

Environmental Product Declaration



In accordance with ISO 14025:2006 for:

EarthCare Glycol E

from

Recyctec AB



Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	EPD-IES-0007335
Publication date:	2024-08-20
Valid until:	2029-06-28

An EPD should provide current information, and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com



Programme information

Programme:	The International EPD® System EPD International AB Box 210 60 SE-100 31 Stockholm Sweden www.environdec.com info@environdec.com
-------------------	--

Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
PCR: <i>PCR 2021:03 (version 1.1.3) Basic chemicals</i>
PCR review was conducted by: <i>Versions 1.0 was reviewed by the Technical Committee of the International EPD® System.</i>
Life Cycle Assessment (LCA)
LCA is performed by environmental- and sustainability consultants at Envima AB. www.envima.se
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:
☒ EPD verification by individual verifier
Third-party verifier: Pär Lindman, Miljögraff Email: par@miljogiraff.se
Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third-party verifier:
☐ Yes ☒ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see ISO 14025.

Company information

Owner of the EPD:

Recyctec AB

Momarken 30, 556 50 Jönköping, Sweden

Tel: 010-209 00 28

Organization no: 556750-7628

E-Mail: order@recyctec.se

<https://www.recyctec.se/>

Contact: Pär Winberg

Description of the organisation: Recyctec AB is a quality certified manufacturer of used glycol to a commercial industrial product. The unique idea of Recyctec being a cleantech company that purifies glycol to its original condition by providing the same stability and functionality ensures that the restored glycol products can be used endlessly.

Product-related or management system-related certifications: The company has an environmental management system that fulfils the requirements of SS-EN ISO 9001:2015 and SS-EN ISO 14001:2015

Name and location of production site: Recyctec AB, Momarken 30, 556 50 Jönköping, Sweden

Product information

Product name: EarthCare Glycol E

Product identification: The Earthcare Products are available in standard concentrations of 30%, 40% and as concentrated monoethylene and monopropylene glycol respectively.

Product description: EarthCare Glycol E is based on recycled glycol. Glycol E stands for its monoethylene glycol that offers a wide range of applications and provides long-lasting protection, reduced viscosity, increased heat capacity and thermal conductivity below the freezing point. The added inhibitor contains no substances classified as CMR, and the product is nitrite, amine, phosphate, borax and silicate free. The inhibitor provides excellent protection for aluminium, copper, alloys, iron and other metals. The additives used also inhibit foaming and the growth of microorganisms. Its composition is uncolored, as color additives are not environmentally friendly. This product is designed to be used for all building and process applications such as closed cooling and heat recovery systems, solar collectors, hot and cold loops and industrial process cooling. After use, EarthCare Glycol E can be sent to Recyctec AB to enable further reuse.

