

Optimizing for Impact: Subtle Changes Driving Sustainable Papermaking

DITP 2025

David Prevost | 20 Nov 2025

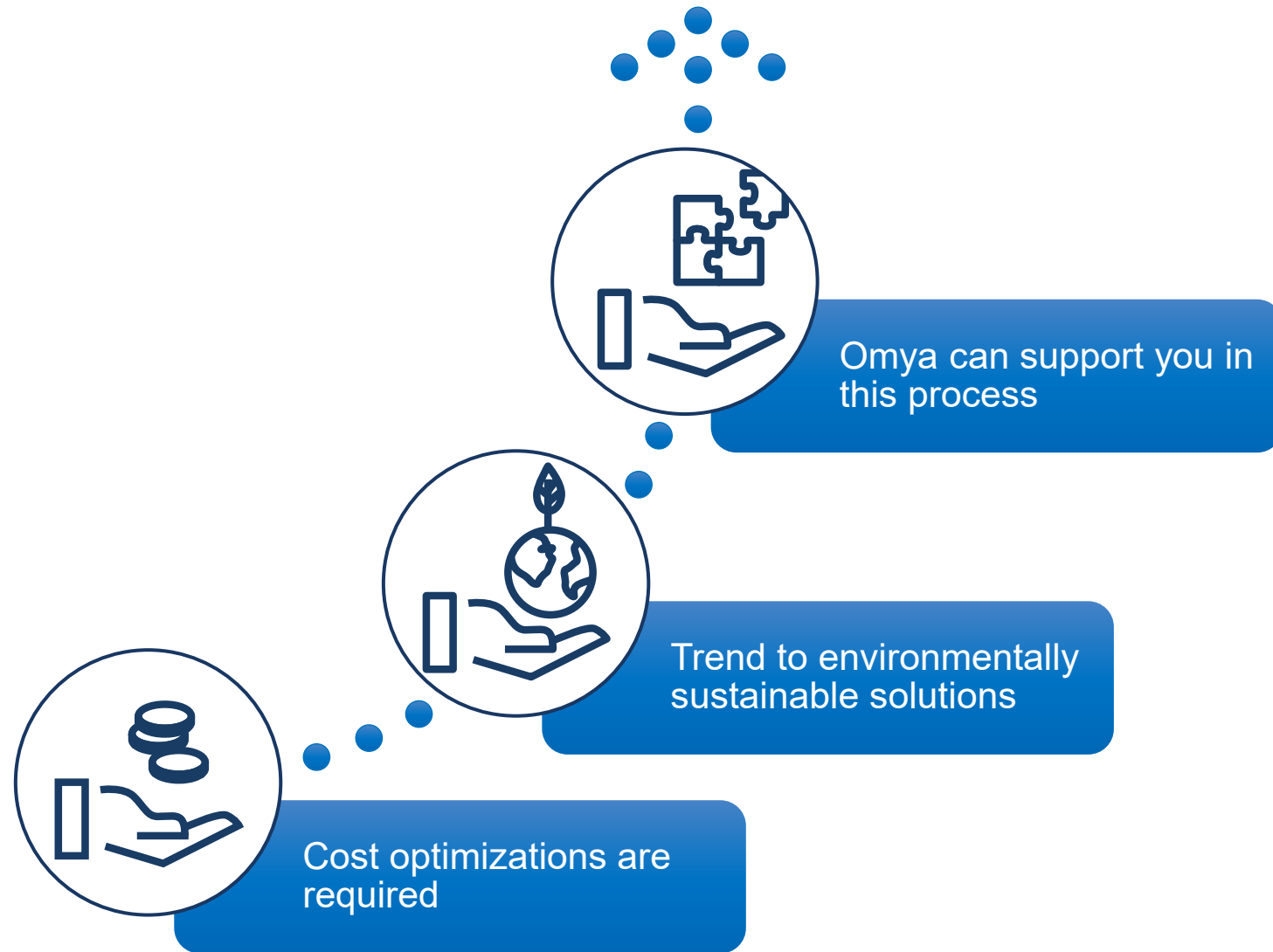




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Introduction



Agenda

How we would like to lead you through the topic

1. Framework Conditions
2. What Changed in the Coating Color?
3. What did we Keep Constant?
4. Influence Factors of the Master Calculation
5. Results
6. Major Influences and Working Experience
7. What you Need to Know Before Starting a Calculation



