waste Disposed

CRU = Components for reuse

MFR = Materials for recycling

MER = Materials for energy recovery

EEE = Exported Electrical Energy

ETE = Exported Thermal Energy

CALCULATION RULES

No materials, processes or emissions have been excluded from the study, the LCA is based data for the year 2018. Infrastructure processes as available in the EcolInvent processes are included, longterm emissions have been excluded.

SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

A4: Transport to Regional Distribution Centre and customer. A distance of 1 km is used so that it can be converted to the desired distance.

Transport conveyance	Distance (km)	Weight x distance [TKM]
Lorry (Truck), unspecified (default)	1	0

C2: Transport end of life stage

End of life scenario	Transport type	To be left [km]	Landfill [km]	Incineratio n [km]	Recycling [km]	Reuse [km]
Wood 'clean', via residue	Lorry*	0	100	150	50	0
Finishes (adhered to wood, plastic, metal)	Lorry*	0	100	150	50	0
Plastics, other (i.a. profiles, sheets, pipes)	Lorry*	0	100	150	50	0

* = Lorry (Truck), unspecified (default)

C3: Waste processing

End of life scenario	Region	To be left [%]	Landfill [%]	Incineration [%]	Recycling [%]	Reuse [%]
Wood 'clean', via residue	NL	0	10	85	5	0
Finishes (adhered to wood, plastic, metal)	NL	0	0	100	0	0
Plastics, other (i.a. profiles, sheets, pipes)	NL	0	0	90	10	0

DECLARATION OF SVHC

None of the substances contained in the product are listed in the "Candidate List of Substances of Very High Concern for authorization", or they do not exceed the threshold with the European Chemicals Agency.

REFERENCES

SBK Bepalingsmethode Milieuprestatie Gebouwen en GWW-werken" version 3.0. ISO 14040, ISO 14044 and EN 15804+A1.

REMARKS

None