Geographical scope: Sweden

UN CPC code: 341

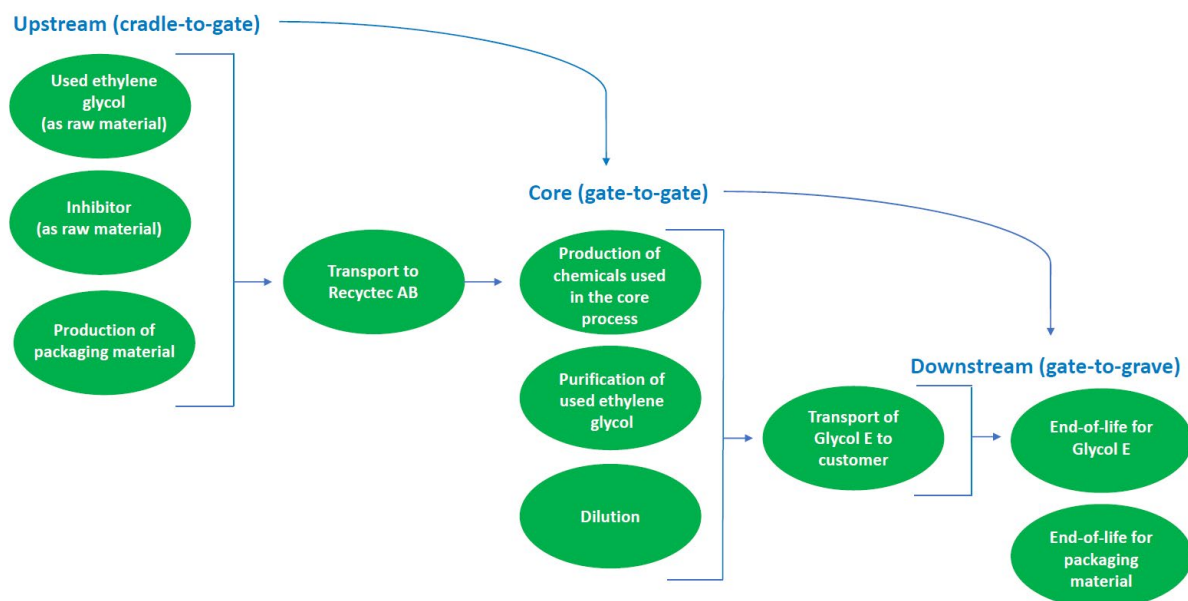
LCA information

Functional unit / declared unit: 1 kg glycol at the factory gate plus downstream processes (the weight of the packaging is not included in the 1 kg)

Time representativeness: 2023, generic data not older than 10 years.

Database(s) and LCA software used: SimaPro 9.5, Ecoinvent 3.9.1.

System diagram:



Description of system boundaries: Cradle-to-grave (upstream, core and downstream)

Excluded lifecycle stages: No lifecycle stages that could have been included for this product have been excluded.

More information: <https://www.recyctec.se/>

Upstream process (cradle-to-gate)

The upstream process includes processes linked to the raw material used in the process. For this product, EarthCare Glycol E, the raw materials used are used ethylene glycol, inhibitor and water. The upstream process includes production of the raw material, transportation of the raw material and manufacturing of packaging material. For used ethylene glycol, only the transportation to Recyctec is included.

The upstream process also includes production of the packaging material.

Core process (gate-to-gate)

The core process is the production phase at Recyctec AB. The core process includes impacts due to use of electricity, water consumption, production of chemicals used in the production, wastewater and waste treatment of waste that is generated during the manufacturing process.

Downstream process (gate-to-grave)

The downstream process includes transportation of the finished product to an average customer and end-of-life treatment of the used product. The downstream process also includes end-of-life treatment of waste from the packaging material and end-of-life treatment of the finished product.

Specific energy information

Electricity used is 100% renewable energy from sun, wind, water, and bioenergy from Jönköping Energy.

Cut-off criteria

Inflows that are not directly included in the LCA are the building of infrastructure to produce raw materials, production of production equipment business trips for staff or trips to and from work as well as research and development activities, this is according to the PCR.

Data for elementary flows to and from the product system that contribute to at least 99% of the declared environmental impact have been included.

Data quality

All data has been gathered from specific sources when possible. For the core process, specific data from the production have been used. For inflows where specific data could not be collected, generic data has been used instead. Generic data has been gathered from the software SimaPro 9.5 where the latest version of the Ecoinvent database is available.

Methodology

This declaration is developed within the International EPD System and based on the application of a Life Cycle Assessment (LCA) methodology. The LCA study was performed using SimaPro 9 software.

Allocation

Allocation between products or co-products have not been relevant in this study.

Content declaration

Product

Information in the table below represents the raw materials used to produce 1 kg of the product. Water represents the water amount that is needed for the dilution of purified glycol to obtain the different concentrations that exist for the product.

