



# Painel Automotivo, 2015

Rio Claro Plant

**Palestrante: Everton Sterzo**

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# Rio Claro Plant

- **Plant Size:** 43.665,29 m<sup>2</sup>
- **Built area:** 8.821,13 m<sup>2</sup>
  
- **Location:** Meridian, 55  
Distrito Industrial  
Rio Claro – SP, Brasil  
13505-610
  
- **Inaugurated Date:** 1997
  
- **Associates:** 65



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# A.Schulman Inc. in the World



A. Schulman operate facilities in the Americas, Europe and Asia-Pacific regions. Its plants, offices and technical centers are strategically located to serve customer needs in markets throughout the world.

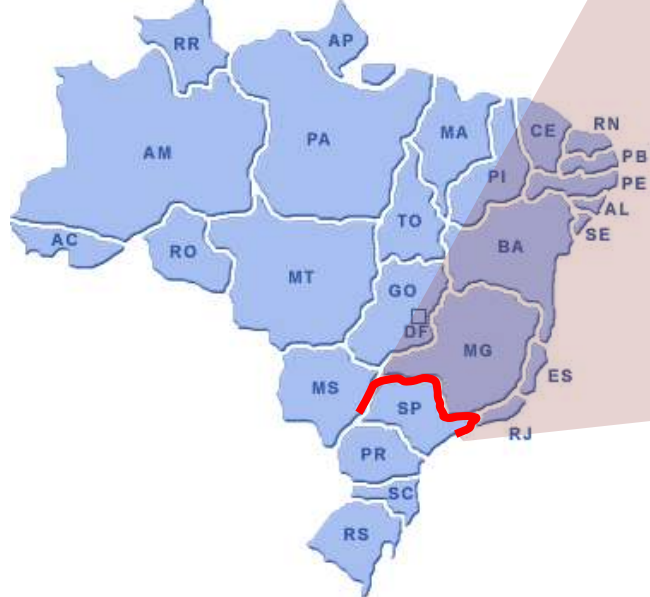


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Brasil



Rio Claro



São Paulo

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# Rio Claro Plant / Internal Area



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# Products and Process



BMC



SMC



Pultrusion



Compression Mold



Injection Mold



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# End Market



Motorcycle



Agricultural



Industrial



Appliances



Electrical



Truck



Agricultural



Automotive



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# Engineered Composites

## What We Offer?

- SMC, BMC , Pultrusion, Injection and Compression Molding
- Extensive Underwriters Laboratories Listings
- FDA/EU Food Contact Compliant
- RoHS Compliant Options in All Categories
- Functional Filler Technologies
- Impact Modification, Thermal and UV Stabilization
- Fully Equipped Pilot Plant Facilities and Analytical/Physical Testing Labs
- Mold and Part Design assistance



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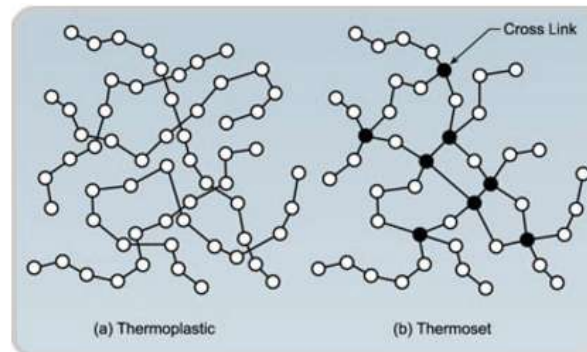
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# What is a Thermoset?

➤ A **thermosetting polymer** is a prepolymer in a soft solid or viscous state that changes irreversibly into an infusible, insoluble polymer network by curing.

➤ A **thermoplastic polymer** is a polymer that becomes pliable or moldable above a specific temperature, and returns to a solid state upon cooling. Most thermoplastics have a high molecular weight, whose chains associate through intermolecular forces; this property allows thermoplastics to be remolded because the intermolecular interactions spontaneously reform upon cooling. In this way, thermoplastics differ from thermosetting polymers, which form irreversible chemical bonds during the curing process.

