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BioClean

Reduced CO_2 footprint from paint process through recycling and introduction of biobased cleaning liquids

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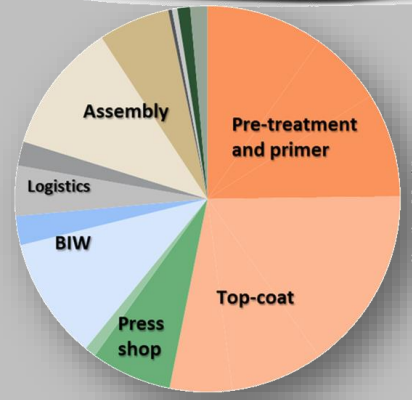
SCANIA

Aim & Driving forces in Surface Treatment

Sustainability - Improved finish and durability

- Preminum brand with a premium coating.
- Improved finish, corrosion-, UV- and scratch-resistance
- Materials and processes with stable outcome
- Life-time prediction methods for new materials and combinations



Surface treatment of cabin >50 % of total electricity and energy consumption in cabin factory.

Sustainability – Productivity and environment

- Elimination of waste
- Lean paint shop
- Reduce energy, H_2O, CO_2 and VOC
- Reduced coating layers
- Improve circularity

Background

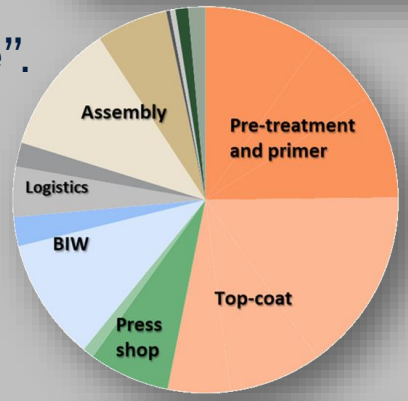
Painting process big part of CO_2 foot print from production of a vehicle.

Truck is a working and living area, but also a “moving advertising space”.

The customer wants “*their look of the truck*”.

Hence, more than 500 colours offered to customers.

Between every colour shift, the whole paint distribution system is purged and cleaned.

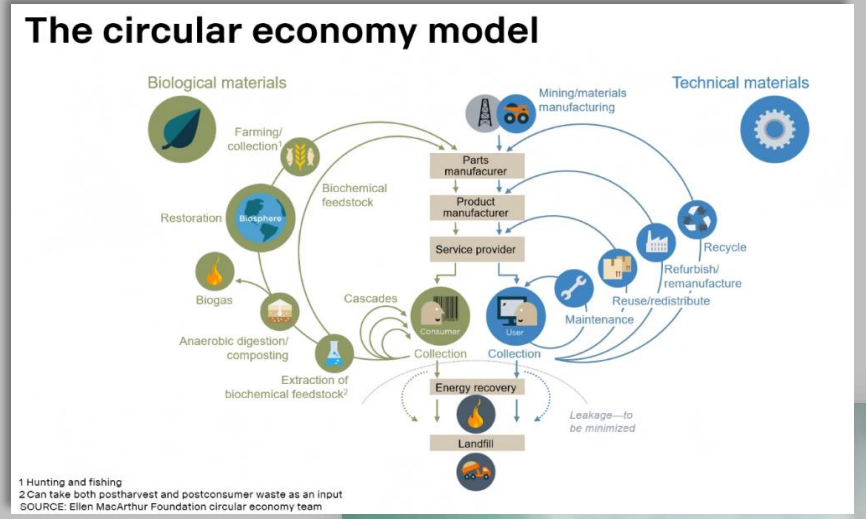


Surface treatment of cabin >50 % of total electricity and energy consumption in cabin factory.

Aim of BioClean project

Reduce the CO_2 footprint of the cleaning process in the paint shops through two main objectives:

- create a recycling method to re-use as much as possible of the cleaning liquids
- develop a method to find and introduce bio-based cleaning liquids as replacement to current fossil-based solvents.

