# Environmental Product Declaration

EPD®

In accordance with ISO 14025 and Product Category Rules for Absorbent Hygiene Products

# TENA Fix

| | |
|---|---|
| **Date of publication:** | **2017-10-17** |
| **Valid until:** | **2025-10-11** |
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| **Programme:** | International EPD® System |
| **Programme operator**: | EPD International AB |

# Essity is a leading global hygiene and health company

Essity is a leading global hygiene and health company that develops, produces, and sells personal care (baby care, feminine care, incontinence products, and medical solutions), consumer tissue, and professional hygiene products and solutions.

We are dedicated to improving well-being through leading hygiene and health solutions. Sales are conducted in approximately 150 countries under many strong brands, including the leading global brands TENA and Tork, as well as Leukoplast, Libero, Libresse, Lotus, Nosotras, Saba, Tempo, Vinda, and Zewa.

Essity has about 46 000 employees and net sales in 2019 amounted to SEK 129 bn (EUR 12.2 bn). The business operations are based on a sustainable business model with a focus on value creation for people and nature.

The company has its headquarters in Stockholm, Sweden, and is listed on Nasdaq Stockholm. Essity breaks barriers to well-being and contributes to a healthy, sustainable, and circular society. More information at www.essity.com.

# TENA is a part of Essity

Through our TENA brand, we offer a broad range of incontinence products and services. The clear purpose of this offering is to care for people, improve their quality of life, and help them live with dignity and confidence.

For our institutional customers, such as nursing homes, it also means reducing costs while increasing efficiency and quality of care. This is done through a combination of high-quality products and qualified advisory services that simplify handling procedures for care providers.

Since incontinence is often surrounded by a social taboo, enhancing quality of life also means promoting an open dialogue to break down the stigma. So, in addition to providing products that improve health and hygiene, we're working hard to raise awareness, provide training and global forums, and drive high-level dialogues around the world.

At TENA we're continually innovating new products that are increasingly discrete, comfortable, effective, and easy to use, while also reducing our carbon footprint. To make a better mark – for people, and for the planet.

| TENA assortment | |
|---|---|
| **TENA Female Liners & Pads** | A drier, safer, and more comfortable product than ordinary menstrual towel. The liners and pads give triple protection against leaks, odour, and moisture. The products are body shaped for comfort, protection, and discretion. |
| **TENA Men** | TENA Men are discreet and safe protection for men who experience urine leakage. Specially developed for men who wants discretion and continue to live an active life. |
| **TENA Pants & Underwear** | Close body fit for security and confidence. High performance products that are as easy to put on as underwear. TENA Pants & Underwear are available in a range of absorbency levels and sizes. |
| **TENA Flex** | A belted product with added absorbency that allows for easier, more ergonomic changing and with a comfortable, discreet fit. TENA Flex provides anatomically shaped protection with double absorption cores for leakage security. |
| **TENA Comfort TENA Rectangular** | The pad is designed to provide incontinence protection for skin health and leakage security. Available in a range of absorbency levels and specially designed to be worn with TENA fixation pants. The products are suitable for all types of incontinence. |
| **TENA Slip** | All-in-one incontinence products are designed to provide protection for healthy skin and high leakage security. The products are available in a range of sizes and absorbency levels and are suitable for all types of incontinence. |
| **TENA Fix** | A seamless, washable and reusable fixation pant supporting leakage security. Ensures that TENA Comfort and TENA Rectangular pads stay securely in place. Soft and elastic material provides comfort. Can be washed several times without losing shape. |
| **TENA Bed** | Provides protection for beds and chairs against accidental urine loss and during hygiene procedures. Dermatologically tested so it is gentle to the skin. Available in a range of sizes and absorbency levels. |
| **Baby diaper assortment** | |
| **Libero assortment** | The Libero assortment fulfils the demands for premium-brand baby diaper and the diapers have an absorption capacity/function that cover different steps of the baby's diaper needs. The diapers consist of an absorbent core, anti-leakage barrier, fastening system, and a back sheet. The assortment is uni-sex.<br>Libero Newborn, Comfort, UP&GO, Touch, and Sleep Tight are all labelled with the Nordic Swan. |
| **DryKids** | DryKids assortment of breathable diapers for children quickly absorb urine and help to keep the child’s skin dry and healthy. |

| This environmental declaration covers the following products | | Article number | Dimension (mm) | Weight ± 5% (g) |
|---|---|---|---|---|
| **1** | TENA Fix XS | 754049 | 190 x 160 | 17 |
| **2** | TENA Fix S | 754023<br>754028<br>754054<br>754055 | 190 x 210 | 19 |
| **3** | TENA Fix M | 754024<br>754029<br>754035<br>754056<br>754057 | 220 x 230 | 20 |
| **4** | TENA Fix L | 754025<br>754030<br>754036<br>754058<br>754059 | 230 x 250 | 22 |
| **5** | TENA Fix XL | 754026<br>754031<br>754037<br>754060<br>754061 | 265 x 270 | 26 |
| **6** | TENA Fix XXL | 754027<br>754032<br>754038<br>754052<br>754053 | 280 x 290 | 28 |
| **7** | TENA Fix 3XL | 754047<br>754062 | 340 x 320 | 35 |
| **8** | TENA Fix 4XL | 754067 | 380 x 350 | 41 |
| **9** | TENA Fix 5XL | 754068 | 430 x 390 | 48 |

| This environmental declaration covers the following products | | Article number | Dimension (mm) | Weight ± 5% (g) |
|---|---|---|---|---|
| **10** | TENA Fix Acute | 754070 | 250 x 120 | 7 |
| **11** | TENA Fix Original S | 755402 | 205 x 170 | 7 |
| **12** | TENA Fix Original M | 755501 | 255 x 170 | 8 |
| **13** | TENA Fix Original L | 755612 | 270 x 170 | 9 |

# The way we work

We assess the environmental impact of our products using a full life cycle approach, beginning with product design, through to manufacturing, transport, use, and disposal.

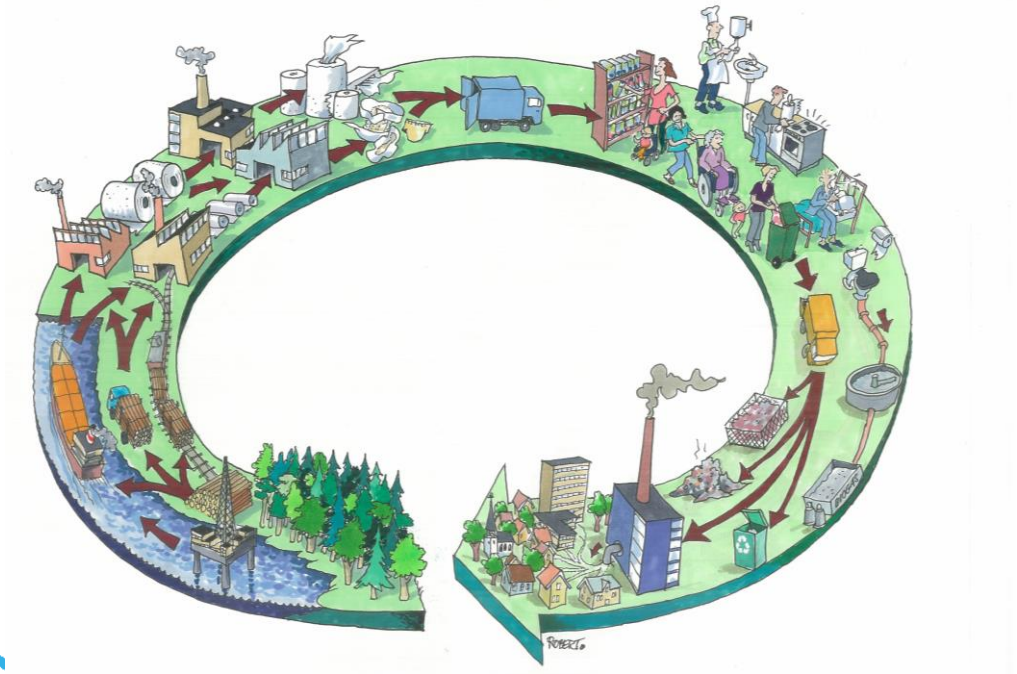
**RESPONSIBLE SOURCING** involves seeking high-quality raw materials that are safe from both a social and environmental perspective. The company's suppliers adhere to strict demands in Essity's Global Supplier Standard


**RESOURCE EFFICIENT PRODUCTION** is efficient use of resources, and the continuous reduction of energy and waste. Essity's objective is to develop products and services for a sustainable and circular society. The TENA production units are working with the management systems ISO 9001, ISO 14001 and OHSA 18001.

**SUSTAINABLE SOLUTIONS** are safe and environmentally sound innovations for hygiene products and services, based on customer and consumer insights, enabling us to meet their needs in daily life.

# Environmental performance of our products

The information presented in an environmental product declaration is obtained from a Life Cycle Assessment (LCA), which is a study of the potential environmental impact of a product throughout its life cycle, including production of raw materials and products, use of the product, after use processes, and transports.