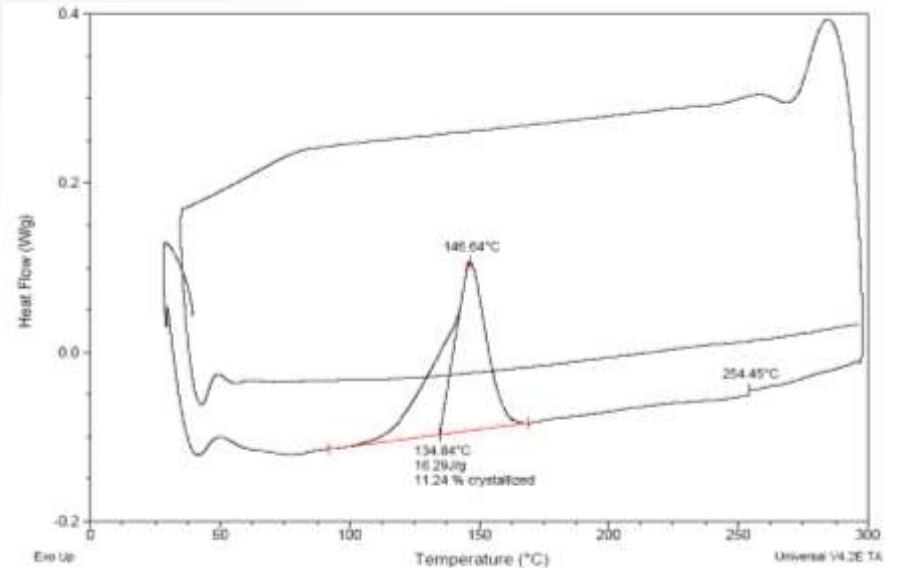
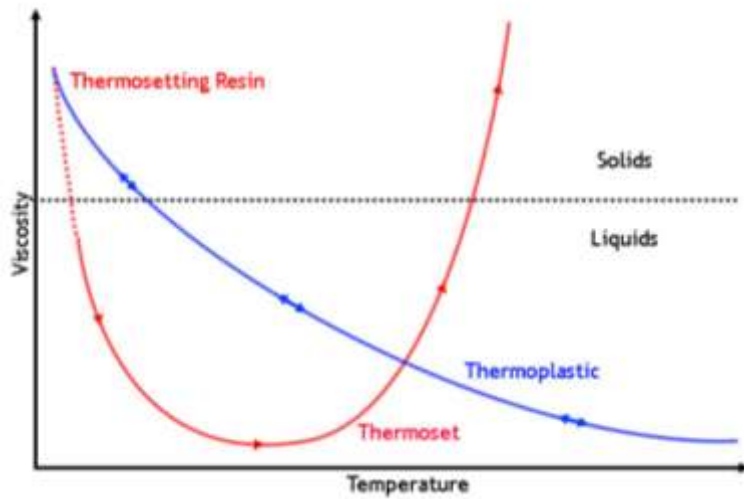


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# Thermoset x Thermoplastics

