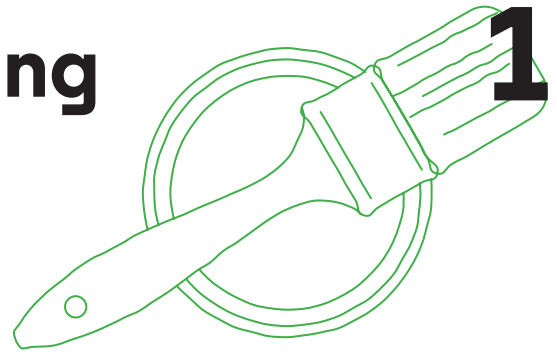


# Circular manufacturing for paint



## Description of the business

### Context

Every new building, every renovation, or almost, is completed with a layer of paint... Whether it's a matter of simply fixing the "dust" into the surface of a wall, or bringing character to a room with colour, we appreciate what this product brings to where we live and work.

The market has gradually shaped itself around a more and more specific offer, where all the major brands have developed "base" paints into which a machine injects colour pigments before shaking the mix. Instant delivery of any colour you choose, but very few environmental and sustainable criteria, beyond compliance with standards such as those on VOCs (a threshold that remains relatively high in the legislation).

In the paints market, "eco" innovation has come mostly from Germany and Scandinavia, with natural paints and stains, for traditional walls, clay surfaces, plaster-boards, and so on. With brands like Aglaia, Beeck, Biofa, Galtane... New initiatives are being introduced, such as natural paints specifically for nurseries (health) by the Belgian brand Conscient.

By definition, paint is "a fluid preparation that can be spread in a thin layer on any sort of material to create, once dry, a thin, adherent and resistant covering, with a protective and/or decorative role". (Source: [www.inrs.fr](http://www.inrs.fr), the French National Institute for health and safety research).

A paint comprises three main elements:

- A "binder": a core substance that will bind the components together and provide adherence to a surface;
- A "solvent": which dissolves the various components of the paint, keeping it fluid and ready for application;
- A "pigment": coloured powder providing tint and opacity;

Often there are "additives" too (driers and thickeners, biocides, etc.) and materials that replace some of the pigment - which is often expensive - giving the paint a particular appearance and consistency. Each of these components may or may not have an impact on the environment and/or health.

The binder, for instance, may be mineral in origin (clay, silicate, lime, etc.) or synthetic (acrylics, vinyl, epoxies, etc.). In another example, the solvent may simply be water. In which case the term is "diluant". But solvents may also be glycol or methanol ethers, sources of volatile organic compounds (VOCs), which are potentially harmful to health.

A paint is called natural when its raw materials are drawn as much as possible from sustainable natural resources: binders are made from vegetable oils (linseed oil, castor oil, etc.), beeswax, natural resins (pine), casein, chalk, and so on; the pigments are plant or mineral based. No solvent is completely harmless, and natural solvents (essence of balsam turpentine, citrus distillates, etc.) can also cause skin problems. Some natural paints contain no solvents but water. This is true of lime and clay based paints. In principle, there should be no chemical additives in natural paints.

A circular paint, however, is a paint where the greater proportion of the raw materials come from recycling materials that have already been used.

## Industrial activity

A quality local offer, as health-conscious and environmentally-friendly as possible (although there will always need to be solvents), should certainly be a success. In the Brussels market initially, and then doubtless beyond.

In this light, two local initiatives are worthy of closer study:

- In Ireland, Rediscover Paint has perfected a recycling system for old paint left-overs (water-based only, but not necessarily natural, for walls and ceilings), to manufacture new paint in new pots.
- Recently, an initiative in Brittany perfected a process to create natural paints using seaweed: Algo Paint. The process is more technological than it might at first appear, and seems to produce very satisfactory results.

These two very different sources of inspiration have encouraged us to propose the creation of a project focusing on “responsible” paint, to include 2 phases:

### Phase 1

Start up a circular paint business in the style of “Rediscover Paint” in the Brussels region, to re-use paint left-overs from the B2B sector (and B2C), as well as trying to re-use the paint pots themselves. Launching a water-based paint operation looks fairly simple and direct; it would doubtless take more preparation and analysis to establish the criteria for establishing an operation for solvent-based paints, which would either be done gradually using internal investment, or with a targeted innovation project (potentially subsidised).

### Phase 2

Once the team is in place and the first operation(s) launched, more extensive research would be needed to consider the manufacture of a natural paint that is as environmentally-friendly as possible, using resources local to Brussels (clay from ground excavations, canal- weed, wax from Brussels bees, or a plant that can be cultivated locally, in the immediate outskirts). Phase 2 would benefit from the know-how acquired in phase 1, but would also require an R&D project with a partner.

The associated business would therefore address the following key steps:

- Recover/collect left-over paint and old paint pots
- Extract left-over paint from recovered pots
- Process and recondition old pots for filling with new paint
- Recycle non-compatible old pots using a channel to be identified
- Recondition the old paints, make new paints
- Colours for the new paints
- Packaging: pot-filling
- Primary and secondary packaging: palletisation
- Distribution

When the team and core activity are established, an R&D project could be launched into a local natural paint, aiming to complete in 2 to 3 years.