# Environmental achievements

The following carbon footprint reductions for different TENA product groups have been achieved by working in a structured way to continually improve performance and efficiency.

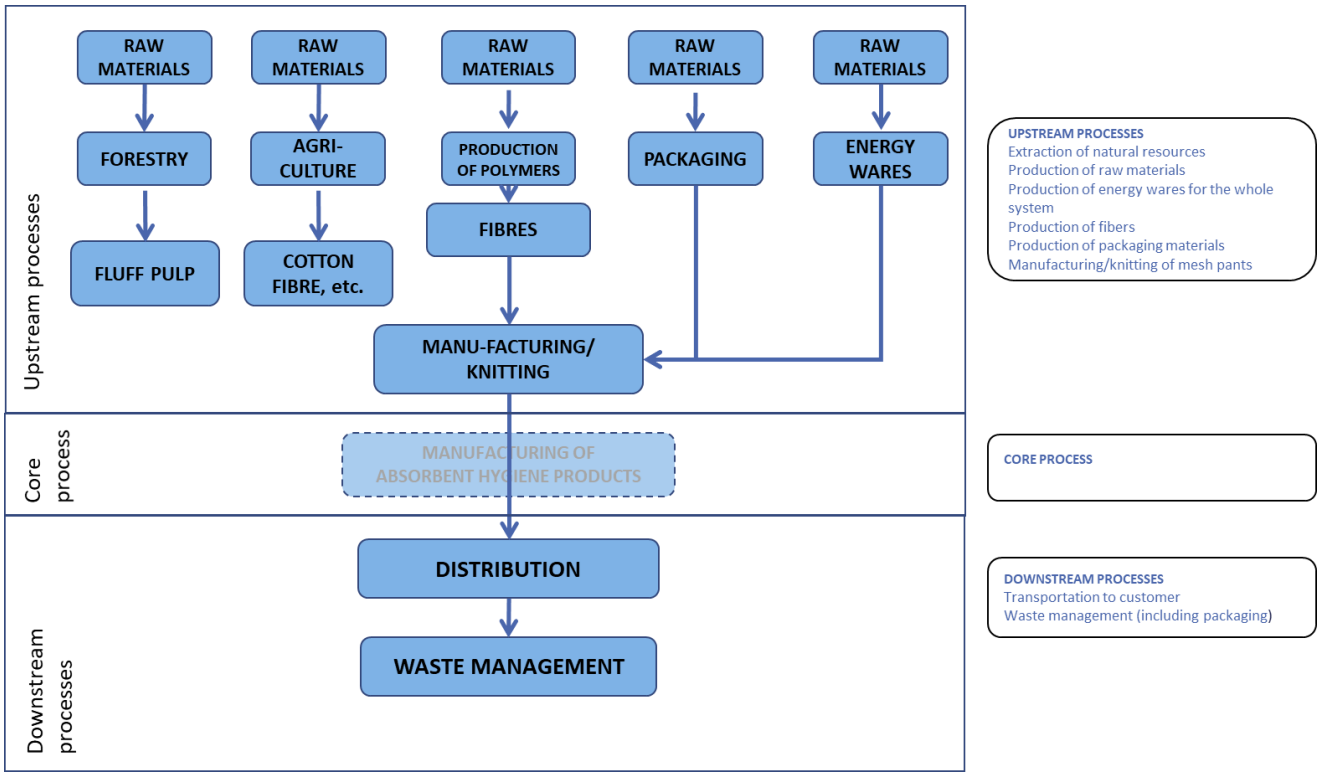
| Product | Carbon footprint reduction Year 2008 – 2019 |
|---|---|
| TENA Flex | - 18 % |
| TENA Female Liners & Pads | - 33 % |
| TENA Men | - 20 % |
| TENA Pants & Underwear | - 33 % |
| TENA Slip | - 20 % |
| TENA Comfort | - 19 % |
| TENA Bed | - 11 % |

*The LCA is conducted by Essity and verified by IVL, Swedish Environmental Research Institute Ltd, 2019. The carbon footprint reductions in Europe between 2008-2019 for TENA products are based on Life Cycle Assessments.*

# Production of TENA products


TENA products are made using high-quality materials, with strict requirements on product safety. The materials used are cellulose fibers from certified forestry and purpose-specific plastic materials. Production takes place at high-technology facilities with stringent hygienic and product safety standards that guarantee product quality and ensure users' safety and well-being.

# Life cycle of a TENA FIX product




LIFE CYCLE DESCRIPTION

The life cycle of a TENA product starts with the UPSTREAM PROCESSES: These include extraction of natural resources for the different raw materials, fuel production for both heat and power generation and the production of the raw materials, packaging materials, and fibers. In addition, the manufacturing of TENA Fix is part of the upstream process since it is not an Essity production.

In this case the CORE PROCESS does not contain any parts of the production

In the DOWNSTREAM PROCESSES, the products are transported to the customer either in the homecare segment or for institutional users. The use phase as such has no environmental impact and gives therefore no contribution to the calculations. The final step is the waste management, also including handling of packaging waste.

# Parameters in the declaration

| | |
|---|---|
| FUNCTIONAL UNIT | The functional unit is according to PCR 2011:14, one product. |
| CALCULATION OF GLOBAL WARMING POTENTIAL | Both emissions to and removals of $CO_2$ from the atmosphere, originating from both fossil and biogenic sources, are accounted for with a time interval of 100 years. Removal of carbon dioxide into growing trees and emissions of carbon dioxide corresponding to the content of biogenic carbon in the product is reported as $CO_2$ removals and biogenic $CO_2$ emissions, respectively. |
| WASTE MANAGEMENT SCENARIO | The waste management is calculated based on the sales of TENA products on the EU market, with an average waste handling for EU 27 (EUROSTAT 2019) giving a scenario with 55 % incineration and 45 % landfill.<br>Impacts of incineration process with energy recovery are attributed 50 % to the product and 50 % to the energy recovery process. Benefits and credits of energy recovery are attributed 100 % to energy recovery (outside system boundaries).<br><br>Biogenic $CO_2$ associated with waste management, is reported. |
| REPRESENTATIVE PRODUCT | A representative product is chosen when there are minor variations for the same product, such as technology and packaging. In the EPD, the representation of such different TENA products is done by a representative product, i.e. more than one product can be represented by the same calculation. The representative product always has the highest environmental impact, and hence a conservative approach is taken for the results. However, the variations within the different tiered products is not more than +/- 10 %, which follows the General Programme Instructions. |
| LIST OF MATERIALS | The materials listed in the composition table are combined into three groups in order to keep a level of confidentiality. A general list of content is also shown.<br>For the life cycle calculations each product's particular specification have been used. |
| MANUFACTURING SITES | For TENA Fix, the production is included in the upstream data since it is not an Essity site. The production is located in Slovakia and China. |
| GEOGRAPHICAL SCOPE | This EPD covers TENA products sold in Europe. |
| VALIDITY OF DATA | The most important raw materials in the products, pulp and SAP, are mainly data from 2016 - 2018. Supplier data for raw materials like film and nonwoven as well as other, minor materials are mainly from 2009-2016. Manufacturing data are from 2019. Article specifications are from 2020, with a few specifications from 2019. |
| THOUSAND SEPARATOR AND DECIMAL MARK | SI style (French version): 1 234,56;<br>i.e. comma is used as decimal mark. Number of value digits: 3 |
| PACKAGING | The packaging consists of a consumer pack, a polyethylene plastic bag, and transport packaging of corrugated board boxes, i.e. made of renewable fibers.<br>A few articles of TENA Men and TENA Female Pads and Liners have a consumer pack of carton from renewable fibers. |

# Additional environmental information

# Update of TENA EPDs

The TENA EPDs were first published in 2015, and the number of articles for the TENA product groups have increased over the years. All EPDs were valid until October 2020 and are now updated with new calculations for all articles. The new results show in general improved environmental performance of the products. This corresponds well with actual product development for the TENA assortment. There is usually less materials used for updated product specifications, because of new and better product design, and improved materials. Also improved production by suppliers and in TENA manufacturing sites adds to the results presented in the EPDs.

# Environmental Product Declaration
# Verification & Programme Information

The calculations for the environmental product declaration (EPD) are performed according to ISO 14040 and ISO 14044, ISO 14025.

