

# An innovative heat-reflective coating for the construction market

Using an innovative formulation of 3M™ Glass Bubbles combined with a high strength binder and special pigments, German paint manufacturer CERABRAN® has created a solar heat reflective coating for building façades and roofs.



With global warming creating more heatwaves in summer, a barrier against solar radiation is needed to protect façades and keep buildings cooler in hot conditions. This can also reduce energy consumption if the building is air conditioned.

CERABRAN® has a proud history of producing innovative building coatings, insulation and fire protection solutions, using intelligent fillers such as 3M™ Glass Bubbles to significantly increase their performance.

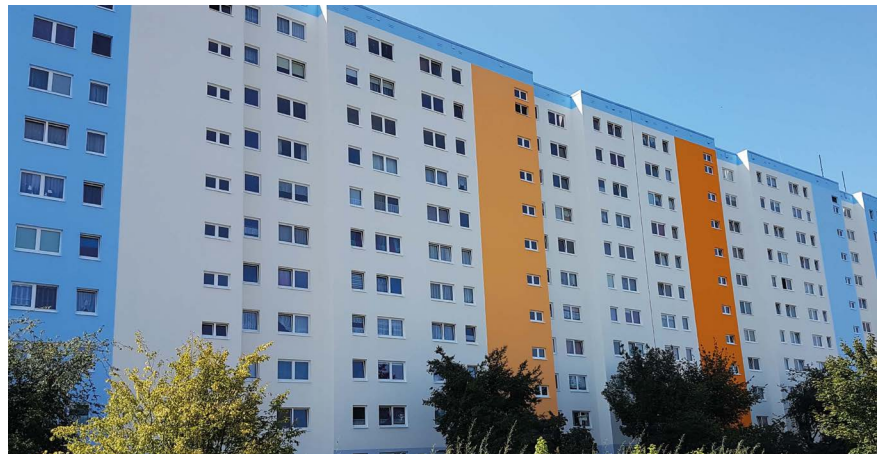
Boroflect® is the group's revolutionary, highly technical coating solution for the industrial sector that offers a niche solar heat reflecting coating with mass-market appeal to protect the aesthetics of buildings in challenging weather conditions.

This more sustainable paint solution combines a high strength binder and special pigments with stable 3M™ Glass Bubbles to provide the product with a permanent high solar reflectance.

In addition to offering heat regulating properties, the coating is water-repellent and resistant to hydrochloric acids. The high content of 3M™ Glass Bubbles also provides the coating with excellent mechanical properties, such as strong adhesion and elasticity, preventing surface cracks.

“We can proudly state that BOROFLECT® is the best paint for hot regions.”

-Maximilian Sanner  
Managing director of  
CERABRAN®



3M™ Glass Bubbles are durable and stable, even after many years of exposure to sunlight, rain, erosion, abrasion from sand and moisture, making them a valuable component of high-performance coatings.

Boroflect® Heat Reflection Coating is extremely long-lasting, meaning that maintenance intervals between the repainting of façades can be significantly extended, making the total cost of use over time attractive. The coating is also easy to apply as it will adhere to almost any clean and dry substrate without the need to use a primer. It can be also applied with airless equipment.

#### Industry Paint manufacturing

“The paint is well suited for façades that need to stay cool in summer, as sunlight is well reflected. This is due to the high proportion of hollow glass spheres combined with titanium dioxide.”

German Research and Development Institute

#### Tried and tested

The product has been tested over many years in extreme weather conditions in countries such as Dubai, Sri Lanka and Singapore.

As well as protecting façades from the elements, the coating has shown a high color tone stability.

Tests on a building in Dubai showed that a roof with a standard coating recorded temperatures of 53 °C, while the same roof coated with Boroflect® registered 48 °C. After being applied for two years, the roof showed no mechanical damage attributed to the material and the coating was in the same condition as when it had been applied.

Boroflect® Heat Reflective Coating was also used to renovate the façades of a 7,500 m<sup>2</sup> prefabricated apartment block in Berlin. The 11-story building housing 132 residential units was coated with Boroflect® to bridge partly open joints, creating a non-flammable, sustainable surface that is stable and resistant to mechanical and moisture-related damage.



#### Challenge

Create a solar heat-reflective coating for external façades.