1. Framework Conditions

Real life case of an LWC producer

Production volume 100 000 to [per year].
(Protected specific customer data)

Demonstration of process
- not focusing on specific figures

- Constant process parts
- Variables and comparison of alternatives

2. What Changed in the Coating Color?

Recipe	s.c. [%]	1 (ref.)	3
Econocarb 175 [pph]:	73	60	90
Clay 1 [pph]:	71	40	-
Clay 2 [pph].	71	-	10
Latex [pph]:	50	8	8
Starch [pph]:	33	4	4
CMC [pph]:	100	0.5	0.4
OBA [pph]:	100	0.3	0.3
solid content [%]:		59.4	61.2
pH [-]:		9	9
Viscosity [mPas]:		840	1160
Total coat weight g/m ²		16.7	16.7

3. What did we Keep Constant?



Coating:

Coat weight
Coat weight distribution



Base sheet:

Composition:
TMP = 80 %
Kraft Pulp = 20 %
Filler = 5 %

Basis weight moisture



Energy input:

Initial dry content = 50 %
Water temperature = 40 °C
drying efficiency = 50 % energy source



Electrical consumption for drives = 50 kWh/t

Refining energy = 150 kWh/h
Efficiency rate for heat production = 85 %
Efficiency rate drying section = 70 %

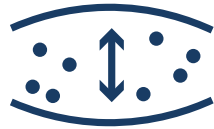


Electrical consumption machine:

Water circulation and stock pumping: 150 kWh/dmt
Electrical energy on paper machine: 400 kWh/dmt
Confection: 50 kWh/dmt



4. Influence Factors of the Master Calculation



Paper Grades

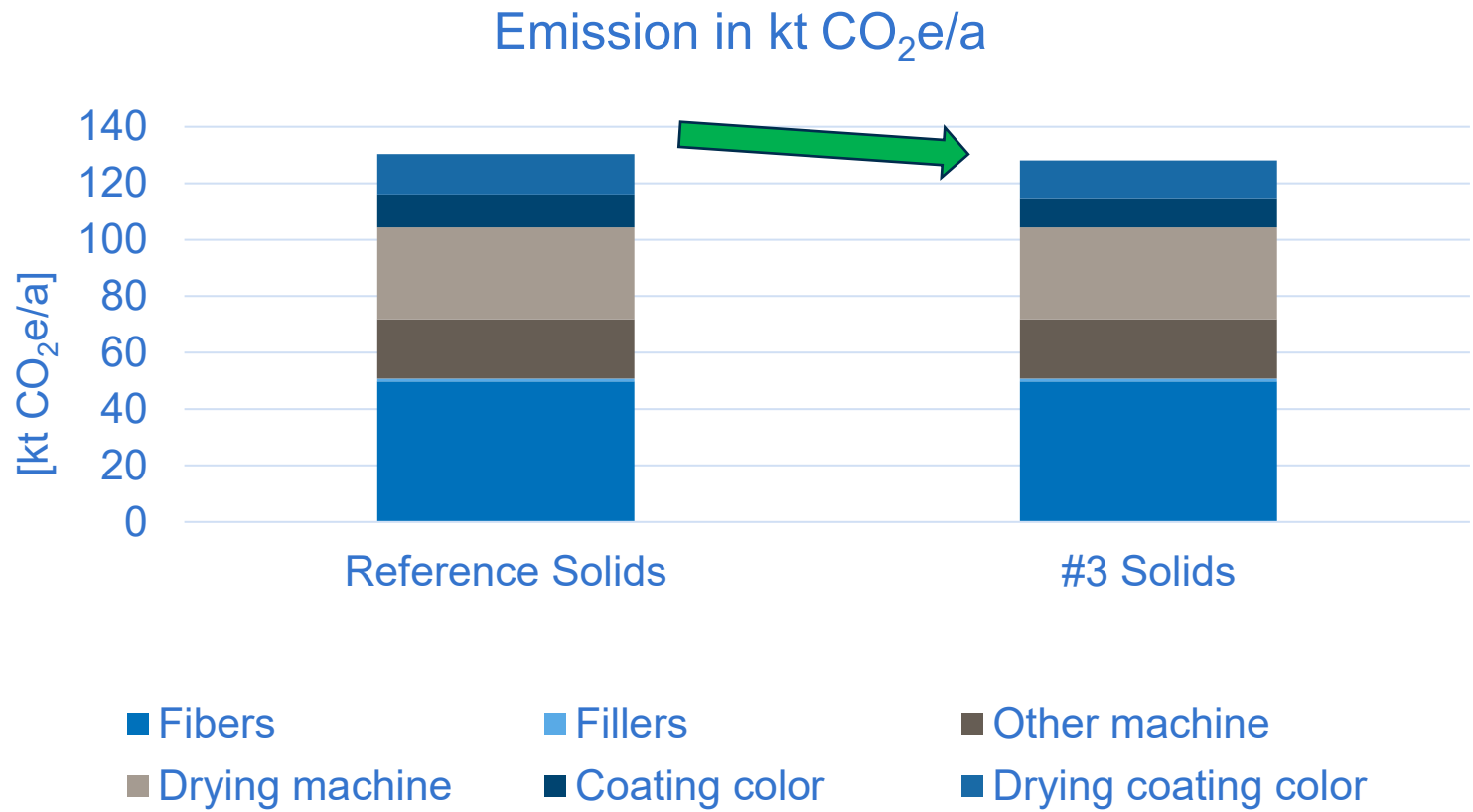
- Coated and Uncoated Paper
- Newsprint
- Tissue
- Coated Carton Board
- Testliner and Fluting



