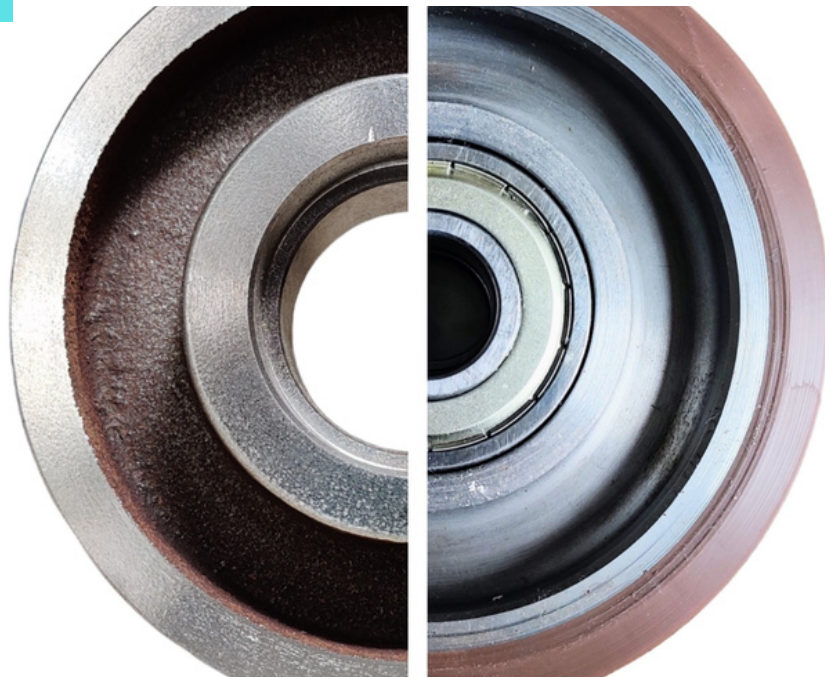


# GITE INDUSTRIES WHEEL BONDING

## THE PERFECT BOND



## TOP NEWS OF THE MONTH

**CONCERNS  
REGARDING  
SAFETY AND  
EFFICIENCY**

### **>>> CUSTOMER'S CHALLENGE**

Global Automotive Ancillary manufacturer faced a perplexing challenge. The wheels used in their operations were experiencing debonding issues, where the bonding between the Mild Steel metal and polyurethane would inexplicably fail. This issue was not only disrupting their workflow but also causing concerns regarding safety and efficiency.

### **CURRENT ARRANGEMENT: <<<**

The anonymous manufacturer was utilizing mechanical attachments like grooves and steps to join composite & mixed materials. While these methods were functional, they often resulted in stress concentrations, plastic cracking, and premature failures. Furthermore, mechanical attachments abrupt changes in design and could lead to other unwanted problems.

**GITE EXCITED  
TO TAKE  
CHALLENGE**

## Gite Industries took on the challenge and began a comprehensive analysis of the situation. Several key observations were made:

### OBSERVATION:

#### >>> COMPOSITE NATURE OF THE POLYMER:

The wheels featured a thermoset bonding between different materials, specifically polyurethane and Mild Steel (surface finish). This composite nature introduced complexities in maintaining a strong bond.

#### OPERATIONAL FACTORS: <<<

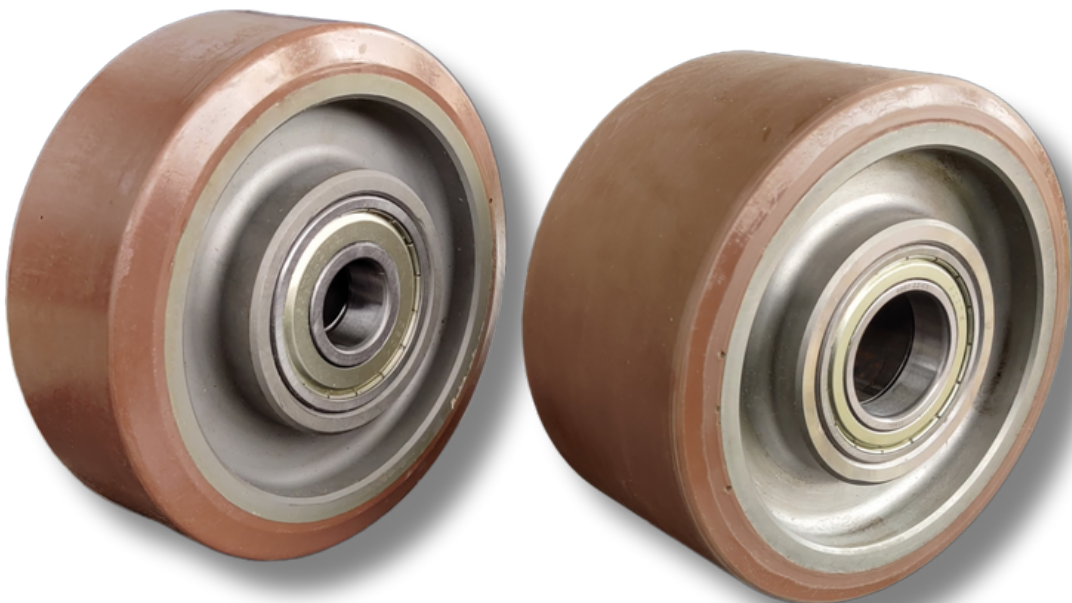
While there was no direct water contact or exposure to chemicals, the wheels were subjected to intense acceleration and deceleration. Additionally, the track had corners, and the wheels endured angular forces. These operational factors generated significant heat buildup during the process. The heat generated during operation was dissipating at a slower rate, which raised concerns about the bond's integrity.

#### SOLUTION: <<<

Gite Industries also wanted to explore solutions that were needed to address these challenges effectively. We introduced high-performance Polyurethane Elastomer material with a Shore hardness of 95 A. This material was carefully selected for its ability to dissipate heat efficiently, provide rebound resilience, and absorb forces without breaking down.

To ensure a durable and long-lasting bond, a special Acrylic adhesive with high-strength EP (2.000 MPa) was employed. This adhesive formed a high-strength bond that surpassed the requirements of the application.

## ANALYSIS OF THE SITUATION SEVERAL KEY OBSERVATIONS



# RESULTS:

## AFTER CAREFUL TRAIL AT EXTENDED PERIOD

### ➤➤➤ PART A

The implementation of high-performance Polyurethane Elastomer material and the advanced Acrylic adhesive resulted in a remarkable transformation. The manufacturer's wheels now exhibited exceptional bond strength, with no debonding issues even under the most demanding operational conditions.

### ➤➤➤ PART B

This solution not only improved safety and reliability but also enhanced operational efficiency by minimising downtime and maintenance. The innovative approach by Gite Industries had a profound impact, ensuring smoother and more productive material handling.

### ➤➤➤ CONCLUSION:

Gite Industries' commitment to innovation and problem-solving led to a successful partnership. By addressing the complex bonding challenge with a combination of high-performance materials and advanced adhesives, Gite Industries exploring the way wheels were bonded, setting a new standard for durability and reliability in the industry. This success story is a testament to Gite Industries' dedication to delivering cutting-edge solutions that drive excellence.

**BE AN  
EXPLORER,  
NOT AN  
EXPERT**

**- Byron's Babbles**