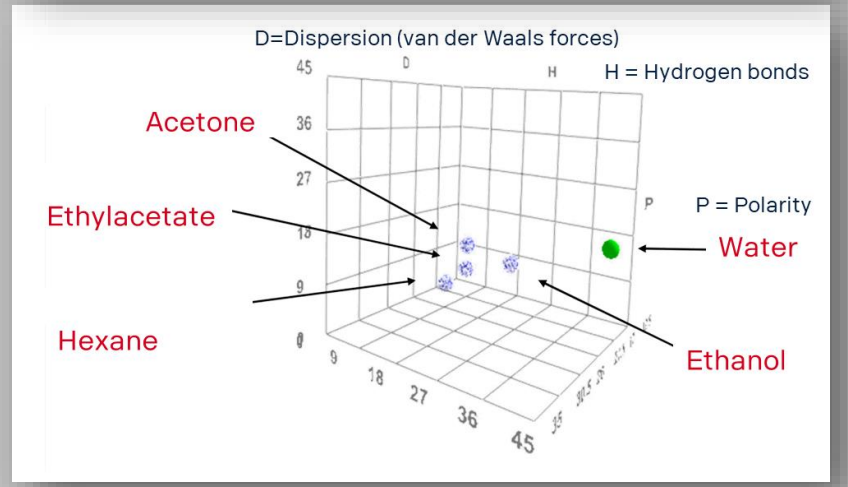


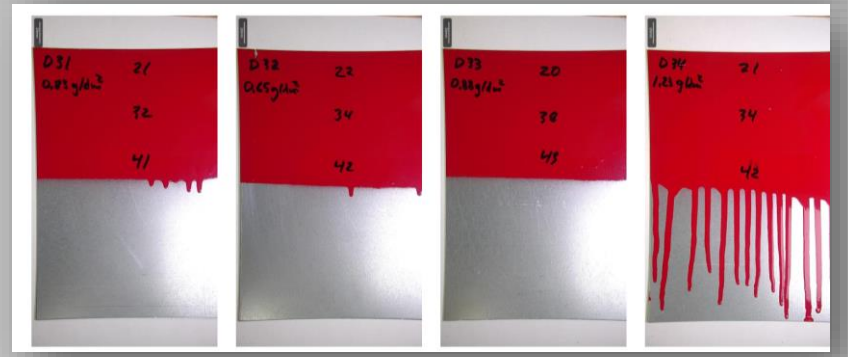
Participants

- Academia - RISE
- End-users- SAAB Aero, Volvo AB, Scania CV AB, YTAB
- Chemical producers/users – Envirostripp, Provexa
- Recycling companies – Circhem, Stena Recycling

Work packages

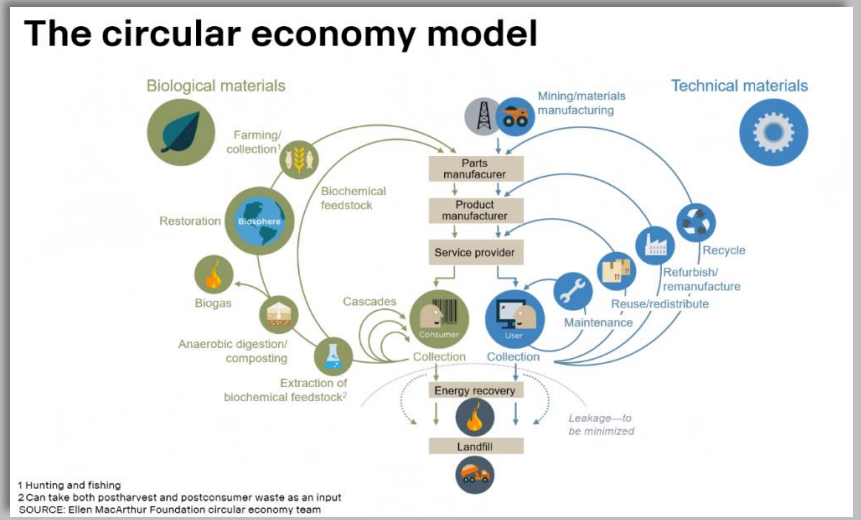
- Screening of process materials, conditions and requirements
- Development of evaluation tool for environmental performance, RISE Rapid Substitution Tool, to include Hansen-parameters
- Review of alternative biobased cleaning liquids
  - Theoretical screening with substitition tool
  - Practical study of compatibility of coatings and cleaning liquids
  - Rheology effect on coatings
  - Effect on process equipments – e.g. swelling of pipes and gaskets
- Development of recycling method
- LCA of cleaning and recycling process with alternative materials
- Demonstrator in industrial application
- Knowledge sharing – publications, webinar, conference

