

Environmental Data Sheet Dishwasher XX

Dishwasher XX is a high-end product with A-rating of energy consumption, water consumption and cleaning and drying performance. The environmental specifications are detailed in Table 1, showing how the product performs in relation to the detailed criteria in the EU eco-labelling scheme, The Flower. Table 2 shows the performance in relation to the EU Energy Labelling scheme, which addresses some of the same issues.

Table 1 Environmental specifications in relation to the EU Eco-label criteria for dishwashers (2001/689/EC).			
Criteria	Clause in EU Flower scheme (2001/689/EC)	Criteria fulfilled	Comment
Energy efficiency			
Energy class: A (10 or more settings) B (5-10 settings) C (less than 5 settings)	1 a	Yes	12 settings. Energy class A, 1.05 kWh/wash
Suitable for connection to hot-water supply	1 b	Yes	
Water consumption			
Water consumption lower than defined threshold	2	Yes	15 l/wash
Prevention of excessive use of detergent			
Clear markings on detergent dispenser	3	Yes	Sensor and fuzzy logic installed
Noise			
Noise less than 53 dB(A) for free-standing and 50 dB(A) for build-in models	4	Yes	47 dB(A)
Take-back and recycling			
Take-back for recycling, free of charge	5 a	Yes	
Plastic parts \geq 50 g with permanent identification marking	5 b	No	
No hazardous flame retardants	5 c	Yes	
Disassembly report available	5 d	No	
Life-time extension			
12 years availability of replacement parts	6 b	Yes	
Appliance design			
Low-temperature (\leq 65 °C) program available as standard	7 a	Yes	
Clear markings identifying appropriate settings	7 b	Yes	
Adjustable dosing of salt	7 c	Yes	
Cleaning performance			
Cleaning performance class A or B	8	Yes	Cleaning performance class B
Drying performance			
Drying performance Class A or B	9	Yes	Drying class A
User instructions			
Instruction manual includes for correct environmental use	10	Yes	

Table 2. Performance rating in relation to the EU Energy Labelling scheme		
Aspect	Rating	Value
Energy consumption	A	1.05 kWh
Cleaning performance	B	
Drying performance	A	
Water consumption		18 l
Noise		47 dB(A)

Dishwasher XX has a wide range of wash programmes at five different temperatures, ensuring that your kitchenware can be cleaned efficiently at a low energy cost. Sensor and advanced fuzzy logic optimizes water and detergent consumption.



The clear LCD display has indicators for salt and rinse aid refill and allows you to delay the start to the time best suitable for you.

Dishwashers and the Environment

Dishwashers have a significant impact on the environment, primarily related to the energy and water they consume and the waste water being emitted. Figure 1 shows how much an average product contributes to the annual impacts of an average citizen in the EU. The unit used – mPE – is one thousandth of the annual impact – or 0.1%. It can as examples be seen that the dishwasher accounts for about 2.1% (21 mPE) of the annual consumption of energy and 1.6% (16 mPE) of the contribution to global warming. Please be aware that once you have bought a dishwasher you have also to a large extent determined how large the impacts from washing the dishes will be for the next 15 years.

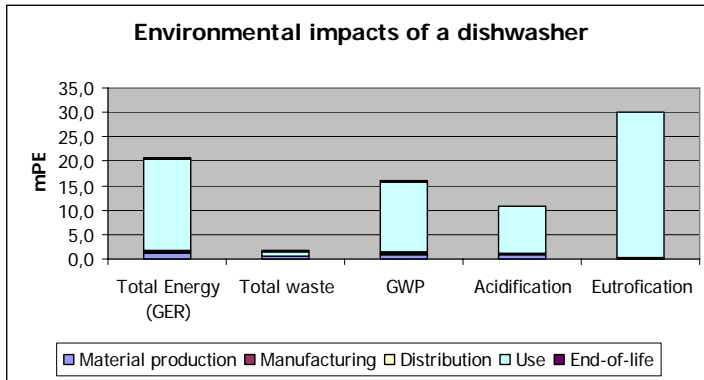


Figure 1. The life cycle environmental impacts caused by the average dishwasher are primarily related to the use stage. Most of the impacts are related to the energy consumption, but dishwashing also affects water quality (“Eutrophication”) because of the use of detergents. It is therefore important to choose an energy efficient product (Class A), which also features a possibility for reducing detergent consumption.

When compared to the environmental impacts from other products and activities, dishwashers are judged to be of significant or high concern, primarily because they use more than 2% of the energy consumed by an average citizen. (See Table 3 for comparative figures for different products).

	Energy Consumption	Global warming	Acidification	Eutro-Plication	Waste	POCP
Energy-using products						
Dishwasher	20,6	15,9	10,9	29,9	1,7	
Television	9,7	7,6	5,0	0,0	0,6	
PC	23,1	19,3	13,2	0,2	4,7	
Fridge-freezer	22,9	18,0	12,2	0,2	2,7	
Mobile phone	0,9	0,8	0,7			0,2
Building products						
Sealant ¹	0,3	0,3	0,2	0,1	0,1	
Wood flooring ²	12,2	2,9	6,0	5,7		39,2
Insulation ³	0,7	0,9	0,9	0,5	1,7	1,0
Comparison product						
10 km in an average car	71,8	82,6	15,4	58,5	3,8	104,2

Environmental impact in mPE	Concern level
≤ 0,1	Almost insignificant
0,1-0,5	Very low
0,5-1	Low
1-5	Some
5-20	Significant
20-50	High
> 50	Very high

The EU Eco-labelling scheme, the Flower, has established criteria for award of the label to dishwashers. The criteria consider a wide range of environmental issues which characterizes an environmentally friendly product. The criteria can thus be used to select a product which is not only energy efficient (e.g. Class A for 12 place settings), but also performs well with respect to other concerns like the possibility of reducing water pollution.

Environmental Data Sheet – Television xx

Television XX is a HD-ready wide-screen (37") LCD TV. The environmental specifications are detailed in Table 1 and the technical specifications in Table 2.

