Product environnemental profile

Fuse NH2 500V GG

PRODUCT DESCRIPTION

Type “gG” NH fuse-links are full range breaking capacity fuse-links and are used to protect cables and equipment. They can interrupt any current surge, from the lowest fusing current up to their breaking capacity, and so can be used alone as protection. They also protect electrical devices and industrial set-ups from the electrodynamic effects of very high short-circuit currents.

The rated voltage is 500V AC and the breaking capacity is 120 kA.

These fuses comply with IEC 60269-1 and 2 standard and with VDE 0636-part 201 standard

MERSEN, France S.B
15 rue Jacques de Vaucanson
69720 Saint Bonnet de Mure,
FRANCE
T +33(0)4 72 22 66 11

PRODUCT REFERENCE

The product selected as reference is the highest rating of the range with brass blades. The fuses with higher rating have not been chosen because their blades are in copper that doesn’t contain lead, unlike brass. Consequently, they are less restrictive.



Designation: Fuse NH2 400A 500V GG
Reference: N211083
Mass: 640g (with packaging)

Functional unit: Protect equipment downstream of the circuit from the effects of an overload or a short circuit by interrupting the fault current for a reference lifetime of 20 years.

Fuses are into the "other electrical equipment, passive product" category of PSR-0005. This scenario corresponds to use at 30% of rated current for a total operating time of 30% of its lifetime.

Fuse NH2 500V GG

PRODUCT RANGE

NH2			
Reference	**Designation**	**Reference**	**Designation**
N200802	NH2 25 A 500V GG	R217733	NH2 200 A 500V GG
D201345	NH2 32 A 500V GG	Q218767	NH2 224 A 500V GG
P201861	NH2 35 A 500V GG	R222494	NH2 250 A 500V GG
M211082	NH2 40 A 500V GG	P200803	NH2 300 A 500V GG
B211601	NH2 50 A 500V GG	E201346	NH2 315 A 500V GG
Z212634	NH2 63 A 500V GG	Q201862	NH2 355 A 500V GG
C213649	NH2 80 A 500V GG	N211083	NH2 400 A 500V GG
M214670	NH2 100 A 500V GG	S228521	NH2 425 A 500V GG
T215688	NH2 125 A 500V GG	T228522	NH2 500 A 500V GG
Y216704	NH2 160 A 500V GG		

BILL OF MATERIALS

Metals			Others		
Designation	**Mass (g)**	**%**	**Designation**	**Mass (g)**	**%**
Brass	133,87	21,34%	Ceramic	283,80	45,23%
Aluminium	42,54	6,78%	Sand	125,53	20,01%
Steel	8,68	1,38%	Cardboard	21,37	3,41%
Copper	6,97	1,11%	Felted cardboard	3,46	< 0,1%
Tin	4,56E-01	< 0,1%	Paper	2,60E-01	< 0,1%
Lead	2,68E-01	< 0,1%	PA 66 GF30	1,00E-01	< 0,1%
Copper Nickel alloy	3,60E-02	< 0,1%	Ink	5,70E-02	< 0,1%
Silver	2,02E-02	< 0,1%			
TOTAL	**192,82**	**30,73%**	**TOTAL**	**434,58**	**69,27%**

LYFE CYCLE

The Life Cycle Analysis is realized in compliance with ISO 14 040 and 14 044 standards and with the EIME© v5.9.3 software with the database version CODDE-2022-01.

The analysis of this product and its range represents a Hungarian manufacture and a European use.

MANUFATURING

These products are manufactured in the factory located in Hungary. This is an assembly process with no major impact on the environment. For the electrical consumption of this assembly process, the local energy mix has been used.

In addition, the Hungarian manufacturing site is ISO 14001 certified.

DISTRIBUTION

The market for these fuses is in Europe. The transport is done by road.

INSTALLATION

The fuse is mounted by hand with no power or additional equipment. All energy mixes used for end-of-life treatment of packaging are based on European data.

USE

In normal use, a fuse consumes energy through heat dissipation. It doesn't emit noise or electromagnetic radiation and doesn't require maintenance. The energy mix used is based on European data.

Fuses are into the PSR-005 category "other electrical equipment, passive product".

This scenario corresponds to use at 30% of rated current, which is 0.07 times the power dissipation in watt, *(32 x 0.07) x 3600 = 8064 joules per hour*, for a total operating time of 30% of its lifetime (20 years), *(20 x 365) x (0.3 x 24) = 52560 hours*.

