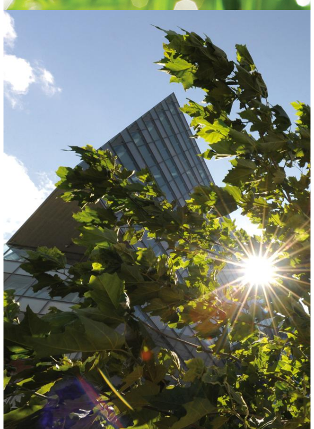
Sustainability in Action

Striving to enhance transparency related to declarable substances in products by creating Environmental Product Declarations



By: Daniel Majewski, Sr. Manager of Hardware Process & Quality Assurance
Siemens Industry, Inc.

Environmental sustainability and materials transparency are essential in securing our products' future. Our commitment to these targets is demonstrated through design requirements for environmentally friendly products, and the publication of Environmental Product Declarations (EPDs). EPDs provide a detailed breakdown of the materials used in our products and their environmental benefits. They specifically state their compliance to the global Restriction of Hazardous Substances (RoHS) legislation.

As a globally active company, we have special responsibility for designing environmentally friendly products for our customers. Sustainability is the key to securing our company's future. Our commitment to being a socially responsible company requires us to meet the demands of commerce in an ecologically and socially sound manner.

Siemens therefore gives high priority to achieving excellence in Environmental Protection. Our innovative, environmentally friendly products help to protect the environment through high energy efficiency, the elimination of hazardous substances used in our products, and through detailed material analysis during the product design stages.

With this goal in mind, we consider the entire product lifecycle. We design, develop, manufacture, market and refurbish our products and systems to protect the environment and human health in a manner that meets or exceeds any applicable regulations and minimizes the impact on our natural resources.

The fundamental requirements for environmentally compatible product design across a product's entire life cycle are a mandatory part of the design and development process for all our new products and solutions. Siemens strives to enhance transparency concerning declarable substances in products as a basis for the assessment of the environmental impact of our products. To provide an easy to use method resulting in high data quality, Siemens has introduced an industry-wide initiative of efficient substance declaration via the Environmental Product Declaration. (EPD).Daniel Majewski provided a detailed description of the importance of our EPDs:

The aims of an environmental product declaration are:
– efficient provision of the information to which customers and the public are entitled
– compliance with the requirements of international standards
– improvement and consolidation of access to markets and competitiveness
– stimulation of potential of market-driven, continual environmental improvement
– reduction of the amount of work done answering individual queries

Each new product design requires that an Environmental Product Declaration is provided. The EPDs contain the following information:

Product identification

- Product Model Numbers
- Product description, function
- Product data (total mass, mass of component parts, dimensions)
- Recycled parts
- Accessories
- (Additional) information about the product
- Reference to similar/complementary/… products

Manufacturer identification

- Name/address/internet address of the operating group
- Company-specific statements about principles for environmentally compatible product design, environmental awards
- References to environmental management systems ISO14001 and ISO 18001

Environmentally compatible product design

- product and process planning
- materials, components
- consumption of resources (energy, materials, water, air)
- material diversity, material labeling, recycled content, recyclability
- use of hazardous substances
- emissions (substances, noise, vibrations, radiation, electromagnetic fields, measuring methods)
- waste, special waste treatment
- product life time, maintenance/service friendliness, re-usability (also of parts), upgradability

Environmental risk

- fire, fire load
- release of substances
- in the event that hazardous substances are released: information about necessary measures or reference to these in product description/instructions for use

Materials/ Individual constituents

- Material composition of product
- Important individual constituents of certain materials
- Important materials/individual constituents below certain limiting concentrations
- Information about operational materials.
- Information about substances which are contained in the product/packaging and are intended to be released under normal and reasonably foreseeable conditions of use
- Information about substances of the candidate list according to the RoHS and REACH-regulations

Packaging

- Mass
- Materials/individual constituents (e.g. foams)
- Labeling
- Take-back information (non reusable/reusable, statutory/voluntary)
- Disposal information (re-use, disposal)
- Recyclability/recycled content
- Degradability, compostability
- Reference to compliance with substance restrictions in accordance with Directive 94/62/EC ("Packaging Directive")

Disposal

- Take-back system (statutory/voluntary, recycling)
- Disposal information (product, packaging, operational materials, consumable materials)
- Treatment of hazardous parts
- Information on transportation, if necessary (packaging, dangerous goods)

