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Aerosols – the most sustainable packaging? We think yes.

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Aerosols – the cause of all evil?

Wasteful

Hazardous

Fossil Depletion

Global Warming Potential

CFCs

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Aerosol – consumers love it

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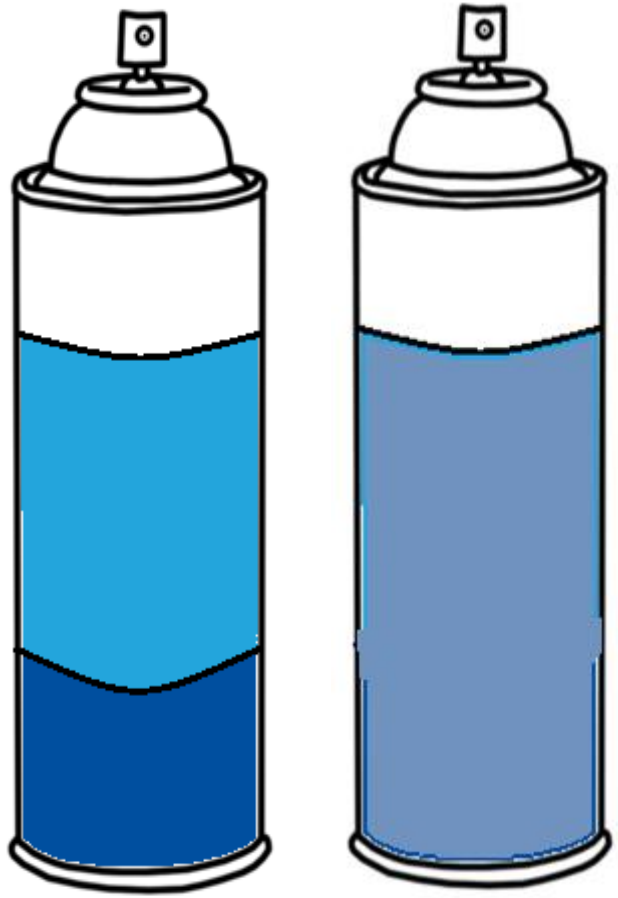
Aerosol – pressurized container

- Aerosols are governed by their own laws / subsections
  - 75/324/EEC or ADR - UN 1950
  - Safety & Quality
    - Every can in the market is tested for leakages and pressure resistance

- Parts of the aerosol packaging
  - Product (Active Ingredients)
  - Propellant
  - Can
  - Valve
  - Actuator
  - Cap

- Propellant
  - Compressed gases (Air, Nitrogen, Oxygen, Carbon Dioxide)
  - Liquified gases (Propane, Butane, Dimethyl ether)



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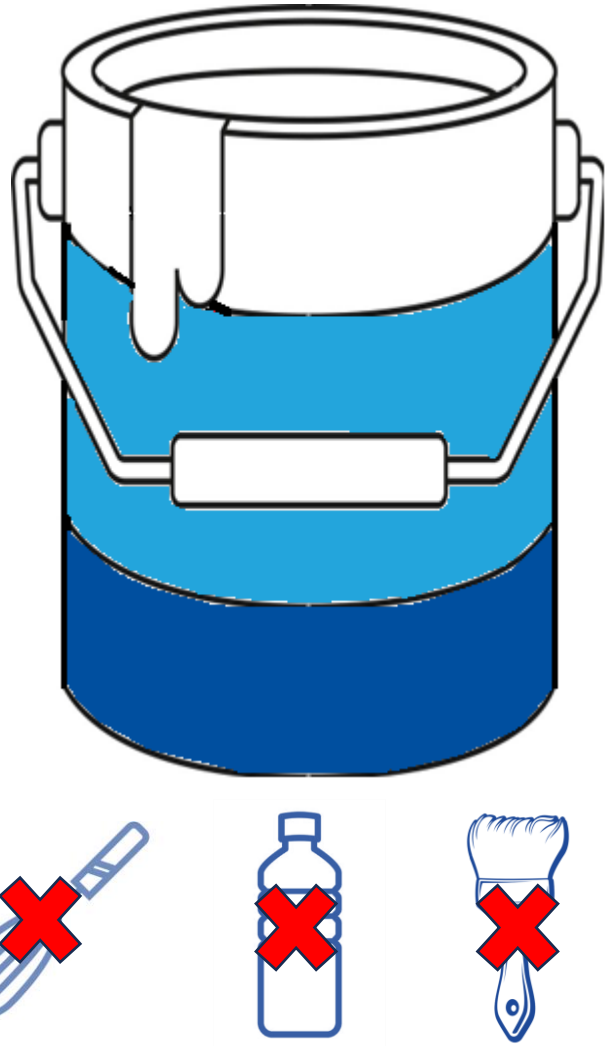
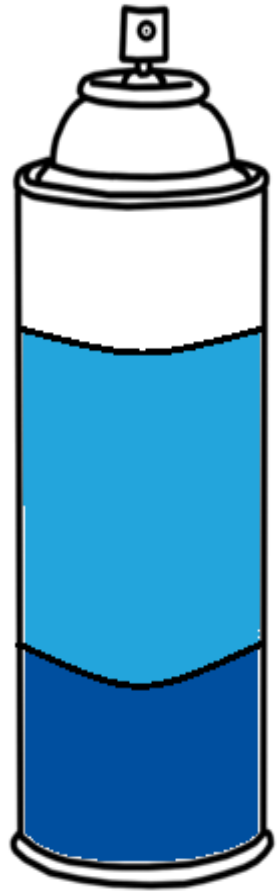
Propellant – acts as solvent