Table 1 Environmental specifications in relation to the EU Eco-label criteria for televisions (2002/255/EC)			
Criteria	Clause in EU eco-label scheme	Criteria fulfilled	Comment
Energy savings			
Clearly visible off-switch	1 a	No	
Passive stand-by consumption ≤ 1.0 W	1 b	Yes	0.9 W
Active stand-by consumption for receiver/decoder ≤ 9.0 W	1 c		Not relevant
Energy-efficient on-mode	1 d	Yes	158 W
Life time extension			
Replacement parts available for seven years	2	Yes	
Take-back and recycling			
Take-back for recycling – free of charge	3	Yes	
Disassembly report available	3 a	Yes	
Recyclability	3 b-f	Yes	
No hazardous flame retardants	3 g	No	
User instructions			
Instructions for proper environmental use	4 a-g	Yes	



**Table 2
Technical Specifications**

- Real 16x9 WXGA (1366 x 768) LCD Panel
- Advanced Super View
- HDMI Digital interfaces for clear image playback
- Clear voice function (enables to hear human voice clearer)
- Auto Volume Control
- PC input (Analogue RGB)
- High Brightness 450cd/m² , High Contrast 1,200:1
- Wide Viewing Angle H: 176deg., V: 176deg.
- Advanced OPC (Optical Picture Control)
- 60,000 hours Long Life Back light
- Component signals can be input to D-sub 15-pin by using a conversion cable(supplied).
- LCD Panel: 37" Wide(1366x768), Advanced Super View
- Brightness: 450 cd/m²
- Backlight Life: 60,000 hours
- Viewing Angle: H
- 176 deg., V
- 176 deg.
- Audio Output: 10W + 10W
- Stereo System: NICAM/A2
- Terminals: SCART x 2, AV/S-Video In, Audio Out, HDMI In x 1, PC In (compatible with Component In), Headphones
- Power source: AC 220V-240V, 50Hz

Televisions and the Environment

Televisions have a significant impact on the environment, primarily related to the energy consumed. Figure 1 shows how much an average product contributes to the annual impacts of an average citizen in the EU. The unit used – mPE – is one thousandth of the annual impact – or 0.1%. It can as examples be seen that having a television accounts for about 1.1% (11 mPE) of the annual consumption of energy, and about 1% (9 mPE) of the contribution to global warming. Please be aware that once you have bought a television you have also to a large extent determined how large the annual impacts from watching TV will be for the next 15 years. Turning the TV off at the power outlet will, however, invariably reduce the overall energy consumption, irrespective of the type and size of the TV.

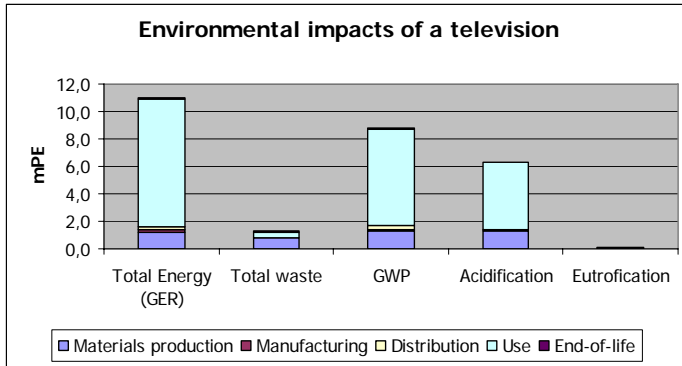


Figure 1. The life cycle environmental impacts caused by an average television. The impacts are to a very large extent caused by the energy consumption in the use stage, arising as a function of both consumption when active (on-mode) and in stand-by mode. It is worth noting that the larger the screen, the larger also the energy consumption in active mode. It is also worth noting that there are significant differences between products, also for products using the same technology.

When compared to the global and regional environmental impacts from other products and activities, televisions are judged to be of significant concern, primarily related to the energy consumed. (See Table 2 for comparative figures for different products).

	Energy Consumption	Global warming	Acidification	Eutro-phication	Waste	POCP
Energy-using products						
Dishwasher	20,6	15,9	10,9	29,9	1,7	
Television	9,7	7,6	5,0	0,0	0,6	
PC	23,1	19,3	13,2	0,2	4,7	
Fridge-freezer	22,9	18,0	12,2	0,2	2,7	
Mobile phone	0,9	0,8	0,7			0,2
Building products						
Sealant ¹	0,3	0,3	0,2	0,1	0,1	
Wood flooring ²	12,2	2,9	6,0	5,7		39,2
Insulation ³	0,7	0,9	0,9	0,5		1,0
Comparison product						
10 km in an average car	71,8	82,6	15,4	58,5	3,8	104,2

Environmental impact in mPE	Concern level
≤ 0.1	Almost insignificant
0.1-0.5	Very low
0.5-1	Low
1-5	Some
5-20	Significant
20-50	High
> 50	Very high

The EU Eco-labelling scheme, the Flower, has established criteria for award of the label to televisions. The criteria focus on reduction of energy consumption, improved re-use, recyclability and maintainability, and reductions in the use of hazardous substances. It is remarked that in order to be able to award the label to all types and sizes of televisions, the criteria for energy consumption in active-mode are not fixed, but uses base-case data for a television of comparable size. As a simple measure, the figure for active-mode energy consumption can however be used to choose a television with low environmental impacts.

Environmental Data Sheet – XX Personal Computer (system unit)

XX computer is a high-performance computer, suitable for all types of activities, including high-speed gaming, videos, music, etc. The environmental specifications for XX computer are shown in Table 1 and the general technical specifications in Table 2

Table 1 Environmental specifications in relation to the EU Eco-label criteria for personal computers (2005/341/EC)			
Criteria	Criteria No.	Criteria fulfilled	Comment
Energy savings- system unit			
Easily accessible on-off switch on system unit	a	Yes	
Energy requirements for system unit fulfilled	b, c, d	Yes	Off-mode: 1.5 W Sleep mode: 1.5 W Idle mode: 23 W
Lifetime extension			
Memory is readily accessible and can be changed	A	Yes	
Hard disk, CD drive and DVD drive can be changed	B	Yes	
Graphic card are easily accessible and can be changed	C	Yes	
Noise			
Noise does not exceed 40 dB(A) in idle mode and 45 dB(A) when accessing the hard disk			Noise levels have not been measured
Electromagnetic emissions			
The requirements in the standard EN50279, category A, are met	5	Yes	
Take back, recycling and hazardous materials			
One qualified person alone shall be able to dismantle it	A	Yes	
Disassembly report available	B	No	
Hazardous materials are separable	C	Yes	
90% (w/w) of plastics and metals in housing and chassis are recyclable	D	Yes	
Plastic parts fulfil requirements regarding content of hazardous substances, etc.	f, g, h, i	Yes	
Batteries contain less than 0.0001% mercury, 0.001% cadmium or 0.01% lead	J		No information available
User instructions			
Product is sold with relevant user information on the proper environmental use	7	No	
Packaging			
Requirements on recycled content and recyclability of packaging fulfilled	8	Yes	