The total consumption of the reference product is 8064 x 52560=423.8 megajoules.

END OF LIFE

This product family is listed in the European Directive 2012/19/EU on Waste Electrical and Electronic Equipment (WEEE). The products must be reprocessed in compliance with the legislation of the country. All energy mixes used are based on European data.

ENVIRONMENTAL IMPACTS

Environmental impact indicators

Lifecycle phase / Environmental indicators	1. Manufacturing	2. Distribution	3. Installation	4. Use	5. End of life	Total	Module D	Unit
Resource use, minerals and metals (PEF-ADPe)	2,84E-04	2,95E-11	1,14E-09	3,50E-06	1,45E-07	2,88E-04	-1,61E-04	kg SB eq.
	98,74%	0*	0*	1,21%	0,05%			
Resource use, fossils (PEF-ADPf)	4,29E+01	4,16E+00	3,54E-01	1,23E+03	3,11E+00	1,28E+03	-8,59E+00	MJ
	3,35%	0,33%	0,03%	96,05%	0,24%			
Acidification (PEF-AP)	3,47E-02	1,49E-03	1,35E-04	2,75E-01	4,82E-03	3,16E-01	-4,83E-02	mol H+ eq.
	10,95%	0,47%	0,04%	87,01%	1,52%			
Ecotoxicity, freshwater (PEF-CTUe)	1,34E+02	1,41E+00	2,54E-01	5,20E+02	1,18E+02	7,73E+02	-3,33E+02	CTUe
	17,34%	0,18%	0,03%	67,20%	15,24%			
Human toxicity, cancer (PEF-CTUh-c)	2,08E-06	4,84E-12	1,25E-08	5,63E-09	3,82E-10	2,10E-06	-5,98E-09	CTUh
	99,12%	0*	0,60%	0,27%	0,02%			
Human toxicity, non-cancer (PEF-CTUh-nc)	5,35E-07	9,06E-10	1,87E-10	2,23E-07	3,73E-08	7,97E-07	-5,38E-07	CTUh
	67,17%	0,11%	0,02%	28,01%	4,68%			
Eutrophication, freshwater (PEF-Epf)	1,37E-04	4,02E-08	2,53E-07	1,32E-04	9,90E-06	2,79E-04	-4,54E-03	kg P eq.
	49,00%	0,01%	0,09%	47,35%	3,55%			
Eutrophication marine (PEF-Epm)	2,72E-03	6,85E-04	3,56E-05	3,13E-02	3,23E-03	3,79E-02	-2,37E-03	kg N eq.
	7,16%	1,80%	0,09%	82,44%	8,50%			
Eutrophication, terrestrial (PEF-Ept)	2,98E-02	7,42E-03	2,57E-04	4,70E-01	2,46E-03	5,10E-01	-2,98E-02	mol N eq.
	5,84%	1,46%	0,05%	92,17%	0,48%			
Climate change (PEF-GWP)	2,84E+00	3,43E-01	3,50E-02	4,83E+01	2,06E-01	5,17E+01	-8,04E-01	kg CO2 eq.
	5,50%	0,66%	0,07%	93,37%	0,40%			
Climate change-Biogenic (PEF-GWPb)	2,33E-01	0,00E+00	1,56E-03	6,44E-02	1,23E-02	3,11E-01	-5,68E-02	kg CO2 eq.
	74,87%	0,00%	0,50%	20,68%	3,95%			
Climate change-Fossil (PEF-GWPf)	2,61E+00	3,43E-01	3,34E-02	4,82E+01	1,94E-01	5,14E+01	-7,47E-01	kg CO2 eq.
	5,08%	0,67%	0,07%	93,81%	0,38%			
Climate change-Land use and land use change (PEF-GWPlu)	1,09E-06	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,09E-06	0,00E+00	kg CO2 eq.
	100,00%	0,00%	0,00%	0,00%	0,00%			
Ionising radiation, human health (PEF-IR)	1,72E+02	7,60E-04	1,64E-03	7,17E+01	2,18E-02	2,44E+02	-1,95E+01	kg U235 eq.
	70,58%	0*	0*	29,41%	0*			
Land use (PEF-LU)	6,23E-01	0,00E+00	0,00E+00	9,60E-01	1,06E+00	2,64E+00	-4,96E+00	no dimension
	23,59%	0,00%	0,00%	36,38%	40,03%			
Ozone depletion (PEF-ODP)	6,67E-07	3,03E-07	2,32E-09	2,06E-07	2,41E-08	1,20E-06	-3,48E-08	kg CFC-11 eq.
	55,47%	25,17%	0,19%	17,17%	2,00%			
EF-particulate Matter (PEF-PM)	2,27E-07	4,04E-09	8,89E-10	2,14E-06	1,43E-08	2,38E-06	-1,12E-07	disease occurrence
	9,54%	0,17%	0,04%	89,65%	0,60%			
Photochemical ozone formation - human health (PEF-POCP)	1,04E-02	2,43E-03	6,91E-05	1,00E-01	8,80E-04	1,14E-01	-8,50E-03	kg NMVOC eq.
	9,10%	2,13%	0,06%	87,94%	0,77%			
Water use (PEF-WU)	8,39E+00	1,74E-02	1,51E-02	1,60E+00	6,68E+01	7,68E+01	-5,41E+02	m3 eq.
	10,93%	0,02%	0,02%	2,09%	86,94%			