EPD's within the same product category but from different programmes may not be comparable.

| |
|---|
| Product category rules (PCR): Absorbent Hygiene Products, 2011:14, version 3.01, UN CPC 32193<br>General Programme Instructions ver.3.01 |
| Programme operator: EPD International AB, Box 210 60, SE-100 31 Stockholm, Sweden<br>e-mail: info@environdec.com |
| Product Category Rules review was conducted by:<br>The Technical Committee of the International EPD® System. Chair: Massimo Marino<br>Contact via info@environdec.com |
| Independent verification of the declaration and data, according to ISO 14025:2006:<br>☐ EPD process certification ☒ EPD verification |
| Procedure for follow up of data during EPD validity involves third party verifier:<br>☐ Yes ☒ No |
| Third party verifier:<br>Håkan Stripple at IVL Swedish Environmental Research Institute,<br>P.O. Box 53021, SE-400 14 Gothenburg, Sweden<br>Hakan.Stripple@IVL.se<br><br>Accredited by :<br>Håkan Stripple is an independent individual verifier<br>in the International EPD® System. |
| Declaration owner:<br>Essity Hygiene & Health AB<br>SE-405 03 GÖTEBORG<br>Anna-Karin Gunnergren, anna-karin.gunnergren@essity.com<br>The EPD owner has the sole ownership, liability, and responsibility for the EPD |

# TENA Fix – environmental performance

A seamless, washable and reusable fixation pant supporting leakage security. Ensures that TENA Comfort and TENA Rectangular pads stay securely in place. Soft and elastic material provides comfort. It can be washed several times without losing shape.


| Composition for TENA Fix (all articles) Specific data is used in all calculations. | |
|---|---|
| Pulp | 0 % |
| Polymers | 100 % |

| Content declaration |
|---|
| Elastane |
| Polyamide (part of assortment) |
| Polyester (part of assortment) |

# 1. TENA Fix XS 754049

**one product**

## Environmental impact category

| Parameter | | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|---|
| Global warming potential (GWP) | Fossil | kg $CO_2$ eq. | 0,111 | (N/A) | 0,020 | 0,131 |
| | Biogenic | kg $CO_2$ eq. | 0,000 | (N/A) | 0,000 | 0,001 |
| | Land use and land transformation | kg $CO_2$ eq. | 0,00009 | (N/A) | 0,00002 | 0,00012 |
| | Total | kg $CO_2$ eq. | 0,111 | 0,000 | 0,021 | 0,132 |
| Acidification potential (AP) | | kg $SO_2$ eq. | 2,47E-04 | (N/A) | 2,33E-04 | 4,80E-04 |
| Eutrophication potential (EP) | | kg $PO_4^3$ eq. | 3,19E-05 | (N/A) | 2,55E-05 | 5,74E-05 |
| Formation potential of tropospheric ozone (POCP) | | kg NMVOC eq. | 2,32E-04 | (N/A) | 1,92E-04 | 4,24E-04 |
| Abiotic depletion potential - Elements (ADP-elements) | | kg Sb eq. | 4,30E-08 | (N/A) | 2,80E-10 | 4,33E-08 |
| Abiotic depletion potential - Fossil fuels (ADP-fossil fuels) | | MJ, net calorofic value | 2,00E+00 | (N/A) | 1,14E-01 | 2,11E+00 |
| Water scarcity potential | | $m^3$ eq. | 2,87E-01 | (N/A) | 1,96E-03 | 2,89E-01 |
| Land use and land use change (LUC) | | $m^2$ per year | (N/A) | (N/A) | (N/A) | (N/A) |

## Resources

| Parameter | | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|---|
| Primary energy resources - Renewable | Used as energy carrier | MJ, net calorofic value | 2,55E-01 | (N/A) | 2,36E-03 | 2,58E-01 |
| | Used as raw materials | MJ, net calorofic value | (N/A) | (N/A) | (N/A) | (N/A) |
| | Total | MJ, net calorofic value | 2,55E-01 | 0,00E+00 | 2,36E-03 | 2,58E-01 |
| Primary energy resources - Non-renewable | Used as energy carrier | MJ, net calorofic value | 2,11E+00 | (N/A) | 1,15E-01 | 2,22E+00 |
| | Used as raw materials | MJ, net calorofic value | 8,37E-02 | (N/A) | 7,86E-05 | 8,38E-02 |
| | Total | MJ, net calorofic value | 2,19E+00 | 0,00E+00 | 1,15E-01 | 2,30E+00 |
| Secondary material | | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| Renewable secondary fuels | | MJ, net calorofic value | (N/A) | (N/A) | (N/A) | (N/A) |
| Non-renewable secondary fuels | | MJ, net calorofic value | (N/A) | (N/A) | (N/A) | (N/A) |
| Net use of fresh water | | $m^3$ | 3,20E-03 | (N/A) | 7,95E-05 | 3,28E-03 |

## Waste and output flows

| Parameter | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|
| Hazardous waste disposed | kg | 1,01E-09 | (N/A) | 1,19E-09 | 2,20E-09 |
| Non-hazardous waste disposed | kg | 1,28E-03 | (N/A) | 8,08E-03 | 9,36E-03 |
| Radioactive waste disposed | kg | 3,67E-05 | (N/A) | 3,68E-07 | 3,71E-05 |
| Components for reuse | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| Material for recycling | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| Materials for energy recovery | kg | 0,00 | 0,00 | (N/A) | (N/A) |
| Exported energy, electricity | MJ | (N/A) | (N/A) | (N/A) | (N/A) |
| Exported energy, thermal | MJ | (N/A) | (N/A) | (N/A) | (N/A) |



GWP - Global Warming Potential
AP - Acidification Potential
EP - Eutrophication Potential
POCP - Photochemical Ozon Creation Potential

# 2. TENA Fix S 754023 & 754028 & 754054 & 754055

**one product**

## Environmental impact category

| Parameter | | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|---|
| Global warming potential (GWP) | Fossil | kg $CO_2$ eq. | 0,106 | (N/A) | 0,014 | 0,120 |
| | Biogenic | kg $CO_2$ eq. | 0,000 | (N/A) | 0,000 | 0,000 |
| | Land use and land transformation | kg $CO_2$ eq. | 0,00010 | (N/A) | 0,00002 | 0,00012 |
| | **Total** | kg $CO_2$ eq. | 0,106 | 0,000 | 0,014 | 0,120 |
| Acidification potential (AP) | | kg $SO_2$ eq. | 2,20E-04 | (N/A) | 7,62E-06 | 2,27E-04 |
| Eutrophication potential (EP) | | kg $PO_4^3$ eq. | 3,12E-05 | (N/A) | 2,93E-06 | 3,41E-05 |
| Formation potential of tropospheric ozone (POCP) | | kg NMVOC eq. | 2,06E-04 | (N/A) | 3,88E-06 | 2,10E-04 |
| Abiotic depletion potential - Elements (ADP-elements) | | kg Sb eq. | 6,91E-08 | (N/A) | -1,67E-10 | 6,89E-08 |
| Abiotic depletion potential - Fossil fuels (ADP-fossil fuels) | | MJ, net calorific value | 1,97E+00 | (N/A) | 3,09E-02 | 2,00E+00 |
| Water scarcity potential | | $m^3$ eq. | 9,62E-02 | (N/A) | 2,06E-03 | 9,83E-02 |
| Land use and land use change (LUC) | | $m^2$ per year | (N/A) | (N/A) | (N/A) | (N/A) |

## Resources

| Parameter | | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|---|
| Primary energy resources - Renewable | Used as energy carrier | MJ, net calorific value | 2,82E-01 | (N/A) | 2,13E-03 | 2,84E-01 |
| | Used as raw materials | MJ, net calorific value | (N/A) | (N/A) | (N/A) | (N/A) |
| | **Total** | MJ, net calorific value | 2,82E-01 | 0,00E+00 | 2,13E-03 | 2,84E-01 |
| Primary energy resources - Non-renewable | Used as energy carrier | MJ, net calorific value | 2,24E+00 | (N/A) | 3,17E-02 | 2,27E+00 |
| | Used as raw materials | MJ, net calorific value | 8,34E-02 | (N/A) | 5,00E-05 | 8,34E-02 |
| | **Total** | MJ, net calorific value | 2,33E+00 | 0,00E+00 | 3,17E-02 | 2,36E+00 |
| Secondary material | | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| Renewable secondary fuels | | MJ, net calorific value | (N/A) | (N/A) | (N/A) | (N/A) |
| Non-renewable secondary fuels | | MJ, net calorific value | (N/A) | (N/A) | (N/A) | (N/A) |
| Net use of fresh water | | $m^3$ | 5,11E-03 | (N/A) | 7,58E-05 | 5,19E-03 |

## Waste and output flows

| Parameter | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|
| Hazardous waste disposed | kg | 8,45E-10 | (N/A) | 1,17E-09 | 2,01E-09 |
| Non-hazardous waste disposed | kg | 1,38E-03 | (N/A) | 8,66E-03 | 1,00E-02 |
| Radioactive waste disposed | kg | 1,00E-04 | (N/A) | 2,84E-07 | 1,01E-04 |
| Components for reuse | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| Material for recycling | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| Materials for energy recovery | kg | 0,00 | 0,00 | (N/A) | (N/A) |
| Exported energy, electricity | MJ | (N/A) | (N/A) | (N/A) | (N/A) |
| Exported energy, thermal | MJ | (N/A) | (N/A) | (N/A) | (N/A) |



GWP - Global Warming Potential
AP - Acidification Potential
EP - Eutrophication Potential
POCP - Photochemical Ozon Creation Potential

