MD 43.078

SAUTER Declaration on materials and the environment

Product

	Type	**NRFC413MF111** **NRFC422MF111** **NRFC423MF111** **NRFC424MF112**
	Designation	**Modbus fan coil thermostat**
	Product range	**Intelligent unitary control, heating and air conditioning**
	Product group of eco-balance	**Building management – HVAC**
Manufacturer	Fr. Sauter AG Im Surinam 55, CH-4058 Basel	

Management system certified according to		**Since**	**With**
	ISO 9001:2015	**10 Oct. 2018**	**SQS**
	ISO 14001:2015	**10 Oct. 2018**	**SQS**
	ISO 45001:2018	**10 Oct. 2018**	**SQS**

Environmentally-compatible product design	Basis	Management system Fr. Sauter AG
	Process	Business process • Product innovation • Ecological accounting

D100465199 (01 / 01) 19.01.2022

Product description	CE conformity,	See:
	function, operation, maintenance, servicing	**PDS 43.078**
Environmental risk	Fire protection according to	**EN 60695-2-11, EN 60695-10-2**
	Fire load	**4.0 MJ**
	Hazardous substances[1] according to	**RoHS 2011/65/EU & 2015/863/EU compliant. Product category 9.**
	Hazardous substances[2] according to	**REACH 1907/2006/EC compliant.**
	Parts containing halogen (causing corrosive smoke)	**Printed circuit board**
	Liquids polluting the aquatic environment	**None**
	Explosive substances	**None**
	Transport hazardous goods class	**None**

Materials

	Total weight of product	**242,2 g**	Material Safety Data Sheet (MSDS)	EU waste code[3]
Plastic				
PC		**48,1 g**	Not required	20 01 39
-				
Metal				
Steel of different alloys		**25,5 g**	Not required	20 01 40
Steel, accessories - screws		**4,8 g**	Not required	20 01 40
Printed circuit board				
PCB assembly		**103,7 g**	Not required	20 01 36
-				
Various				
-				
Packaging[4]				
Corrugated board, PAP20		**37 g**	Not required	20 01 01
Paper PAP22		**23,1g**	Not required	20 01 01
Special components				
-				

[1] Only applies to electrical devices
[2] SVHC substances >0.1%w/w: see **Hazardous ingredients**
[3] Directive 75/442/EEC and follow-on documents, ruling 2001/118/EC
[4] Directive 94/62/EC, 2004/12/EC, 2005/20/EC, 2018/852/EC

Hazardous ingredients

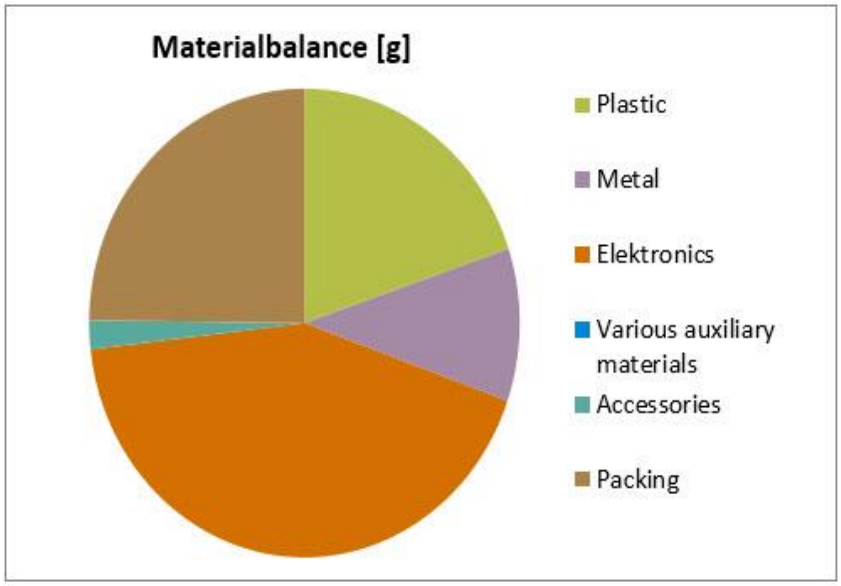
SVHC ingredient		Name of the ingredient	Effective concentration per article, %w/w
CAS number	EN number		
7439-92-1	231-100-4	Lead	<8

Link to the candidate list of ECHA

Note

The following materials balance and the calculation of the environmental impact relate to type NRFC413MF111

Materials balance



Materialbalance	g
Plastic	48,1
Metal	25,5
Elektronics	103,7
Various auxiliary materials	0,0
Accessories	4,8
Packing	60,1
	242,2