Table 1. Content information for EarthCare Glycol E

Product components	%	Environmental / hazardous properties
Used ethylene glycol	62.8	-
Inhibitor	2.79	-
Water	34.4	-
TOTAL	100	-

Packaging

The product is delivered in plastic cans, barrels, IBC containers or by tanker. Some products are delivered together with EUR pallets. Barrels, IBC containers and EUR pallets are reused. The plastic cans are not reused, based on Recyctec's knowledge. Therefore, the only packaging material included in the calculation are the plastic cans.

Table 2. Packaging information per declared unit (1 kg of product)

Packaging	kg
Polyethylene	0,02

Recycled material

Provenience of recycled materials (pre-consumer or post-consumer) in the product:

This product contains re-used raw materials. There is no recycled content in the packaging material.

Environmental performance

Potential environmental impact – 1 kg of product without its packaging

PARAMETER		UNIT	Upstream	Core	Downstream	TOTAL
Global warming potential (GWP)	Fossil	kg CO ₂ eq.	1,98E-01	9,87E-01	2,66E+00	3,85E+00
	Biogenic	kg CO ₂ eq.	-6,04E-02	3,10E-01	4,92E-03	2,55E-01
	Land use and land use change	kg CO ₂ eq.	5,41E-04	5,62E-04	6,80E-04	1,78E-03
	TOTAL	kg CO ₂ eq.	1,38E-01	1,30E+00	2,67E+00	4,11E+00
Acidification potential (AP)		mol H ⁺ eq.	1,09E-03	3,37E-03	3,94E-03	8,39E-03
Eutrophication potential (EP)	Aquatic freshwater	kg P eq.	3,72E-05	3,17E-04	6,96E-04	1,05E-03
	Aquatic marine	kg N eq.	3,28E-04	1,32E-03	1,03E-03	2,68E-03
	Aquatic terrestrial	mol N eq.	3,31E-03	9,98E-03	1,01E-02	2,34E-02
Photochemical ozone creation potential (POCP)		kg NMVOC eq.	8,20E-04	2,28E-03	3,85E-03	6,95E-03
Ozone depletion potential (ODP)		kg CFC11 eq.	6,06E-09	6,09E-08	1,68E-07	2,35E-07
Abiotic depletion potential (ADP)	Minerals and metals	kg Sb eq.	2,65E+00	6,03E+00	1,40E+01	2,27E+01
	Fossil resources	MJ. net calorific value	8,75E-07	1,74E-06	3,60E-06	6,21E-06
Water deprivation potential (WDP)		m ³ world eq. deprived	1,51E-01	-1,43E+00	3,20E-01	-9,57E-01

Use of resources – 1 kg of product without its packaging

PARAMETER		UNIT	Upstream	Core	Downstream	TOTAL
Primary energy resources – Renewable	Use as energy carrier	MJ. net calorific value	8,10E-01	5,60E+00	5,52E-01	6,96E+00
	Used as raw materials	MJ. net calorific value	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	TOTAL	MJ. net calorific value	8,10E-01	5,60E+00	5,52E-01	6,96E+00
Primary energy resources – Non-renewable	Use as energy carrier	MJ. net calorific value	2,83E+00	6,42E+00	1,49E+01	2,41E+01
	Used as raw materials	MJ. net calorific value	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	TOTAL	MJ. net calorific value	2,83E+00	6,42E+00	1,49E+01	2,41E+01
Secondary material (optional)		kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Renewable secondary fuels (optional)		MJ. net calorific value	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-renewable secondary fuels (optional)		MJ. net calorific value	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net use of fresh water (optional)		m ³	6,83E-03	4,34E-02	7,98E-03	5,83E-02

Waste production and output flows (optional) – 1 kg of product without its packaging

Waste production

PARAMETER	UNIT	Upstream	Core	Downstream	TOTAL
Hazardous waste disposed	kg	0	0.28	0	0.28
Non-hazardous waste disposed	kg	0	0.02	0	0.02
Radioactive waste disposed	kg	0	0	0	0

