

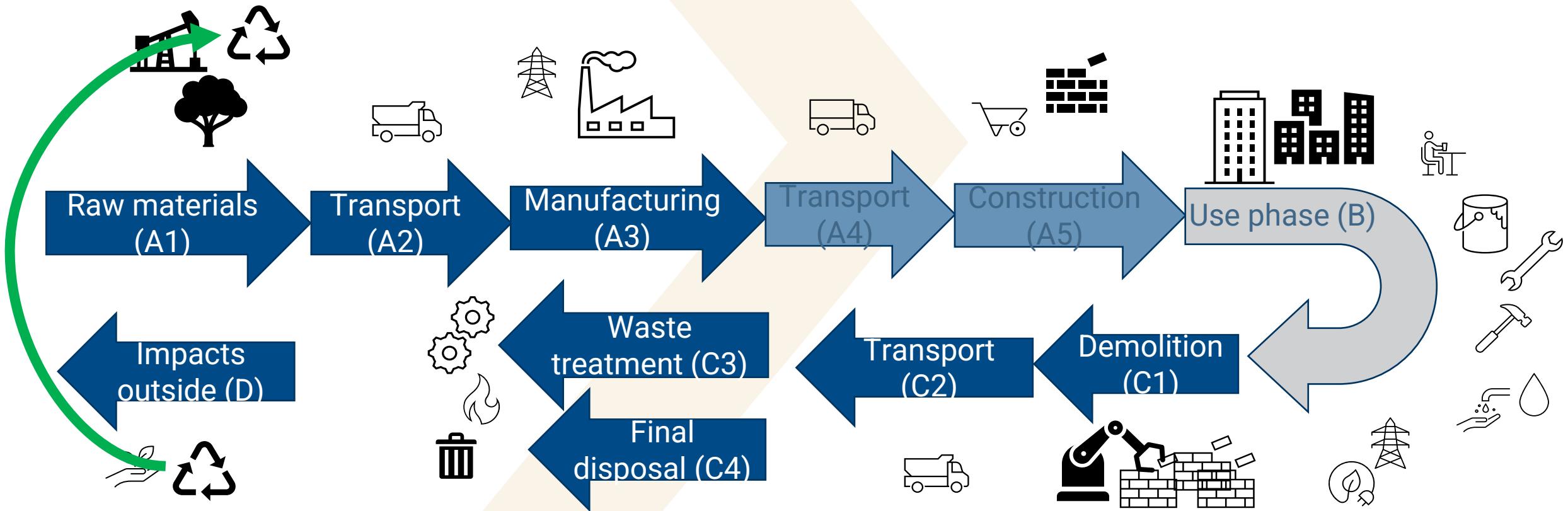
# RAKENNUSTIETO

## Ympäristöselosteet

Suorin tie hyvään rakennustapaan  
28.9.2023 | Jukka Seppänen



# Elinkaarianalyysin tiedot esitetään moduuleittain



# Tulokset esittävät vaikutuksia

- Tulokset esitetään indikaattoreina, joissa on yhdistetty vaikutuksia, kuten kgCO<sub>2</sub>e
- Indikaattorit esitetään kaikille raportoiduille moduuleille
- Ympäristöseloste ei ota kantaa siihen onko tuote hyvä vai huono, se esittää vaikutukset

| Ravintoarvo /<br>Näringsvärde       | 100 g                 | 1 keksi /<br>kex (30 g)    |
|-------------------------------------|-----------------------|----------------------------|
| Energiaa / Energi                   | 1750 kJ /<br>418 kcal | 525 kJ /<br>125 kcal (6%*) |
| Rasvaa / Fett                       | 15 g                  | 4,5 g (6%*)                |
| josta tyydyttyntä / varav mättat    | 1,3 g                 | 0,4 g (2%*)                |
| Hiilihydraatteja / Kolhydrater      | 56 g                  | 17 g (6%*)                 |
| josta sokereita / varav sockerarter | 16 g                  | 4,9 g (5%*)                |
| Ravintokuitua / Kostfiber           | 11 g                  | 3,4 g                      |
| Proteiinia / Protein                | 9,1 g                 | 2,7 g (5%*)                |
| Suolaa / Salt                       | 1,0 g                 | 0,31 g (5%*)               |
| Laktoosia / Laktos                  | < 0,01 g/100 g        |                            |

\* aikuisen keskiarvo käyttäjän saannin vertailuarvo /  
referensintag för en genomsnittlig vuxen (8400 kJ/2000 kcal)

**Saattaa sisältää pieniä määriä muita viljoja, maitoa.** Kauraa 100% viljaraaka-aineista. Laktoositon.  
**Säilytys:** Kuivassa ja viileässä.



