



Innovate
UK

Berger Paints Nigeria – Innovation Challenge for Valorisation of Expired Paints



Challenge

Berger Paints Nigeria is looking for methods of converting expired paints, and paint fractions and components, into usable paints and other beneficial products.

The Innovation should have wide applicability and scalability to help transform this worldwide waste stream into commercially valuable outputs.

Berger Paints Nigeria Background

Berger Paints Nigeria PLC is a leader in the **Coating and Allied Industry in Nigeria since 1959** – a legacy inherited from Lewis Berger, the German Colour Chemist who founded Berger Paints in 1760.

The company has a reputation for setting standards in the paint industry in Nigeria, and has pioneered a **wide range of speciality products** in this dynamic and ever-changing market. Berger Paints Nigeria PLC is the first company to unveil an **ultramodern fully automated factory** with an annual capacity of 10,000,000 litres of paint production.

They operate in **5 business segments**: Decorative/Architectural finishes, Industrial coatings, Marine & Protection coatings, Automotive/Vehicle refinishes, Wood Finishing and Preservers.

These are supported with a manufacturing plant and main distribution centre in Lagos, over 25 depots/business partners' outlets, Colour World centres and a countrywide distribution network of dealers in strategic locations.

Challenge Information 1

There is a global challenge with **paints ageing and becoming unusable**. This may be at the manufacturing stage, relating to inputs, or at the wholesaler stage where unsold products expire. Also, consumers may have used or unused paints that are no longer usable.

Berger Paints Nigeria is seeking innovative methods of **valorising aged paints, and paint fractions and components, into new products**, including usable paints with a shelf life of more than 2 Years. The solution should have **wide applicability and scalability** to help transform this worldwide waste stream into commercially valuable outputs.

There are **no current technological processes in-country** available to convert these aged paints for alternative uses thus an innovative solution is required.

Challenge Information 2

Berger Paints Nigeria's range of **water-based paints** includes standard and premium: matt and satin finishes, with typical shelf lives of 2-3 yrs. Their **solvent-based paints** include epoxy coatings, acrylic polyurethane, silicone heat resisting, chlorubber paint, marine/alkyd gloss, antifouling paint, etch wash primer, road marking paint and bright aluminum, with typical shelf lives of 3-5 yrs.

Berger Paints Nigeria is working with **waste management agencies** to legally dispose of unusable paints. However, they are looking for innovations which **feed into the circular economy process** relating to paints. Berger Paints would like to save energy, optimize resource efficiency and minimize waste, also generating cost savings to the company and its consumers.

Currently: 'officially' expired paints (via date of manufacture) can be revalidated (by technical shelf life) for additional retail shelf life of 6-12 months. However, **continual revalidation is time-consuming** and impacts product quality perceptions.

Challenge Information 3

The ideal solution would **consider ways of collecting and sorting leftover paints** to identify expired paints. The manufacturer would then process remnants and treat to remove impurities and to separate removable materials. Berger Paints Nigeria would like to lead the industry in **developing such a (re)supply chain**. Such findings would be shared with government waste collection agencies and these innovative services could also serve other paint manufacturers.

Berger Paints Nigeria envisages valorised products to re-enter the paint supply chain (with a longer shelf life compared to the above-mentioned 6-12 months), but they are also open to solutions resulting in new and different products entirely. **Innovative thinking is welcome for this challenge.**

Early-stage solutions are welcome, but **TRL must be aligned with project objectives** (ie: capable of running a valid pilot).

Berger Paints Nigeria is **open to discuss IP arrangements** with challenge winners. They would seek to find a mutually beneficial commercialization route.

Additional Info

Approximate value of expiration losses in 2022 was 94M Naira.

If you would like additional information or clarification of any issues, please contact the Global Alliance Africa, Open Innovation Lead: babar.javed@iuk.ktn-uk.org

Future plans for integrating innovative processes/products into Berger's supply chain will be through the **Paint Manufacturers Association of Nigeria (PMAN)** in-country, and through Paint Manufacturers Associations in West African countries.

Target Audiences

Solutions are invited from, but not limited to, the following sectors:

- Chemistry
- Coatings
- Manufacturing
- Biotechnology
- Plastics
- Recycling
- Design
- Construction

Functional Requirements

The identified solution must/should address the following:

- Solution must apply to **packaged paints**
- Solution must support **water and solvent based paints**
- Solution must identify valuable, reusable components
- Versatility and capacity to scale are desirable
- Solution must be integrated at a suitable point in supply chain
- Solution must be sustainable

Technical Requirements

- Solution must involve **recycling and follow circular economy principles**
- Solution may be delivered by external contractor or via in-house team
- Solution must produce **consistent product quality**
- Solution must operate with **high accuracy thresholds**
- Solution/process must comply with health and safety standards

Operating Conditions

- Solution should operate in context of normal temperatures and humidity
- Solution should be applicable during normal working hours
- Solution must be **viable for paint manufacturing/processing plants**
- Solution should minimise carbon emissions and **contribute to waste reduction**

Cost Requirement & Market Opportunity

- The solution's operation should aim to be **cost-effective and/or profitable** in terms of ROI
- Winning solution providers may become long-term partners, gaining access to Berger Paints Nigeria's supply chains
- External contractors and in-house technical arrangements will be considered
- The opportunity may later extend beyond expired paint to other waste streams also
- There may be **opportunities to collaborate** with government waste agencies and/or other paint manufacturers

Out of Scope

Proposed solutions may not be viable if they are:

- Not compliant with health and safety
- Unsuitable for valorising expired paints
- Unable to produce reliable quality outputs
- Unable to use Circular Economy thinking
- Unsuitable for Nigerian market conditions