Environmental Product Declaration

according to ISO 14025 and EN 15804

MRPI
milieu relevante product informatie

This declaration is for:
PRO 3 VAQ B

Provided by:
Quooker B.V.

Quooker®

program operator
Stichting MRPI®
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EPD
VERIFIED

COMPANY INFORMATION

Quooker®

Quooker B.V.
Staalstraat 1
2984 AJ
Ridderkerk
0031 180420488

www.quooker.nl

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PRODUCT
PRO 3 VAQ B

DECLARED UNIT/FUNCTIONAL UNIT
1 Quooker product, consisting of a hot water boiler and tap, used over 10 years

DESCRIPTION OF PRODUCT
The PRO 3 VAQ B is a hot water boiler that, combined with a Quooker tap, provides boiling water for kitchen applications.

VISUAL PRODUCT

MORE INFORMATION
www.quooker.nl

SCOPE OF DECLARATION
This MRPI®-EPD certificate is verified by **Gert-Jan Vroege , Eco-Intelligence.**
The LCA study has been done by **Brienne Wiersema, Ecomatters B.V..**
The certificate is based on an LCA-dossier according to ISO14025 and EN15804+A2. It is verified according to the 'MRPI®-EPD verification protocol November 2020.v4.0'. EPDs of construction products may not be comparable if they do not comply with EN15804+A2. 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.

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: Gert-Jan Vroege , Eco-Intelligence
[a] PCR = Product Category Rules

DETAILED PRODUCT DESCRIPTION

Product description.
PRO 3 VAQ B is a water reservoir that provides boiling water for household like usage. The water reservoirs always have to be combined with a Quooker water tap.

Conditions of delivery.
The water boiler and taps are ready for installation once delivered. All additional materials necessary for installation and use, are included in the delivered package.

Product components.
Steel, brass, aluminium, plastics and electronic components.

Reference service life: 10 years

Description and application	Value
Commercial name	PRO 3 VAQ B
Type of product	Water reservoir combined with a Quooker water tap
Main purpose	Provision of warm and boiling water in kitchens
Geographic region of intended installation	European market

Characteristics	PRO 3 VAQ B	Water tap	Unit
Weigth of the product (excl. packaging)	5.5	2.2	kg
Weight of the packaging	0.9	0.7	kg
Dimension (wxlxh)	15*15*47	NA	cm
Reference service life	10	10	years
Volume of the reservoir	3	NA	liters

COMPONENT > 1% of total mass	[%]
Ferrous metal	Confidential
Plastic	Confidential
Non-ferrous metal	Confidential
Electric and electronic equipment	Confidential
Other material	Confidential

SCOPE AND TYPE

The type of this EPD is Cradle-to-Gate with options. All major steps from the extraction of natural resources to the final disposal of the product are included in the environmental performance of the manufacturing phase, except those that are not relevant to the environmental performance of the product. This declaration does not imply an indicator result of zero.

This EPD is representative for products produced in Ridderkerk, The Netherlands. The application market is for customers in Europe. Likewise, for the end-of-life, the fate of the product is described within an European context.

The software LCA for Experts (GaBi) 10.7.0.183 is used to perform the LCA. Background processes

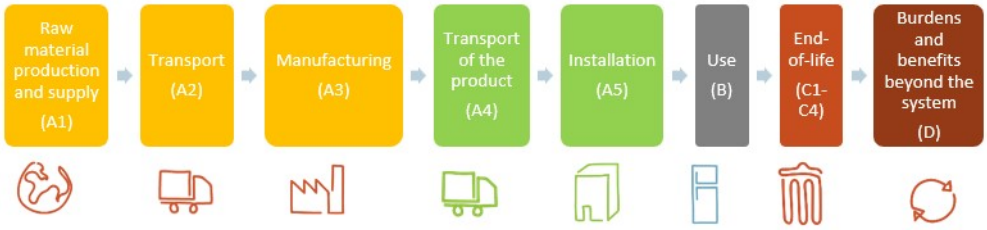
are sourced from Ecoinvent 3.9.1 (2022).

The validity of this EPD is in correspondence with the specifications of the LCA project report.