# Ympäristövaikutuksiin liittyvät indikaattorit

## CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

| Impact category                                    | Unit                      | A1       | A2       | A3       | A1-A3    | A4       | A5  | B1-B7 | C1       | C2       | C3       | C4       | D         |
|--|---------------------------|----------|----------|----------|----------|----------|-----|-------|----------|----------|----------|----------|-----------|
| Climate change – total                             | kg CO <sub>2</sub> e      | 2.27E+00 | 2.08E-01 | 1.79E-01 | 2.66E+00 | 1.83E-02 | MND | MND   | 0.00E+00 | 6.08E-03 | 6.19E-01 | 0.00E+00 | -1.65E+00 |
| Climate change – fossil                            | kg CO <sub>2</sub> e      | 2.26E+00 | 2.08E-01 | 1.77E-01 | 2.65E+00 | 1.85E-02 | MND | MND   | 0.00E+00 | 6.07E-03 | 6.19E-01 | 0.00E+00 | -1.65E+00 |
| Climate change – biogenic                          | kg CO <sub>2</sub> e      | 6.65E-03 | 1.27E-04 | 5.58E-04 | 7.34E-03 | 1.34E-05 | MND | MND   | 0.00E+00 | 3.72E-06 | 4.06E-05 | 0.00E+00 | -4.69E-03 |
| Climate change – LULUC                             | kg CO <sub>2</sub> e      | 2.05E-03 | 6.93E-05 | 1.48E-03 | 3.60E-03 | 5.56E-06 | MND | MND   | 0.00E+00 | 2.14E-06 | 2.00E-05 | 0.00E+00 | -1.75E-03 |
| Ozone depletion                                    | kg CFC11e                 | 4.95E-06 | 4.79E-08 | 1.95E-08 | 5.02E-06 | 4.34E-09 | MND | MND   | 0.00E+00 | 1.39E-09 | 7.95E-09 | 0.00E+00 | -4.56E-06 |
| Acidification                                      | mol H <sup>+</sup> e      | 7.75E-03 | 8.59E-04 | 7.26E-04 | 9.34E-03 | 7.76E-05 | MND | MND   | 0.00E+00 | 2.50E-05 | 5.17E-03 | 0.00E+00 | -5.58E-03 |
| Eutrophication, aquatic freshwater <sup>1</sup>    | kg Pe                     | 3.29E-05 | 1.72E-06 | 7.94E-06 | 4.26E-05 | 1.50E-07 | MND | MND   | 0.00E+00 | 5.25E-08 | 4.72E-07 | 0.00E+00 | -1.58E-05 |
| Eutrophication, aquatic marine                     | kg Ne                     | 1.49E-03 | 2.57E-04 | 1.29E-04 | 1.88E-03 | 2.34E-05 | MND | MND   | 0.00E+00 | 7.41E-06 | 3.02E-03 | 0.00E+00 | -1.18E-03 |
| Eutrophication, terrestrial                        | mol Ne                    | 1.69E-02 | 2.83E-03 | 1.53E-03 | 2.13E-02 | 2.58E-04 | MND | MND   | 0.00E+00 | 8.18E-05 | 2.93E-02 | 0.00E+00 | -1.34E-02 |
| Photochemical ozone formation                      | kg NMVOCe                 | 5.42E-03 | 8.86E-04 | 3.07E-03 | 9.38E-03 | 8.30E-05 | MND | MND   | 0.00E+00 | 2.57E-05 | 7.25E-03 | 0.00E+00 | -6.85E-03 |
| Abiotic depletion, minerals & metals <sup>2</sup>  | kg Sbe                    | 3.09E-04 | 4.79E-06 | 7.16E-07 | 3.15E-04 | 3.15E-07 | MND | MND   | 0.00E+00 | 1.52E-07 | 7.52E-07 | 0.00E+00 | -1.37E-04 |
| Abiotic depletion of fossil resources <sup>2</sup> | MJ                        | 6.92E+01 | 3.17E+00 | 5.32E+00 | 7.77E+01 | 2.87E-01 | MND | MND   | 0.00E+00 | 9.26E-02 | 5.92E-01 | 0.00E+00 | -6.25E+01 |
| Water use <sup>2</sup>                             | m <sup>3</sup> e deprived | 4.61E-01 | 1.09E-02 | 7.07E-02 | 5.43E-01 | 1.07E-03 | MND | MND   | 0.00E+00 | 3.29E-04 | 1.75E-02 | 0.00E+00 | -4.06E-01 |

