

# WTG Offshore's Biim® TRI-Coat

(Temporary Repair and Inspection Coat)

## A REVOLUTIONARY PROACTIVE APPROACH TO THE PROTECTION OF TURBINE BLADE DAMAGES.

- The integrity of turbine blades is a key consideration in the renewables industry given the financial implications of inefficient performance and the current existing leading edge erosion issues.

**WTG Offshore has developed a revolutionary coating:**

### **Biim® TRI-Coat (Temporary Repair and Inspection coating)**

Using our own in field experience and knowledge in association with well-respected coating industry experts we are pleased to launch this ground breaking blade O&M Engineered 3D crosslinked hybrid polyurethane coating.

**Biim® TRI-Coat** is intended to be readily applied to areas of damage including leading edge erosion. The coating then serves to stabilise and seal in the defective area thus halting any further erosion or degradation of the substrate for a period of up to 3 Years.

By simply coating the category 2 & 3 damages with Biim® TRI-Coat, blade teams are able to concentrate on the larger category 4 & 5 repairs and simply revert back to the category 2 & 3 repairs at a later date, knowing with complete confidence that no further degradation will occur.

**Applied in minutes whilst providing protection for up to 3 years +**

**A translucent protective coating, allowing any damages and erosion to be, continually monitored from ground level or TP.**

**This proactive and Protective innovative coating ensures:-**

- Blade safety and availability is maintained
- Blade integrity is assured to a continued operational level
- Costs of immediate repairs and re repairs are minimised
- A fast preventative measure for blade damages
- Cost effective and a simple way to eliminate the risk of further damage.
- Comprehensive, rain erosion testing results giving you peace of mind.
- Allows for permanent repairs to be budgeted for, planned and scheduled to meet the client's time frame.



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**WTG Offshore's Biim® TRI-Coat is the:**

**“World's first aerosol clear nanocoating with 7-in-1 multi-functional protection properties”**

- Highest scratch resistance
  - Extreme Abrasion resistance
  - Highest Chemical resistance
  - Excellent Hydrophobic properties <http://wtg-offshore.com/BiimTRI-Coat.html>
  - Remarkable Flexibility
  - Extreme UV resistance
  - Reduced surface debris build up
- Innovative and efficient, providing a quality, cost effective and competent offering
  - Potential vertical integration with other/existing coatings.
  - Biim® system is an industry leading solution to the problem of blade maintenance giving wind farm owners the opportunity to effectively minimise potential future maintenance costs and de-risk
  - Proven track record with comprehensive Rain erosion testing to Industry standards.

**As an Asset owner/OEM the following maybe critical to consider:**

1. Are your minor blade damages currently getting bigger?
2. Are programmed repairs taking longer than expected due to further degradation?
3. Would the ability to change from Reactive to preventative repairs enable you to plan and prepare resources for the repair campaign better?
4. Are your Assets blades effected by leading edge erosion, and continuing to further degrade whilst awaiting repairs?

**By utilising the WTG Offshore's Biim® TRI-Coat you can proactively take control of the above concerns.**

**“Can you afford not to be Proactive in dealing with your Leading Edge Erosion issues”**



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## Technical Information

### Material Compatibility

Designed to be applied directly over freshly painted, 2 part Epoxies, Powder coatings, 2 part Polyurethanes and sanded fibre glass.

### Application parameters

Temp 4°C to 32°C

Relative Humidity: 20% to 80%

### Physical Properties

Pencil Hardness: 4H - 7H (with additive)

Impact strength – ASMT D2794: >140kg - cm

Chip Resistance @23°C (2mils) ASTM D3170: 7A

Abrasion Resistance ASTM D4060: 8.4 mg loss

QUV Resistance – ASMT D4587: 99%

Salt Spray – ASMT B-117: 4000hrs no rust no blisters

DMA Crosslink Density (x103 mol/m3) - 2.17

### Recommended film build up:

Number of spray coats: Apply 2 – 3 wet coats with 5 – 10 min. between wet coats to allow for solvent evaporation.

Avoid recoating additional coats after 20 min. as flow and levelling will be negatively affected.

Recommended (Wet Film Thickness WFT): 2 – 3ml per each wet coat

Recommended (Dry Film Thickness DFT): 1.5 – 2.5ml depending on surface properties required.

**Solvent Flash:** Allow 5 to 10 min. between wet coats at 22°C to allow for solvent evaporation.

### Cure Time @ 22°C, 50% R.H.

Dust Free: 20 – 30 min

Tack Free: 30 – 40 min

Handle: 4 Hours

Dry Hard 24hrs

If using the liquid (Non Aerosol) version, the TRI-Coat accelerator additive can be used to half the above curing times.



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**Surface coverage** per 1 Ltr: 24sqm @.50 mil DFT

## Shelf Life and Storage:

- **Storage temperatures must be dry and between 4°C and 22°C.** Higher temperatures will decrease shelf-life.
- **Shelf-Life – 2 Years aerosol or 6 months 3 litre container.**
- **Shelf Life opened: 2 weeks container - 6 months aerosol**
- **Container must be closed immediately after use to avoid moisture contamination.**
- **Do not leave container open for extended periods to avoid moisture contamination. Discard contents if liquid turns white or gels.**

## Important:

Biim® TRI-Coat + **Poor adhesion** = **Failure.**

Biim® TRI-Coat + **Excellent Adhesion** = **3 year plus protection.**

## Application Environment:

Biim® TRI-Coat was developed to cure or cross link in the presence of humidity. As a general rule, higher humidity results in a faster cure cycle. Lower humidity results in a slower cure cycle. Higher humidity may reduce flow and levelling of Biim® TRI-Coat, one way to improve flow and levelling is to reduce the wet on wet recoat time to 2 – 3 mins. Conversely, lower humidity positively affects flow and levelling of Biim® TRI-Coat.

It is important to spray/apply in a dust free environment, so as to avoid surface contamination. Appropriate ventilation, approved respirator, protective clothing and rubber gloves are required to apply Biim® TRI-Coat.

MSDS sheets available on request

Rain Erosion Testing reports (ASMT) available on request

For further information contact:

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