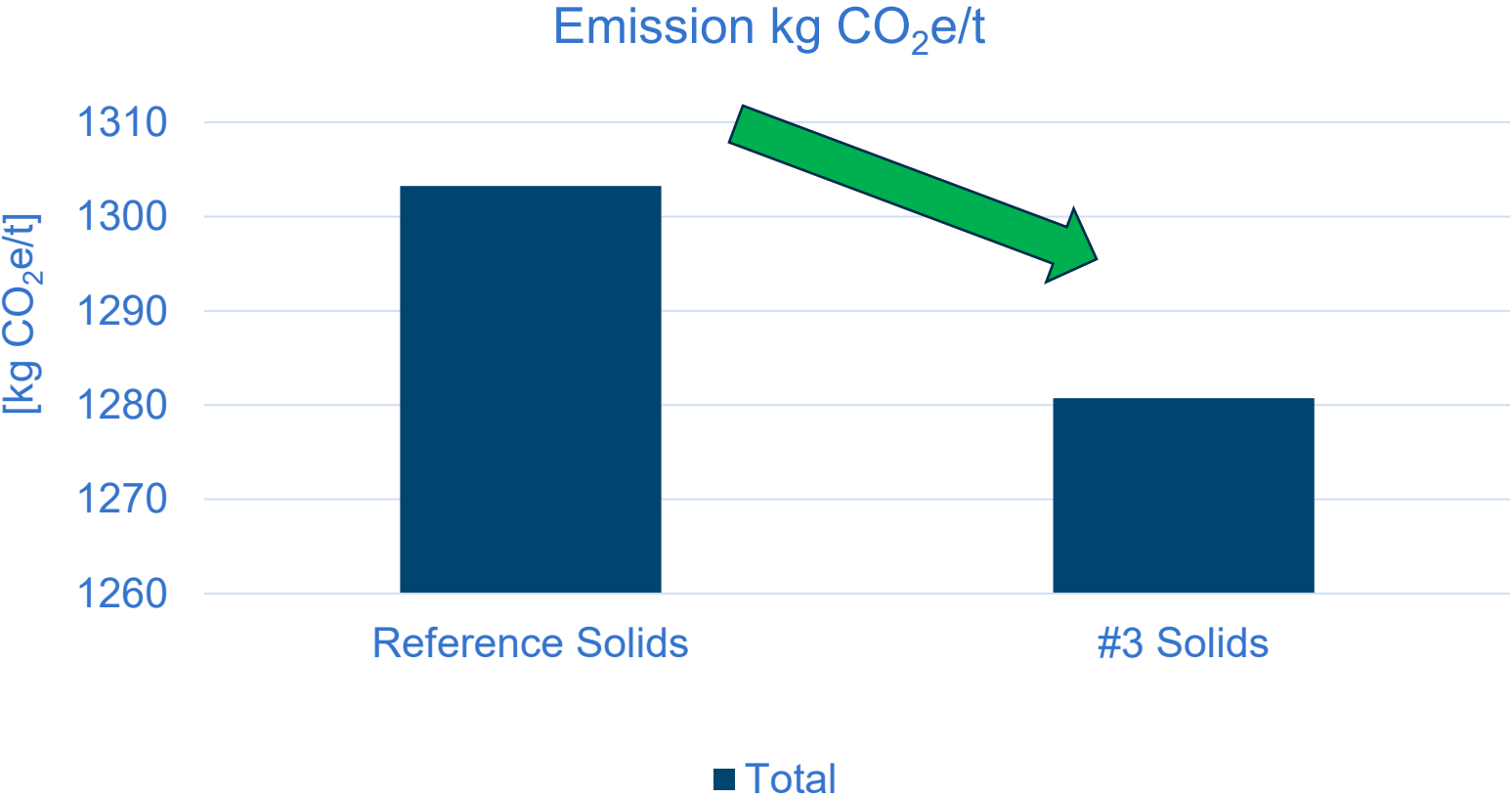
Energy Source

- Coal – PC
- Gas – combined cycle
- Biomass – dedicated
- Solar PV – utility scale
- Solar PV – rooftop
- Geothermal
- Concentrated solar power
- Wind Offshore
- Nuclear
- Wind Onshore
- Natural Gas