Energy requirement in the utilisation phase

Power requirement for component

Average power consumption	5.0 W
Typical energy consumption per year	43.8 kWh

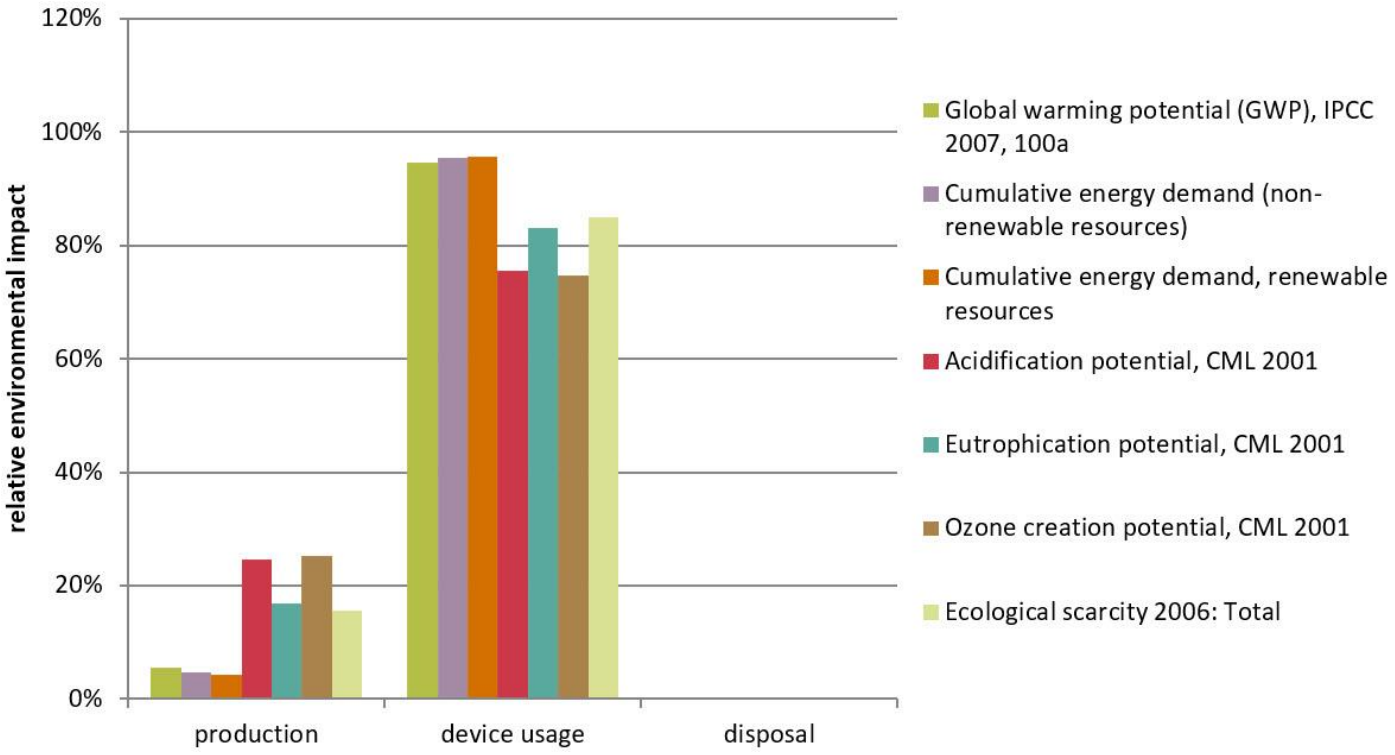
The energy requirement evaluation was performed for a typical utilisation scenario. The European electricity mix from ecoinvent 2.2 was used to evaluate the power consumption in the utilisation phase.

Calculation of the environmental impact

Evaluation over the entire life stage of 8 years in a typical utilisation scenario. The results shown are based on a method of ecological scarcity that combines various environmental effects into an “environmental impact points” key

figure. The method is based on Switzerland's environmental targets and evaluates the individual effects depending on the "Distance to Target".

Indikator	unit	production	device usage	disposal	Total
Global warming potential (GWP), IPCC 2007, 100a	kg CO2 eq.	11	193	-	204
Cumulative energy demand (non-renewable resources)	MJ eq.	191	3.900	-	4.090
Cumulative energy demand, renewable resources	MJ eq.	13,4	296	-	309
Acidification potential, CML 2001	kg SO2 eq.	0,26	0,79	-	1,05
Eutrophication potential, CML 2001	kg PO4-- eq.	1,28E-01	6,31E-01	0,00E+00	7,59E-01
Ozone creation potential, CML 2001	kg C2H4 eq.	1,08E-02	3,19E-02	0,00E+00	4,27E-02
Ecological scarcity 2006: Total	UBP	36.000	197.000	-	232.000,0



The relationship of the contributions made by the utilisation in comparison to those made by the reduction and disposal depends on the intensity of the utilisation (utilisation scenario).

Disposal	**Product:** The device must be disposed of as waste from electrical and electronic equipment (electrical/electronic scrap) and must not be disposed of as household waste. This applies in particular to the assembled PCB. Special treatment for special components may be compulsory by law or may make ecological sense. **WEEE** (Waste Electrical and Electronic Equipment) The local and currently valid laws (WEEE2012/19/EU) must be observed. **Battery**: If present and applicable, battery disposal fees will be paid by the importer. (See list of materials on page 2.) **Packaging:** Recyclable
How the environment benefits	With these products, we make a significant contribution to energy savings in buildings and to reducing climate change. With only 5Wh energy consumption in standstill, the primary energy requirement is outstandingly low. Its resource-saving compact design and easy single-sort disassembly result in optimal sustainability with a life expectancy of 8 years. The eco-balance becomes even more optimal, with the use of energy from renewable sources.
Extent of applicability	This declaration is an environmental declaration based on ISO 14025 and describes the environmental impact of the product over its entire life stage. The declaration is made in a compact form without an external check or registration. The data gathered with existing data inventories for production processes has been evaluated from the ecoinvent 2.2 European database. For the determination of the energy requirement during the utilisation phase of the product, standard HVAC applications and average climatic conditions in Switzerland were assumed, based on the ecological accounting for the corresponding product group.

Disclaimer: This declaration is for information purposes only.

Deviations from the information it contains can occur without notification. Fr. Sauter AG explicitly rules out any liability for any consequences that may result due to the above information.

Your local SAUTER representative will provide further information on environmental aspects, and specifically on disposal.

References

Ecoinvent 2010 ecoinvent data v2.2, Swiss Centre for Life Cycle Inventories, Dübendorf

FOEN 2008 eco-balances: method of ecological scarcity – eco-factors 2006, FOEN

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