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE			BENEFITS AND LOADS BEYOND THE 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	ND	ND	ND	x	x	x	x	x	x	ND

X = Modules Assessed

ND = Not Declared



LCA process diagram according to EN 15804 (7.2.1)

REPRESENTATIVENESS

This EPD is representative for one Quooker water reservoirs:

1. PRO 3 VAQ B

In combination with a Quooker watertap. The representative tap included in this EPD is representative for the following taps and colours:

1. Quooker Fusion Standard Round (chrome, RVS, black, messing patina)
2. Quooker Fusion Standard Square (chrome, RVS, black, messing patina)
3. Quooker Fusion Classic Round (chrome, RVS, black, messing patina)
4. Quooker Fusion Classic Square (chrome, RVS, black, messing patina)
5. Quooker Flex (chrome, RVS, zwart)
6. Quooker Front (RVS)

All products are manufactured at the same production facility in Ridderkerk, the Netherlands. The products are sold in Europe.

ENVIRONMENTAL IMPACT per functional unit or declared unit (core indicators A2)

	UNIT	A1	A2	A3	A1-A3	A4	A5	B1	B2	B6	B7	C1	C2	C3	C4
GWP-total	kg CO2 eq.	1.12 E+2	1.30 E+0	3.86 E+0	1.17 E+2	1.36 E+0	5.94 E-1	0.00	0.00	4.32 E+2	3.23 E+0	0.00	1.45 E-1	5.34 E-1	1.85 E+0
GWP-fossil	kg CO2 eq.	1.11 E+2	1.30 E+0	5.51 E+0	1.18 E+2	1.36 E+0	1.58 E-1	0.00	0.00	4.16 E+2	3.15 E+0	0.00	1.45 E-1	4.78 E-1	1.36 E+0
GWP-biogenic	kg CO2 eq.	1.14 E+0	7.58 E-5	-1.68 E+0	-5.34 E-1	1.15 E-3	4.36 E-1	0.00	0.00	1.45 E+1	6.78 E-2	0.00	1.42 E-4	5.52 E-2	4.93 E-1
GWP-luluc	kg CO2 eq.	1.87 E-1	8.76 E-4	2.48 E-2	2.12 E-1	6.16 E-4	3.09 E-5	0.00	0.00	1.02 E+0	5.39 E-3	0.00	6.96 E-5	4.14 E-4	2.22 E-4
ODP	kg CFC11 eq.	4.50 E-6	1.92 E-8	1.04 E-7	4.62 E-6	2.89 E-8	1.54 E-9	0.00	0.00	7.79 E-6	8.69 E-8	0.00	3.07 E-9	5.41 E-9	5.43 E-8
AP	mol H+ eq.	1.34 E+0	2.57 E-2	2.52 E-2	1.40 E+0	4.13 E-3	4.89 E-4	0.00	0.00	2.34 E+0	1.68 E-2	0.00	4.60 E-4	2.28 E-3	1.31 E-3
EP-freshwater	kg PO4 eq.	1.89 E-1	6.48 E-5	1.65 E-3	1.91 E-1	9.15 E-5	1.60 E-5	0.00	0.00	3.88 E-1	2.04 E-3	0.00	9.87 E-6	1.22 E-4	2.39 E-4
EP-marine	kg N eq.	1.80 E-1	6.55 E-3	8.23 E-3	1.95 E-1	1.42 E-3	2.21 E-4	0.00	0.00	3.82 E-1	3.31 E-3	0.00	1.59 E-4	6.91 E-4	1.09 E-3
EP-terrestrial	mol N eq.	2.03 E+0	7.22 E-2	6.09 E-2	2.16 E+0	1.49 E-2	2.02 E-3	0.00	0.00	3.43 E+0	3.14 E-2	0.00	1.67 E-3	6.28 E-3	3.46 E-3
POCP	kg NMVOC eq.	5.77 E-1	2.02 E-2	2.29 E-2	6.20 E-1	6.20 E-3	7.15 E-4	0.00	0.00	1.10 E+0	1.15 E-2	0.00	6.87 E-4	2.07 E-3	1.29 E-3
ADP-minerals & metals	kg Sb eq.	3.58 E-2	2.27 E-6	2.49 E-5	3.59 E-2	4.23 E-6	3.72 E-7	0.00	0.00	4.89 E-3	1.61 E-5	0.00	4.53 E-7	9.18 E-6	1.06 E-6
ADP-fossil	MJ, net calorific value	1.69 E+3	1.66 E+1	1.14 E+2	1.82 E+3	1.88 E+1	1.03 E+0	0.00	0.00	1.02 E+4	6.27 E+1	0.00	2.02 E+0	5.10 E+0	4.38 E+0
WDP	m3 world eq. deprived	4.70 E+1	7.35 E-2	2.13 E+0	4.92 E+1	1.16 E-1	2.56 E-2	0.00	0.00	3.15 E+2	4.22 E+2	0.00	1.22 E-2	9.05 E-2	1.56 E-1