# 3. TENA Fix M 754024 & 754029 & 754035 & 754056 & 754057

**one product**

## Environmental impact category

| Parameter | | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|---|
| Global warming potential (GWP) | Fossil | kg $CO_2$ eq. | 0,111 | (N/A) | 0,015 | 0,126 |
| | Biogenic | kg $CO_2$ eq. | 0,000 | (N/A) | 0,000 | 0,000 |
| | Land use and land transformation | kg $CO_2$ eq. | 0,00010 | (N/A) | 0,00003 | 0,00013 |
| | **Total** | kg $CO_2$ eq. | 0,112 | 0,000 | 0,015 | 0,126 |
| Acidification potential (AP) | | kg $SO_2$ eq. | 2,31E-04 | (N/A) | 8,04E-06 | 2,39E-04 |
| Eutrophication potential (EP) | | kg $PO_4^3$ eq. | 3,27E-05 | (N/A) | 3,08E-06 | 3,58E-05 |
| Formation potential of tropospheric ozone (POCP) | | kg NMVOC eq. | 2,16E-04 | (N/A) | 4,08E-06 | 2,20E-04 |
| Abiotic depletion potential - Elements (ADP-elements) | | kg Sb eq. | 7,26E-08 | (N/A) | -1,75E-10 | 7,24E-08 |
| Abiotic depletion potential - Fossil fuels (ADP-fossil fuels) | | MJ, net calorific value | 2,07E+00 | (N/A) | 3,26E-02 | 2,10E+00 |
| Water scarcity potential | | $m^3$ eq. | 9,74E-02 | (N/A) | 2,17E-03 | 9,96E-02 |
| Land use and land use change (LUC) | | $m^2$ per year | (N/A) | (N/A) | (N/A) | (N/A) |

## Resources

| Parameter | | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|---|
| Primary energy resources - Renewable | Used as energy carrier | MJ, net calorific value | 2,96E-01 | (N/A) | 2,24E-03 | 2,98E-01 |
| | Used as raw materials | MJ, net calorific value | (N/A) | (N/A) | (N/A) | (N/A) |
| | **Total** | MJ, net calorific value | 2,96E-01 | 0,00E+00 | 2,24E-03 | 2,98E-01 |
| Primary energy resources - Non-renewable | Used as energy carrier | MJ, net calorific value | 2,36E+00 | (N/A) | 3,34E-02 | 2,39E+00 |
| | Used as raw materials | MJ, net calorific value | 8,69E-02 | (N/A) | 5,01E-05 | 8,70E-02 |
| | **Total** | MJ, net calorific value | 2,44E+00 | 0,00E+00 | 3,35E-02 | 2,48E+00 |
| Secondary material | | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| Renewable secondary fuels | | MJ, net calorific value | (N/A) | (N/A) | (N/A) | (N/A) |
| Non-renewable secondary fuels | | MJ, net calorific value | (N/A) | (N/A) | (N/A) | (N/A) |
| Net use of fresh water | | $m^3$ | 5,38E-03 | (N/A) | 7,97E-05 | 5,46E-03 |

## Waste and output flows

| Parameter | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|
| Hazardous waste disposed | kg | 8,85E-10 | (N/A) | 1,23E-09 | 2,12E-09 |
| Non-hazardous waste disposed | kg | 1,45E-03 | (N/A) | 9,11E-03 | 1,06E-02 |
| Radioactive waste disposed | kg | 1,06E-04 | (N/A) | 2,99E-07 | 1,06E-04 |
| Components for reuse | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| Material for recycling | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| Materials for energy recovery | kg | 0,00 | 0,00 | (N/A) | (N/A) |
| Exported energy, electricity | MJ | (N/A) | (N/A) | (N/A) | (N/A) |
| Exported energy, thermal | MJ | (N/A) | (N/A) | (N/A) | (N/A) |



GWP - Global Warming Potential
AP - Acidification Potential
EP - Eutrophication Potential
POCP - Photochemical Ozon Creation Potential

# 4. TENA Fix L 754025 & 754030 & 754036 & 754058 & 754059

**one product**

## Environmental impact category

| Parameter | | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|---|
| Global warming potential (GWP) | Fossil | kg $CO_2$ eq. | 0,122 | (N/A) | 0,016 | 0,138 |
| | Biogenic | kg $CO_2$ eq. | 0,000 | (N/A) | 0,000 | 0,000 |
| | Land use and land transformation | kg $CO_2$ eq. | 0,00011 | (N/A) | 0,00003 | 0,00014 |
| | **Total** | kg $CO_2$ eq. | 0,122 | 0,000 | 0,016 | 0,139 |
| **Acidification potential (AP)** | | kg $SO_2$ eq. | 2,53E-04 | (N/A) | 8,75E-06 | 2,62E-04 |
| **Eutrophication potential (EP)** | | kg $PO_4^3$ eq. | 3,56E-05 | (N/A) | 3,35E-06 | 3,90E-05 |
| **Formation potential of tropospheric ozone (POCP)** | | kg NMVOC eq. | 2,37E-04 | (N/A) | 4,45E-06 | 2,42E-04 |
| **Abiotic depletion potential - Elements (ADP-elements)** | | kg Sb eq. | 7,96E-08 | (N/A) | -1,95E-10 | 7,94E-08 |
| **Abiotic depletion potential - Fossil fuels (ADP-fossil fuels)** | | MJ, net calorofic value | 2,27E+00 | (N/A) | 3,55E-02 | 2,31E+00 |
| **Water scarcity potential** | | $m^3$ eq. | 9,98E-02 | (N/A) | 2,38E-03 | 1,02E-01 |
| **Land use and land use change (LUC)** | | $m^2$ per year | (N/A) | (N/A) | (N/A) | (N/A) |

## Resources

| Parameter | | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|---|
| Primary energy resources - Renewable | Used as energy carrier | MJ, net calorofic value | 3,24E-01 | (N/A) | 2,44E-03 | 3,27E-01 |
| | Used as raw materials | MJ, net calorofic value | (N/A) | (N/A) | (N/A) | (N/A) |
| | **Total** | MJ, net calorofic value | 3,24E-01 | 0,00E+00 | 2,44E-03 | 3,27E-01 |
| Primary energy resources - Non-renewable | Used as energy carrier | MJ, net calorofic value | 2,59E+00 | (N/A) | 3,64E-02 | 2,62E+00 |
| | Used as raw materials | MJ, net calorofic value | 9,40E-02 | (N/A) | 5,02E-05 | 9,40E-02 |
| | **Total** | MJ, net calorofic value | 2,68E+00 | 0,00E+00 | 3,64E-02 | 2,72E+00 |
| **Secondary material** | | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| **Renewable secondary fuels** | | MJ, net calorofic value | (N/A) | (N/A) | (N/A) | (N/A) |
| **Non-renewable secondary fuels** | | MJ, net calorofic value | (N/A) | (N/A) | (N/A) | (N/A) |
| **Net use of fresh water** | | $m^3$ | 5,90E-03 | (N/A) | 8,74E-05 | 5,99E-03 |

## Waste and output flows

| Parameter | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|
| **Hazardous waste disposed** | kg | 9,63E-10 | (N/A) | 1,33E-09 | 2,30E-09 |
| **Non-hazardous waste disposed** | kg | 1,59E-03 | (N/A) | 1,00E-02 | 1,16E-02 |
| **Radioactive waste disposed** | kg | 1,16E-04 | (N/A) | 3,28E-07 | 1,16E-04 |
| **Components for reuse** | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| **Material for recycling** | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| **Materials for energy recovery** | kg | 0,00 | 0,00 | (N/A) | (N/A) |
| **Exported energy, electricity** | MJ | (N/A) | (N/A) | (N/A) | (N/A) |
| **Exported energy, thermal** | MJ | (N/A) | (N/A) | (N/A) | (N/A) |



GWP - Global Warming Potential
AP - Acidification Potential
EP - Eutrophication Potential
POCP - Photochemical Ozon Creation Potential

# 5. TENA Fix XL 754026 & 754031 & 754037 & 754060 & 754061

**one product**

## Environmental impact category

| Parameter | | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|---|
| Global warming potential (GWP) | Fossil | kg $CO_2$ eq. | 0,171 | (N/A) | 0,031 | 0,201 |
| | Biogenic | kg $CO_2$ eq. | 0,000 | (N/A) | 0,000 | 0,001 |
| | Land use and land transformation | kg $CO_2$ eq. | 0,00014 | (N/A) | 0,00004 | 0,00018 |
| | Total | kg $CO_2$ eq. | 0,171 | 0,000 | 0,031 | 0,202 |
| Acidification potential (AP) | | kg $SO_2$ eq. | 3,75E-04 | (N/A) | 3,49E-04 | 7,24E-04 |
| Eutrophication potential (EP) | | kg $PO_4^3$ eq. | 4,75E-05 | (N/A) | 3,82E-05 | 8,58E-05 |
| Formation potential of tropospheric ozone (POCP) | | kg NMVOC eq. | 3,54E-04 | (N/A) | 2,88E-04 | 6,42E-04 |
| Abiotic depletion potential - Elements (ADP-elements) | | kg Sb eq. | 6,52E-08 | (N/A) | 4,15E-10 | 6,56E-08 |
| Abiotic depletion potential - Fossil fuels (ADP-fossil fuels) | | MJ, net calorific value | 3,06E+00 | (N/A) | 1,72E-01 | 3,23E+00 |
| Water scarcity potential | | $m^3$ eq. | 3,35E-01 | (N/A) | 2,99E-03 | 3,38E-01 |
| Land use and land use change (LUC) | | $m^2$ per year | (N/A) | (N/A) | (N/A) | (N/A) |