Thermoplastic versus thermoset resins

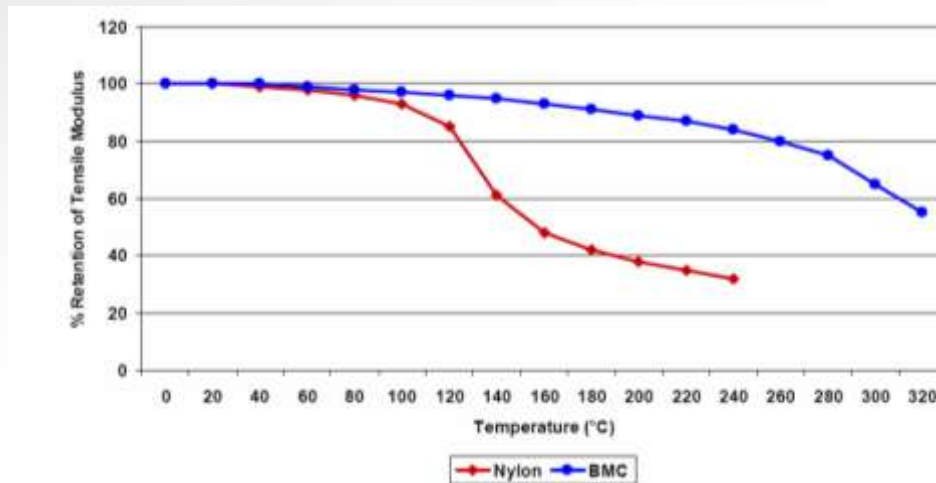


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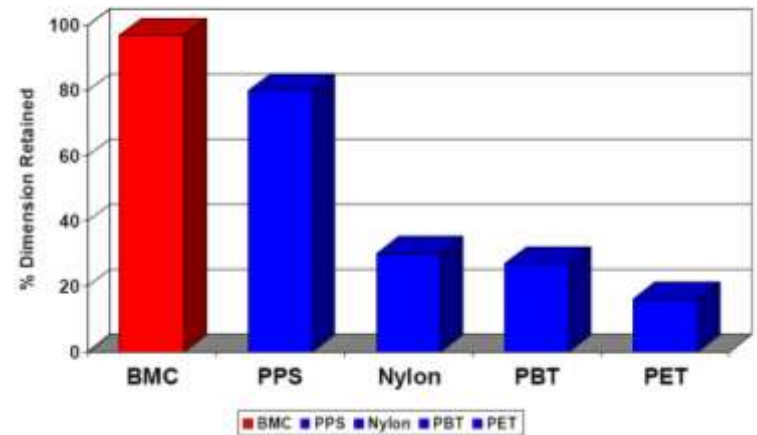
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# What are the Advantages of Thermosets?

- High Heat Resistance
- Dimensional Stability
- Naturally Flame Retardant
- Low Smoke Emission
- Excellent Chemical Resistance
- Excellent Creep Resistance – Little to No Creep
- Tailored Glass Transition Temperatures
- Formulations which are Easily Customizable to your Application



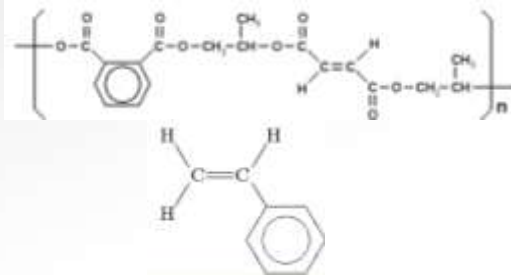
Thermoset vs. Thermoplastic  
Compressive Creep Properties at 150°C



## Composition

### Polymer Matrix

- Unsaturated Polyester, Vinyl Ester or Epoxy Resin



- Styrene

- Initiators  $\text{ROOR} \xrightarrow{\text{Calor}} 2\text{RO}^*$

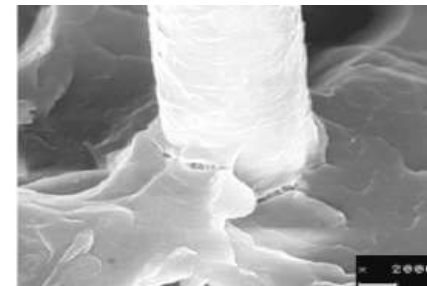
- Pigments, Mold Release, Additives, etc

### Reinforcements

- Fillers



- Glass Fiber and Carbon fibers



# Thermosets Molding Compounds



Sheet Molding  
Compound (SMC)



Bulk Molding  
Compound (BMC)



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# BMC

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# WHAT IS BMC?

- Bulk Molding Compound (or Composite)
- Polyester resin, glass-fiber and fillers reinforced thermoset molding compound
- Used on hot-tool press molding
- Specifically formulated for each end-use application
- Contains 10 % to 20 % chopped strand
- Can be injection, compression or transfer



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## *BMC Applications*



**BMC (Headlamps)**



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## *BMC Applications*



**Valve Cover**



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# *BMC Applications*



## Electrical Parts



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# *BMC Applications*



**Electrical Parts**



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# *BMC Applications*



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# SMC

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## WHAT IS SMC?