Table 2 Technical specifications	
Product type	System unit
Processor	AMD® Athlon™ 64 X2 Dual Core-processor 5600+
Video card	256 MB nVidia™ GeForce 8600GT
Memory	1024 MB Dual Channel DDR2-memory 667 MHz [2x512]
Hard disk	500 GB Dual-harddisk non-RAID (2 x 250 GB – 7200 rpm)
Sound card	Integrated 7.1 Channel High Definition Audio
Optical drive	16x dvd +/-rw-drive
Operating system	Original Windows Vista® Home Premium

Computers and the Environment

Computers have a significant impact on the environment, continuously using electricity. Figure 1 shows how much an average product (system unit and monitor) contributes to the annual impacts of an average citizen in the EU. The unit used – mPE – is one thousandth of the annual impact – or 0.1%. It can as examples be seen that using a computer accounts for about 2.3% (23 mPE) of the annual consumption of energy and 1.9% (19 mPE) of the contribution to global warming. Please be aware that you can reduce the environmental impacts significantly just by turning it off at the electric outlet when not in use. When you discard the computer – many years from now – please make sure that it is recycled in the best possible way, e.g. by asking the producer to take it back.

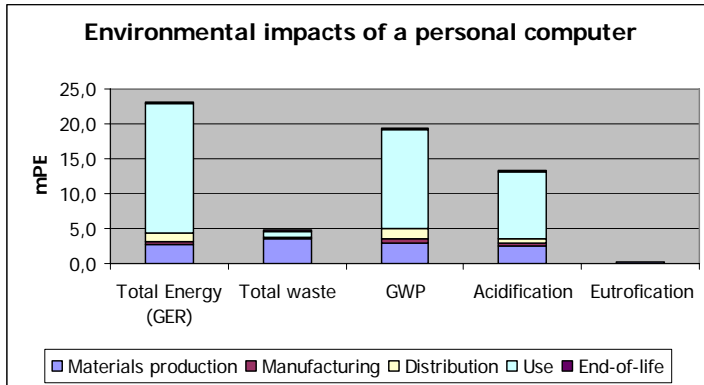


Figure 1. The life cycle environmental impacts caused by the average computer are primarily related to the use stage. The main impacts are all related to energy consumption, and it is therefore important to choose an energy efficient product (Energy Star compliant) and thereby ensure that the impacts do not exceed those shown in Figure 1.

When compared to the environmental impacts from other products and activities, computers are judged to be of high concern, primarily because they use more than 2% of the energy consumed by an average citizen. (See Table 2 for comparative figures for different products).

	Energy Consumption	Global warming	Acidification	Eutro-phication	Waste	POCP
Energy-using products						
Dishwasher	20,6	15,9	10,9	29,9	1,7	
Television	9,7	7,6	5,0	0,0	0,6	
PC	23,1	19,3	13,2	0,2	4,7	
Fridge-freezer	22,9	18,0	12,2	0,2	2,7	
Mobile phone	0,9	0,8	0,7			0,2
Building products						
Sealant ¹	0,3	0,3	0,2	0,1	0,1	
Wood flooring ²	12,2	2,9	6,0	5,7		39,2
Insulation ³	0,7	0,9	0,9	0,5		1,0
Comparison product						
10 km in an average car	71,8	82,6	15,4	58,5	3,8	104,2

Environmental impact in mPE	Concern level
≤ 0,1	Almost insignificant
0,1-0,5	Very low
0,5-1	Low
1-5	Some
5-20	Significant
20-50	High
> 50	Very high

The EU Eco-labelling scheme, the Flower, has established criteria for award of the label to computers and monitors. The criteria consider a wide range of environmental issues which characterizes an environmentally friendly product. The criteria can thus be used to select a product which is not only energy efficient (Energy Star criteria), but also performs well with respect to other concerns. In the Table on the opposite page you can find a condensed version of this information.

Environmental Data Sheet – Refrigerator XX

Refrigerator XX is a classical large-volume refrigerator, which comes in white as well as stainless steel. The environmental specifications for Refrigerator XX are shown in Table 1 and 2, and the general technical specifications in Table 3.

Table 1 Environmental specifications in relation to the EU Eco-label criteria for refrigerators and freezers 2000/40/EC)			
Criteria	EU Eco-label criteria No.	Criteria fulfilled	Comment
Key criteria			
Energy efficiency class A+ or A++	1	Yes	Energy class A+ 153 kWh per year
No ozone depleting substances	2	Yes	
Low Global Warming Potential (≤ 15)	3	Yes	GWP of refrigerant (R600a) is 1; GWP of foaming agent (cyclopentane) is 0
Additional criteria			
Life time extension guaranteed	4	Yes	
Free take-back for recycling	5	Yes	
Disassembly report available	5.1	No	
Plastic parts ≥ 50 g have a permanent mark	5.2	No	
Plastic parts without specified flame retardants	5.3 & 5.4	Yes	
Type of refrigerant and foaming agent indicated	5.5	Yes	Refrigerant: R600 a Foaming agent: cyclopentane
Instruction manual includes advice on the correct environmental use	6	No	Not all details in the requirements are currently included
Noise emissions ≤ 40 dB(A)	7	Yes	40 dB(A)
Packaging materials separable	8.1	Yes	
Cardboard consist of at least 80% recycled material	8.2	Yes	

Table 2. Performance rating in relation to the EU Energy Labelling scheme		
Aspect	Rating	Value

Energy consumption	A	153 kWh/y
Noise		40 dB(A)