## Resources

| Parameter | | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|---|
| Primary energy resources - Renewable | Used as energy carrier | MJ, net calorific value | 3,92E-01 | (N/A) | 3,58E-03 | 3,96E-01 |
| | Used as raw materials | MJ, net calorific value | (N/A) | (N/A) | (N/A) | (N/A) |
| | Total | MJ, net calorific value | 3,92E-01 | 0,00E+00 | 3,58E-03 | 3,96E-01 |
| Primary energy resources - Non-renewable | Used as energy carrier | MJ, net calorific value | 3,22E+00 | (N/A) | 1,73E-01 | 3,40E+00 |
| | Used as raw materials | MJ, net calorific value | 1,08E-01 | (N/A) | 1,06E-04 | 1,08E-01 |
| | Total | MJ, net calorific value | 3,33E+00 | 0,00E+00 | 1,73E-01 | 3,50E+00 |
| Secondary material | | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| Renewable secondary fuels | | MJ, net calorific value | (N/A) | (N/A) | (N/A) | (N/A) |
| Non-renewable secondary fuels | | MJ, net calorific value | (N/A) | (N/A) | (N/A) | (N/A) |
| Net use of fresh water | | $m^3$ | 4,94E-03 | (N/A) | 1,21E-04 | 5,06E-03 |

## Waste and output flows

| Parameter | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|
| Hazardous waste disposed | kg | 1,52E-09 | (N/A) | 1,79E-09 | 3,31E-09 |
| Non-hazardous waste disposed | kg | 1,99E-03 | (N/A) | 1,24E-02 | 1,44E-02 |
| Radioactive waste disposed | kg | 5,70E-05 | (N/A) | 5,60E-07 | 5,76E-05 |
| Components for reuse | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| Material for recycling | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| Materials for energy recovery | kg | 0,00 | 0,00 | (N/A) | (N/A) |
| Exported energy, electricity | MJ | (N/A) | (N/A) | (N/A) | (N/A) |
| Exported energy, thermal | MJ | (N/A) | (N/A) | (N/A) | (N/A) |



GWP - Global Warming Potential
AP - Acidification Potential
EP - Eutrophication Potential
POCP - Photochemical Ozon Creation Potential

# 6. TENA Fix XXL 754027 & 754032 & 754038 & 754052 & 754053

**one product**

## Environmental impact category

| Parameter | | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|---|
| Global warming potential (GWP) | Fossil | kg $CO_2$ eq. | 0,179 | (N/A) | 0,032 | 0,211 |
| | Biogenic | kg $CO_2$ eq. | 0,000 | (N/A) | 0,000 | 0,001 |
| | Land use and land transformation | kg $CO_2$ eq. | 0,00015 | (N/A) | 0,00004 | 0,00019 |
| | **Total** | kg $CO_2$ eq. | 0,180 | 0,000 | 0,032 | 0,212 |
| Acidification potential (AP) | | kg $SO_2$ eq. | 3,92E-04 | (N/A) | 3,54E-04 | 7,47E-04 |
| Eutrophication potential (EP) | | kg $PO_4^3$ eq. | 4,89E-05 | (N/A) | 3,88E-05 | 8,78E-05 |
| Formation potential of tropospheric ozone (POCP) | | kg NMVOC eq. | 3,72E-04 | (N/A) | 2,92E-04 | 6,64E-04 |
| Abiotic depletion potential - Elements (ADP-elements) | | kg Sb eq. | 6,79E-08 | (N/A) | 4,20E-10 | 6,83E-08 |
| Abiotic depletion potential - Fossil fuels (ADP-fossil fuels) | | MJ, net calorific value | 3,21E+00 | (N/A) | 1,75E-01 | 3,39E+00 |
| Water scarcity potential | | $m^3$ eq. | 3,34E-01 | (N/A) | 3,14E-03 | 3,37E-01 |
| Land use and land use change (LUC) | | $m^2$ per year | (N/A) | (N/A) | (N/A) | (N/A) |

## Resources

| Parameter | | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|---|
| Primary energy resources - Renewable | Used as energy carrier | MJ, net calorific value | 4,08E-01 | (N/A) | 3,70E-03 | 4,12E-01 |
| | Used as raw materials | MJ, net calorific value | (N/A) | (N/A) | (N/A) | (N/A) |
| | **Total** | MJ, net calorific value | 4,08E-01 | 0,00E+00 | 3,70E-03 | 4,12E-01 |
| Primary energy resources - Non-renewable | Used as energy carrier | MJ, net calorific value | 3,38E+00 | (N/A) | 1,76E-01 | 3,56E+00 |
| | Used as raw materials | MJ, net calorific value | 1,09E-01 | (N/A) | 8,87E-05 | 1,09E-01 |
| | **Total** | MJ, net calorific value | 3,49E+00 | 0,00E+00 | 1,76E-01 | 3,67E+00 |
| Secondary material | | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| Renewable secondary fuels | | MJ, net calorific value | (N/A) | (N/A) | (N/A) | (N/A) |
| Non-renewable secondary fuels | | MJ, net calorific value | (N/A) | (N/A) | (N/A) | (N/A) |
| Net use of fresh water | | $m^3$ | 5,19E-03 | (N/A) | 1,27E-04 | 5,31E-03 |

## Waste and output flows

| Parameter | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|
| Hazardous waste disposed | kg | 1,56E-09 | (N/A) | 1,83E-09 | 3,39E-09 |
| Non-hazardous waste disposed | kg | 2,10E-03 | (N/A) | 1,31E-02 | 1,52E-02 |
| Radioactive waste disposed | kg | 5,98E-05 | (N/A) | 5,82E-07 | 6,04E-05 |
| Components for reuse | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| Material for recycling | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| Materials for energy recovery | kg | 0,00 | 0,00 | 1,44E-02 | 1,44E-02 |
| Exported energy, electricity | MJ | (N/A) | (N/A) | (N/A) | (N/A) |
| Exported energy, thermal | MJ | (N/A) | (N/A) | (N/A) | (N/A) |



GWP - Global Warming Potential
AP - Acidification Potential
EP - Eutrophication Potential
POCP - Photochemical Ozon Creation Potential

# 7. TENA Fix 3XL 754047 & 754062

**one product**

## Environmental impact category

| Parameter | | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|---|
| Global warming potential (GWP) | Fossil | kg $CO_2$ eq. | 0,223 | (N/A) | 0,039 | 0,262 |
| | Biogenic | kg $CO_2$ eq. | 0,001 | (N/A) | 0,000 | 0,001 |
| | Land use and land transformation | kg $CO_2$ eq. | 0,00018 | (N/A) | 0,00005 | 0,00023 |
| | **Total** | kg $CO_2$ eq. | 0,224 | 0,000 | 0,040 | 0,264 |
| **Acidification potential (AP)** | | kg $SO_2$ eq. | 4,85E-04 | (N/A) | 4,42E-04 | 9,27E-04 |
| **Eutrophication potential (EP)** | | kg $PO_4^3$ eq. | 6,03E-05 | (N/A) | 4,84E-05 | 1,09E-04 |
| **Formation potential of tropospheric ozone (POCP)** | | kg NMVOC eq. | 4,61E-04 | (N/A) | 3,64E-04 | 8,25E-04 |
| **Abiotic depletion potential - Elements (ADP-elements)** | | kg Sb eq. | 8,41E-08 | (N/A) | 5,21E-10 | 8,46E-08 |
| **Abiotic depletion potential - Fossil fuels (ADP-fossil fuels)** | | MJ, net calorific value | 3,98E+00 | (N/A) | 2,18E-01 | 4,20E+00 |
| **Water scarcity potential** | | $m^3$ eq. | 3,42E-01 | (N/A) | 3,90E-03 | 3,46E-01 |
| **Land use and land use change (LUC)** | | $m^2$ per year | (N/A) | (N/A) | (N/A) | (N/A) |

