



# The Adhesive Behind the next generation of Wind Sails

Stef Jaspersen – European Adhesive Specialist BNS  
Deklyn Barnes – Business Development Manager IPS Adhesives

Webinar 30<sup>th</sup> June 2026

# About us



## **Deklyn Barnes - Business Development Manager – IPS Adhesives**

Deklyn has over 15 years of experience spanning Quality, Commercial, and Sales Management roles across multiple countries and regions, giving him a well-rounded understanding of supply chains, business strategy, and customer engagement. With particular depth in composites and structural adhesives, he is known for building strong international relationships and driving growth across diverse markets, combining strategic thinking with a hands-on approach to business development, pricing, and portfolio optimisation.



## **Stef Jaspersen – European Adhesive Specialist – BNS**

Stef Jaspersen, studied engineering, working at BNS Industrial BV since 2004. BNS became distributor of IPS/SCIGRIP in 2014 in Benelux and sister company AB Composites is distributor in South East Asia.

## About IPS Adhesives

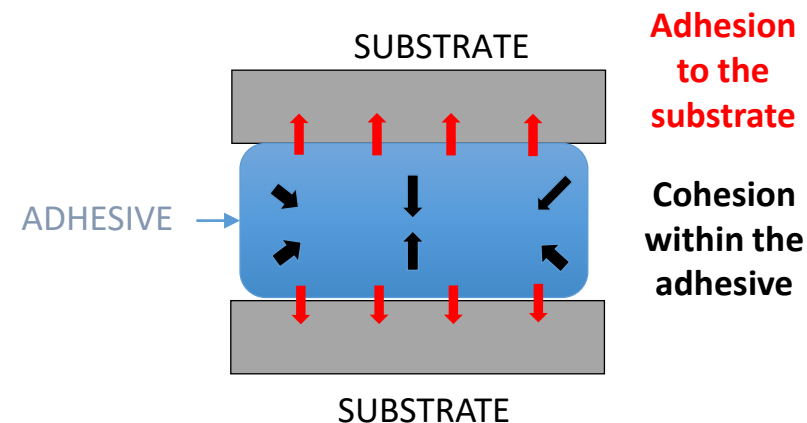
IPS Adhesives is a leading provider of adhesives, servicing the surfacing, structural, and assembly industries. With a combined 65 years of expertise and locations in both North America and Europe, its products are recognized by OEMs and fabricators globally for their premium quality, strength, and reliability.



# Introduction to MMA Adhesives

## What is an adhesive ?

“An adhesive is a non-metallic substance which is able to join two substrates together via bonding to the surface (**adhesion**) and via its internal strength (**cohesion**)” DIN EN 923



## MMA Adhesives

Two-parts acrylic adhesives that consist of :

- 1) **Adhesive Resin** composed of methacrylate monomers, amines + rubbers and toughening agents
- 2) **Peroxide-based Activator**



# Introduction to MMA Adhesives

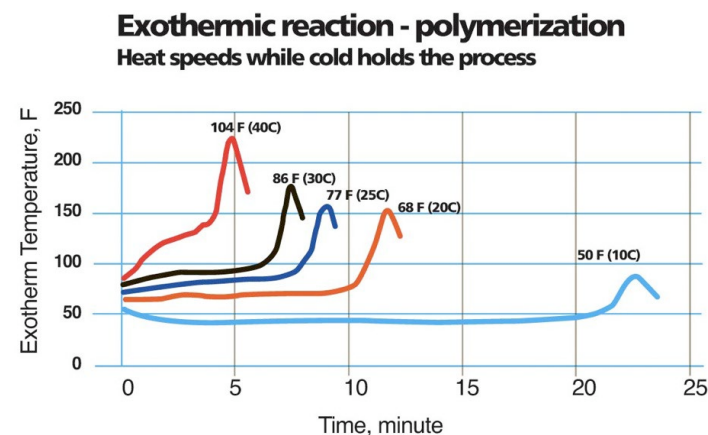
## Polymerization Reaction

Methyl Methacrylate (MMA) adhesives cure through an **exothermic polymerization reaction**. This reaction involves monomers chemically bonding to form strong polymer chains, generating heat in the process.