Table 3 Technical specifications	
General properties	
Product type	Refrigerator
Material/colour	White/Stainless
Possibility for decor frame	Yes
Dimensions (h/w/d)	1850/595/600
Build in dimensions (h/w/d)	1855/600/600
Dimensions of decor plate in mm	1797/587/4
Energy consumption kWh per day/kWh per year	0.39/142
Power connection V/Hz	230V/50Hz
Power connection in watt	70W
Fuse, Amp	10A
Volume in litre cool net/gross	351/354
Climate class	SN-T
Number of compressors	1
Adjustable feets/plint	Yes
Changing of door from left hinged to right hinged	Yes
Tilting security	Yes
Power failure safety	Yes
Power on	Yes
Control	Elektronic
Fan	Yes
Equipment in refrigerator	
Storage boxes	2
Vegetable drawers	2
Glass shelves/adjustable	7/6
Bottle rack	1
Light	2 halogen
Equipment in refrigerator door	
Multi-boxes - little/medium/big	-/4/2
Storage shelves little/medium/big	-/-/3

Refrigerators and the Environment

Refrigerators have a significant impact on the environment, continuously using electricity. Figure 1 shows how much an average product contributes to the annual impacts of an average citizen in the EU. The unit used – mPE – is one thousandth of the annual impact – or 0.1%. It can as examples be seen that the refrigerator accounts for about 2.3% (23 mPE) of the annual consumption of energy and 1.8% (18 mPE) of the contribution to global warming. Please be aware that once you have bought a refrigerator you have also to a large extent determined how large the annual impacts from cooling and freezing will be for the next 15 years.

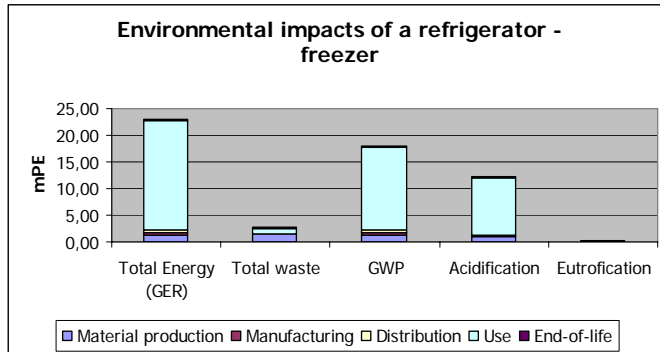


Figure 1. The life cycle environmental impacts caused by the average refrigerator/freezer are primarily related to the use stage. The main impacts are all related to energy consumption, and it is therefore important to choose an energy efficient product (Class A+ or A++), which may have significant less impacts than those shown in Figure 1.

When compared to the environmental impacts from other products and activities, refrigerators are judged to be of high concern, primarily because they use more than 2% of the energy consumed by an average citizen. (See Table 3 for comparative figures for different products).

	Energy Consumption	Global warming	Acidification	Eutro-phication	Waste	POCP
Energy-using products						
Dishwasher	20,6	15,9	10,9	29,9	1,7	
Television	9,7	7,6	5,0	0,0	0,6	
PC	23,1	19,3	13,2	0,2	4,7	
Fridge-freezer	22,9	18,0	12,2	0,2	2,7	
Mobile phone	0,9	0,8	0,7			0,2
Building products						
Sealant ¹	0,3	0,3	0,2	0,1	0,1	
Wood flooring ²	12,2	2,9	6,0	5,7		39,2
Insulation ³	0,7	0,9	0,9	0,5	1,7	1,0
Comparison product						
10 km in an average car	71,8	82,6	15,4	58,5	3,8	104,2

Environmental impact in mPE	Concern level
≤ 0,1	Almost insignificant
0,1-0,5	Very low
0,5-1	Low
1-5	Some
5-20	Significant
20-50	High
> 50	Very high

The EU Eco-labelling scheme, the Flower, has established criteria for award of the label to refrigerators and freezers. The criteria consider a wide range of environmental issues which characterizes an environmentally friendly product. The criteria can thus be used to select a product which is not only energy efficient (Class A+ or A++), but also performs well with respect to other concerns. In the Table on the opposite page you can find a condensed version of this information. Please note that it is most important that the Key Criteria are fulfilled.

Environmental Data Sheet – XX Mobile phone

XX mobile phone is a practical, no-nonsense phone with a large display and easy use. The environmental specifications for XX mobile phone are shown in Table 1 and the general technical specifications in Table 2.

Table 1 Environmental specifications in relation to the German Eco-label criteria for televisions (RAL-UZ 106)			
Criteria regarding	Clause in RAL-UZ 106	Criteria fulfilled	Comment
Emissions			
SAR-value < 0.60 W/kg	3.1.1	No	SAR = 0.76W (limit value = 2W)
Product papers inform consumers about SAR-values and how to minimize exposure	3.1.2	No	
Product take-back			
The manufacturer accepts to take-back the product, free of charge, for recycling	3.2	Yes	
Recyclable design			
Product is designed for easy dismantling for recycling purposes	3.3	Yes	
Materials requirements			
Polymers and flame retardants do not contain chlorine or bromine	3.4.1	Yes	
Lead and cadmium must not be added to plastics and coatings used	3.4.1	Yes	
Plastic case parts > 10 g are marked according to DIN ISO 11469	3.4.1	Yes	
Printed circuit boards must not contain PBB, PBDE or chlorinated paraffins	3.4.2	Yes	
Cadmium, mercury as well as beryllium and their compounds are not used	3.4.3	Yes	
Batteries and accumulators does not contain any lead, cadmium or mercury	3.5	Yes	
Accessories			
The scope of supply includes an external earpiece and a speaker (a headset)	3.6	Yes	
Packaging			
The plastics used for packaging do not contain halogen	3.7	Yes	



Table 2
Technical specifications

Weight 84 g
 Dimensions 100 x 42 x 20 mm
 XHTML-browsing via GPRS
 Multimedia messages (MMS)
 2 megapixel camera plus video
 FM stereo radio
 Tri-band telephone for GSM 90/1800/1900
 Animated pause screen
 Java games
 Colour display (65,536 colours)
 Quick call to 8 numbers
 Talk time > 4 hours
 Stand-by time > 7 days
 Battery charge time < 2.5 hours

Mobile phones and the Environment

Mobile phones have a relatively low impact on the environment, at least with respect to global and regional impacts like global warming and acidification. Figure 1 shows how much an average product contributes to the annual impacts of an average citizen in the EU. The unit used – mPE – is one thousandth of the annual impact – or 0.1%. It can as examples be seen that using a mobile phone accounts for about 0.1% (0,9 mPE) of the annual consumption of energy and less than 0.8% (0.75 mPE) of the contribution to global warming.