## Technical feasibility

The paint sector is very mature. There are already numerous actors and machines. There is no real technical innovation in this dossier, apart from:

- Determining which types of paint the reconditioning process can use (water-based initially, then some solvent-based);
- Working on colour (Rediscover Paint has chosen to focus on white and one or two other colours), to see if innovation is possible in this area.

The Phase 2 R&D project will certainly require chemical and biological expertise, as soon as the best local resources have been selected to produce natural paint with the least possible impact.

## First Elements to be analysed by the project team

- Analyse the composition of paints currently on the market and used by supplier companies, to assess the potential for reconditioning, any brand mixes, etc.
- On this basis, validate the quantity of paint to be collected each month
- Identify 3 or 4 regular suppliers of "left-over paint" (ideally one or two companies and a public body)
- Carry out reconditioning tests for the paint, but the pots too
- Test the product
- Identify a resale channel. The priority would be for B2B resale, partly to companies that themselves systematically provide their left-over paint. It will be necessary to forecast volumes and estimate (using a field survey) quantities of left-over paint and the number of companies prepared to acquire the "circular" paints (white or coloured). In this way the correct balance between acquiring left-over paint and a circular paint offer (the volume of the latter always being less than the volume generating the left-over paint).
- Also seek a partnership within the sales network for natural construction products: Carodec, Ecobati, etc.).
- Validate the business model

## Sources of inspiration

<http://www.rediscoverycentre.ie/rediscover-paint/>

<https://www.peinture-algo.fr/>

## Business potential

### Market

In Europe<sup>1</sup>, sales of paints and coatings represent turnover in the tens of billions of euros each year. An approximate cross-multiplication of European and Brussels populations suggests a local Brussels market of around 80 million euros. White paint remains the most in demand. The dominant brands in the market, at least in Belgium, are Levis and Dulux, both belonging to the Azko Nobel group, the world leader in the sector. Next come major corporations like BASF, Jotun and Hempel.

### Competition

The market for circular paint is local by definition.

To be considered in two stages, since natural paints are an international market mostly belonging to B2C distributors/retailers. Here competition is stiff, because the market is very mature.

The selection of target customers and distribution channels will be fundamental to the ability to operate. Hence the value of developing a B2B offer that is completely circular: selling pots of paint, collecting left-over paint for recycling and resale. In parallel, a B2C offer with increased margin, using local shops for distribution that already sell natural products (and which will also doubtless be open to selling our "circular" paint).

## Circular nature of the business

- Re-use of old paint
- Re-use of paint pots
- Natural paint without components derived from petrochemicals, i.e. very limited use of non-renewable resources
- Paint with the lowest VOC levels on the market (health impact for decorators and users)

<sup>1</sup> <https://www.statista.com/statistics/1063055/global-coatings-market-value-by-region/>: 30.7 billion in 2018, estimated at 37.2 billion by 2024

## Key figures

### Assumptions

Assume a litre of “circular” or natural paint (details will be needed for each) costs €20 retail and covers 10 m², so €2 inc. VAT for every m² painted.

The costs could breakdown as follows: Note that the B2C business provides an adequate margin of €4 per pot,

	B2C	B2B
<b>Price per litre including VAT</b>	20.00	15.00
<b>VAT</b>	3.47	2.60
<b>Distributor margin</b>	7.53	84%
<b>Sale price to distributor</b>	9.00	
<b>Manufacturer margin</b>	4.00	44% 7.40
<b>Production costs</b>	1.50	
<b>Opex</b>	1.00	
<b>Raw materials &amp; CAPEX</b>	2.50	

while B2B is more profitable (€7.40) because it will be sold directly. But the final sale price is still to be confirmed by more in-depth market analysis.

### Job creation potential

The team should be made up of the following full-time equivalent posts:

- Collecting left-over paint: 3, unless subcontracted to an existing operator or an “adapted work enterprise” employing persons with disabilities
- Processing left-over paints: 3
- Paint production: 3
- Packaging: 1.5
- Sales & marketing: 1
- Administration: 1
- Purchasing: 1
- Management & Finance: 1

A total of 14 to 15 FTE giving a total annual payroll of €600,000 to €700,000.

To pay this team, using €1.5 per pot of paint sold (production costs), production needs to be at least  $700,000 / 1.5 = 470,000$  litres of paint a year, so turnover of €5M, breaking down as follows:

TO		
<b>B2C</b>	35%	1.470.000
<b>B2B</b>	65%	3.760.331
<b>TOTAL</b>		5.230.331

One of the challenges in preparing the project is to be realistic (see first elements to be analysed) about the time needed to reach this turnover: 3, 5 or 7 years?