Environmental information

- Information on batteries (type, efficient use, take-back, disposal)
- Statements based on product-specific I requirements (CE-marking, energy consumption)

Daniel also concluded that *"Our EPDs coupled with our system and standards of environmental management enable us to take a holistic approach to environmental protection spanning the entire product life cycle from product planning to end-of-life recycling and disposal. We intend to publish all of our existing EPDs in a database which will be made available to all customers and end users worldwide."*

At Siemens, we are committed to protecting our environment. Our ISO 14001 environmental policy centers on the complete product life cycle. Our goal is to successfully avoid – or reduce to a minimum – our environmental impact wherever we can, above and beyond statutory requirements. Our EPDs are a critical tool enabling us to provide clear and consistent product related environmental information, giving us a critical building block in achieving our goals of environmental sustainability and materials transparency.

EPD examples below:

Tool for the creation of an EPD

SIEMENS **Building Technologies**

Environmental Product Declaration

Product	Type of equipment	**599 Series 2-Way Ball Valves**	
	Designation	**599 Series**	
	Product line	**Valves**	

Process control

Siemens Building Technologies, Inc
1000 Deerfield Pkwy
Buffalo Grove, Il 60089

Management System		since	by
ISO 14001	(Environment)	**12/2/1998**	**UL**
ISO 9001	(Quality)	**9/26/1995**	**UL**

Product use	Typical energy consumption per year	
	Maintenance	**Not necessary**
Risk of fire	Fire protection according to	**EN60730 & UL873**
	Fire load	**N/A**

Packaging	20-PAP Corrugated fiber board	**Cardboard & Paper**	**10-300g**
	Notes on disposal	**One-way, recyclable**	

Tool for the creation of an EPD

Materials			Total weight device	****See Table**
Metals	brass	C37700	Body	**See Table**
	Brass or SS	Chrome Plated Brass	Ball	x
	Brass or SS	None	Stem	x
	EPDM		Stem Seal	x
	PTFE	GF	Flow Optimizer	x

Ball Valve and Actuator Dimensions.

Line Size Inch (Mm)	Cv Range	A Length	C Length * Actuator Codes 171A-D, 173A-D GDE/GLB	C Length * Actuator Codes 171H,J,K GQD	C Length* Actuator Codes 171E,F 172E,F Fail Safe GMA	F Height	ht (kg)
1/2 (15)	0.4 to 10.0	2-7/16 (61)		6 (153)	-	7-5/8 (193)	(.23)
3/4 (20)	6.3 to 25	2-3/4 (70)		6 (153)	-	8 (204)	(.35)
	10	3 (77)		-	8-3/8 (213)	8 (204)	(.44)
	16			-			(79)
	40, 63	3-1/4 (82)	6-11/16 (170)		8-3/8 (213)	8-5/15 (212)	(54)
1 (25)	25	3-7/8 (98)	7 (178)	-	8-11/16 (221)	8-13/16 (223)	(.54)
	16	3-3/8(86)	6-11/16 (170)	-	8-7/16 (214)	8-3/8 (213)	1.41
1-1/4 30)	25 to 100	3-11/16 (94)		-	8-11/16 (221)	8-13/16 (223)	1.81
	25, 63	3-5/8 (92)	6-15/16 (176)	-	8-7/16 (214)	8-13/16 (223)	(.54)
1-1/2 (40)	40, 100, 160	3-15/16 (100)		-		9-1/4 (235)	(1.13)
	40, 100	4 (102)	7-1/16 (180)	-	8-3/4 (223)	9-3/8 (238)	(1.14)
	63			-			(2.11)
2 (50)	160	4-5/8 (118)	7-1/2 (190)	-	9-1/8 (223)	10-1/16 (255)	(2.13)

Disposal

The device should not be disposed of as unsorted municipal waste. The special treatment for specific components may be mandated by law or ecologically sensible.
Observe all local and applicable laws.

About the Author

Daniel Majewski, Senior Manager of Hardware Process & Quality Assurance at the Building Technologies Division of Siemens, has been involved with the environmental product design aspects of our products for the last 15 years.

As an early promoter of environmentally conscious design, the Buffalo Grove R&D teams have pioneered several novel approaches in environmental product design which have developed into best practices across Siemens Industry design centers. Environmental Product Declarations have been introduced and are now incorporated into all of our product design cycles.