

Diaper recycling in the City of Copenhagen

the 19th of Marts 2024



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Agenda:

- Introduction: Why diaper waste?
- Collection trial in Copenhagen
- What kind of diaper recycling solution is preferable?
- Status after the first tender and challenges

City of Copenhagen has a goal of

70% recycling of MSW waste by 2024

... this requires
diaper recycling



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Why diapers?

- Accounts for 7-8% of residual waste from multi-storey buildings
- Accounts for 33-50% of residual waste from day-care centres
- Children become "diaper free" later
- Uniform fraction
- Many people already sort diapers at home
- The materials (and content) can be recycled
- Reduce CO2 emissions from incineration

More than 46 million
diapers in total in the City
of Copenhagen

Estimate approx.
10-11,000 tonnes
annually in the City of
Copenhagen

What does diaper waste consist of?

Used diaper incl. bag

60-70 % urine and feces

7-18 % cellulose pulp

Ca. 10 % plastic (PE and PP)

4-10 % SAPs (Super Absorbent Polymers)

Glue

Elastic bands and tape



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Diaper waste collection trial



Collection trial:

At 11 multistorey buildings,
4 daycare centres
and one elderly home



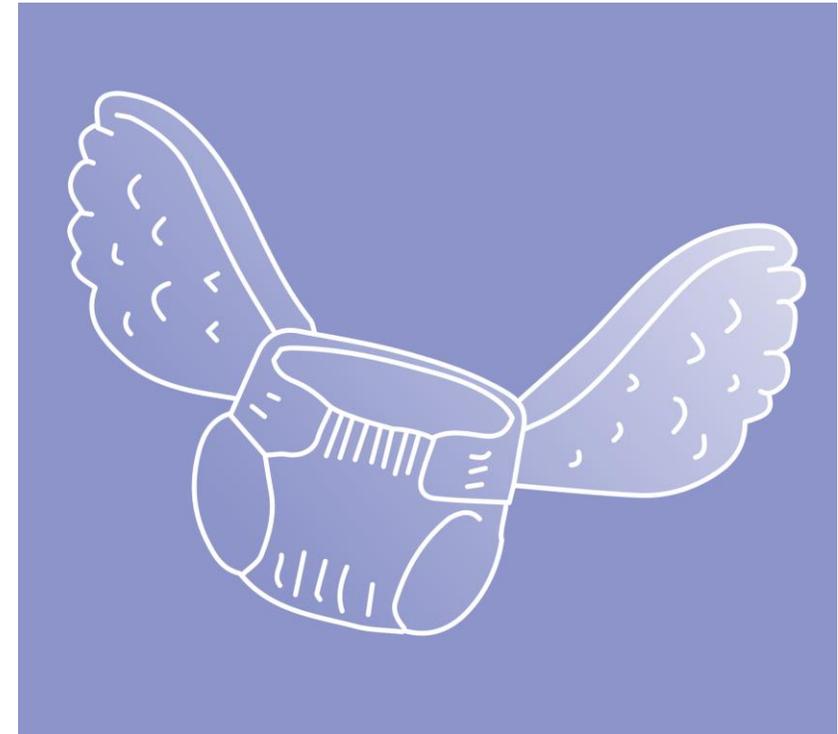
Potentially we can collect?

- Appr. 4000 tons diaper waste per year
- Standard collection methods and materials
- No operational difficulties encountered
- Appr. 43 % collection efficiency from households
- Appr. 85 % collection efficiency from daycare centers
- 1 % contamination* (rubber gloves, feminine pads, packaging etc.)

Criteria in the first tender

The diaper treatment solution should include:

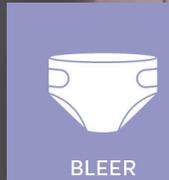
- Capacity of at least 5000 tons of diaper waste
- Recycling min. 20% - at best plastic and cellulose
- Deactivation of SAP
- Central location for reception of diaper waste
- Able to build and get permits within 18 months
- Willingness to share data and prices
- Sustainable plant with efficient use of energy and water



Result: first tender process

The criterias in the tender is still challengning for the companies, they comment on the following issues:

1. The collected amount is too small
2. The recycling rate is still to high
3. The timeframe is to tight
4. Difficult to find a location close to the city center for reloading



What are the challenges?

1. Getting enough diaper waste
2. The changing composition of diaper waste over time:
 - Introduction of compostable elements?
 - Reusable diapers?
 - Intelligent diapers?
3. New markets under development



Questions to discuss at the break-out session

1. How can we strengthen cross border collaboration regarding recycling of more diaper waste ?
2. How can we strengthen collaboration between the producers of diapers and the recycling technologies, regarding aiming at higher recycling rates, material pass ect?
3. How can we develop future tender material that incl. the uncertainties of this new recycling technology, fx sharing risk and expenses?



Find more information on our web: Circularcopenhagen.dk or contact Dorthe Bach Egemose Agger: dorthe.bach.egemose.agger@kk.dk