## Recycling potential in tons

Assuming 75% of the paints produced by the company are derived from recycled left-overs, and given that the average density of paint is 1.5 kg/litre, we need to source  $75\% \times 470,000 \times 1.5 = 529$  tons of paint, or about 1.7 tons per working day. With no data available online, the Brussels waste management contractor Bruxelles Propreté should be contacted to establish the volume of paint they receive at their "Recyparks".

Assuming that left-over paint averages 3 l per 20 l pot, so 4.5 kg, daily collection of 376 pots with left-over paint will be needed to feed the chain of production. This provides ample grounds to establish partnerships with professional painting companies.

We estimate paint consumption in the Brussels residential sector, which would certainly be an initial target (B2C but also B2B for those using a professional internal decorator), to be 5,670 tons annually (10% of square metreage changing occupants in a year and 5% of the remaining square metreage redecorating). Production would therefore represent 7% of paint sales to Brussels inhabitants, excluding the B2B sector.

## Made in Brussels

### Local procurement

Collecting left-over paint

- Mainly B2B from painting businesses and general construction companies (paint department) using a collection service for white paint left-overs (possibly colours too) of types that are compatible with the production process;
- Offer B2C collection points at municipal facilities, sorting centres, recycling and up-cycling facilities.

Paint and solvent residues can be corrosive, irritant or even dangerous for some people, and are classified "small chemical waste" in Belgium. Some municipalities organise specific collections. The "intercommunale" cooperative municipal enterprise can provide more information (see Advice-sheet 49: "les parcs à conteneurs" - recycling centres). These will anyway need to be contacted to find out what they currently do with paint left-overs.

### Local partners

#### Partners

- Left-over paint collection network

#### Suppliers

- Paint pot manufacturers (for the balance of actual containers that cannot be recycled)
- Distributor excess stock (paint at the end of its shelf-life)
- Pigments
- Components for own-production paints
- Production equipment

#### Distributors

- The choice of distribution network will be fundamental
- Work with the network of distributors for green products
- Plan for online B2C sales
- Offer resale to construction businesses to develop paint that is truly circular

#### Subcontractors

- None in principle
- Packaging and palletisation could be collaborative with other companies

## Competitors

- In principle none in the circular paint sector in Belgium
- Some natural paints manufacturers in Belgium

## Location

Premises of about 1,000 to 2,000 m<sup>2</sup> needed to launch the business. Possibility of setting up within a hub for circular industries, with grouped production facilities?

# Key factors for success

## Operational and commercial barriers

Three major risks need to be analysed as a priority:

- First check that Rediscover Paint does not have any intellectual property rights over its process, or that another process is possible;
- Contact a number of major paint service companies to assess the possibility of having an adequate "procurement" flow;
- Identify initial ideas for local natural production and form a partnership with a research laboratory to initiate the 3 to 4 years of R&D work required for success.

## Intellectual property

Check whether Rediscover Paint has any intellectual property rights over its process, or whether another process is possible.

## Legislative obstacles

With left-over paint considered as waste (domestic chemical), an environmental permit is required to reverse the waste status on completion of the production process.

## Other risks

None.

## Project team skills

It would seem essential, right from phase 1, to have a chemist on the team.

Otherwise the team needs the "classic" entrepreneurial skills, with one member for management and finance, another with good sales and negotiating skills (including for partnerships to include collecting left-over paint), and an operations expert to orchestrate the reconditioning/production process.

## What the RBC (Brussels Capital Region) can do make it a success

- Promote this type of paint for public contracts
- Reinforce environmental pollution standards (VOCs and other pollutants)
- Environmental and climate impact calculation

## References and links

Aglaia and Beeck	<a href="https://www.beeck.com/en/index.php">https://www.beeck.com/en/index.php</a>
Galtane	<a href="https://www.galtane.com/fr/">https://www.galtane.com/fr/</a>
Biofa	<a href="http://www.biofa.be/">http://www.biofa.be/</a>
Conscient	<a href="https://conscient.be/">https://conscient.be/</a>
Levis	<a href="https://www.levis.info/fr">https://www.levis.info/fr</a>
Dulux	<a href="https://www.dulux.be/fr/">https://www.dulux.be/fr/</a>
Rediscover Paint	<a href="http://www.rediscoverycentre.ie/rediscover-paint/">http://www.rediscoverycentre.ie/rediscover-paint/</a>
Algo Paint	<a href="https://www.peinture-algo.fr/">https://www.peinture-algo.fr/</a> <a href="https://www.mouvement-up.fr/articles/algo-paint-le-pari-fou-dune-start-up-qui-a-cree-une-peinture-saine-a-base-dalgues/">https://www.mouvement-up.fr/articles/algo-paint-le-pari-fou-dune-start-up-qui-a-cree-une-peinture-saine-a-base-dalgues/</a> <a href="https://www.arp-gan.be/fr/tri/10-dchets-chimiques-mnagers.html">https://www.arp-gan.be/fr/tri/10-dchets-chimiques-mnagers.html</a>
"Recyparks"	<a href="https://www.ecoconso.be/Les-parcs-a-conteneurs">https://www.ecoconso.be/Les-parcs-a-conteneurs</a>