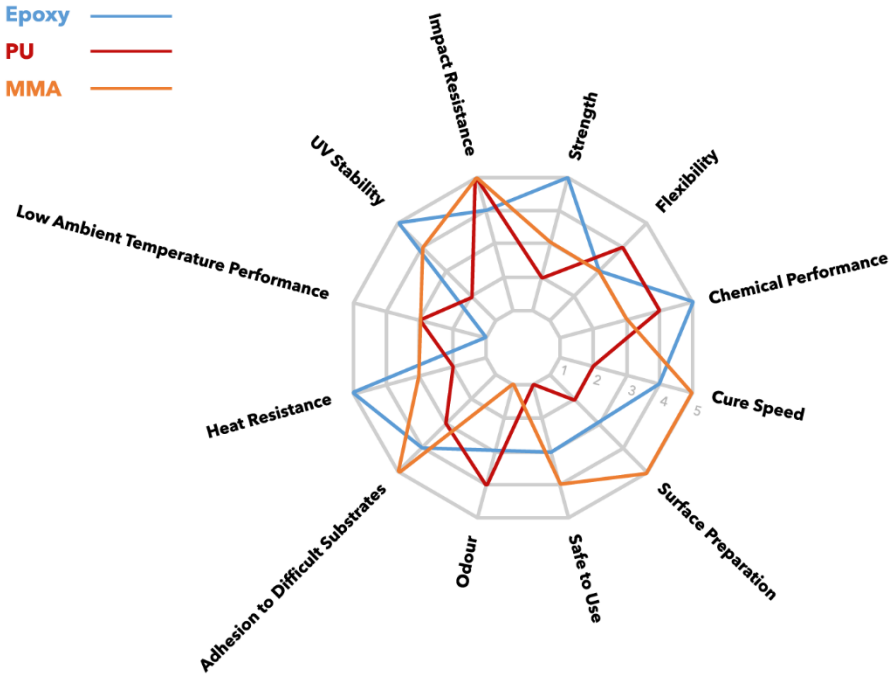
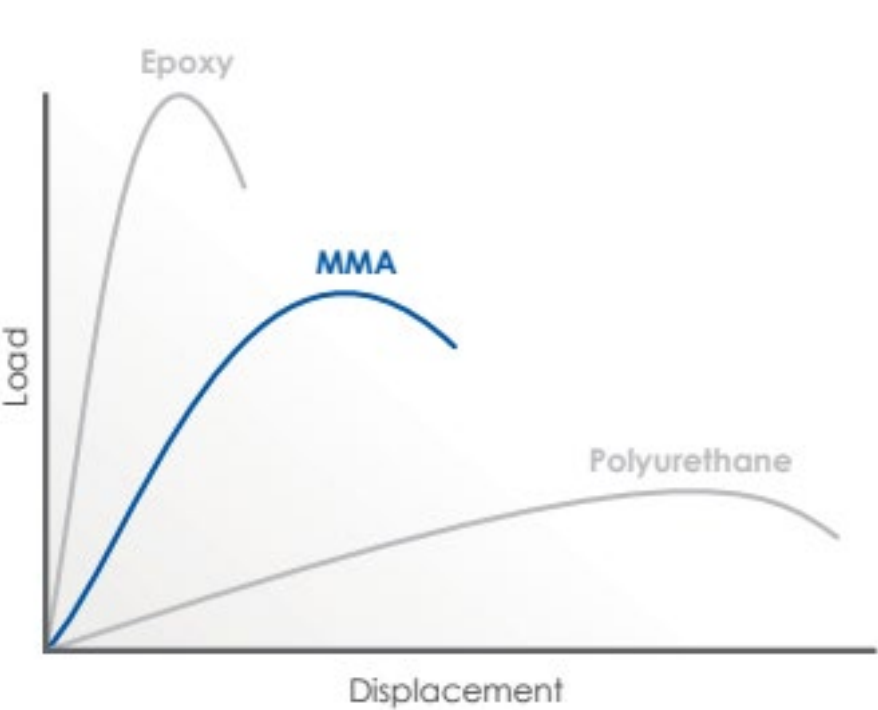


## Key Characteristics

- ✓ **Mix Ratios:** Commonly available in **1:1** and **10:1**
- ✓ **Fast Handling Strength:** Achieved within **minutes**
- ✓ **High Bond Strength:** Lap shear strength **>20 MPa**
- ✓ **Excellent Gap Filling:** Up to **150 mm**
- ✓ **Wide Service Temperature:** Approx. **-50°C to +100°C**