The effects on human health from exposure to electromagnetic radiation are not fully known, and it is therefore recommended that the so-called SAR-value is as low as possible. The official limit value is 2 W, but the best performing products have a value which is lower than 0.6 W. Due to its content of valuable materials, it is strongly recommended that you choose a product, for which the manufacturer guarantees to take it back and recycle it best possible.

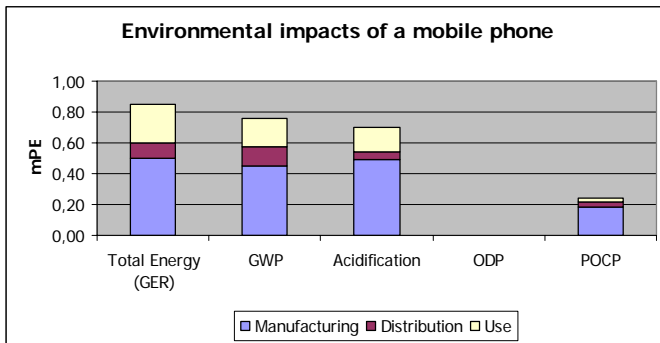


Figure 1. The life cycle environmental impacts caused by the average mobile phone are primarily related to the manufacturing stage, where a wide range of advanced materials are used. Turning the battery charger off at the outlet, when not in use, can reduce the impacts significantly.

Please note that impacts on human health are not shown in Figure 1.

When compared to the environmental impacts from other products and activities, mobile phones are judged to be of low concern, mainly because they are small devices which use relatively small amounts of energy. (See Table 3 for comparative figures for different products).

	Energy Consumption	Global warming	Acidification	Eutrophication	Waste	POCP
Energy-using products						
Dishwasher	20,6	15,9	10,9	29,9	1,7	
Television	9,7	7,6	5,0	0,0	0,6	
PC	23,1	19,3	13,2	0,2	4,7	
Fridge-freezer	22,9	18,0	12,2	0,2	2,7	
Mobile phone	0,9	0,8	0,7			0,2
Building products						
Sealant ¹	0,3	0,3	0,2	0,1	0,1	
Wood flooring ²	12,2	2,9	6,0	5,7		39,2
Insulation ³	0,7	0,9	0,9	0,5	1,7	1,0
Comparison product						
10 km in an average car	71,8	82,6	15,4	58,5	3,8	104,2

Environmental impact in mPE	Concern level
≤ 0,1	Almost insignificant
0,1-0,5	Very low
0,5-1	Low
1-5	Some
5-20	Significant
20-50	High
> 50	Very high

The German Eco-labelling scheme, the Blue Angel, has established criteria for award of the label to mobile phones. The main criterion regards electromagnetic radiation, but the label also includes a wide range of other environmental issues characterizing an environmentally friendly product. The criteria can thus be used to select a product which performs well with respect to many relevant concerns. In the Table on the opposite page you can find a condensed version of this information for the specific product.

Environmental Data Sheet – Silicone Sealant XX

Sealant XX is a water-based silicon sealant for indoor use which has been awarded the German Blue Angel eco-label. The environmental specifications are detailed in Table 1 and the test results with respect to Indoor Air Quality are provided in Table 2.

Table 1 Environmental specifications in relation to the German Blue Angel criteria for Low-emission sealants for interior use (RAL-UZ 123)			
Criteria regarding	Clause in RAL-UZ 123	Criteria fulfilled	Comment
Manufacture			
General substance requirements	3.1.1	Yes	Classified substances: Poly(oxy-1,2-ethandiyl), alpha-tridecyl-, omega-hydroxy-(15EO) < 2% Thiabendazol 0.04%
Preservation agents	3.1.2	Yes	Thiabendazol
Pigments	3.1.3	Yes	No lead, cadmium or chromium VI added
Plasticizers	3.1.4	Yes	No phthalates are used
Organotin	3.1.5	Yes	Organotin ≤ 0.05%
Use			
Indoor Air Quality	3.2.1	Yes	See test results below
Serviceability	3.2.2	Yes	Meets the requirements in DIN 53 504, DIN 53 505 and DIN ISO 2137
Recycling and disposal			
No fungicides, insecticides, flame retardants or halogenated compounds	3.3	Yes	
Declaration and consumer information			
Container text and Technical Data Sheet	3.4	Yes	

Table 2 Indoor Air Quality	Test results	
	3rd day	Final value (28th day)
Total organic compounds within the retention range C ₆ -C ₁₆ (TVOC)	1200 µg/m ³	125 µg/m ³
Total organic compounds within the retention range C ₁₅ -C ₂₇ (TVOC)	-	9 µg/m ³
Carcinogenic substances	n.d.	n.d.
Total VOC without LCI	-	50 µg/m ³
R-value	-	0.1
Formaldehyde	-	0.01 ppm
Other aldehydes	-	0.01 ppm

Using the rating system for potential impacts on human health suggested by FORCE Technology (reference), Sealant XX is assessed as “Acceptable”, given its content of chemical substances which must be classified. The health-related properties of Sealant XX are summed below:

Indoor Air Quality	Approved
Chemical content	Acceptable

The full declaration of content is given in Table 3.

Table 3 Declaration of content for sealant XX		
Substance	CAS-No.	Concentration
Polydimethylsiloxan	63148-62-9	25-50%
Amorphous silica	07631-86-9	25-50%
Poly(oxy-1,2-ethandiyl), alpha-tridecyl-, omega-hydroxy-(15EO)	24938-91-8	< 2%
Thiabendazol	148-79-8	0.04%

Sealants and the Environment

Sealants have in general a relative low impact on the environment, at least when global and regional issues like energy consumption, global warming and acidification are considered. The chemicals used in production of sealants are of much higher concern, having a significant potential for impacts on human health and indoor air quality. The German eco-labelling scheme, The Blue Angel, has therefore developed criteria for award of the label to low-emission sealants for interior use. The criteria address both the content and release of chemicals and they can therefore be used to select a product which is safe in application, use and disposal.

Figure 1 shows how much a typical sealant contributes – in selected impact categories - to the annual impacts of an average citizen in the EU. The unit used – mPE – is one thousandth of the annual impact caused by the average citizen – or 0.1%. It can e.g. be seen that the energy consumption for sealing an average house only accounts for 0,0017% of the annual consumption of energy and 0.0016% of the contribution to global warming.