0 (*) represent less than 0,01% of the total lifecycle reference flow

Fuse NH2 500V GG

Resources use indicators

Ressources use \ Lifecycle phase	1. Manufacturing	2. Distribution	3. Installation	4. Use	5. End of life	Total	Module D	Unit
Total Primary Energy	4,84E+01	4,16E+00	3,80E-01	1,47E+03	3,45E+00	1,52E+03	-1,19E+01	MJ
	3,18%	0,27%	0,02%	96,29%	0,23%			
Use of renewable primary energy excluding renewable primary energy used as raw material	4,94E+00	2,79E-05	2,62E-02	2,36E+02	3,40E-01	2,41E+02	-3,20E+00	MJ
	2,05%	0*	0,01%	97,80%	0,14%			
Use of renewable primary energy resources used as raw material	5,95E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,95E-01	-1,54E-01	MJ
	100,00%	0,00%	0,00%	0,00%	0,00%			
Total use of renewable primary energy resources	5,54E+00	2,79E-05	2,62E-02	2,36E+02	3,40E-01	2,42E+02	-3,35E+00	MJ
	2,29%	0*	0,01%	97,56%	0,14%			
Use of non renewable primary energy excluding non renewable primary energy used as raw material	4,29E+01	4,16E+00	3,54E-01	1,23E+03	3,11E+00	1,28E+03	-8,59E+00	MJ
	3,35%	0,33%	0,03%	96,05%	0,24%			
Use of non renewable primary energy resources used as raw material	5,31E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,31E-03	0,00E+00	MJ
	100,00%	0,00%	0,00%	0,00%	0,00%			
Total use of non-renewable primary energy resources	4,29E+01	4,16E+00	3,54E-01	1,23E+03	3,11E+00	1,28E+03	-8,59E+00	MJ
	3,35%	0,33%	0,03%	96,05%	0,24%			
Use of secondary material	5,40E-06	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,40E-06	0,00E+00	MJ
	100,00%	0,00%	0,00%	0,00%	0,00%			
Use of renewable secondary fuels	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MJ
	0,00%	0,00%	0,00%	0,00%	0,00%			
Use of non renewable secondary fuels	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MJ
	0,00%	0,00%	0,00%	0,00%	0,00%			
Net use of freshwater	1,91E-01	4,05E-04	1,76E-04	3,95E-02	1,17E-01	3,48E-01	-5,54E+00	m3
	54,92%	0,12%	0,05%	11,34%	33,58%			
Biogenic carbon content in the product	9,69E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	9,69E-04	0,00E+00	kg of C
	100,00%	0,00%	0,00%	0,00%	0,00%			
Biogenic carbon content in the packaging	6,09E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,09E-03	0,00E+00	kg of C
	100,00%	0,00%	0,00%	0,00%	0,00%			

0 (*) represent less than 0,01% of the total lifecycle reference flow

Waste category indicators

Waste indicators \ Lifecycle phase	1. Manufacturing	2. Distribution	3. Installation	4. Use	5. End of life	Total	Module D	Unit
Hazardous waste disposed	1,34E+01	2,84E-04	4,15E-04	9,02E-01	9,36E-05	1,43E+01	0,00E+00	kg
	93,71%	0*	0*	6,28%	0*			
Non hazardous waste disposed	3,60E+00	3,49E-04	1,16E-01	6,94E+00	4,24E-01	1,11E+01	-1,40E-03	kg
	32,50%	0*	1,05%	62,62%	3,82%			
Radioactive waste disposed	2,03E-03	6,82E-05	1,53E-05	1,45E-03	1,86E-06	3,57E-03	0,00E+00	kg
	56,93%	1,91%	0,43%	40,68%	0,05%			