# Structural adhesives: Epoxy VS 2K MMA VS 2K PU



# Structural adhesives: Epoxy VS 2K MMA VS 2K PU

| Property                                                                                               | Epoxy                                                                                                                                                                                    | 2K MMA                                                                                                                                                                                                                                                        | 2K Polyurethane                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <b>Advantages</b>    | <ul style="list-style-type: none"> <li>• Very high strength (&gt;30 MPa)</li> <li>• Excellent chemical &amp; temperature resistance</li> <li>• Superior weathering resistance</li> </ul> | <ul style="list-style-type: none"> <li>• Strong adhesion to plastics, metals, and composites</li> <li>• Minimal surface preparation needed</li> <li>• Easy application</li> <li>• Fast curing time</li> <li>• Good fatigue &amp; impact resistance</li> </ul> | <ul style="list-style-type: none"> <li>• High flexibility</li> <li>• No odor</li> <li>• Good adhesion to plastics and wood</li> <li>• Strong impact resistance</li> </ul>                                                                                                          |
|  <b>Limitations</b> | <ul style="list-style-type: none"> <li>• Requires thorough surface preparation</li> <li>• Can be brittle</li> <li>• Longer curing time + post curing</li> </ul>                          | <ul style="list-style-type: none"> <li>• Exothermic reaction (can cause shrinkage)</li> <li>• Strong odor</li> <li>• Lower chemical &amp; temperature resistance compared to epoxy</li> </ul>                                                                 | <ul style="list-style-type: none"> <li>• Lower mechanical strength</li> <li>• Requires surface preparation</li> <li>• Health &amp; safety concerns (isocyanates)</li> <li>• Longer curing time</li> <li>• Lower chemical &amp; temperature resistance compared to epoxy</li> </ul> |

# Benefits of MMA Adhesives



## Minimal surface preparation

*Only cleaning on most substrates to enhance productivity*

## Room Temperature curing

*No heating or post cure required*



## Variable cure time and fast strength build up

*From few minutes to hours*



## Bonding dissimilar materials

*High elongation suitable for diff. expansion coefficient*

## Variable Rheology

*High for large structure to lower for small gaps*



## High peel and Impact Resistance

*Reduce product failure*

*better performance for applications with mixed-mode stresses*

# Markets



- **Which markets**

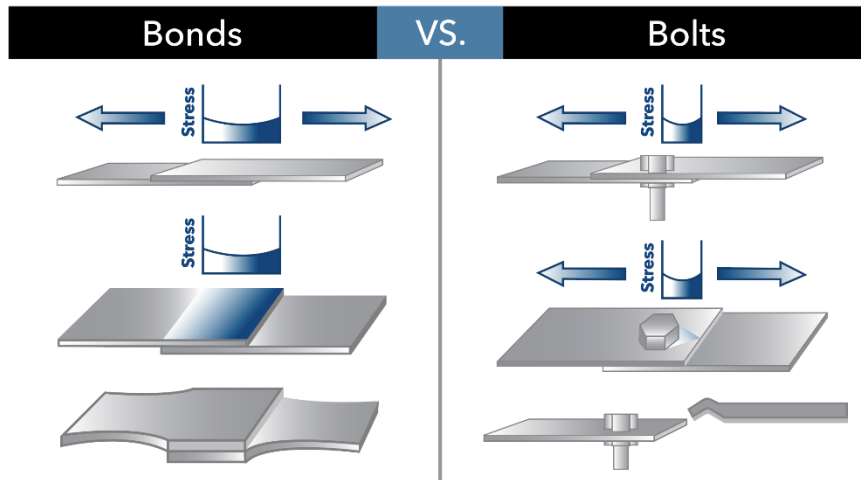
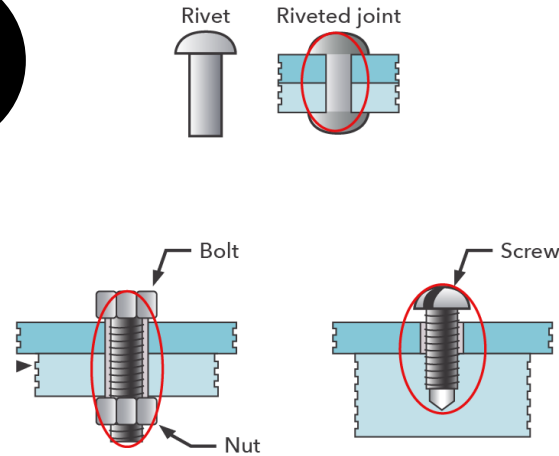
- Marine & shipbuilding – wind-assisted propulsion, hull and deck fabrication
- Composites & structural bonding – aluminium-to-steel and other dissimilar substrates
- Industrial fabrication requiring DNV/LR-approved bonding solutions
- Automotive – Structural bonding of bus, trucks, caravans and spoilers
- Infrastructure – FRP bridges and railings