Output flows

PARAMETER	UNIT	Upstream	Core	Downstream	TOTAL
Components for reuse	kg	0	0	0	0
Material for recycling	kg	0	0	0	0
Materials for energy recovery	kg	0	0	0.64786	0.64786
Exported energy, electricity	MJ per energy carrier	0	0	0	0
Exported energy, thermal	MJ per energy carrier	0	0	0	0

Potential environmental impact – Packaging for 1 kg of product

PARAMETER		UNIT	Upstream	Core	Downstream	TOTAL
Global warming potential (GWP)	Fossil	kg CO ₂ eq.	4,84E-02	0.00E+00	4,73E-02	9,57E-02
	Biogenic	kg CO ₂ eq.	1,48E-04	0.00E+00	6,19E-06	1,54E-04
	Land use and land use change	kg CO ₂ eq.	2,34E-05	0.00E+00	4,65E-07	2,38E-05
	TOTAL	kg CO ₂ eq.	4,86E-02	0.00E+00	4,73E-02	9,59E-02
Acidification potential (AP)		mol H ⁺ eq.	1,92E-04	0.00E+00	1,17E-05	2,04E-04
Eutrophication potential (EP)	Aquatic freshwater	kg P eq.	8,03E-06	0.00E+00	1,56E-07	8,19E-06
	Aquatic marine	kg N eq.	3,75E-05	0.00E+00	7,04E-06	4,46E-05
	Aquatic terrestrial	mol N eq.	3,99E-04	0.00E+00	5,65E-05	4,55E-04
Photochemical ozone creation potential (POCP)		kg NMVOC eq.	1,74E-04	0.00E+00	1,46E-05	1,88E-04
Ozone depletion potential (ODP)		kg CFC11 eq.	2,58E-10	0.00E+00	5,30E-11	3,11E-10
Abiotic depletion potential (ADP)	Minerals and metals	kg Sb eq.	1,48E+00	0.00E+00	1,18E-02	1,49E+00
	Fossil resources	MJ. net calorific value	1,84E-07	0.00E+00	2,92E-09	1,87E-07
Water deprivation potential (WDP)		m ³ world eq. deprived	8,42E-03	0.00E+00	2,15E-03	1,06E-02

Use of resources – Packaging for 1 kg of product

PARAMETER		UNIT	Upstream	Core	Downstream	TOTAL
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	2,10E-02	0,00E+00	4,05E-04	2,14E-02
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	TOTAL	MJ, net calorific value	2,10E-02	0,00E+00	4,05E-04	2,14E-02
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	1,59E+00	0,00E+00	1,27E-02	1,60E+00
	Used as raw materials	MJ, net calorific value	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	TOTAL	MJ, net calorific value	1,59E+00	0,00E+00	1,27E-02	1,60E+00
Secondary material (optional)		kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Renewable secondary fuels (optional)		MJ, net calorific value	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-renewable secondary fuels (optional)		MJ, net calorific value	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net use of fresh water (optional)		m ³	1,23E-04	0,00E+00	7,90E-05	2,02E-04

Waste production and output flows (optional) – Packaging for 1 kg of product

Waste production

PARAMETER	UNIT	Upstream	Core	Downstream	TOTAL
Hazardous waste disposed	kg	0	0	0	0
Non-hazardous waste disposed	kg	0	0	0	0
Radioactive waste disposed	kg	0	0	0	0

Output flows

PARAMETER	UNIT	Upstream	Core	Downstream	TOTAL
Components for reuse	kg	0	0	0	0
Material for recycling	kg	0	0	0	0
Materials for energy recovery	kg	0	0	0	0
Exported energy. electricity	MJ per energy carrier	0	0	0	0
Exported energy. thermal	MJ per energy carrier	0	0	0	0

References

General programme instructions for the international EPD System version 4.0 (2021)

Network for transport measures, (2023) <https://www.transportmeasures.org/sv/>

PCR 2021:03 (version 1.1.3), Basic Chemicals

Product sheet, EarthCare Glycol E

