

UK company seeking to pilot a cooling paint solution with high solar reflectance and emissivity for any structure that would benefit from affordable passive cooling solutions.

## Summary

Profile type

**Technology offer**

Company's country

**United Kingdom**

POD reference

**TOGB20230823009**

Profile status

**PUBLISHED**

Type of partnership

**Commercial agreement with  
technical assistance**

Targeted countries

• **World**

Contact Person

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Term of validity

**23 Aug 2023**

**22 Aug 2024**

Last update

**23 Aug 2023**

## General Information

### Short summary

UK SME has created a water-based cooling paint. It reflects solar heat away from a surface and allows that surface to lose more heat than it absorbs from the sun. The combination of high reflectivity, high emissivity, and low cost make their paint an important part of the solution to extreme rising temperatures. They want to accelerate this testing work in mixed settings - including agricultural, industrial, and housing sites, offering its know-how and expertise in the development of this tech.

### Full description

Small UK based company founded in 2021 with engineering expertise and more than 10 years of experience working on insulation technologies. Their aim is to become a referential passive cooling research and development hub where new IP is created. They began experimenting with passive cooling systems during the height of the COVID-19 pandemic, which resulted in them inventing a high-reflectivity and high-emissivity cooling paint.

Affordable, eco-friendly cooling paint can play a pivotal role in reducing the cooling requirement of any structure. Although there have been plenty of initiatives in recent years to develop high-reflectance white cooling paint, few are truly effective at releasing heat (low emissivity). Their paint is an affordable, easy-to-use, low-VOC white cooling paint that passively cools any kind of structure. It significantly reduces indoor space temperatures, energy consumption,

CO2 emissions, and over-reliance on air conditioning systems. It combats the urban island effect, and alleviates the devastating effects of climate change, ultimately helping to cool the planet. The paint is a passive cooling solution with plenty of applications in different industries and a large potential impact on equatorial, low-income, and developing countries.

They have developed a solution which will enable global communities to take rapid action in combating climate change. Their testing journey has gone from solar simulators and labs in the UK to field tests in India. They are now looking for industrial partners globally to test their technology and help to refine it via a commercial agreement with technical assistance.

#### Advantages and innovations

Although there have been plenty of initiatives to develop high-reflectance low-VOC white cooling paint using pigments such as titanium dioxide, zinc oxide, and calcium carbonate, few are effective at releasing heat. These white materials allow paint to be around 90%-95% reflective in the visible light spectrum but typically do not perform well in the UV area of the solar spectrum, which limits their ability to keep cool in the full sun.

Their paint provides a unique combination of exceptionally high solar reflectance (99.36%) and emissivity (0.997), allowing a surface to potentially lose more heat than it absorbs from the sun and creating an impressive cooling effect of up to 7°C below-ambient temperatures. Whereas a white coating on a metal roof and standard white paint has solar reflective indices (SRI) of 82 and 100, respectively, their paint's SRI of 116.8 makes it a superior option.

The paint has gone through rigorous testing using state-of-the-art facilities at The University of Leeds and generating more than 1,000 samples. In this process, the paint achieved an outstanding Figure of Merit of 0.934, a coefficient between zero and one that indicates cooling performance.

#### Technical specification or expertise sought

#### Stage of development

**Lab tested**

#### IPR Status

**IPR applied but not yet granted**

#### Sustainable Development goals

- **Goal 7: Affordable and Clean Energy**
- **Goal 3: Good Health and Well-being**
- **Goal 13: Climate Action**

## Partner Sought

#### Expected role of the partner

The company is looking for a commercial partner who has the knowledge know how in one of their primary target

markets (energy infrastructure and storage(batteries), agricultural infrastructure, maritime shipping containers, cold tanks in industrial facilities, and low-income housing), all of which could benefit from affordable passive cooling solutions, to pilot and demonstrate this solution in a real-scale setting and elevate its Technology Readiness Level (TRL) from TRL 4-5 to TRL 6-7.

## Type of partnership

**Commercial agreement with technical assistance**

## Type and size of the partner

- **R&D Institution**
- **Other**
- **Big company**
- **SME <=10**
- **SME 11-49**
- **SME 50 - 249**
- **University**

## Dissemination

## Technology keywords

- **02002002 - Coatings**
- **03004003 - Colours, dyes related to Chemical Technology**

## Targeted countries

- **World**

## Market keywords

- **08005 - Other Industrial Products (not elsewhere classified)**
- **08001007 - Coatings and adhesives manufactures**

## Sector groups involved