GWP-total = Global Warming Potential total
GWP-fossil = Global Warming Potential fossil fuels
GWP-biogenic = Global Warming Potential biogenic
GWP-luluc = Global Warming Potential land use and land use change
ODP = Depletion potential of the stratospheric ozone layer
AP = Acidification Potential, Accumulated Exceedence
EP-freshwater = Eutrophication Potential, fraction of nutrients reaching freshwater end compartment
EP-marine = Eutrophication Potential, fraction of nutrients reaching marine end compartment
EP-terrestrial = Eutrophication Potential, Accumulated Exceedence
POCP = Formation potential of tropospheric ozone photochemical oxidants
ADP-minerals&metals = Abiotic Depletion Potential for non fossil resources [2]
ADP-fossil = Abiotic Depletion for fossil resources potential [2]
WDP = Water (user) deprivation potential, deprivation-weighted water consumption [2]

Disclaimer [2]

- The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

ENVIRONMENTAL IMPACT per functional unit or declared unit (additional indicators A2)

	UNIT	A1	A2	A3	A1-A3	A4	A5	B1	B2	B6	B7	C1	C2	C3	C4
PM	Disease incidence	7.67 E-6	5.32 E-8	3.61 E-7	8.09 E-6	7.38 E-8	8.77 E-9	0.00	0.00	7.90 E-6	1.60 E-7	0.00	9.09 E-9	3.39 E-8	1.30 E-8
IRP	kBq U235 eq.	1.10 E+1	1.04 E-2	3.28 E-1	1.13 E+1	3.02 E-2	3.76 E-3	0.00	0.00	2.59 E+2	1.17 E+0	0.00	2.68 E-3	2.82 E-2	1.55 E-2
ETP-fw	CTUe	1.90 E+4	1.68 E+1	2.38 E+2	1.92 E+4	1.83 E+1	2.56 E+0	0.00	0.00	8.01 E+3	6.61 E+1	0.00	2.02 E+0	1.52 E+1	2.52 E+1
HTP-c	CTUh	6.43 E-7	7.01 E-10	4.32 E-9	6.48 E-7	5.86 E-10	1.18 E-10	0.00	0.00	2.29 E-7	1.39 E-8	0.00	6.75 E-11	6.06 E-10	5.35 E-10
HTP-nc	CTUh	1.24 E-5	1.08 E-8	8.94 E-8	1.25 E-5	1.52 E-8	2.47 E-9	0.00	0.00	8.64 E-6	1.99 E-7	0.00	1.70 E-9	1.35 E-8	9.07 E-9
SQP	---	7.36 E+2	4.65 E+0	1.72 E+2	9.13 E+2	9.58 E+0	2.72 E-1	0.00	0.00	1.87 E+3	1.23 E+1	0.00	1.19 E+0	6.19 E+0	9.39 E-1

PM = Potential incidence of disease due to PM emissions
IRP = Potential Human exposure efficiency relative to U235 [1]
ETP-fw = Potential Comparative Toxic Unit for ecosystems [2]
HTP-c = Potential Comparative Toxic Unit for humans [2]
HTP-nc = Potential Comparative Toxic Unit for humans, non-cancer [2]
SQP = Potential soil quality index [2]

Disclaimer [1]

- This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

Disclaimer [2]

- The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

RESOURCE USE per functional unit or declared unit (A1 / A2)