## Resources

| Parameter | | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|---|
| Primary energy resources - Renewable | Used as energy carrier | MJ, net calorific value | 5,09E-01 | (N/A) | 4,60E-03 | 5,14E-01 |
| | Used as raw materials | MJ, net calorific value | (N/A) | (N/A) | (N/A) | (N/A) |
| | **Total** | MJ, net calorific value | 5,09E-01 | 0,00E+00 | 4,60E-03 | 5,14E-01 |
| Primary energy resources - Non-renewable | Used as energy carrier | MJ, net calorific value | 4,20E+00 | (N/A) | 2,20E-01 | 4,42E+00 |
| | Used as raw materials | MJ, net calorific value | 1,22E-01 | (N/A) | 1,14E-04 | 1,22E-01 |
| | **Total** | MJ, net calorific value | 4,32E+00 | 0,00E+00 | 2,20E-01 | 4,54E+00 |
| **Secondary material** | | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| **Renewable secondary fuels** | | MJ, net calorific value | (N/A) | (N/A) | (N/A) | (N/A) |
| **Non-renewable secondary fuels** | | MJ, net calorific value | (N/A) | (N/A) | (N/A) | (N/A) |
| **Net use of fresh water** | | $m^3$ | 6,47E-03 | (N/A) | 1,58E-04 | 6,63E-03 |

## Waste and output flows

| Parameter | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|
| **Hazardous waste disposed** | kg | 1,94E-09 | (N/A) | 2,28E-09 | 4,22E-09 |
| **Non-hazardous waste disposed** | kg | 2,63E-03 | (N/A) | 1,62E-02 | 1,89E-02 |
| **Radioactive waste disposed** | kg | 7,48E-05 | (N/A) | 7,23E-07 | 7,56E-05 |
| **Components for reuse** | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| **Material for recycling** | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| **Materials for energy recovery** | kg | 0,00 | 0,00 | 1,80E-02 | 1,80E-02 |
| **Exported energy, electricity** | MJ | (N/A) | (N/A) | (N/A) | (N/A) |
| **Exported energy, thermal** | MJ | (N/A) | (N/A) | (N/A) | (N/A) |



GWP - Global Warming Potential
AP - Acidification Potential
EP - Eutrophication Potential
POCP - Photochemical Ozon Creation Potential

# 8. TENA Fix 4XL 754067

**one product**

## Environmental impact category

| Parameter | | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|---|
| Global warming potential (GWP) | Fossil | kg $CO_2$ eq. | 0,260 | (N/A) | 0,046 | 0,306 |
| | Biogenic | kg $CO_2$ eq. | 0,001 | (N/A) | 0,000 | 0,001 |
| | Land use and land transformation | kg $CO_2$ eq. | 0,00022 | (N/A) | 0,00005 | 0,00027 |
| | **Total** | kg $CO_2$ eq. | 0,261 | 0,000 | 0,046 | 0,307 |
| Acidification potential (AP) | | kg $SO_2$ eq. | 5,63E-04 | (N/A) | 5,10E-04 | 1,07E-03 |
| Eutrophication potential (EP) | | kg $PO_4^3$ eq. | 6,94E-05 | (N/A) | 5,59E-05 | 1,25E-04 |
| Formation potential of tropospheric ozone (POCP) | | kg NMVOC eq. | 5,37E-04 | (N/A) | 4,21E-04 | 9,58E-04 |
| Abiotic depletion potential - Elements (ADP-elements) | | kg Sb eq. | 9,74E-08 | (N/A) | 5,99E-10 | 9,80E-08 |
| Abiotic depletion potential - Fossil fuels (ADP-fossil fuels) | | MJ, net calorific value | 4,64E+00 | (N/A) | 2,52E-01 | 4,89E+00 |
| Water scarcity potential | | $m^3$ eq. | 3,48E-01 | (N/A) | 4,54E-03 | 3,52E-01 |
| Land use and land use change (LUC) | | $m^2$ per year | (N/A) | (N/A) | (N/A) | (N/A) |

## Resources

| Parameter | | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|---|
| Primary energy resources - Renewable | Used as energy carrier | MJ, net calorific value | 5,93E-01 | (N/A) | 5,33E-03 | 5,98E-01 |
| | Used as raw materials | MJ, net calorific value | (N/A) | (N/A) | (N/A) | (N/A) |
| | **Total** | MJ, net calorific value | 5,93E-01 | 0,00E+00 | 5,33E-03 | 5,98E-01 |
| Primary energy resources - Non-renewable | Used as energy carrier | MJ, net calorific value | 4,89E+00 | (N/A) | 2,54E-01 | 5,14E+00 |
| | Used as raw materials | MJ, net calorific value | 1,31E-01 | (N/A) | 1,22E-04 | 1,31E-01 |
| | **Total** | MJ, net calorific value | 5,02E+00 | 0,00E+00 | 2,54E-01 | 5,27E+00 |
| Secondary material | | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| Renewable secondary fuels | | MJ, net calorific value | (N/A) | (N/A) | (N/A) | (N/A) |
| Non-renewable secondary fuels | | MJ, net calorific value | (N/A) | (N/A) | (N/A) | (N/A) |
| Net use of fresh water | | $m^3$ | 7,55E-03 | (N/A) | 1,83E-04 | 7,73E-03 |

## Waste and output flows

| Parameter | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|
| Hazardous waste disposed | kg | 2,24E-09 | (N/A) | 2,64E-09 | 4,87E-09 |
| Non-hazardous waste disposed | kg | 3,08E-03 | (N/A) | 1,89E-02 | 2,20E-02 |
| Radioactive waste disposed | kg | 8,75E-05 | (N/A) | 8,40E-07 | 8,83E-05 |
| Components for reuse | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| Material for recycling | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| Materials for energy recovery | kg | 0,00 | 0,00 | 2,10E-02 | 2,10E-02 |
| Exported energy, electricity | MJ | (N/A) | (N/A) | (N/A) | (N/A) |
| Exported energy, thermal | MJ | (N/A) | (N/A) | (N/A) | (N/A) |



GWP - Global Warming Potential
AP - Acidification Potential
EP - Eutrophication Potential
POCP - Photochemical Ozon Creation Potential

# 9. TENA Fix 5XL 754068

**one product**

## Environmental impact category

| Parameter | | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|---|
| Global warming potential (GWP) | Fossil | kg $CO_2$ eq. | 0,305 | (N/A) | 0,054 | 0,358 |
| | Biogenic | kg $CO_2$ eq. | 0,001 | (N/A) | 0,001 | 0,001 |
| | Land use and land transformation | kg $CO_2$ eq. | 0,00025 | (N/A) | 0,00006 | 0,00032 |
| | Total | kg $CO_2$ eq. | 0,306 | 0,000 | 0,054 | 0,360 |
| Acidification potential (AP) | | kg $SO_2$ eq. | 6,61E-04 | (N/A) | 5,99E-04 | 1,26E-03 |
| Eutrophication potential (EP) | | kg $PO_4^3$ eq. | 8,16E-05 | (N/A) | 6,56E-05 | 1,47E-04 |
| Formation potential of tropospheric ozone (POCP) | | kg NMVOC eq. | 6,29E-04 | (N/A) | 4,94E-04 | 1,12E-03 |
| Abiotic depletion potential - Elements (ADP-elements) | | kg Sb eq. | 1,14E-07 | (N/A) | 7,03E-10 | 1,15E-07 |
| Abiotic depletion potential - Fossil fuels (ADP-fossil fuels) | | MJ, net calorific value | 5,44E+00 | (N/A) | 2,96E-01 | 5,74E+00 |
| Water scarcity potential | | $m^3$ eq. | 4,31E-01 | (N/A) | 5,32E-03 | 4,37E-01 |
| Land use and land use change (LUC) | | $m^2$ per year | (N/A) | (N/A) | (N/A) | (N/A) |

## Resources

| Parameter | | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|---|
| Primary energy resources - Renewable | Used as energy carrier | MJ, net calorific value | 6,95E-01 | (N/A) | 6,26E-03 | 7,01E-01 |
| | Used as raw materials | MJ, net calorific value | (N/A) | (N/A) | (N/A) | (N/A) |
| | Total | MJ, net calorific value | 6,95E-01 | 0,00E+00 | 6,26E-03 | 7,01E-01 |
| Primary energy resources - Non-renewable | Used as energy carrier | MJ, net calorific value | 5,73E+00 | (N/A) | 2,98E-01 | 6,03E+00 |
| | Used as raw materials | MJ, net calorific value | 1,59E-01 | (N/A) | 1,44E-04 | 1,59E-01 |
| | Total | MJ, net calorific value | 5,89E+00 | 0,00E+00 | 2,98E-01 | 6,19E+00 |
| Secondary material | | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| Renewable secondary fuels | | MJ, net calorific value | (N/A) | (N/A) | (N/A) | (N/A) |
| Non-renewable secondary fuels | | MJ, net calorific value | (N/A) | (N/A) | (N/A) | (N/A) |
| Net use of fresh water | | $m^3$ | 8,84E-03 | (N/A) | 2,15E-04 | 9,06E-03 |