- **How we help the markets**

- Replace welding/riveting with structural adhesive bonding for lightweight, fatigue-resistant joints
- Fast-cure, variable-speed MMA systems (5/15/40 min) to match production timelines
- Technical support through real-world case studies (e.g. Ventofoil) and hands-on customer testing
- Support for classification approvals (DNV, LR, DAMEN/Qualify) critical for marine and industrial customers



# Advantages of MMA vs Rivets/Bolts



- ✓ Uniform distribution of stress over the bond area
- ✓ Eliminate damage to the structure
- ✓ The bonded joint remains flexible to allow movements and reduce noise
- ✓ Good fatigue resistance
- ✓ Sealing and bonding in one step
- ✓ Bolts, screws and rivets can become loose, fatigue and break.
- ✓ Adhesive bonding is the only joining technique that allows certain lightweight designs

- **Who we are?**
  - Stef Jaspersen – European Adhesive Specialist, BNS Industrial BV; engineering background, with BNS since 2004
- **How long have you been working with SCIGRIP?**
  - BNS became SCIGRIP/IPS distributor in 2014 for Benelux; sister company AB Composites covers South East Asia
- **How we operate?**
  - 7,500 kg MMA adhesive storage, temperature-monitored/air-conditioned compartments
  - Dedicated compartment for 12x 200 ltr drums
  - Strategy: focus on one adhesive type and build deep expertise – starting with SG5000 (longer shelf life), then SG300 for aluminium with DNV/LR/Railway approval
- **What's your success story?**

# Stef Jaspersen – BNS In

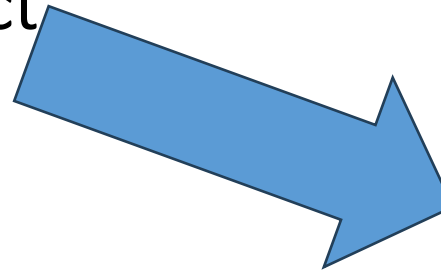
## BONDING A VENT FOIL



# First Contact

June 2021 - Article in a popular science magazine: **WETENSCHAP IN BEELD**. “Giant Ships Using Sails again”

>> Dutch company – Make contact



# Ventofoil



# Materials Bonded

## Aluminium to steel

Welding and revit was not an option  
Initially we bonded with a Competitor MMA

>> Long delivery time, expensive

## SCIGRIP ALTERNATIVE

### SG300 Series (5, 15, 40 minutes)

- 3 different speeds
- LR/DNV Approval
- Approved by DAMEN/QUALIFY

#### Advanced Materials Competitor MMA

Structural Adhesives

#### TECHNICAL DATA SHEET

#### Competitor MMA Two component toughened methacrylate adhesive system

|                |                                                                                                                                                                                                                                                                                                |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Key properties | <ul style="list-style-type: none"> <li>• Fast setting</li> <li>• Bonds well to a wide range of metals and plastics materials</li> <li>• Tolerant to "less than ideal" pretreatment</li> <li>• Gap filling up to 8 mm</li> <li>• Tough flexible bonds for use in dynamic environment</li> </ul> |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