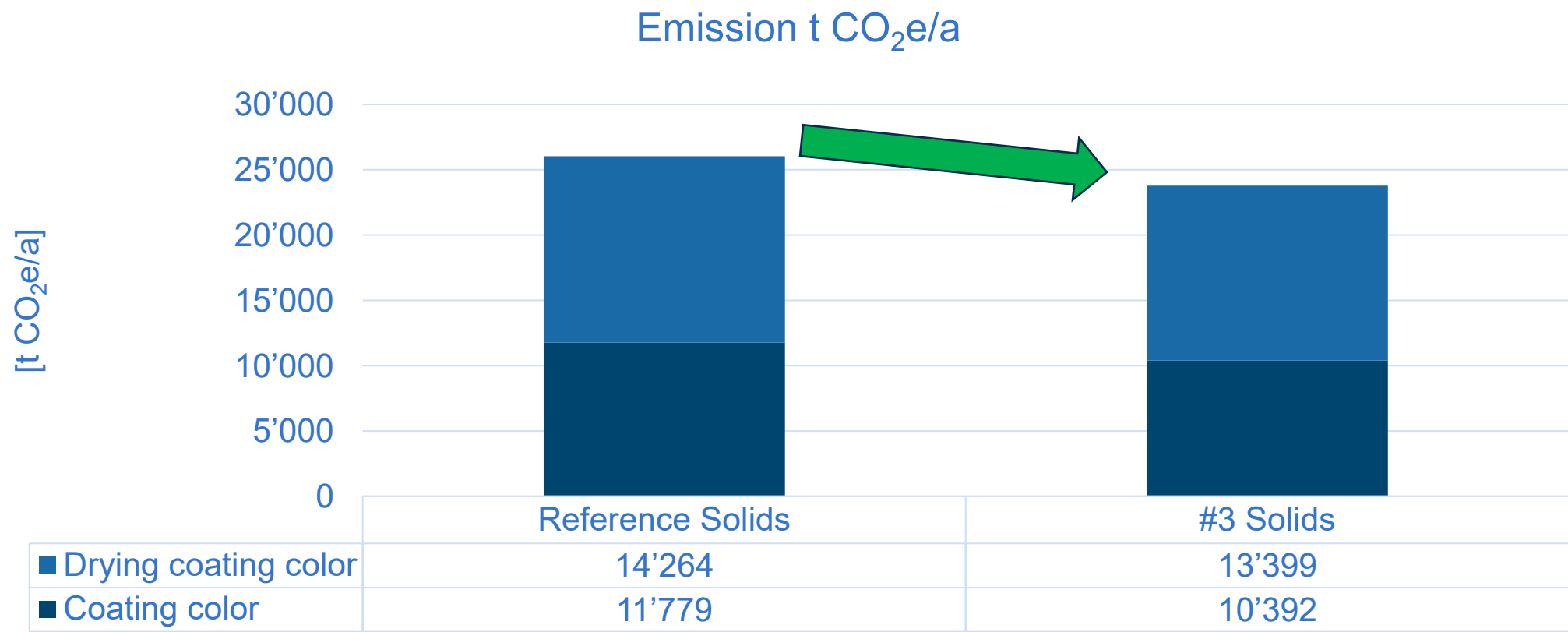
5. Results - CO₂e/a



5. Results - CO₂e/t



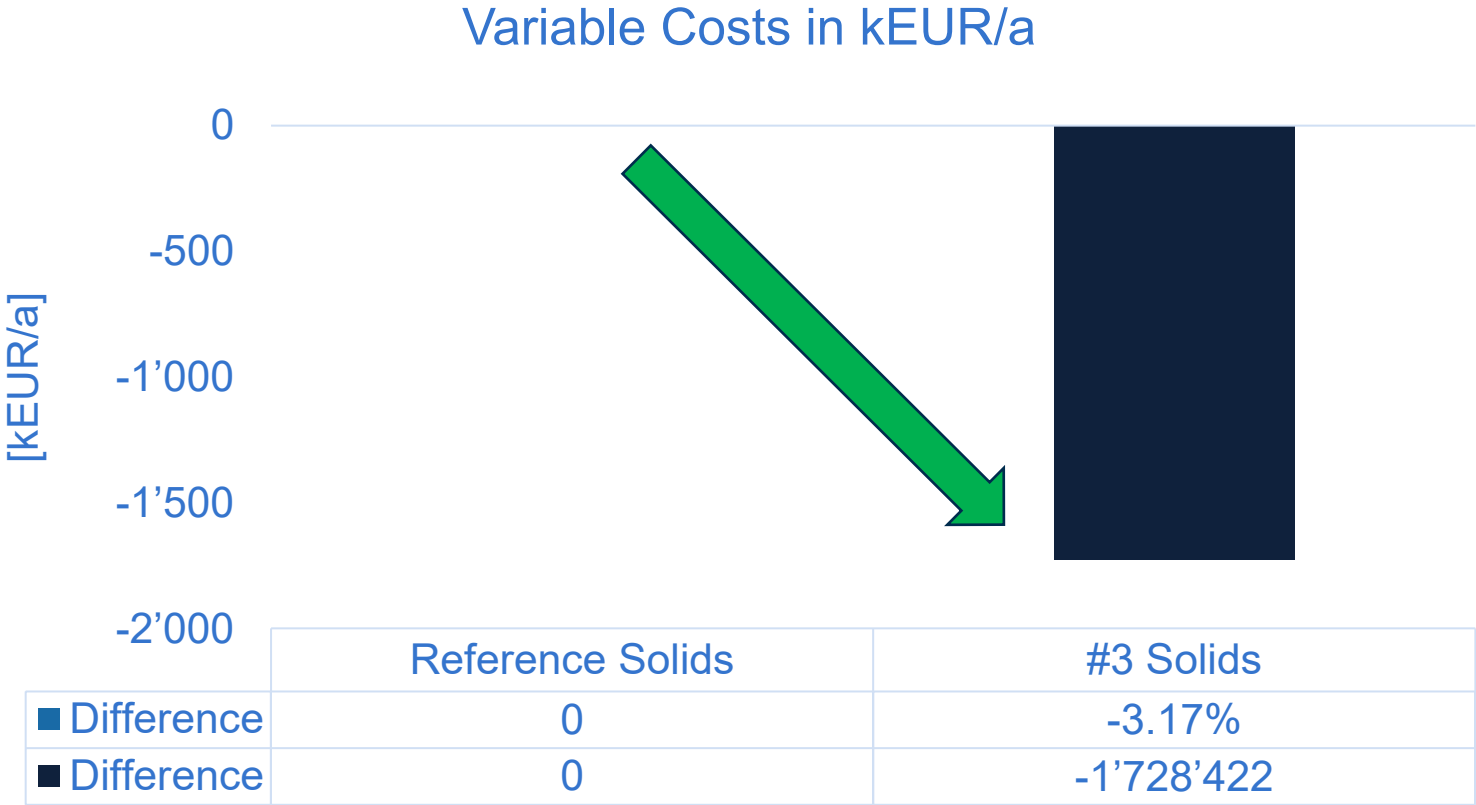
5. Results – t CO₂e/a



5. Results – Cost Saving Coating Color in %



5. Results - kEUR/a



6. Major Influences and Working Experience



A solid data base is fundamental for an exact CO₂ footprint calculation and cost optimization



Energy source is a major factor



Short supply chains have a very positive effect on the calculation

7. What you Need to Know Before Starting a Calculation