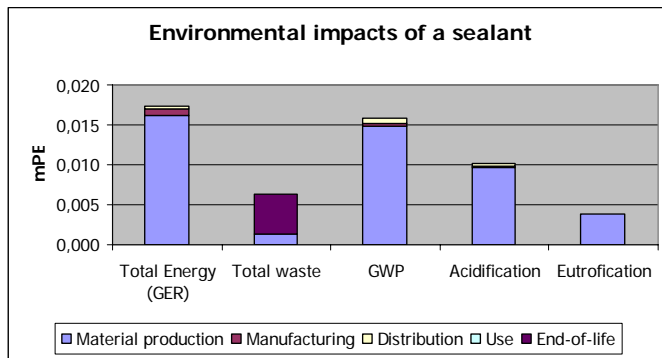


Figure 1. The life cycle environmental impacts caused by an average sealant. The figure does not address impacts on human health, ecosystems, and indoor air quality. This is done by the German Eco-labelling scheme, The Blue Angel, which has established criteria for award of the label to low-emission indoor sealants. The criteria focus on chemical and health-related properties of sealants and are used in this Environmental Data Sheet to provide the most important information on sealant products. Please see opposite page.

When compared to the global and regional environmental impacts from other products and activities, sealants are judged to be of very low concern, primarily because only small amounts of energy and resources are used to cover the need of the average citizen. (See Table 3 for comparative figures for different products).

	Energy Consumption	Global warming	Acidification	Eutro-Pfication	Waste	POCP
Energy-using products						
Dishwasher	20,6	15,9	10,9	29,9	1,7	
Television	9,7	7,6	5,0	0,0	0,6	
PC	23,1	19,3	13,2	0,2	4,7	
Fridge-freezer	22,9	18,0	12,2	0,2	2,7	
Mobile phone	0,9	0,8	0,7			0,2
Building products						
Sealant	0,3	0,3	0,2	0,1	0,1	
Wood flooring	12,2	2,9	6,0	5,7		39,2
Insulation	0,7	0,9	0,9	0,5	1,7	1,0
Comparison product						
10 km in an average car	71,8	82,6	15,4	58,5	3,8	104,2

Environmental impact in mPE	Concern level
≤ 0,1	Almost insignificant
0,1-0,5	Very low
0,5-1	Low
1-5	Some
5-20	Significant
20-50	High
> 50	Very high

Environmental Data Sheet – Polyurethane Sealant YY

Sealant YY is a low modulus, high-performance 1-component polyurethane-based elastomeric sealant for in- and outdoor joints with large movements. The environmental specifications are detailed in Table 1. Sealant YY has not been tested with respect to Indoor Air Quality.

Table 1 Environmental specifications in relation to the German Blue Angel criteria for Low-emission sealants for interior use (RAL-UZ 123)			
Criteria regarding	Clause in RAL-UZ 123	Criteria fulfilled	Comment
Manufacture			
General substance requirements	3.1.1	No	Classified substances: Toluene diisocyanate 31%; di-(2-ethylhexyl)phthalate 22%
Preservation agents	3.1.2	Yes	
Pigments	3.1.3	Yes	
Plasticizers	3.1.4	No	%; di-(2-ethylhexyl)phthalate is used
Organotin	3.1.5	Yes	Organotin ≤ 0.05%
Use			
Indoor Air Quality	3.2.1	No	Not tested
Serviceability	3.2.2	Yes	Meets the requirements in DIN 18540-F
Recycling and disposal			
No fungicides, insecticides, flame retardants or halogenated compounds	3.3	No	Contains PVC
Declaration and consumer information			
Container text and Technical Data Sheet	3.4	Yes	

No tests with respect to emissions to the indoor climate have been conducted, and Sealant XX is therefore rated as “Not approved”.

Using the rating system for potential impacts on human health suggested by FORCE Technology (reference), Sealant YY is assessed as “Very problematic”, given its content of chemical substances which must be classified. The health-related properties of Sealant YY are summed below:

Indoor Air Quality	Not Approved
Chemical content	Very problematic

The full declaration of content is given in Table 2.

Table 2 Declaration of content for sealant XX		
Substance	CAS-No.	Concentration
Toluene diisocyanate (prepolymerised)	26471-62-5	25-50%
Calcium carbonate	471-34-1	25%
PVC	9002-88-2	11%
Di-(2-ethylhexyl)phthalate	117-81-7	22%
Xylene	108-38-3	< 4%

Caution. Sealant YY contains substances which are hazardous to human health. Avoid skin and eye contact and breathing vapours. Safety goggles and gloves are recommended.

Sealants and the Environment

Sealants have in general a relative low impact on the environment, at least when global and regional issues like energy consumption, global warming and acidification are considered. The chemicals used in production of sealants are of much higher concern, having a significant potential for impacts on human health and indoor air quality. The German eco-labelling scheme, The Blue Angel, has therefore developed criteria for award of the label to low-emission sealants for interior use. The criteria address both the content and release of chemicals and they can therefore be used to select a product which is safe in application, use and disposal.

Figure 1 shows how much a typical sealant contributes – in selected impact categories - to the annual impacts of an average citizen in the EU. The unit used – mPE – is one thousandth of the annual impact caused by the average citizen – or 0.1%. It can e.g. be seen that the energy consumption for sealing an average house only accounts for 0,0017% of the annual consumption of energy and 0.0016% of the contribution to global warming.

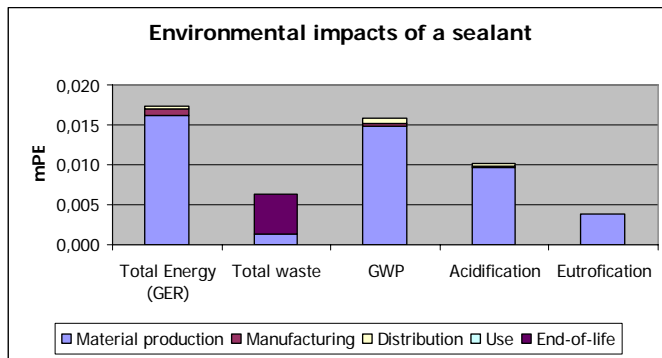


Figure 1. The life cycle environmental impacts caused by an average sealant. The figure does not address impacts on human health, ecosystems, and indoor air quality. This is done by the German Eco-labelling scheme, The Blue Angel, which has established criteria for award of the label to low-emission indoor sealants. The criteria focus on chemical and health-related properties of sealants and are used in this Environmental Data Sheet to provide the most important information on sealant products. Please see opposite page.