Consider an example of 500ml paint, lacquer or hair spray:



Solvent / Diluent (250ml)

Active Phase (250ml)
(e.g. Polymer, Color Paste)



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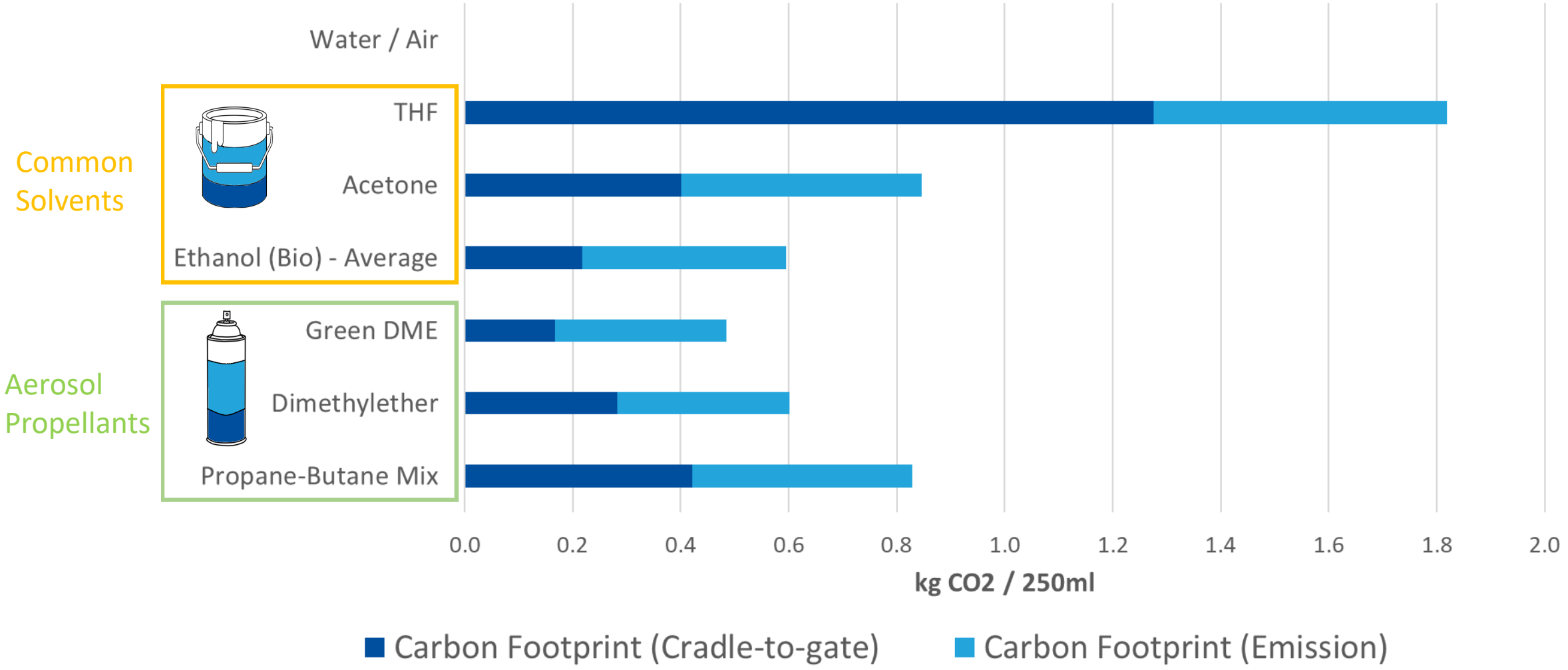
Propellant – carbon footprint comparison