0 (*) represent less than 0,01% of the total lifecycle reference flow

Output flow indicators

Other indicators \ Lifecycle phase	1. Manufacturing	2. Distribution	3. Installation	4. Use	5. End of life	Total	Module D	Unit
Component for reuse	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	kg
	0,00%	0,00%	0,00%	0,00%	0,00%			
Materials for recycling	1,69E-01	0,00E+00	1,93E-02	0,00E+00	1,67E-01	3,55E-01	0,00E+00	kg
	47,57%	0,00%	5,42%	0,00%	47,01%			
Materials for energy recovery	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	kg
	0,00%	0,00%	0,00%	0,00%	0,00%			
Exported energy	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MJ
	0,00%	0,00%	0,00%	0,00%	0,00%			

0 (*) represent less than 0,01% of the total lifecycle reference flow

Extrapolation rules

- **For the manufacturing, distribution, installation, and end of life phases:**

For the fuses NH2 500A and 425A, the following coefficient must be applied:

	Extrapolation coefficient for rating 425A and 500A			
Type of indicators	**1. Manufacturing**	**2. Distribution**	**3.Installation**	**5. End of life**
Environmental impact indicators	1,46	1,00	1,00	1,58
Ressource use indicators	1,09	1,00	1,00	1,42
Waste category indicators	1,46	1,00	1,00	1,00
Output flow indicators	1,01	1,00	1,00	1,13
Biogenic carbon indicators	1,00	1,00	1,00	1,00

For the fuses NH2 from rating 355A to 300A, the impacts are covered by those of the reference product.

For the fuses NH2 250A and below, the following coefficient must be applied:

	Extrapolation coefficient for rating 250A and below			
Type of indicators	**1. Manufacturing**	**2. Distribution**	**3.Installation**	**5. End of life**
Environmental impact indicators	0,93	0,66	0,83	0,73
Ressource use indicators	1,61	0,66	0,83	0,67
Waste category indicators	0,74	0,66	0,83	0,69
Output flow indicators	0,93	1,00	0,83	0,64
Biogenic carbon indicators	0,84	1,00	1,00	1,00

- **For use phase:**

To obtain impacts of the use phase, the following coefficients can be applied:

Designation	Power dissipation at In (W)	Coefficient to apply
NH2 25 A 500V GG	2,4	**0,08**
NH2 32 A 500V GG	3,1	**0,10**
NH2 35 A 500V GG	3	**0,09**
NH2 40 A 500V GG	3,7	**0,12**
NH2 50 A 500V GG	4,1	**0,13**
NH2 63 A 500V GG	6,8	**0,21**
NH2 80 A 500V GG	8,3	**0,26**
NH2 100 A 500V GG	10,7	**0,33**
NH2 125 A 500V GG	12,2	**0,38**
NH2 160 A 500V GG	15	**0,47**
NH2 200 A 500V GG	18,5	**0,58**
NH2 224 A 500V GG	19,2	**0,60**
NH2 250 A 500V GG	20,6	**0,64**
NH2 300 A 500V GG	21	**0,66**
NH2 315 A 500V GG	25	**0,78**
NH2 355 A 500V GG	31,5	**0,98**
NH2 400 A 500V GG	32	**1,00**
NH2 425 A 500V GG	32,2	**1,01**
NH2 500 A 500V GG	35,6	**1,11**

POTENTIAL RECYCLABILITY

End of life of the product	Rate (%)
Recyclable component	**27,0%**
Incinerated components	**0,3%**
Waste	**72,7%**

This estimation has been calculated with EIME© v5.9.3 software with the Eco'DEEE methodology.

CHECKS

Registration N° : MERS-00062-V01.01-EN	**Drafting rules :** PCR-ed4-EN-2021 09 06 Supplemented by PSR-0005-ed2-FR-2016 03 29
Verifier accreditation N° : VH32	**Information and reference documentation :** www.pep-ecopassport.org
Date of issue : 20/10/2022	**Validity period :** 5 years
Independent verification of the declaration and data, in compliance with ISO 14025 : 2010 ☐ internal ☒ external	
The PCR review was conducted by a panel of experts chaired by Julie ORGELET (DDemain)	
PEP are compliant with XP C08-100-1 :2016 or EN 50693 :2019 The elements of the present PEP cannot be compared with elements from another program.	
Document in compliance with ISO 14025 : 2010 « Environmental labels and declarations. Déclarations environnementales de Type III"	