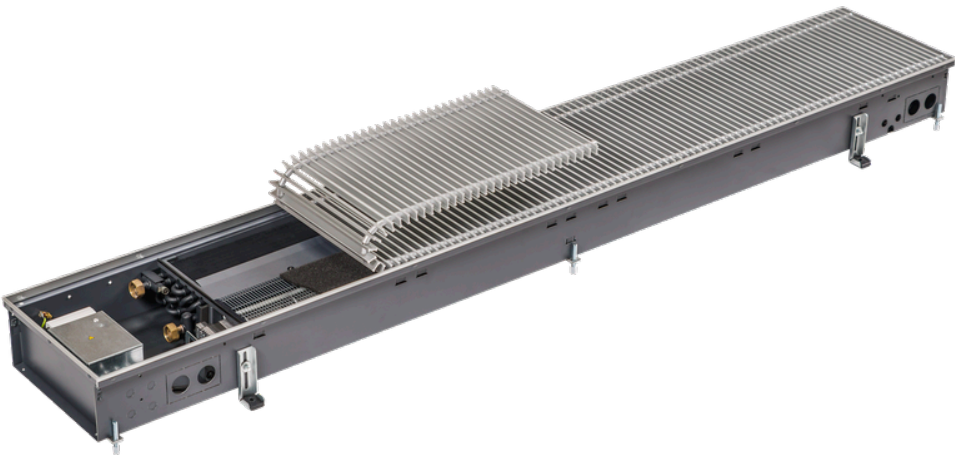




Environmental Product Declaration - (EPD)
Katherm HK



The EPD data presented here is based on a verified EPD from the program holder EPD International AB. The data contained therein has been converted to the above-mentioned article number. (Verified EPD: EPD-IES-0007771)