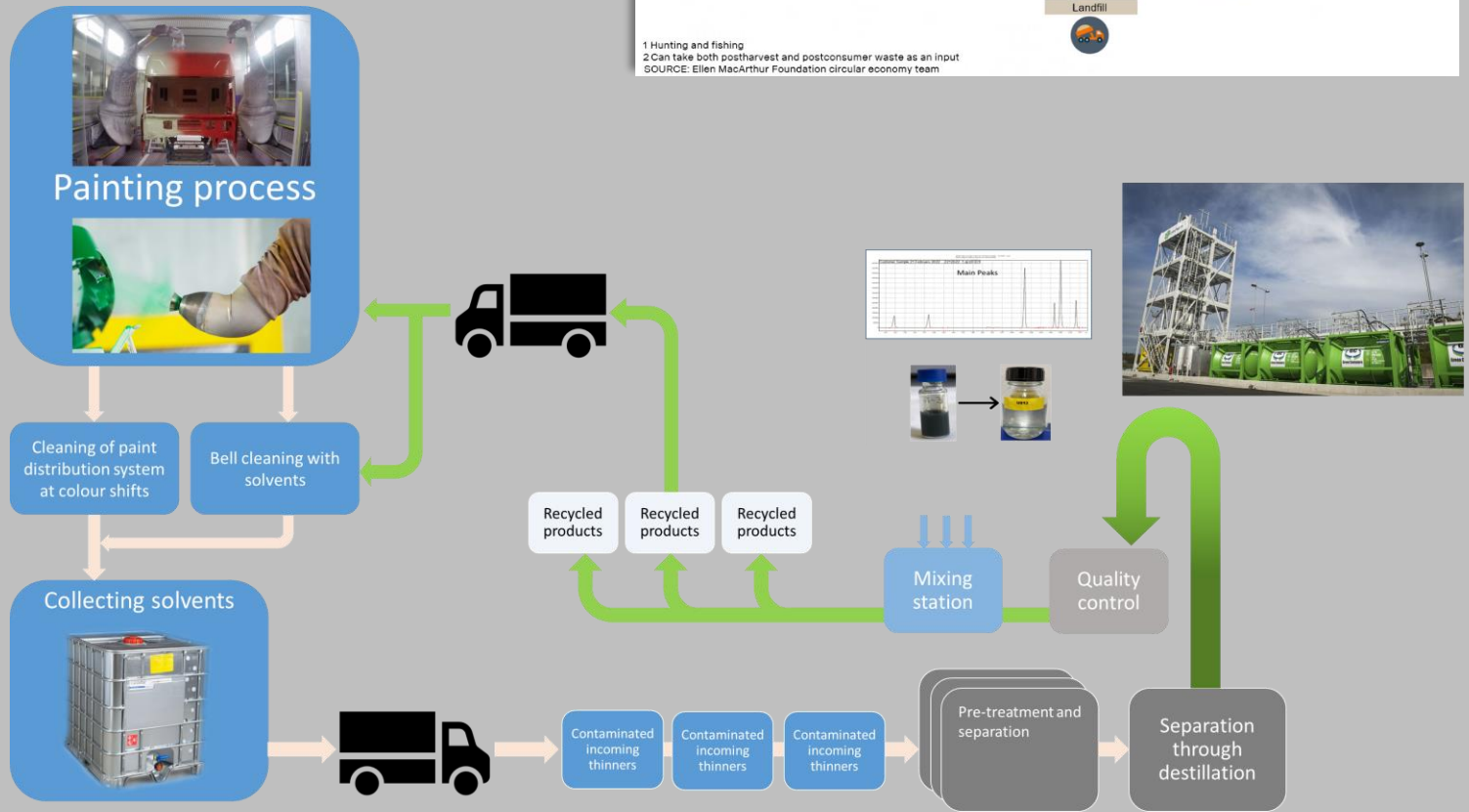




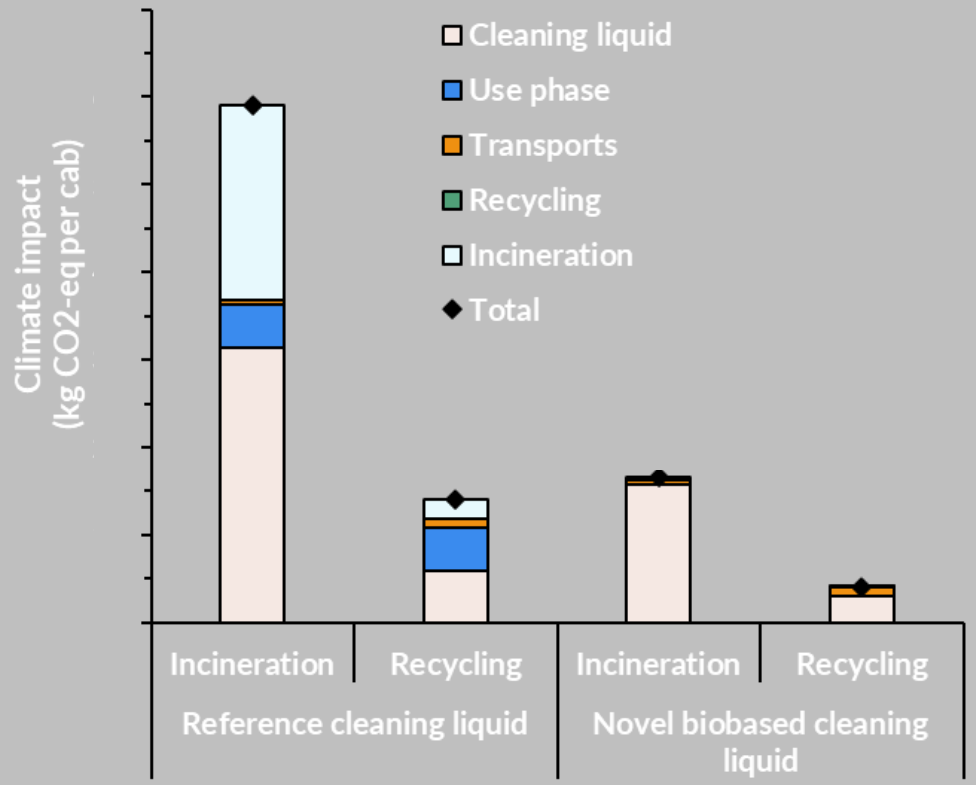
Development of recycling method

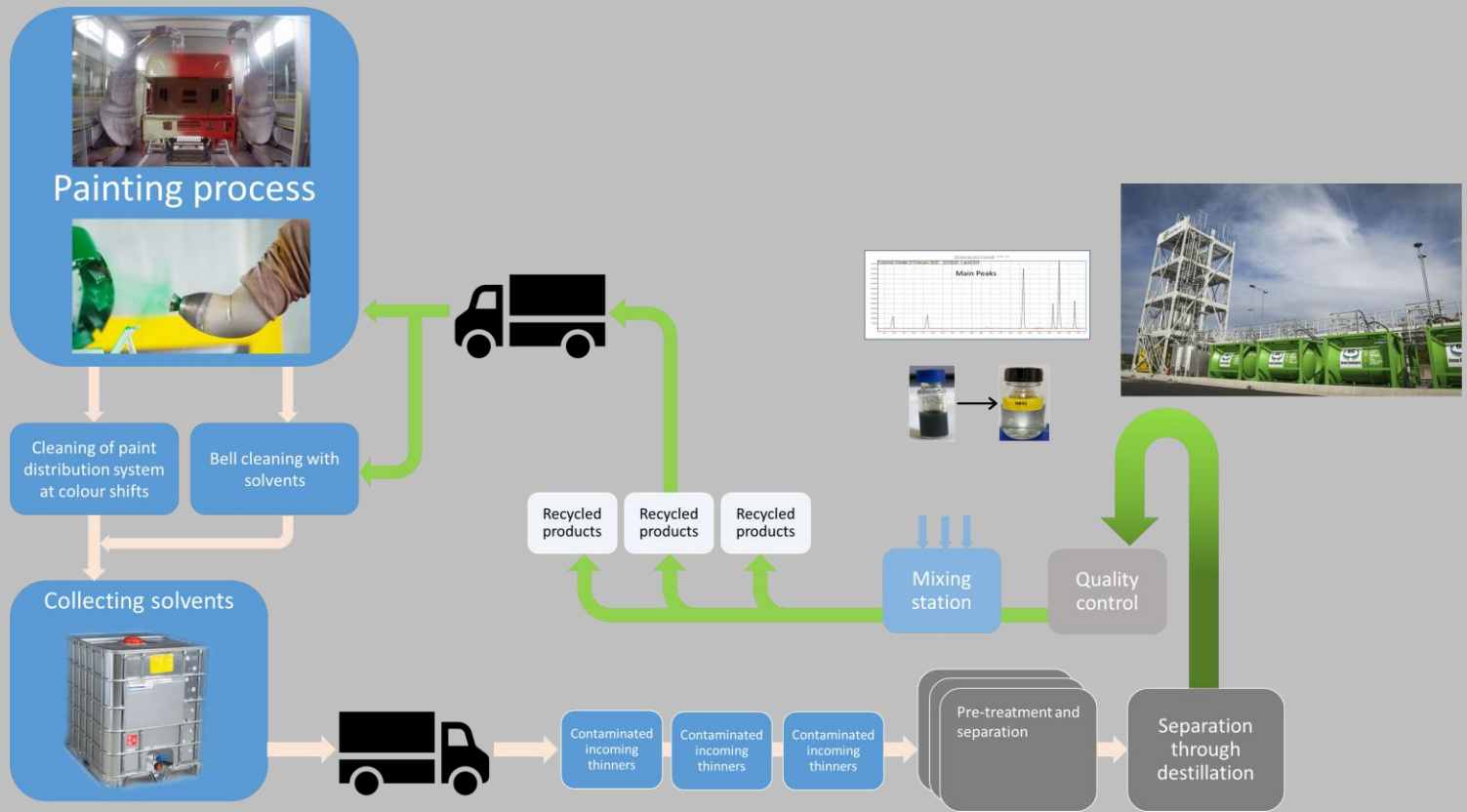
1. Adopt method developed by Swedish start-up Circhem to fit current cleaning liquids in paint shops.
2. Evaluate business case
3. Evaluate efficiency of method.