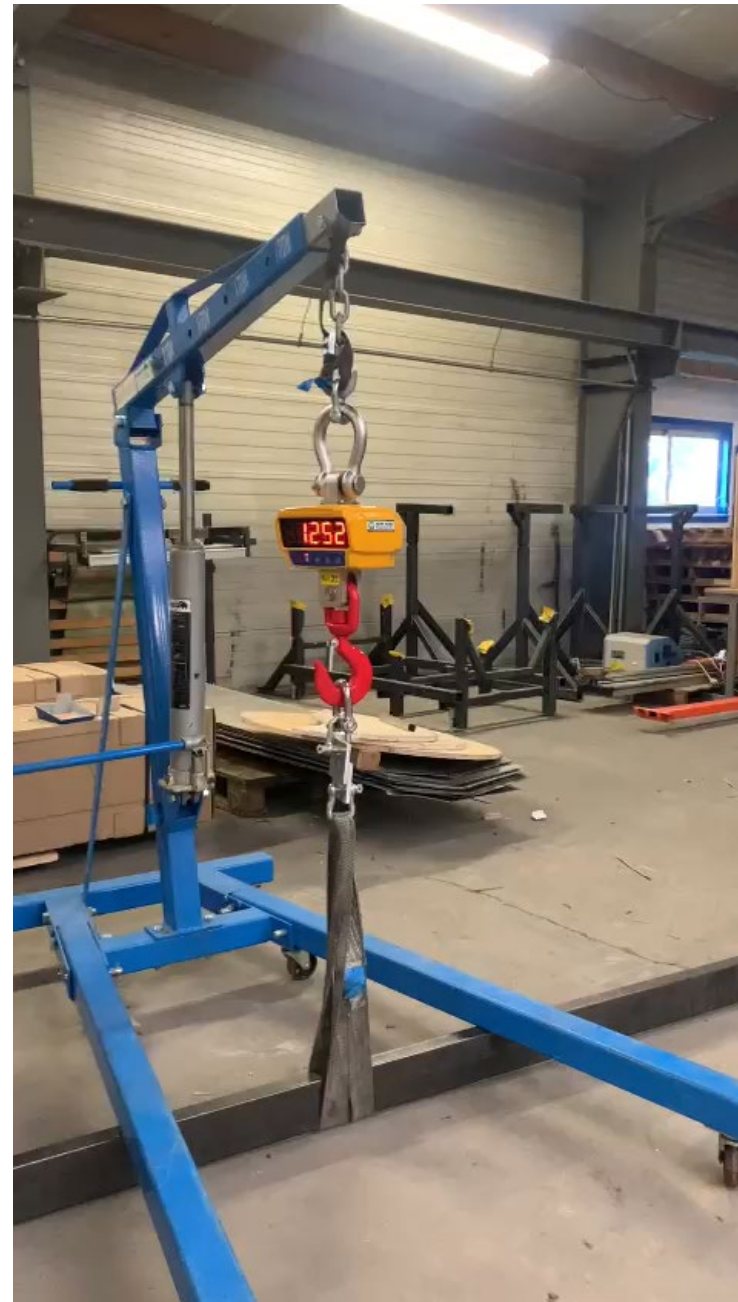
|             |                                                                                                                                                                                                 |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Description | Competitor MMA is two component, room temperature curing, flexible, methacrylate adhesive. It is a fast setting product, ideal for bonding and repair on metals, composites and thermoplastics. |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                       |                |                |                |
|---------------------------------------|----------------|----------------|----------------|
| Property                              | 2048-1/A       | 2048-1/B       | mixed          |
| Colour (visual) (A112)*               | Beige          | Black          | Black          |
| Specific gravity                      | 1.0            | 1.1            | 1.0            |
| Viscosity at 23 °C (A191)*            | 150 – 220 Pa.s | 150 – 220 Pa.s | thixotropic    |
| Time to peak exotherm (22 gr) (A179)* | -              | -              | 7 – 20 minutes |
| Pot Life (100 gm at 25°C)             | -              | -              | 10 min.        |



# Testing SG300 by customer

SG300-15  
10 cm<sup>2</sup> – 1900 kg  
Without breaking



# Application



# Challenge in Development

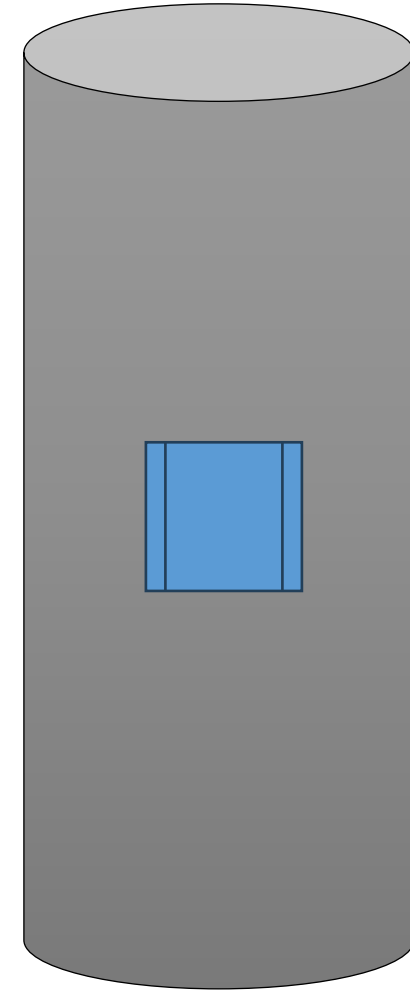
The solid mast was originally constructed from stainless steel. Without consultation, this changed to galvanized steel – and the adhesion failed, even after sanding.

## New Bonding Method

- Mount a plate onto the surface before galvanizing. Sand and clean the surface thoroughly prior to bonding.

## Result

- Problem solved – now consuming 12,000 cartridges per year.



Thank you for  
your attention