- Sheet Molding Compound (or Composite)
- Chemically-thickened, glass-fiber/Carbon Fiber-reinforced thermoset molding compound
- Used on hot-tool press molding
- Specifically formulated for each end-use application
- Contains ½ to 2 inch chopped glass ou Carbon Fiber roving
- Can be compression



# SMC



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# COMPRESSION



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# SMC Applications



**Grill**



**Grill**



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# *SMC Applications*

**Grill reinforcement**



**Grill**



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# SMC Applications

Ford Troller – SMC Structural



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# SMC Applications

Ford Troller – SMC Class A



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# SMC Applications

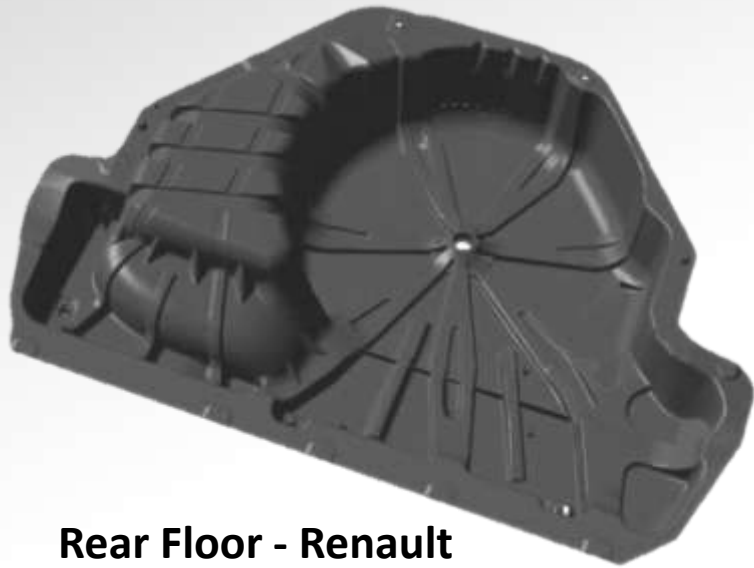
**Reinforcements - RENAULT X70  
(Renault/ Faurecia)**



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# SMC Applications



Rear Floor - Renault



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# PULTRUSION

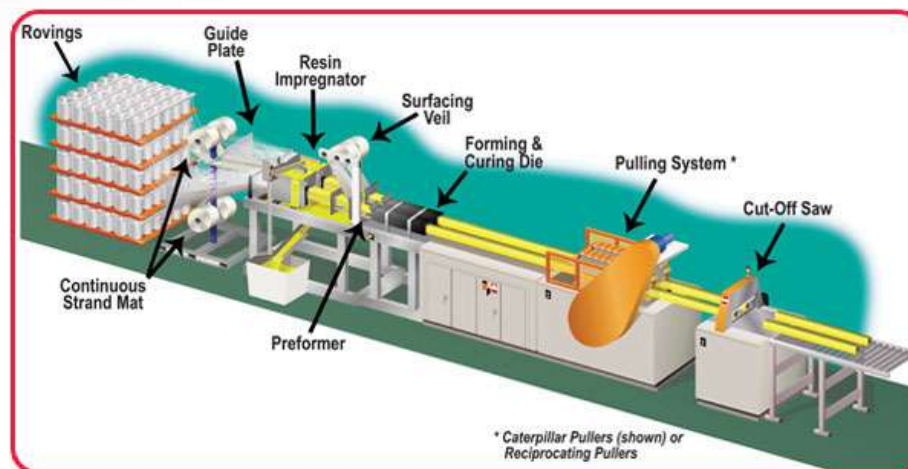
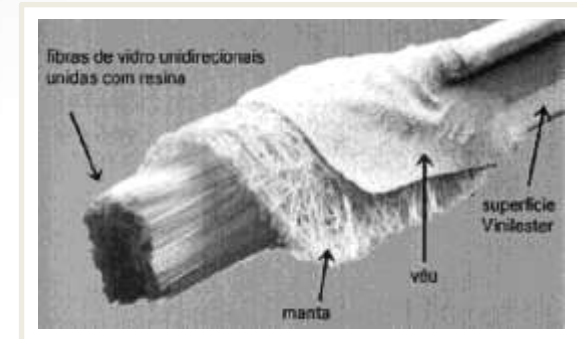


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## WHAT IS PULTRUSION?

Pultrusion is a manufacturing process for producing continuous lengths of reinforced polymer structural shapes with constant cross-sections. Raw materials are a liquid resin mixture (containing resin, fillers and specialized additives) and flexible textile reinforcing fibers.