#### Solution

Formulate a coating by combining a high-quality and durable roof and façade coating binder with 3M™ Glass Bubbles S28HS and special pigments.



#### Insight

This innovative formulation provides excellent solar heat reflection and heat regulating properties, is water-repellent and weather resistant.

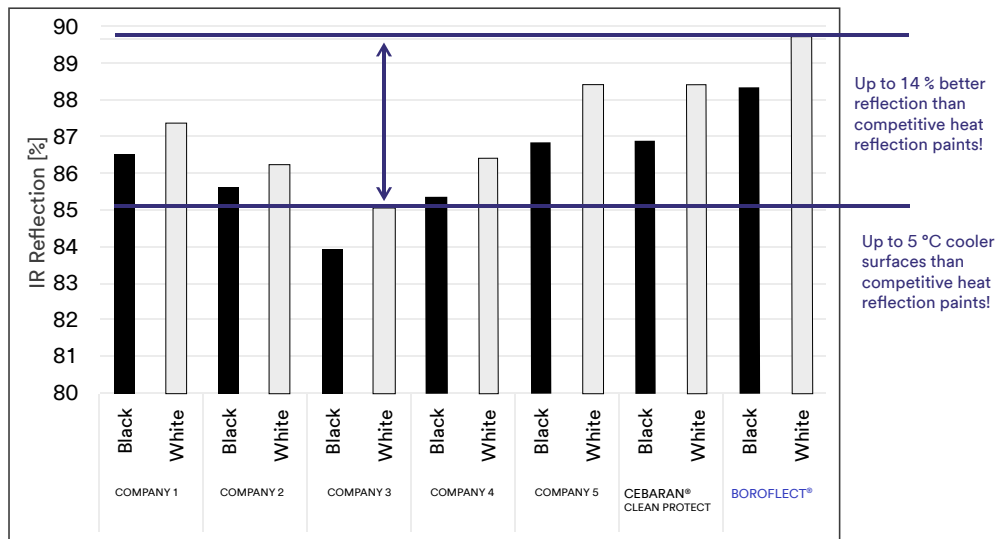


#### Why 3M™ Glass Bubbles

These microscale (<100 µm) microspheres made from borosilicate glass are hollow and lightweight, spherical and strong, provide special properties and are durable and stable.

# BOROFLECT® Heat reflection coating

IR-radiation and TSR test / IR-lamp test



The building, originally constructed in 1990, was renovated in 2016 and the coating is continuing to protect the façades from damage.

Boroflect® Heat Reflective Coating is used by housing cooperatives and large landowners for a wide range of applications and it is also used in the industrial sector by owners of buildings such as halls, aircraft hangars, large leisure resorts and hospitals.

“We have seen that 3M™ Glass Bubbles are durable, even after years, under sunlight exposure, rain, erosion, abrasion from sand, moisture exposure - that’s why they are the go-to material when it comes to High Performance Heat Reflection Coating. We don’t see any cracking or delamination with 3M™ Glass Bubbles.”

Christoph Dworatzky, Managing Director, CERABRAN®

## Sharing the benefits

CERABRAN® is driving its own climate initiative and forming networks with partner companies, transferring knowledge to organisations like large housing associations to share with end users such as plasterers and painters. Going beyond the Paris Climate Agreement, together with Focus Future, the aim is to guide 300-400 companies towards climate-neutral operations.

## Supporting the EU Renovation Wave

Used as a filler by the construction industry, 3M™ Glass Bubbles provide finished products like external paint with a range of properties, such as improved thermal insulation or solar heat reflection capabilities. This means that they can help to reduce energy consumption, supporting the EU Renovation Wave campaign to refurbish older buildings and make them more sustainable.

Find out more about [Boroflect® Heat Reflection Coating](#)

In 2023 Proceram Group will attend the Europe-wide fair [Paint - Finishing & Facade](#)

**3M** Science.  
Applied to Life.™

Advanced Materials Division  
3M Germany, Carl-Schurz-Strasse 1  
41453 Neuss, Germany  
[www.3m.de/glassbubbles](http://www.3m.de/glassbubbles)  
[www.3m.co.uk/glassbubbles](http://www.3m.co.uk/glassbubbles)

3M is a trademark of 3M company.