Table of Contents

Basic data 2

Resource use 3

Waste & Output Flows 3

Restriction Notice 4

List of terms 5

Basic data

impact category	unit	A1	A2	A3	A1-A3	A4	A5	B2	B3	B4	B6	C1	C2	C3	C4	D
GWP - Total	kg CO2 eq	1.83E+02	4.39E+00	1.93E+00	1.90E+02	6.46E+00	7.83E-01	3.78E-01	1.01E-01	1.83E+00	1.27E+01	0.00E+00	2.19E-01	7.37E+00	1.10E-01	-8.86E+01
GWP - fossil	kg CO2 eq	1.82E+02	4.36E+00	7.01E+00	1.94E+02	6.43E+00	7.74E-01	3.53E-01	8.83E-02	1.80E+00	1.12E+01	0.00E+00	2.19E-01	7.37E+00	1.10E-01	-8.77E+01
GWP - Biogenic	kg CO2 eq	-7.77E-01	9.14E-03	-5.09E+00	-5.85E+00	9.14E-03	6.09E-03	1.52E-02	-9.14E-03	1.52E-02	1.55E+00	0.00E+00	5.32E-04	1.40E-03	1.10E-03	-4.26E-02
GWP - Luluc	kg CO2 eq	1.99E+00	3.05E-03	1.22E-02	2.00E+00	1.04E-03	7.74E-04	6.09E-03	2.13E-02	9.14E-03	1.52E-02	0.00E+00	8.22E-05	1.85E-04	1.10E-04	-6.37E-01
ODP	kg CFC-11 eq	1.34E-05	1.09E-06	3.65E-07	1.48E-05	1.50E-06	3.32E-08	3.02E-08	8.38E-09	1.09E-07	7.58E-07	0.00E+00	5.48E-08	6.33E-08	3.32E-08	-5.91E-06
AP	mol H+ eq	2.14E+00	1.52E-02	1.52E-02	2.17E+00	3.35E-02	3.05E-03	1.45E-03	6.73E-04	7.31E-02	3.35E-02	0.00E+00	7.01E-04	1.52E-03	9.17E-04	-1.29E+00
EP - fresh water	kg P eq	1.83E-01	2.83E-04	9.14E-03	1.92E-01	1.95E-04	2.34E-04	7.28E-05	3.05E-05	6.09E-03	3.05E-03	0.00E+00	1.43E-05	5.33E-05	3.17E-05	-1.07E-01
EP - marine	kg P eq	2.09E-01	3.05E-03	6.09E-03	2.18E-01	1.22E-02	8.74E-04	3.81E-04	1.49E-04	3.05E-03	9.14E-03	0.00E+00	1.57E-04	5.88E-04	3.17E-04	-1.10E-01
EP - country	mol N eq	2.30E+00	3.65E-02	3.96E-02	2.38E+00	1.19E-01	6.09E-03	3.05E-03	9.91E-04	5.48E-02	9.14E-02	0.00E+00	3.05E-03	6.09E-03	3.05E-03	-1.27E+00
POCP	kg NMVOC	6.78E-01	9.14E-03	9.14E-03	6.97E-01	3.05E-02	3.05E-03	7.55E-04	3.11E-04	1.52E-02	2.13E-02	0.00E+00	4.36E-04	1.39E-03	8.47E-04	-3.69E-01
ADPE	kg Sb eq	3.06E-02	1.04E-05	1.27E-05	3.06E-02	6.15E-06	4.75E-06	2.31E-06	1.48E-06	3.05E-03	3.17E-05	0.00E+00	5.24E-07	1.51E-06	3.56E-07	-2.44E-02
ADPF	MJ	2.43E+03	7.10E+01	1.01E+02	2.60E+03	9.44E+01	1.66E+01	8.44E+00	1.16E+00	2.43E+01	2.98E+02	0.00E+00	3.56E+00	1.73E+00	2.55E+00	-1.08E+03
WDP	m³ depriv.	5.05E+01	2.38E-01	2.89E-01	5.11E+01	1.55E-01	9.99E-01	1.10E-01	5.18E-02	1.58E+00	3.99E-01	0.00E+00	1.22E-02	1.19E-01	1.10E-01	-1.90E+01
GWP-GHG	kg CO2 eq	1.78E+02	4.32E+00	7.01E+00	1.90E+02	6.40E+00	7.55E-01	3.50E-01	1.07E-01	1.77E+00	1.11E+01	0.00E+00	2.19E-01	7.37E+00	1.07E-01	-8.53E+01
PM	disease inc.	1.40E-05	3.81E-07	1.19E-07	1.45E-05	2.13E-07	5.24E-08	9.81E-09	6.30E-09	2.17E-07	1.58E-07	0.00E+00	1.92E-08	1.07E-08	1.78E-08	-6.67E-06
IR	kBq U-235 eq	2.84E+01	3.59E-01	1.11E+00	2.98E+01	4.42E-01	5.48E-02	2.53E-01	3.05E-03	2.35E-01	1.05E+01	0.00E+00	1.83E-02	1.52E-02	1.22E-02	-9.35E+00
ETP - FW	CTUe	1.39E+04	5.54E+01	5.24E+01	1.40E+04	5.85E+01	1.81E+01	6.94E+00	3.00E+00	5.82E+02	1.39E+02	0.00E+00	2.79E+00	2.75E+01	1.82E+00	-9.40E+03
HTP - C	CTUh	9.71E-07	1.52E-09	1.54E-09	9.74E-07	1.10E-09	7.92E-09	1.55E-10	1.54E-10	2.24E-08	2.81E-09	0.00E+00	7.61E-11	8.62E-10	7.83E-11	-4.99E-07
HTP - NC	CTUh	2.20E-05	5.79E-08	4.90E-08	2.21E-05	8.25E-08	3.93E-08	4.36E-09	3.47E-09	9.72E-07	8.01E-08	0.00E+00	2.92E-09	1.22E-08	1.21E-09	-1.47E-05
SQP	-	1.06E+03	8.38E+01	3.75E+02	1.51E+03	4.57E+01	2.11E+00	3.90E+00	1.78E+00	2.89E+01	1.12E+02	0.00E+00	4.23E+00	5.91E-01	6.33E+00	-5.15E+02