## Waste and output flows

| Parameter | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|
| Hazardous waste disposed | kg | 2,63E-09 | (N/A) | 3,09E-09 | 5,72E-09 |
| Non-hazardous waste disposed | kg | 3,60E-03 | (N/A) | 2,22E-02 | 2,58E-02 |
| Radioactive waste disposed | kg | 1,02E-04 | (N/A) | 9,85E-07 | 1,03E-04 |
| Components for reuse | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| Material for recycling | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| Materials for energy recovery | kg | 0,00 | 0,00 | 2,46E-02 | 2,46E-02 |
| Exported energy, electricity | MJ | (N/A) | (N/A) | (N/A) | (N/A) |
| Exported energy, thermal | MJ | (N/A) | (N/A) | (N/A) | (N/A) |



GWP - Global Warming Potential
AP - Acidification Potential
EP - Eutrophication Potential
POCP - Photochemical Ozon Creation Potential

# 10. TENA Fix Acute 754070

**one product**

## Environmental impact category

| Parameter | | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|---|
| Global warming potential (GWP) | Fossil | kg $CO_2$ eq. | 0,040 | (N/A) | 0,005 | 0,045 |
| | Biogenic | kg $CO_2$ eq. | 0,000 | (N/A) | 0,000 | 0,000 |
| | Land use and land transformation | kg $CO_2$ eq. | 0,00004 | (N/A) | 0,00001 | 0,00005 |
| | Total | kg $CO_2$ eq. | 0,040 | 0,000 | 0,005 | 0,045 |
| Acidification potential (AP) | | kg $SO_2$ eq. | 8,38E-05 | (N/A) | 3,04E-06 | 8,68E-05 |
| Eutrophication potential (EP) | | kg $PO_4^3$ eq. | 1,24E-05 | (N/A) | 1,19E-06 | 1,36E-05 |
| Formation potential of tropospheric ozone (POCP) | | kg NMVOC eq. | 7,77E-05 | (N/A) | 1,54E-06 | 7,92E-05 |
| Abiotic depletion potential - Elements (ADP-elements) | | kg Sb eq. | 2,62E-08 | (N/A) | -5,47E-11 | 2,62E-08 |
| Abiotic depletion potential - Fossil fuels (ADP-fossil fuels) | | MJ, net calorofic value | 7,41E-01 | (N/A) | 1,24E-02 | 7,54E-01 |
| Water scarcity potential | | $m^3$ eq. | 4,89E-02 | (N/A) | 7,73E-04 | 4,96E-02 |
| Land use and land use change (LUC) | | $m^2$ per year | (N/A) | (N/A) | (N/A) | (N/A) |

## Resources

| Parameter | | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|---|
| Primary energy resources - Renewable | Used as energy carrier | MJ, net calorofic value | 1,09E-01 | (N/A) | 8,41E-04 | 1,10E-01 |
| | Used as raw materials | MJ, net calorofic value | (N/A) | (N/A) | (N/A) | (N/A) |
| | Total | MJ, net calorofic value | 1,09E-01 | 0,00E+00 | 8,41E-04 | 1,10E-01 |
| Primary energy resources - Non-renewable | Used as energy carrier | MJ, net calorofic value | 8,43E-01 | (N/A) | 1,27E-02 | 8,56E-01 |
| | Used as raw materials | MJ, net calorofic value | 3,40E-02 | (N/A) | 3,64E-05 | 3,40E-02 |
| | Total | MJ, net calorofic value | 8,77E-01 | 0,00E+00 | 1,27E-02 | 8,90E-01 |
| Secondary material | | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| Renewable secondary fuels | | MJ, net calorofic value | (N/A) | (N/A) | (N/A) | (N/A) |
| Non-renewable secondary fuels | | MJ, net calorofic value | (N/A) | (N/A) | (N/A) | (N/A) |
| Net use of fresh water | | $m^3$ | 1,91E-03 | (N/A) | 2,85E-05 | 1,94E-03 |

## Waste and output flows

| Parameter | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|
| Hazardous waste disposed | kg | 3,44E-10 | (N/A) | 4,81E-10 | 8,26E-10 |
| Non-hazardous waste disposed | kg | 5,09E-04 | (N/A) | 3,21E-03 | 3,72E-03 |
| Radioactive waste disposed | kg | 3,73E-05 | (N/A) | 1,07E-07 | 3,74E-05 |
| Components for reuse | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| Material for recycling | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| Materials for energy recovery | kg | 0,00 | 0,00 | 3,59E-03 | 3,59E-03 |
| Exported energy, electricity | MJ | (N/A) | (N/A) | (N/A) | (N/A) |
| Exported energy, thermal | MJ | (N/A) | (N/A) | (N/A) | (N/A) |



GWP - Global Warming Potential
AP - Acidification Potential
EP - Eutrophication Potential
POCP - Photochemical Ozon Creation Potential

# 11. TENA Fix Original S 755402

**one product**

## Environmental impact category

| Parameter | | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|---|
| Global warming potential (GWP) | Fossil | kg $CO_2$ eq. | 0,040 | (N/A) | 0,005 | 0,045 |
| | Biogenic | kg $CO_2$ eq. | 0,000 | (N/A) | 0,000 | 0,000 |
| | Land use and land transformation | kg $CO_2$ eq. | 0,00004 | (N/A) | 0,00001 | 0,00005 |
| | **Total** | kg $CO_2$ eq. | 0,040 | 0,000 | 0,006 | 0,046 |
| Acidification potential (AP) | | kg $SO_2$ eq. | 8,59E-05 | (N/A) | 3,21E-06 | 8,92E-05 |
| Eutrophication potential (EP) | | kg $PO_4^3$ eq. | 1,33E-05 | (N/A) | 1,27E-06 | 1,46E-05 |
| Formation potential of tropospheric ozone (POCP) | | kg NMVOC eq. | 7,84E-05 | (N/A) | 1,62E-06 | 8,00E-05 |
| Abiotic depletion potential - Elements (ADP-elements) | | kg Sb eq. | 2,65E-08 | (N/A) | -4,50E-11 | 2,64E-08 |
| Abiotic depletion potential - Fossil fuels (ADP-fossil fuels) | | MJ, net calorific value | 7,44E-01 | (N/A) | 1,31E-02 | 7,58E-01 |
| Water scarcity potential | | $m^3$ eq. | 8,24E-02 | (N/A) | 7,74E-04 | 8,32E-02 |
| Land use and land use change (LUC) | | $m^2$ per year | (N/A) | (N/A) | (N/A) | (N/A) |

## Resources

| Parameter | | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|---|
| Primary energy resources - Renewable | Used as energy carrier | MJ, net calorific value | 1,11E-01 | (N/A) | 8,85E-04 | 1,12E-01 |
| | Used as raw materials | MJ, net calorific value | (N/A) | (N/A) | (N/A) | (N/A) |
| | **Total** | MJ, net calorific value | 1,11E-01 | 0,00E+00 | 8,85E-04 | 1,12E-01 |
| Primary energy resources - Non-renewable | Used as energy carrier | MJ, net calorific value | 8,45E-01 | (N/A) | 1,34E-02 | 8,59E-01 |
| | Used as raw materials | MJ, net calorific value | 4,06E-02 | (N/A) | 5,36E-05 | 4,06E-02 |
| | **Total** | MJ, net calorific value | 8,86E-01 | 0,00E+00 | 1,35E-02 | 8,99E-01 |
| Secondary material | | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| Renewable secondary fuels | | MJ, net calorific value | (N/A) | (N/A) | (N/A) | (N/A) |
| Non-renewable secondary fuels | | MJ, net calorific value | (N/A) | (N/A) | (N/A) | (N/A) |
| Net use of fresh water | | $m^3$ | 1,89E-03 | (N/A) | 2,86E-05 | 1,92E-03 |

## Waste and output flows

| Parameter | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|
| Hazardous waste disposed | kg | 3,73E-10 | (N/A) | 5,25E-10 | 8,98E-10 |
| Non-hazardous waste disposed | kg | 4,96E-04 | (N/A) | 3,17E-03 | 3,67E-03 |
| Radioactive waste disposed | kg | 3,65E-05 | (N/A) | 1,08E-07 | 3,67E-05 |
| Components for reuse | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| Material for recycling | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| Materials for energy recovery | kg | 0,00 | 0,00 | 3,49E-03 | 3,49E-03 |
| Exported energy, electricity | MJ | (N/A) | (N/A) | (N/A) | (N/A) |
| Exported energy, thermal | MJ | (N/A) | (N/A) | (N/A) | (N/A) |



GWP - Global Warming Potential
AP - Acidification Potential
EP - Eutrophication Potential
POCP - Photochemical Ozon Creation Potential