Source: EPA 2018, Nouryon 2019

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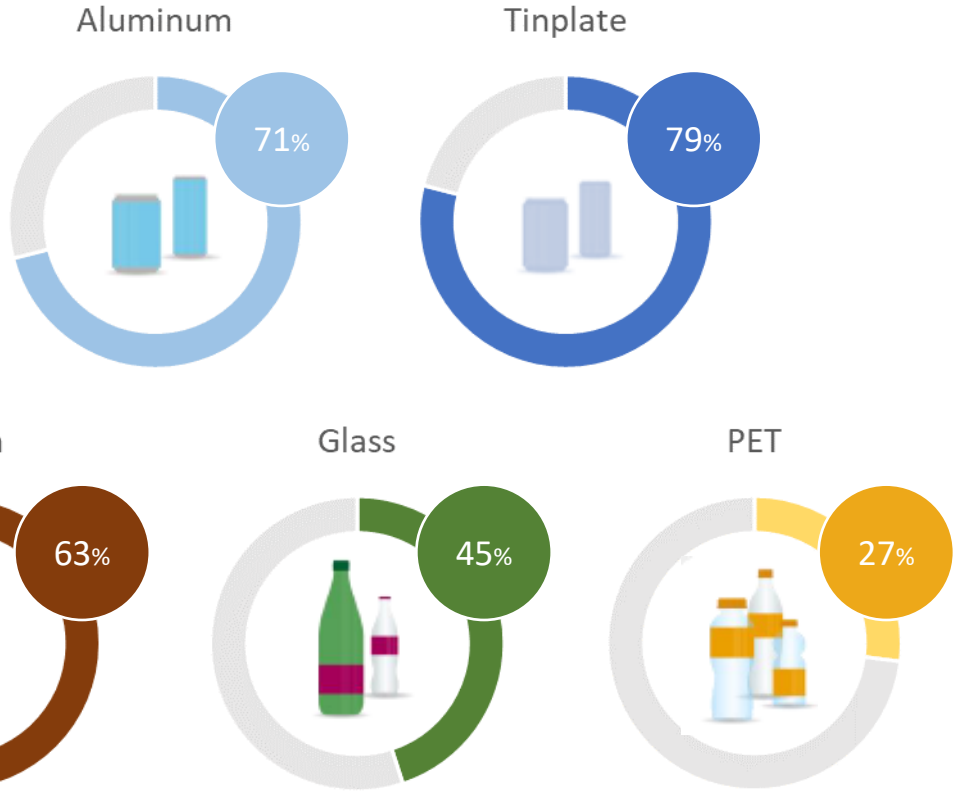
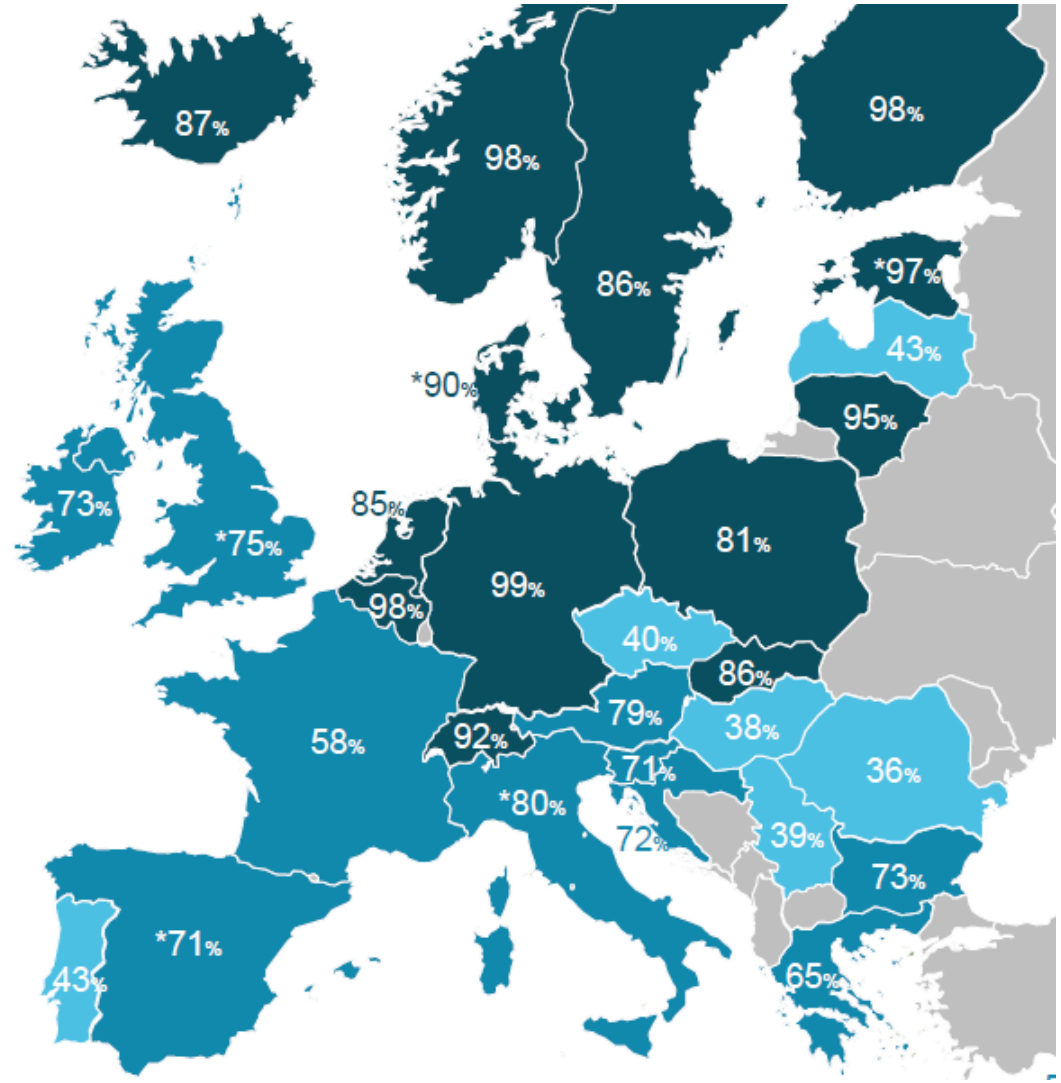
Packaging - metal recycles forever