<sup>1</sup> The required characterisation method and data are in kg P-eq; to get PO<sub>4</sub>e, multiply the result by 3.07.

<sup>2</sup> EN 15804+A2 Disclaimer 2: "The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator."

# Terveyteen liittyvät indikaattorit

## ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

| Impact category                                    | Unit      | A1       | A2       | A3       | A1-A3    | A4       | A5  | B1-B7 | C1       | C2       | C3       | C4       | D         |
|--|-----------|----------|----------|----------|----------|----------|-----|-------|----------|----------|----------|----------|-----------|
| Particulate matter                                 | Incidence | 1.33E-07 | 1.62E-08 | 3.92E-09 | 1.53E-07 | 1.67E-09 | MND | MND   | 0.00E+00 | 4.69E-10 | 2.65E-07 | 0.00E+00 | -7.43E-08 |
| Ionizing radiation, human health <sup>3</sup>      | kBq U235e | 7.80E-01 | 1.39E-02 | 9.93E-02 | 8.93E-01 | 1.26E-03 | MND | MND   | 0.00E+00 | 4.05E-04 | 2.12E-03 | 0.00E+00 | -8.07E-01 |
| Eco-toxicity (freshwater) <sup>2</sup>             | CTUe      | 2.57E+01 | 2.44E+00 | 2.76E+00 | 3.09E+01 | 2.20E-01 | MND | MND   | 0.00E+00 | 7.23E-02 | 1.26E+01 | 0.00E+00 | -1.43E+01 |
| Human toxicity, cancer effects <sup>2</sup>        | CTUh      | 1.57E-09 | 6.74E-11 | 5.53E-11 | 1.69E-09 | 5.62E-12 | MND | MND   | 0.00E+00 | 2.05E-12 | 4.15E-09 | 0.00E+00 | -7.87E-10 |
| Human toxicity, non-cancer effects <sup>2</sup>    | CTUh      | 3.11E-08 | 2.81E-09 | 1.41E-09 | 3.53E-08 | 2.60E-10 | MND | MND   | 0.00E+00 | 8.30E-11 | 1.55E-08 | 0.00E+00 | -2.90E-08 |
| Land use related impacts/soil quality <sup>2</sup> | -         | 1.09E+00 | 3.52E+00 | 1.54E-01 | 4.76E+00 | 4.34E-01 | MND | MND   | 0.00E+00 | 1.03E-01 | 7.69E-01 | 0.00E+00 | -3.15E+00 |

<sup>2</sup> EN 15804+A2 Disclaimer 2: "The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator."

<sup>3</sup> EN 15804+A2 Disclaimer 1: "This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator."