# 12. TENA Fix Original M 755501

**one product**

## Environmental impact category

| Parameter | | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|---|
| Global warming potential (GWP) | Fossil | kg $CO_2$ eq. | 0,046 | (N/A) | 0,006 | 0,053 |
| | Biogenic | kg $CO_2$ eq. | 0,000 | (N/A) | 0,000 | 0,000 |
| | Land use and land transformation | kg $CO_2$ eq. | 0,00004 | (N/A) | 0,00001 | 0,00006 |
| | **Total** | kg $CO_2$ eq. | 0,047 | 0,000 | 0,006 | 0,053 |
| **Acidification potential (AP)** | | kg $SO_2$ eq. | 9,92E-05 | (N/A) | 3,64E-06 | 1,03E-04 |
| **Eutrophication potential (EP)** | | kg $PO_4^3$ eq. | 1,51E-05 | (N/A) | 1,44E-06 | 1,66E-05 |
| **Formation potential of tropospheric ozone (POCP)** | | kg NMVOC eq. | 9,10E-05 | (N/A) | 1,85E-06 | 9,28E-05 |
| **Abiotic depletion potential - Elements (ADP-elements)** | | kg Sb eq. | 3,07E-08 | (N/A) | -5,72E-11 | 3,06E-08 |
| **Abiotic depletion potential - Fossil fuels (ADP-fossil fuels)** | | MJ, net calorific value | 8,65E-01 | (N/A) | 1,48E-02 | 8,80E-01 |
| **Water scarcity potential** | | $m^3$ eq. | 8,39E-02 | (N/A) | 9,01E-04 | 8,48E-02 |
| **Land use and land use change (LUC)** | | $m^2$ per year | (N/A) | (N/A) | (N/A) | (N/A) |

## Resources

| Parameter | | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|---|
| Primary energy resources - Renewable | Used as energy carrier | MJ, net calorific value | 1,28E-01 | (N/A) | 1,01E-03 | 1,29E-01 |
| | Used as raw materials | MJ, net calorific value | (N/A) | (N/A) | (N/A) | (N/A) |
| | **Total** | MJ, net calorific value | 1,28E-01 | 0,00E+00 | 1,01E-03 | 1,29E-01 |
| Primary energy resources - Non-renewable | Used as energy carrier | MJ, net calorific value | 9,83E-01 | (N/A) | 1,52E-02 | 9,98E-01 |
| | Used as raw materials | MJ, net calorific value | 4,48E-02 | (N/A) | 5,36E-05 | 4,48E-02 |
| | **Total** | MJ, net calorific value | 1,03E+00 | 0,00E+00 | 1,52E-02 | 1,04E+00 |
| **Secondary material** | | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| **Renewable secondary fuels** | | MJ, net calorific value | (N/A) | (N/A) | (N/A) | (N/A) |
| **Non-renewable secondary fuels** | | MJ, net calorific value | (N/A) | (N/A) | (N/A) | (N/A) |
| **Net use of fresh water** | | $m^3$ | 2,20E-03 | (N/A) | 3,32E-05 | 2,24E-03 |

## Waste and output flows

| Parameter | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|
| **Hazardous waste disposed** | kg | 4,21E-10 | (N/A) | 5,86E-10 | 1,01E-09 |
| **Non-hazardous waste disposed** | kg | 5,83E-04 | (N/A) | 3,71E-03 | 4,30E-03 |
| **Radioactive waste disposed** | kg | 4,28E-05 | (N/A) | 1,26E-07 | 4,30E-05 |
| **Components for reuse** | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| **Material for recycling** | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| **Materials for energy recovery** | kg | 0,00 | 0,00 | 4,10E-03 | 4,10E-03 |
| **Exported energy, electricity** | MJ | (N/A) | (N/A) | (N/A) | (N/A) |
| **Exported energy, thermal** | MJ | (N/A) | (N/A) | (N/A) | (N/A) |



GWP - Global Warming Potential
AP - Acidification Potential
EP - Eutrophication Potential
POCP - Photochemical Ozon Creation Potential

# 13. TENA Fix Original L 755612

**one product**

## Environmental impact category

| Parameter | | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|---|
| Global warming potential (GWP) | Fossil | kg $CO_2$ eq. | 0,050 | (N/A) | 0,007 | 0,056 |
| | Biogenic | kg $CO_2$ eq. | 0,000 | (N/A) | 0,000 | 0,000 |
| | Land use and land transformation | kg $CO_2$ eq. | 0,00005 | (N/A) | 0,00001 | 0,00006 |
| | **Total** | kg $CO_2$ eq. | 0,050 | 0,000 | 0,007 | 0,057 |
| Acidification potential (AP) | | kg $SO_2$ eq. | 1,06E-04 | (N/A) | 3,85E-06 | 1,10E-04 |
| Eutrophication potential (EP) | | kg $PO_4^3$ eq. | 1,60E-05 | (N/A) | 1,52E-06 | 1,75E-05 |
| Formation potential of tropospheric ozone (POCP) | | kg NMVOC eq. | 9,72E-05 | (N/A) | 1,96E-06 | 9,92E-05 |
| Abiotic depletion potential - Elements (ADP-elements) | | kg Sb eq. | 3,28E-08 | (N/A) | -6,33E-11 | 3,27E-08 |
| Abiotic depletion potential - Fossil fuels (ADP-fossil fuels) | | MJ, net calorific value | 9,26E-01 | (N/A) | 1,57E-02 | 9,41E-01 |
| Water scarcity potential | | $m^3$ eq. | 8,46E-02 | (N/A) | 9,64E-04 | 8,55E-02 |
| Land use and land use change (LUC) | | $m^2$ per year | (N/A) | (N/A) | (N/A) | (N/A) |

## Resources

| Parameter | | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|---|
| Primary energy resources - Renewable | Used as energy carrier | MJ, net calorific value | 1,36E-01 | (N/A) | 1,06E-03 | 1,37E-01 |
| | Used as raw materials | MJ, net calorific value | (N/A) | (N/A) | (N/A) | (N/A) |
| | **Total** | MJ, net calorific value | 1,36E-01 | 0,00E+00 | 1,06E-03 | 1,37E-01 |
| Primary energy resources - Non-renewable | Used as energy carrier | MJ, net calorific value | 1,05E+00 | (N/A) | 1,61E-02 | 1,07E+00 |
| | Used as raw materials | MJ, net calorific value | 4,69E-02 | (N/A) | 5,37E-05 | 4,70E-02 |
| | **Total** | MJ, net calorific value | 1,10E+00 | 0,00E+00 | 1,61E-02 | 1,12E+00 |
| Secondary material | | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| Renewable secondary fuels | | MJ, net calorific value | (N/A) | (N/A) | (N/A) | (N/A) |
| Non-renewable secondary fuels | | MJ, net calorific value | (N/A) | (N/A) | (N/A) | (N/A) |
| Net use of fresh water | | $m^3$ | 2,36E-03 | (N/A) | 3,55E-05 | 2,40E-03 |

## Waste and output flows

| Parameter | Unit | Upstream | Core | Downstream | Total |
|---|---|---|---|---|---|
| Hazardous waste disposed | kg | 4,44E-10 | (N/A) | 6,16E-10 | 1,06E-09 |
| Non-hazardous waste disposed | kg | 6,27E-04 | (N/A) | 3,98E-03 | 4,61E-03 |
| Radioactive waste disposed | kg | 4,60E-05 | (N/A) | 1,34E-07 | 4,61E-05 |
| Components for reuse | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| Material for recycling | kg | (N/A) | (N/A) | (N/A) | (N/A) |
| Materials for energy recovery | kg | 0,00 | 0,00 | 4,41E-03 | 4,41E-03 |
| Exported energy, electricity | MJ | (N/A) | (N/A) | (N/A) | (N/A) |
| Exported energy, thermal | MJ | (N/A) | (N/A) | (N/A) | (N/A) |



GWP - Global Warming Potential
AP - Acidification Potential
EP - Eutrophication Potential
POCP - Photochemical Ozon Creation Potential

# References


1. PCR 2011:14 v. 3.01
2. General Programme Instructions for the International EPD® System v. 3.01
3. ISO 14040:2006 Environmental management – Life cycle assessment – Principles and framework
4. ISO 14044:2006 Environmental management – Life cycle assessment – Requirements and guidelines
5. ISO 14025:2006 Environmental labels and declarations – Type III environmental declarations – Principles and procedures
6. ISO 14020:2000 Environmental labels and declarations – General principles
7. DPCM 12/01/17 – G.U. n. 65 del 18 marzo 2017
8. www.environdec.com


| Version | Revision Item |
|---|---|
| 4 | |
| 5 | New articles added (no new LCA calculations):<br>TENA Fix S, art no 754054 & 754055<br>TENA Fix M, art no 754035 & 754056 & 754057<br>TENA Fix L, art no 754036 & 754058 & 754059<br>TENA Fix XL, art no 754037 & 754060 & 754061<br>TENA Fix XXL, art no 754038 & 754052 & 754053<br>TENA Fix 3XL, art no 754062 |

## Making a better mark – for people, and for the planet

We create value for customers and consumers by increasing health and hygiene standards through our innovative solutions, and by sharing knowledge and promoting awareness.

We create business value by meeting societal needs and offering more people an opportunity to work, in better conditions, so they can provide for their families and live happier, fuller lives.

Since 2008 we've also been taking steps to make every TENA product more sustainable. For example, by converting to 100% renewable electricity in all our factories. Our goal is to reduce the carbon footprint of our products and services by 50 % by 2030.

Step by step, to leave a better mark on the planet.