- Best material circularity (aluminum, tinplate)



Source: Sphera 2021



Aluminum Recycling Rates Europe

High recycling rate	Med. recycling rate	Low recycling rate

Source: Sphera 2018

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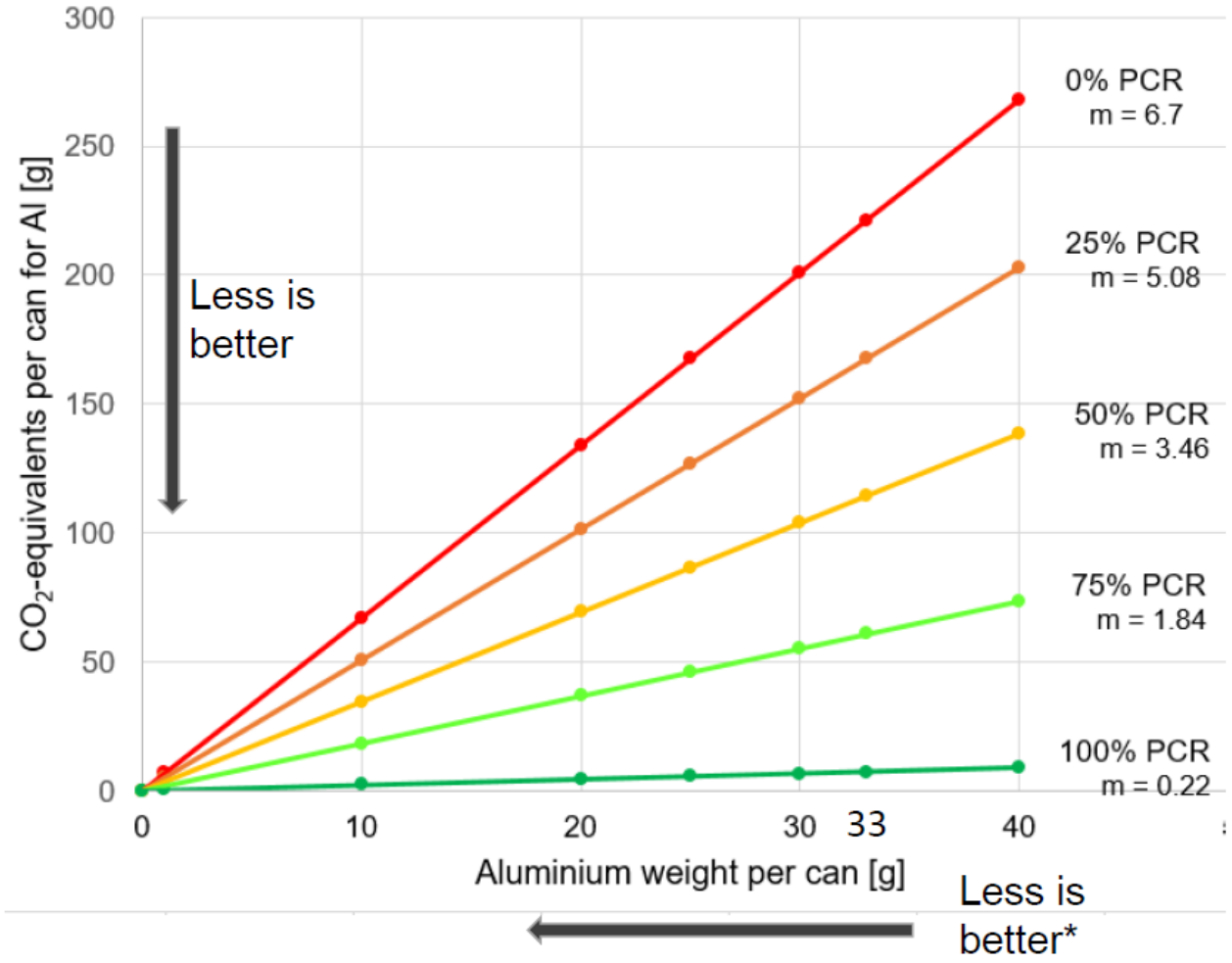
Packaging – PCRs large impact on carbon footprint

- Use of post-consumer recycled (PCR) material is immense on carbon footprint reduction (>96%)



Source: Nussbaum 2021

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Less is more – Sustainable formulating