Resource use

impact category	unit	A1	A2	A3	A1-A3	A4	A5	B2	B3	B4	B6	C1	C2	C3	C4	D
PERE	MJ	6.64E+02	9.02E-01	7.89E+01	7.44E+02	6.37E-01	5.79E-01	1.79E+00	2.80E-01	5.27E+00	5.42E+01	0.00E+00	4.57E-02	1.68E-01	4.26E-02	-2.07E+02
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	6.64E+02	9.02E-01	7.89E+01	7.44E+02	6.37E-01	5.79E-01	1.79E+00	2.80E-01	5.27E+00	5.42E+01	0.00E+00	4.57E-02	1.68E-01	4.26E-02	-2.07E+02
PENRE	MJ	2.43E+03	7.10E+01	1.01E+02	2.60E+03	9.44E+01	1.66E+01	8.44E+00	1.19E+00	2.43E+01	2.98E+02	0.00E+00	3.56E+00	1.73E+00	2.55E+00	-1.08E+03
PENRM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	2.43E+03	7.10E+01	1.01E+02	2.60E+03	9.44E+01	1.66E+01	8.44E+00	1.19E+00	2.43E+01	2.98E+02	0.00E+00	3.56E+00	1.73E+00	2.55E+00	-1.08E+03
SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m³	1.20E+00	1.52E-02	3.35E-02	1.25E+00	1.22E-02	1.83E-02	6.09E-03	0.00E+00	5.48E-02	7.31E-02	0.00E+00	7.31E-04	6.09E-03	3.05E-03	-6.00E-01

Waste & Output Flows

impact category	unit	A1	A2	A3	A1-A3	A4	A5	B2	B3	B4	B6	C1	C2	C3	C4	D
HWD	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NHWD	kg	0.00E+00	0.00E+00	1.08E+01	1.08E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RWD	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.26E+01	0.00E+00	0.00E+00
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.57E+00	0.00E+00	0.00E+00
EE (Electrical)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00



impact category	unit	A1	A2	A3	A1-A3	A4	A5	B2	B3	B4	B6	C1	C2	C3	C4	D
EE (Thermal)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Restriction Notice

Restriction Notice 1	IR	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.
Restriction Notice 2	ADPE, ADPF, WDP, ETP - FW, HTP - C, HTP - NC, SQP	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 experienced with the indicator.
Restriction Notice 3	GWP-GHG	The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus equal to the GWP indicator originally defined in EN 15804:2012+A1:2013



List of terms

GWP - Total Climate change - total	RSF Renewable secondary fuels
GWP - fossil Climate change - fossil	NRSF Non-renewable secondary fuels
GWP - Biogenic Climate change - biogenic	FW Net use of fresh water
GWP - Luluc Climate change - land use and land use change	HWD Hazardous waste disposed
ODP Ozone Depletion	NHWD Non-hazardous waste disposed
AP Acidification	RWD Radioactive waste disposed
EP - fresh water Eutrophication aquatic freshwater	CRU Components for reuse
EP - marine Eutrophication aquatic marine	MFR Material for recycling
EP - country Eutrophication terrestrial	MER Materials for energy recovery
POCP Photochemical ozone formation	EE (Electrical) Exported energy electrical
ADPE Depletion of abiotic resources - minerals and metals	EE (Thermal) Exported energy thermal
ADPF Abiotic resource depletion - fossil fuels	A1 Raw Material Supply
WDP Water use	A2 Raw Material Transport
GWP-GHG Global Warming Potential total excl. biogenic carbon following IPCC AR5 methodology	A3 Manufacturing
PM Particulate Matter emissions	A1-A3 A1-A3
IR Ionizing radiation, human health	A4 Transport to Site
ETP - FW Ecotoxicity (fresh water)	A5 Installation
HTP - C Human toxicity, cancer effects	B2 Maintenance
HTP - NC Human toxicity, non-cancer effects	B3 Repair
SQP Land use related impacts/Soil quality	B4 Replacement
PERE Use of renewable primary energy excluding resources used as raw materials	B6 Operational Energy Use
PERM Use of renewable primary energy resources used as raw materials	C1 Deconstruction / Demolition
PERT Total use of renewable primary energy	C2 Transport
PENRE Use of non-renewable primary energy excluding resources used as raw materials	C3 Waste Processing
PENRM Use of non-renewable primary energy resources used as raw materials	C4 Disposal
PENRT Total use of non-renewable primary energy	D Future reuse, recycling oreenergy recovery potentials
SM Secondary material	

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