When compared to the global and regional environmental impacts from other products and activities, sealants are judged to be of very low concern, primarily because only small amounts of energy and resources are used to cover the need of the average citizen. (See Table 3 for comparative figures for different products).

	Energy Consumption	Global warming	Acidification	Eutrophication	Waste	POCP
Energy-using products						
Dishwasher	20,6	15,9	10,9	29,9	1,7	
Television	9,7	7,6	5,0	0,0	0,6	
PC	23,1	19,3	13,2	0,2	4,7	
Fridge-freezer	22,9	18,0	12,2	0,2	2,7	
Mobile phone	0,9	0,8	0,7			0,2
Building products						
Sealant	0,3	0,3	0,2	0,1	0,1	
Wood flooring	12,2	2,9	6,0	5,7		39,2
Insulation	0,7	0,9	0,9	0,5	1,7	1,0
Comparison product						
10 km in an average car	71,8	82,6	15,4	58,5	3,8	104,2

Environmental impact in mPE	Concern level
≤ 0.1	Almost insignificant
0.1-0.5	Very low
0.5-1	Low
1-5	Some
5-20	Significant
20-50	High
> 50	Very high

Environmental Data Sheet – XX Wood flooring

XX wood floor is an 22 mm oak hardboard parquet, lacquered with an UV-curing lacquer with a high abrasion penetration. It can be laid directly on joist or crossbeams and is re-sandable 4-5 times, ensuring a long life time with the proper maintenance. The health and environmental specifications are detailed in Tables 1-3.

Table 1 Environmental specifications for wood flooring			
Criteria regarding	Clause in RAL-UZ 38	Criteria fulfilled	Comment
Manufacture			
Wood from sustainable forestry is used	3.1.1	Yes	
For wood-based materials, formaldehyde steady state concentration of 0.1 ppm in test chamber is not exceeded	3.1.2	Yes	See test report
Substances in coating systems are not classified as very toxic, toxic, carcinogenic, mutagenic or teratogenic	3.1.3.1	Yes	
The amount of VOC in coating materials does not exceed 250 g/l for two-dimensional and 420 g/l for three-dimensional products	3.1.3.2	Yes	VOC content is less than 150 g/l
The liquid coating system comply with the VdL Directive on Wood Paint Systems		Yes	
Use			
Emissions of formaldehyde, organic compounds and CMT substances are below specified limits	3.2.1	Yes	See test report
Packaging allows post-manufacture outgassing of volatile compounds	3.2.2	Yes	
Relevant replacement parts are available for five years	3.2.2	Yes	
Recycling and disposal			
Fungicides, insecticides, flame retardants and non- halogenated organic compounds are not added to the product	3.3	Yes	

XX wood floor has been tested for its effect on Indoor Air Quality in the German AgBB-scheme, the results being that the product is approved (see Table 2).

Table 2 Indoor Air Quality	Test results	
	3rd day	Final value (28th day)
Substance		
Total organic compounds within the retention range C ₆ -C ₁₆ (TVOC)	1500 µg/m ³	450 µg/m ³
Total organic compounds within the retention range C ₁₅ -C ₂₇ (TVOC)	-	0 µg/m ³
Carcinogenic substances	n.d.	n.d.
Total VOC without LCI	-	13 µg/m ³
R-value	-	0.46
Formaldehyde	-	0.01 ppm
Other aldehydes	-	0.01 ppm

Using the rating system for potential impacts on human health suggested by FORCE Technology, The lacquer used is assessed as "Acceptable". The health-related properties of XX wood floor stone wool are summarised below:

Indoor Air Quality	Approved
Chemical content	Acceptable

The declaration of content of classified chemicals is given in Table 3. Be sure to use a lacquer with similar or better environmental properties in future maintenance.

Table 3 Declaration of classified substances		
Substance	EU-No.	Concentration
Butyl diglycol	203-917-3	1-2.5%
N-methyl-2-pyrrolidone	212-828-1	1-2.5

Wood flooring and the environment

The basic raw material in wood flooring is a natural material. As with all other products made from wood, e.g. paper, it is important that the growth of the wood is sustainable, e.g. by planting new trees as replacement for the trees logged for production. A sustainable production is guaranteed when the origin of the wood is certified by FSC (Forest Stewardship Council) or equivalent certification systems. When wood is used in building products like flooring, both the wood itself and glues and lacquers used in the final production and during maintenance may emit substances to the indoor environment. Furthermore, lacquer is known to be an important source for smog-formation. Make therefore sure that the product fulfils national or international criteria for Indoor Air Quality and that the finish is obtained with lacquers with low content of VOC.

Figure 1 shows how much covering 100 m² with a typical wooden flooring contributes – in selected impact categories - to the annual impacts of an average citizen in the EU. The unit used – mPE – is one thousandth of the annual impact caused by the average citizen – or 0.1%. It can e.g. be seen that the energy consumption in production and maintenance of 100 m² floor accounts for 1.2 % of the annual consumption of energy and 0.3% of the contribution to global warming.

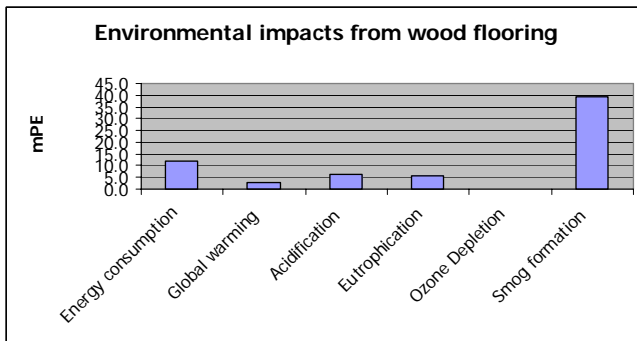


Figure 1. The life cycle environmental impacts caused by laying and maintaining 100 m² of wooden flooring. The figure does not address impacts on human health, and indoor air quality. Indoor Air Quality is assessed by testing the product in dedicated schemes, e.g. the German AgBB-scheme (see Table 2). The content of chemicals has been assessed by using criteria developed by FORCE Technology (see opposite page).

When compared to the global and regional environmental impacts from other products and activities, wood flooring is judged to be of significant concern; primarily because of the maintenance requirements. For smog-formation the concern level is high (see Table 4 for comparative figures for different products).

