# LCA | Jerrycans & Buckets

## Presentation of items

**Foldable Jerrycan 20L**

- Lifespan: 3 months
- Mass: 270 grams
- Materials: Mainly virgin LDPE

**Bucket type OXFAM 14L**

- Lifespan: 5 years
- Mass: 860 grams
- Materials: Mainly virgin HDPE

## Functional unit

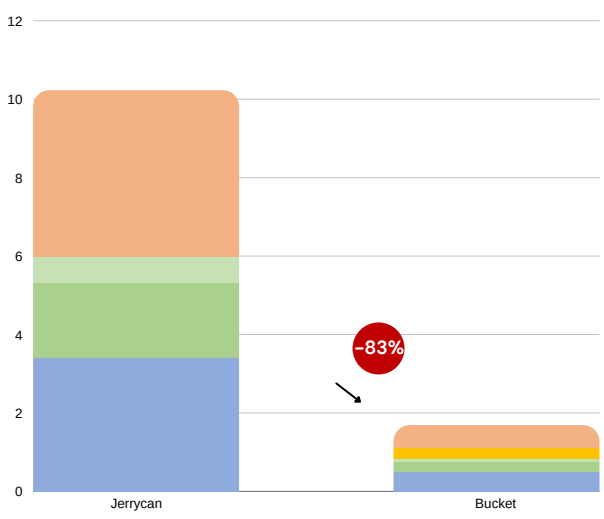
To store 20 L of liquid for 1 year

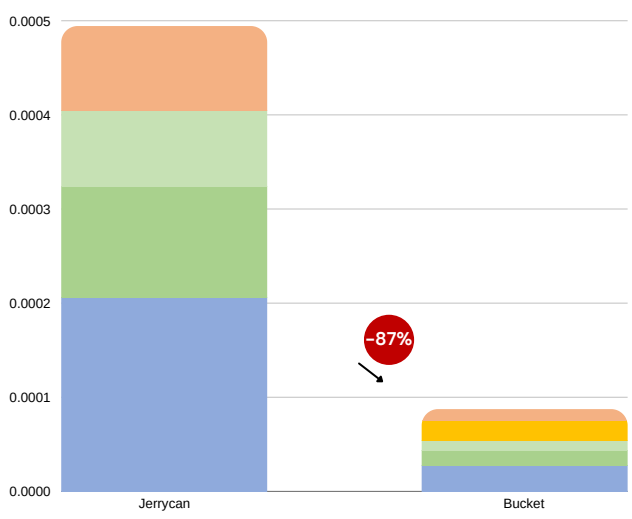
| Item | Use life (years) | for 20L storage | Reference Flows |
|---|---|---|---|
| Jerrycan | 0.25 | 1.00 | 4.00 |
| Bucket | 5.00 | 1.43 | 0.286 |

## Assumptions

Both products manufactured in China with virgin materials, itemps are distributed by sea to the field (Kenya). No use phase considered for jerrycan, bucket washed every year with 5L of water and soap. Open burning in considered as end of life.

## Results of the computation




| Stage | kgCO₂e | |
|---|---|---|
| | Jerrycan | Bucket |
| Raw Material | 3.41 | 0.50 |
| Production | 1.91 | 0.26 |
| Transportation | 0.66 | 0.09 |
| Use | 0 | 0.28 |
| End-of-Life | 4.25 | 0.56 |

| Stage | Human Health | |
|---|---|---|
| | Jerrycan | Bucket |
| Raw Material | 2.06E-04 | 2.78E-05 |
| Production | 1.18E-04 | 1.58E-05 |
| Transportation | 8.11E-05 | 1.07E-05 |
| Use | 0 | 2.13E-05 |
| End-of-Life | 8.93E-05 | 1.18E-05 |

## Variations (% from baseline figures presented above)

**To use recycled materials**

Computation made by considering 100% recycled raw materials for products

| kgCO2e | |
|---|---|
| Jerrycan | Bucket |
| -20.7% | -21.1% |
| Human Health | |
| Jerrycan | Bucket |
| -20.7% | -12.1% |

**To use renewable energy for production**

Computation made by considering 100% of renewable energy in factory mix

| kgCO2e | |
|---|---|
| Jerrycan | Bucket |
| -12.2% | -10.0% |
| Human Health | |
| Jerrycan | Bucket |
| -11.8% | -8.9% |

**To send waste in sanitary landfill**

Computation made by considering waste sanitary littered

| kgCO2e | |
|---|---|
| Jerrycan | Bucket |
| -38.7% | -31.7% |
| Human Health | |
| Jerrycan | Bucket |
| -16.9% | -12.6% |

**To send waste to municipal incineration**

Computation made by considering waste sent in municipal incinerators

| kgCO2e | |
|---|---|
| Jerrycan | Bucket |
| -1.4% | -1.1% |
| Human Health | |
| Jerrycan | Bucket |
| -16.1% | -11.7% |

**Best Possible Scenario**

Recycled + Renewable + Sanitary Landfill

| kgCO2e | |
|---|---|
| Jerrycan | Bucket |
| -72.2% | -58.2% |
| Human Health | |
| Jerrycan | Bucket |
| -50.6% | -39.7% |

## Analyses

To **shift from buckets to jerrycans** for operations can achieve a significant reduction in this field. This product already exists and is used by some organizations, so, it can be operationalized quickly. Then, **working with suppliers to manufacture products with recycled materials and renewable energy** can further lead to a total reduction of 85% from the baseline jerrycan for the same lifespan. Finally, waste is problematic as few facilities exist for collection and treatment. Severals scenarios had been studied to highlight potential impact reduction, without considering recycling as it is still not an available disposal method in these area of intervention. **Advocating for infrastructure development is key to achieving a reduction in end-of-life treatment**.

## Emission factors

The values displayed here are not per functional unit but per item. These values can be used to compute a carbon footprint of an organisation and can be adapted to a specific case using the tool

| Name | GHG Protocol Categories | kgCO2e/unit | |
|---|---|---|---|
| | | Jerrycans | Buckets |
| Cradle-to-grave | N/A | 2.03 | 8.40 |
| Cradle-to-gate | 3.1 Purchased Goods | 0.83 | 3.84 |
| Distribution freight | 3.4 and/or 3.9 Transportation | 0.14 | 0.36 |
| Use phase | 3.11 Use of distributed product | 0 | 1.40 |
| End-of life | 3.12 End of life of distributed product | 1.06 | 2.80 |

## References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Repository of life cycle assessments - Climate Action Accelerator (2025). Available at: https://climateactionaccelerator.org/repository-of-lifecycle-assessments/.


## About this project

Designing methodologies and performing life cycle analyses of high-impact items to build a GHG emission factor and environmental impact database adapted to the humanitarian sector with the goal of identifying key strategies to reduce environmental impacts.


**EPFL EssentialTech Center:**
Dr.Grégoire Castella, Dr. Cara Tobin, Emeline Darçot

**EPFL LEURE:**
Dr. Sascha Nick, Ashima Rajput

**International Committee of the Red Cross (ICRC):**
Anna Maria Liwak, Carmen Garcia Duro

**Climate Action Accelerator:**
Bruno Jochum, Sonja Schmid, Paolo Sévègnes

**Associated expert:**
Dr. Damien Friot