	UNIT	A1	A2	A3	A1-A3	A4	A5	B1	B2	B6	B7	C1	C2	C3	C4
PERE	MJ	1.97 E+2	1.54 E-1	4.73 E+1	2.45 E+2	3.26 E-1	3.71 E-2	0.00	0.00	2.03 E+3	8.14 E+0	0.00	3.11 E-2	4.38 E-1	1.84 E-1
PERM	MJ	2.74 E-3	8.76 E-7	2.30 E-5	2.77 E-3	1.02 E-7	2.33 E-8	0.00	0.00	3.60 E-4	2.89 E-4	0.00	2.02 E-8	3.59 E-7	2.48 E-8
PERT	MJ	2.45 E+2	2.22 E-1	5.57 E+1	3.01 E+2	2.45 E-1	4.37 E-2	0.00	0.00	8.23 E+3	5.70 E+1	0.00	4.31 E-2	5.73 E-1	1.92 E-1
PENRE	MJ	1.69 E+3	1.66 E+1	1.14 E+2	1.82 E+3	1.88 E+1	1.03 E+0	0.00	0.00	1.02 E+4	6.27 E+1	0.00	2.02 E+0	5.11 E+0	4.38 E+0
PENRM	MJ	5.44 E-2	2.23 E-4	2.58 E-2	8.04 E-2	1.34 E-4	1.14 E-5	0.00	0.00	0.00	0.00	0.00	1.67 E-5	1.01 E-4	1.31 E-5
PENRT	MJ	1.69 E+3	1.66 E+1	1.14 E+2	1.82 E+3	1.88 E+1	1.03 E+0	0.00	0.00	1.02 E+4	6.27 E+1	0.00	2.02 E+0	5.11 E+0	4.38 E+0
SM	kg	2.80 E+0	0.00	0.00	2.80 E+0	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	1.09 E+0	1.71 E-3	4.95 E-2	1.15 E+0	2.70 E-3	5.97 E-4	0.00	0.00	7.33 E+0	9.84 E+0	0.00	2.85 E-4	2.11 E-3	3.62 E-3

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 (A1 / A2)

	UNIT	A1	A2	A3	A1-A3	A4	A5	B1	B2	B6	B7	C1	C2	C3	C4
HWD	kg	0.00	0.00	3.00 E-2	3.00 E-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NHWD	kg	0.00	0.00	4.30 E-1	4.30 E-1	0.00	2.72 E-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.26 E+3
RWD	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
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	2.62 E+2	2.62 E+2	0.00	1.33 E+0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.34 E+2
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	0.00	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	0.00	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

BIOGENIC CARBON CONTENT per functional unit or declared unit (A1 / A2)

	UNIT	A1	A2	A3	A1-A3	A4	A5	B1	B2	B6	B7	C1	C2	C3	C4
BCCpr	kg C	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
BCCpa	kg C	0.00	0.00	6.30 E-1	6.30 E-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

BCCpr = Biogenic carbon content in product
BCCpa = Biogenic carbon content in packaging

CALCULATION RULES

Data quality and data collection period

Data quality requirements follow EN15804+A2:2019. Used datasets are complete according to the system boundary, and are as current as possible. Foreground data is of reference period 2022, representing 1-year averaged data. Processes used in the background modelling are referring to Ecoinvent 3.9.1, the most recent version of the widely used database and are consistent with the foreground modelling in system limits and allocation procedures. The technological and geographical coverage reflects the physical reality as far as possible taking into account the technology mix, location, and representativeness of technologies, input materials, and input energies for the region. Data quality is assessed as good on average and adequate to the goal and scope of the study.

Cut-off criteria and allocation procedures

No cut-offs or allocation procedures were intentionally applied to inputs and outputs within the system boundaries in the models. Cut-off and allocation procedures in the background processes are according to the respective methodologies and estimated to be methodologically consistent with the foreground system.

Allocation procedure

To allocate the emissions and inputs to the manufactured products, the decision-hierarchy in ISO 14044 is used (ISO 2006). It is not possible to sub-divide the site data into a more detailed level or find physical causalities between inputs and outputs, thus allocation is done based on economic value, considering the contribution of the product groups to the annual revenue.

SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

The product stage is reported in life cycle stages A1-A3. This life cycle stage includes the extraction and processing of raw materials for the product and the packaging, their transportation to the production site by road and air, and the manufacturing process. The manufacturing stage (A3) includes all processes related to assembling the product, including energy consumption and waste treatment, for which specific data is available. Electricity consumption is modelled using primary data on the amount and datasets for German wind energy, and self-generated solar electricity from the Ecoinvent 3.9.1 database.

The installation stage (A4-A5) includes transport of the product to the regional distribution center (RDC) and the point of sale (PoS), as well as the treatment of packaging waste after installation. No additional inputs are required for the installation of the product. The use stage includes the operational energy and water consumption, based on primary data from Quooker. For the electricity and water usage in the use-phase, Ecoinvent processes for the EU market for electricity and tap water are used.

For the end-of-life stage (C), a scenario is used which is based on Ecoinvent 3.9.1 datasets and default values.To calculate the benefits and loads byond the system boundaries (module D), Formula D.6. from EN1504+A2 was used.

Transportation parameters	Transport to the RDC	Transport to Dealer
Vehicle type used for transport	Lorry, 16-32t	Lorry, 16-32t
Distance production site to point of sale, km	739	433
Capacity utilisation	64%	64%

Waste treatment scenario (A5, C3, C4)	Reuse	Recycling	Incineration (no energy recovery)	Landfill
Steel	11%	89%	0%	0%
Aluminium	0%	96%	0%	4%
Non-hazardous waste	0%	0%	100%	0%
Plastic waste	0%	77%	20%	3%
Cardboard and paper packaging	0%	89%	11%	0%
Packaging foil waste	0%	0%	100%	0%

Use-scenario	PRO 3 VAQ B	Unit
Water usage per year*	1000	liters boiling water
Temperature of incoming water	20	degree C
Electricity consumption per year*	410	MJ

* based on an average household, containing 2.1 people

DECLARATION OF SVHC

Pb, 0.16% of weight of the water reservoir
Pb, 0.05%-1.30% of weight of the tap

REFERENCES

• Ecoinvent 3.9.1 - Wernet, G., Bauer, C., Steubing, B., Reinhard, J., Moreno-Ruiz, E., and Weidema, B., 2016. The ecoinvent database version 3 (part I): overview and methodology. The International Journal of Life Cycle Assessment, [online] 21(9), pp.1218–1230. Available at: <http://link.springer.com/10.1007/s11367-016-1087-8>

• EN 15804:2012+A2:2019 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products

• prEN 17662 (Draft) Execution of steel structures and aluminium structures – Environmental Product Declarations – Product category rules complementary to EN 15804 for Steel, Iron and Aluminium structural products for use in construction works.

• European Commision (2020). Annex C V2.1 of Product Environmental Footprint (PEF) calculations, https://eplca.jrc.ec.europa.eu/LCDN/developerEF.xhtml [Accessed 26 05 2023]

• ISO 14040:2006 Environmental management – Life cycle assessment – Principles and framework

• ISO 14044:2006 Environmental management – Life cycle assessment – Requirements and guidelines

• Wernet, G., Bauer, C., Steubing, B., Reinhard, J., Moreno-Ruiz, E., and Weidema, B. (2016). The ecoinvent database version 3 (part I): overview and methodology. The International Journal of Life Cycle Assessment, [online] 21(9), pp.1218–1230. Available at: <http://link.springer.com/10.1007/s11367-016-1087-8> [Accessed 14 02 2020].

• Eurostat (2023) Recovery rates for packaging waste. Available at: https://ec.europa.eu/eurostat/databrowser/view/ten00062/default/table?lang=en

• Eurostat (2023) Recycling rates for packaging waste. Available at: https://ec.europa.eu/eurostat/databrowser/view/ten00063/default/table?lang=en

• Eurostat (2023) Treatment of waste by waste category, hazardousness and waste management operations. Available at: https://ec.europa.eu/eurostat/databrowser/view/env_wastrt/default/table?lang=en

• Martijn Punt. Personal communication with Martijn Punt.
Chief Commercial Officer at Quooker International B.V. (2023)

REMARKS

There are no further remarks.