Longer shelflife

Light-proof

Air tight

Less waste

Always fresh

No PAO

Always shaken

Clean Formula

Exfoliating Mousse
With CO2

95% CO2 Reduction

Spray Paint (500ml)
Waterbased with DME

60% Reduction
0.5 kg/pcs

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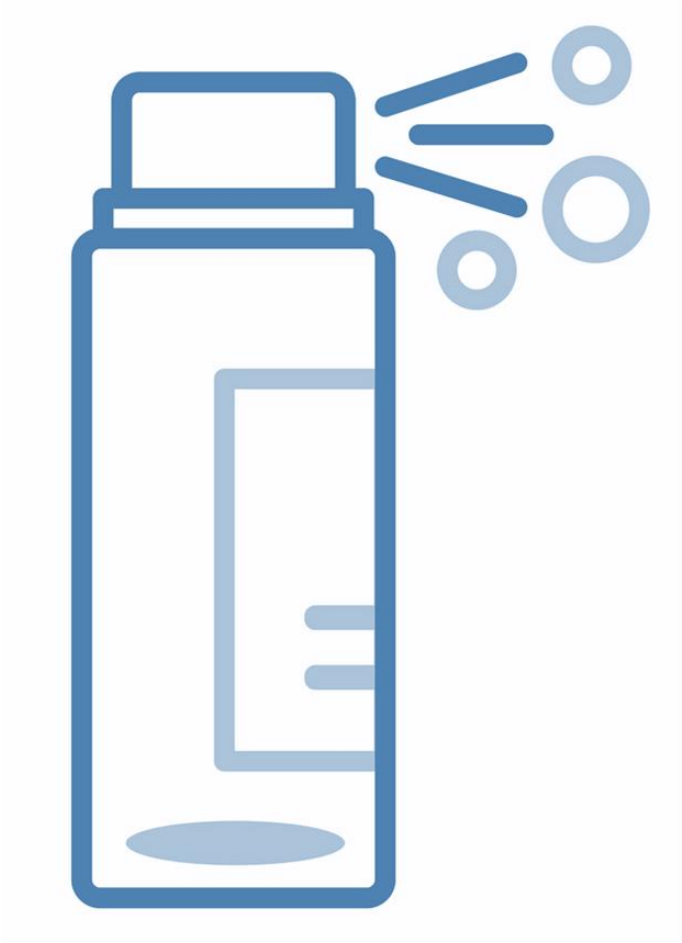
Summary – are you convinced?



Aerosols – the most sustainable packaging?

- Unique Technology / Technical advantage
  - Aerosol is a one-of-a-kind packaging technology.
  - Aerosol packaging allows unique applications
    - unstable formula – aerosol maybe your option
  - Long lasting – Airtight, lightproof
  - Versatile – many different application forms

- Propellant is not a bad word
  - Propellant = solvent
  - Propellants have a comparatively good Carbon Footprint
  - Versatile – different chemical natures available
  - Renewable sources possible

- Sustainable Packaging
  - Metal recycles forever
  - High circularity for aluminum and tinplate
  - Versatile – different packaging materials possible

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WE ARE FRIKE GROUP

Lohnhersteller | Contract Manufacturer

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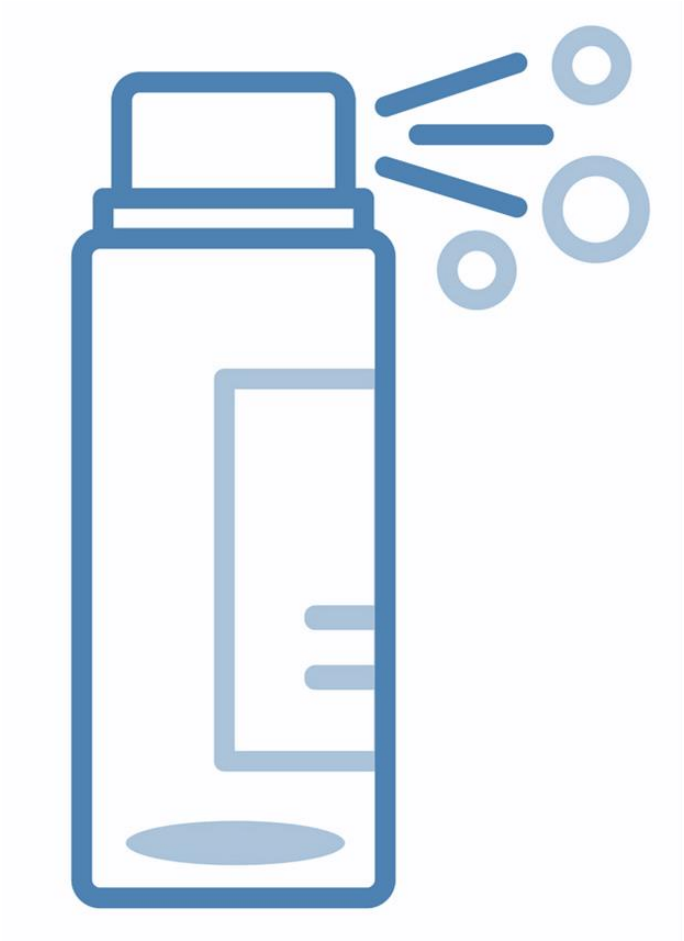
Sources



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Less is more – Clean formulating