   Minimized waste!
   >95% can be reycled!
4. Introduce the process in production for current cleaning liquids
5. Next step:
   - Adopt to biobased cleaning liquids
   - Introduce partial recycling at end-user (paint shop)





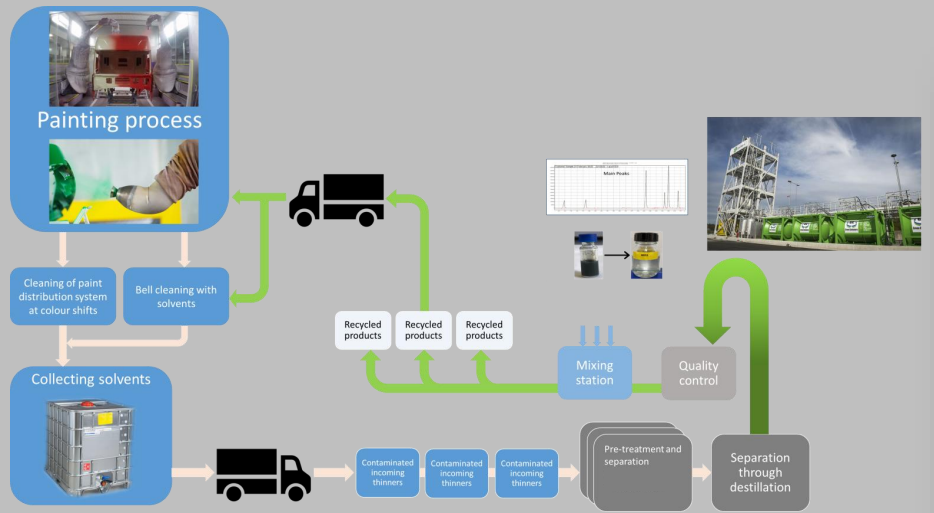
LCA of recycled cleaning liquids





Next step

- Adopt bio-based liquids to process conditions
- Verify in demonstrator at paint shop
- Adopt recycling process to the bio based liquids
- Evaluate potential of partial recycling in-house paint shop
- Webinar end of September



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