	Energy Consumption	Global warming	Acidification	Eutrophication	Waste	POCP
Energy-using products						
Dishwasher	20,6	15,9	10,9	29,9	1,7	
Television	9,7	7,6	5,0	0,0	0,6	
PC	23,1	19,3	13,2	0,2	4,7	
Fridge-freezer	22,9	18,0	12,2	0,2	2,7	
Mobile phone	0,9	0,8	0,7			0,2
Building products						
Sealant	0,3	0,3	0,2	0,1	0,1	
Wood flooring	12,2	2,9	6,0	5,7		39,2
Insulation	0,7	0,9	0,9	0,5	1,7	1,0
Comparison product						
10 km in an average car	71,8	82,6	15,4	58,5	3,8	104,2

Environmental impact in mPE	Concern level
≤ 0.1	Almost insignificant
0.1-0.5	Very low
0.5-1	Low
1-5	Some
5-20	Significant
20-50	High
> 50	Very high

Environmental Data Sheet – Mineral wool insulation

Mineral wool insulation is a highly efficient insulation product, made of resin-bonded naturally occurring stones and waste minerals. It fulfils the most stringent requirements with respect to fitness for use. The health and environmental specifications are detailed in Tables 1-3.

Table 1 Environmental specifications for insulation products			
Criteria regarding	Example clause	Criteria fulfilled	Comment
Manufacture			
General substance requirements, relating to the absence of Toxic, Very toxic, carcinogenic and reprotoxic substances	RAL-UZ 123, clause 3.1.1	Yes	See Table 3
Preservation agents	RAL-UZ 123, clause 3.1.2	Yes	No preservation agents are used
Use			
Fitness for use meets building regulation criteria		Yes	
Indoor Air Quality	RAL-UZ 123, clause 3.2.1	Yes	See Table 2
Emission of radioactive substances		No	Not measured, but assumed to be insignificant
Recycling and disposal			
No fungicides, insecticides, brominated flame retardants or halogenated compounds	RAL-UZ 123, clause 3.3	Yes	
Declaration and consumer information			
Technical Data Sheet including information on proper installation procedure	RAL-UZ 123, clause 3.4	Yes	

Mineral wool has been tested for its effect on Indoor Air Quality in the German AgBB-scheme, the results being that the product is approved (see Table 2).

Using the rating system for potential impacts on human health suggested by FORCE Technology (reference), stone wool is assessed as "Good". The health-related properties of stone wool are summed below:

Indoor Air Quality	Approved
Chemical content	Good

The full declaration of content is given in Table 3. The actual composition varies according to available raw materials, and it is remarked that the impregnation oil is exonerated from classification.

Table 3 Declaration of content for mineral wool		
Substance	CAS-No.	Concentration
Stone raw materials	n.a.	60-80%
Waste minerals	n.a.	10-20%
Binder	n.a.	3-5%
Impregnation oil	n.a.	< 0.3 %
Aminosilane	n.a.	< 0.005%

Caution. Please note that significant amounts of dust may be generated in the installation process. Read the recommendations on use of personal protection equipment and how to avoid dust carefully.

Insulation and the Environment

Use of stone wool insulation is beneficial for the environment because it saves energy – up to 100 times more than was used to produce it. The most important quality aspect of insulation is that the product is fit for use, meaning among other things that it maintains its insulating properties over the whole life time of 50 years or more. Also important is that the product is stable in the range of moisture in the building, that it is resistant to biological attack, does not affect Indoor Air Quality and has the requested fire properties. Make therefore sure that the product fulfils your national building code.

Figure 1 shows how much isolating 40 m² of attic with a typical insulation product contributes – in selected impact categories - to the annual impacts of an average citizen in the EU. The unit used – mPE – is one thousandth of the annual impact caused by the average citizen – or 0.1%. It can e.g. be seen that the energy consumption for insulating a 40 m² attic in an average house only accounts for 0.07% of the annual consumption of energy and 0.01% of the contribution to global warming.

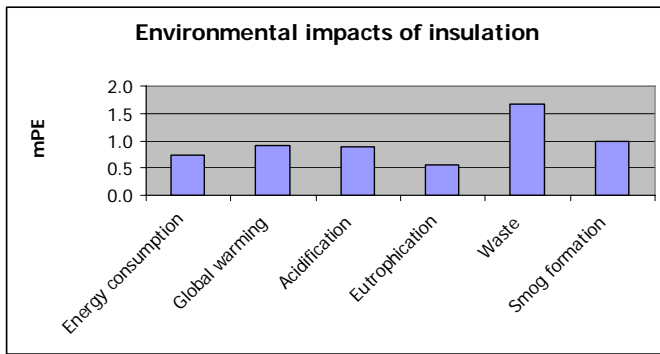


Figure 1. The life cycle environmental impacts caused by insulating 40 m² of attic to Danish standards with a typical mineral wool insulation product. The figure does not address impacts on human health, and indoor air quality. Indoor Air Quality is assessed by testing the product in dedicated schemes, e.g. the German AgBB-scheme (see Table 2). The content of chemicals has been assessed by using criteria developed by FORCE Technology (see opposite page).

When compared to the global and regional environmental impacts from other products and activities, insulation is judged to be of low concern (see Table 3 for comparative figures for different products). It is, however, stressed once more that the benefits from insulating a building far outweighs the impacts associated with production of insulation materials.

	Energy Consumption	Global warming	Acidification	Eutrophication	Waste	POCP
Energy-using products						
Dishwasher	20,6	15,9	10,9	29,9	1,7	
Television	9,7	7,6	5,0	0,0	0,6	
PC	23,1	19,3	13,2	0,2	4,7	
Fridge-freezer	22,9	18,0	12,2	0,2	2,7	
Mobile phone	0,9	0,8	0,7			0,2
Building products						
Sealant	0,3	0,3	0,2	0,1	0,1	
Wood flooring	12,2	2,9	6,0	5,7		39,2
Insulation	0,7	0,9	0,9	0,5	1,7	1,0
Comparison product						
10 km in an average car	71,8	82,6	15,4	58,5	3,8	104,2

Environmental impact in mPE	Concern level
≤ 0.1	Almost insignificant
0.1-0.5	Very low
0.5-1	Low
1-5	Some
5-20	Significant
20-50	High
> 50	Very high