Myrkyllisyys

# Luonnonvarojen käyttöön liittyvät indikaattorit

## USE OF NATURAL RESOURCES

| Impact category                      | Unit           | A1       | A2       | A3       | A1-A3    | A4       | A5  | B1-B7 | C1       | C2       | C3       | C4       | D         |
|--------------------------------------|----------------|----------|----------|----------|----------|----------|-----|-------|----------|----------|----------|----------|-----------|
| Renewable PER used as energy         | MJ             | 2.29E+00 | 4.28E-02 | 1.29E+00 | 3.62E+00 | 3.62E-03 | MND | MND   | 0.00E+00 | 1.32E-03 | 1.02E-02 | 0.00E+00 | -2.68E+00 |
| Renewable PER used as materials      | MJ             | 4.98E-01 | 0.00E+00 | 0.00E+00 | 4.98E-01 | 0.00E+00 | MND | MND   | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | -4.58E-01 |
| Total use of renewable PER           | MJ             | 2.79E+00 | 4.28E-02 | 1.29E+00 | 4.12E+00 | 3.62E-03 | MND | MND   | 0.00E+00 | 1.32E-03 | 1.02E-02 | 0.00E+00 | -3.14E+00 |
| Non-renewable PER used as energy     | MJ             | 5.63E+01 | 3.17E+00 | 4.55E+00 | 6.40E+01 | 2.87E-01 | MND | MND   | 0.00E+00 | 9.26E-02 | 5.92E-01 | 0.00E+00 | -4.91E+01 |
| Non-renewable PER used as materials  | MJ             | 1.52E+01 | 0.00E+00 | 7.65E-01 | 1.60E+01 | 0.00E+00 | MND | MND   | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | -1.55E+01 |
| Total use of non-renewable PER       | MJ             | 7.14E+01 | 3.17E+00 | 5.32E+00 | 7.99E+01 | 2.87E-01 | MND | MND   | 0.00E+00 | 9.26E-02 | 5.92E-01 | 0.00E+00 | -6.46E+01 |
| Use of secondary materials           | kg             | 7.97E-02 | 0.00E+00 | 2.50E-04 | 8.00E-02 | 0.00E+00 | MND | MND   | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | -2.45E-02 |
| Use of renewable secondary fuels     | MJ             | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | MND | MND   | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00  |
| Use of non-renewable secondary fuels | MJ             | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | MND | MND   | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00  |
| Use of net fresh water               | m <sup>3</sup> | 1.36E+01 | 5.91E-04 | 1.45E-03 | 1.36E+01 | 5.98E-05 | MND | MND   | 0.00E+00 | 1.76E-05 | 5.66E-04 | 0.00E+00 | -1.25E+01 |

Uudelleenkäyttö  
materiaaleina tai  
polttoaineina

Uusiutumattomat ja  
uusiutuvat  
luonnonvarat

*PER abbreviation stands for primary energy resources.*

# Jättemääriin ja kierrätykseen liittyvät indikaattorit

## Jättemäärät

### END OF LIFE – WASTE

| Impact category     | Unit | A1       | A2       | A3       | A1-A3    | A4       | A5  | B1-B7 | C1       | C2       | C3       | C4       | D         |
|---------------------|------|----------|----------|----------|----------|----------|-----|-------|----------|----------|----------|----------|-----------|
| Hazardous waste     | kg   | 1.32E-01 | 3.17E-03 | 1.12E-02 | 1.46E-01 | 2.79E-04 | MND | MND   | 0.00E+00 | 9.64E-05 | 0.00E+00 | 0.00E+00 | -4.44E-02 |
| Non-hazardous waste | kg   | 1.40E+00 | 2.70E-01 | 2.91E-01 | 1.96E+00 | 3.09E-02 | MND | MND   | 0.00E+00 | 8.01E-03 | 0.00E+00 | 0.00E+00 | -7.28E-01 |
| Radioactive waste   | kg   | 3.23E-04 | 2.18E-05 | 4.28E-05 | 3.88E-04 | 1.97E-06 | MND | MND   | 0.00E+00 | 6.34E-07 | 0.00E+00 | 0.00E+00 | -3.42E-04 |

### END OF LIFE – OUTPUT FLOWS

| Impact category               | Unit | A1       | A2       | A3       | A1-A3    | A4       | A5  | B1-B7 | C1       | C2       | C3       | C4       | D        |
|-------------------------------|------|----------|----------|----------|----------|----------|-----|-------|----------|----------|----------|----------|----------|
| Components for reuse          | kg   | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | MND | MND   | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Materials for recycling       | kg   | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | MND | MND   | 0.00E+00 | 0.00E+00 | 9.53E-01 | 0.00E+00 | 0.00E+00 |
| Materials for energy recovery | kg   | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | MND | MND   | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Exported energy               | MJ   | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | MND | MND   | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

## Kierrätettävien materiaalien määrät