Example (Exfoliating Mousse):
- Whipcream (CO_2-Foam)
- Less preservatives
- Non-flammable
- Carbon Footprint Reduction:
  - 95%

Example (Spray Paint 500ml):
- Water-based
- Less Stabilisers
- DME as solvent/propellant
- Carbon Footprint Reduction:
  - 60%
  - 0.5 kg/Stk

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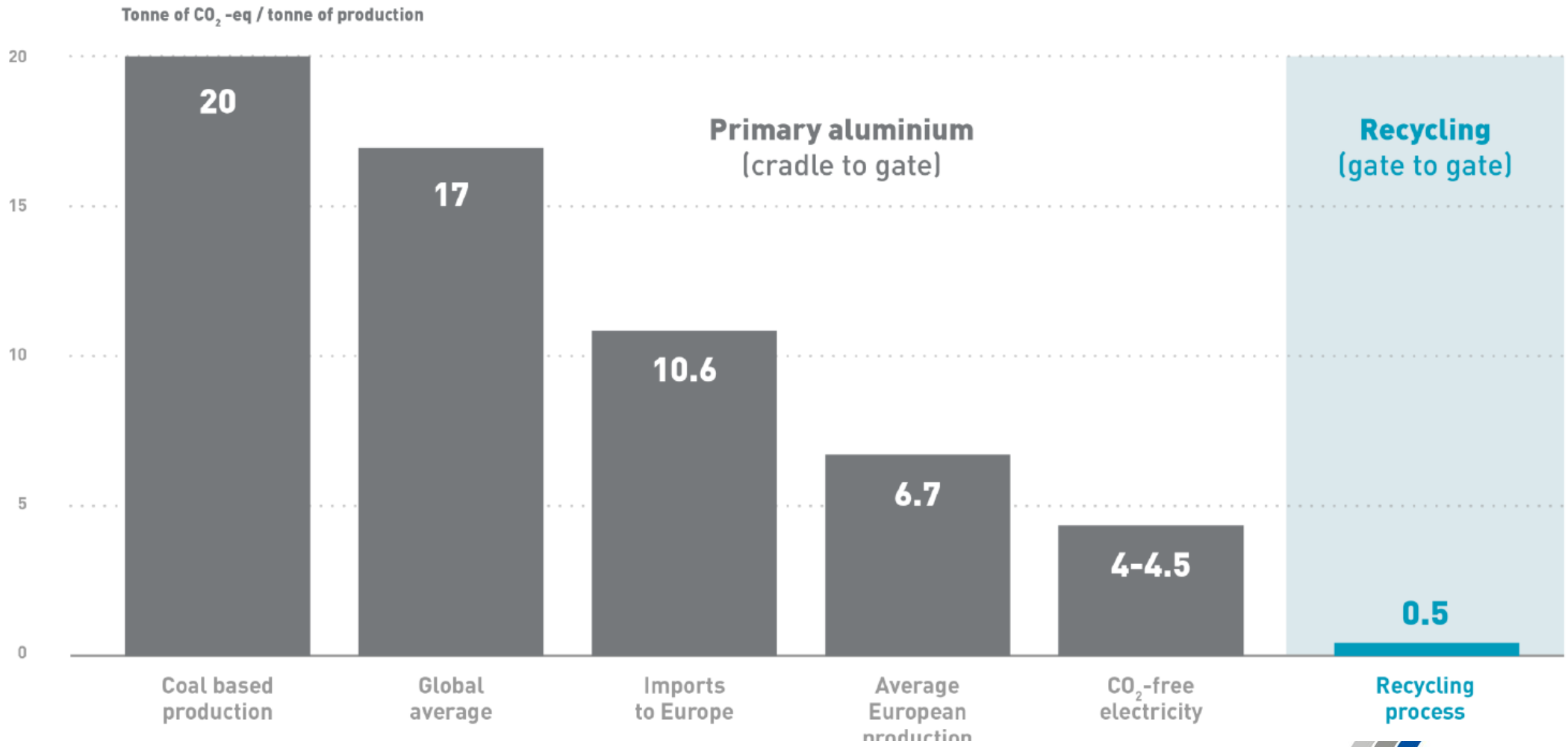
Aluminum Production – Carbon footprint



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