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## *Pultrusion Applications*



**CNH (CASE) – Machine to harvest coffee**



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# Certificates

## ISO/ TS 16949:2009




**CERTIFICATE** 

This is to certify that

**BULK MOLDING COMPOUNDS DO BRASIL  
INDÚSTRIA DE PLÁSTICOS REFORÇADOS LTDA.**  
Rua Meridien 55 - Distrito Industrial  
13505-610 Rio Claro SP  
Brazil

has implemented and maintains a **Quality Management System**.

Scope:  
The manufacture of fabricated plastic parts and compounds for automotive industry

An audit, conducted and documented in a report, has verified that this quality management system fulfills the requirements of the following ISO Technical Specification:

**ISO/TS 16949 : 2009**  
(without product design)

Certification decision:	2014-01-07	
This certificate is valid until:	2017-01-06	
Certificate Registration No.	460024 T209	
IATF No.	0177440	
Frankfurt am Main, Germany	2014-01-07	

**DQS GmbH**  
*G. Blocher-Schmidt*  
100, Westend  
Managing Director

IATF Contact Office: DQS GmbH, Augustenstraße 21, 60487 Frankfurt am Main



## ISO 9001:2008




**CERTIFICATE** 

This is to certify that

**BULK MOLDING COMPOUNDS DO BRASIL  
INDÚSTRIA DE PLÁSTICOS REFORÇADOS LTDA.**  
Rua Meridien 55 - Distrito Industrial  
13505-610 Rio Claro SP  
Brazil

has implemented and maintains a **Quality Management System**.

Scope:  
The manufacture of fabricated plastic parts and compounds for automotive and industrial application.

Through an audit, documented in a report, it was verified that the management system fulfills the requirements of the following standard:

**ISO 9001 : 2008**

Certificate registration no.	460024 QMDS	
Valid from	2014-01-07	
Valid until	2017-01-06	
Date of certification	2013-12-04	

**DQS do Brasil Ltda.**  
*Michael Drechsel*  
Member of the Board  
*Deise Menezes*  
Managing Director

**ICNet**

Accredited Body: Av. Adolfo Pires, 1001 - 3º andar - 04733-100 - São Paulo - SP - Brazil

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# Certificate ISO 140001:2004



## THE INTERNATIONAL CERTIFICATION NETWORK CERTIFICATE

**IQNet** and  
**DQS GmbH** Deutsche Gesellschaft zur Zertifizierung von Managementsystemen  
hereby certify that the company

**BULK MOLDING COMPOUNDS DO BRASIL INDÚSTRIA  
DE PLÁSTICOS REFORÇADOS LTDA.**  
Rua Venâncio 55 - Distrito Industrial  
13855-610 - Rio Claro - SP  
Brazil

has implemented and maintains an **Environmental Management System.**

Scope:  
Manufacture of fabricated plastic parts and compounds for automotive and industrial application.

Through an audit, documented in a report, it was verified that the management system  
fulfills the requirements of the following standard:

**ISO 14001 : 2004 + Cor 1 : 2009**

Date of certification: 2012-05-28  
Valid until: 2015-05-27

Registration Number: DE-460024 UM



*Christoph*  
Stefan Christel  
Managing Director of DQS Center  
President of IQNet



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CISA Italy CISA  
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Ingenia Certification Pakistan BRAB Argentina JQA Japan KPQ Korea MEST Hungary NENAS AS Hungary ANAJ Kuwait  
PUBC Power Quality Austria Austria BSI Bureau Veritas UK Bureau Veritas BSI Bureau Veritas BSI Bureau Veritas BSI Bureau Veritas  
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2015



Awards (BMC/SMC and Molded Parts)



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2014



Awards (BMC/SMC and Molded Parts)

2013



Awards (BMC/SMC and Molded Parts)



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2012



Awards (BMC/SMC)

2011



Award (BMC)



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# Arteb Awards



“ Best Supplier in 2013”



“ Best Supplier in 2012”

# Singer Award



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# Valeo Awards



**“Best supplier in 2008”  
(Valeo Automotive Ligting)**



**“Best supplier in 2008”  
(Valeo Automotive Systems)**



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