ARALDITE® LY 1564/3487 BROCHURE

Huntsman Advanced Materials

ALLIED COMPOSITES

BUILD CERTAINTY INTO YOUR PROCESS

Ideas
MADE POSSIBLE

Our goal is to bring your ideas to life. No matter how complex or challenging, our composite specialists are ready to help realize your development ambitions.

However, creating new composite solutions is not a simple process, which is why we deliver a proven approach to take the guesswork out of trials and ensure a faster, more cost-effective route to market.

90%

PREDICT OUTCOMES WITH 90% SUCCESS

Right from the outset, it is important to be certain that the material or part can be produced from a technical

Minimize trial and error
with our unique simulation capabilities

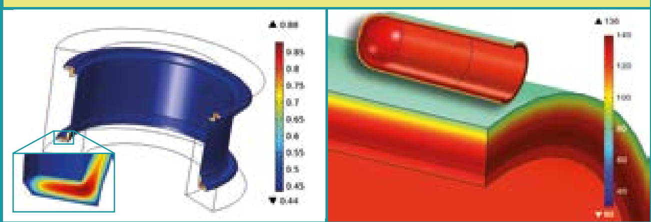
TAILOR RESIN AND PROCESS TO ANY PART

Generation of material models

Accurate rheokinetic data of the resin systems are used to generate material models which are projected onto CAD data. This enables the prediction of the material behavior during material processing and curing at each point on a composite part.

CURE SIMULATION

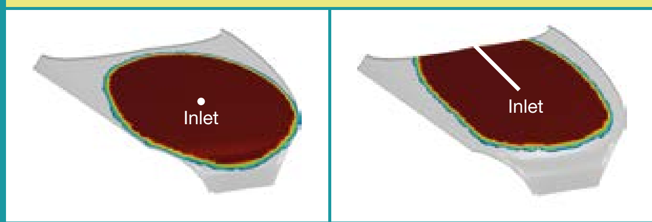
Curing cycle
Exotherm temperature
Evolution of Tg and conversion rate during cure



Prediction of cure progress (left) and exotherm (right)

FLOW SIMULATION

Flow front evolution and filling time
Pressure evolution
Process induced filling variability (e.g. flow channels, inserts)



Impact of inlet geometry on the flow pattern

REDUCED PRODUCTION CYCLES AND DEVELOPMENT TIMES

Resin system selection I Early stage process design I Process parameter determination I Process safety I Improved flow patterns and injection concepts and economic standpoint, and that it will deliver the right properties you require. Using our unique combination of kinetic and process simulation capabilities, resin characterization methods and mathematical modelling on cure kinetics and flow, you get greater predictability in your development process with a 90% success rate.

↓50%

REDUCE TRIALS BY UP TO 50%

Our simulation technologies also mean you can significantly reduce the number of trials needed for product qualification.

This enables you to save valuable time and cost when designing and determining key product attributes, such as preform and mold temperature, injection speed and time, cure and vacuum time, quantity of resin, maximum pressure, press profile, shrinkage, and more.

↑80%

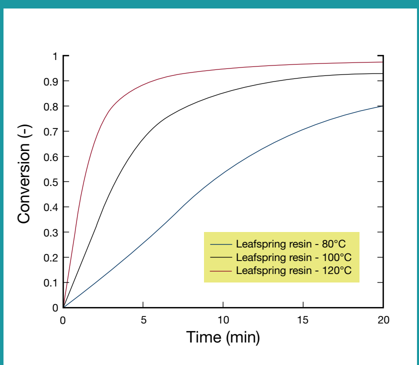
UP TO 80% CONVERSION FROM IDEA TO MARKET

We can also help you to significantly improve conversion from ideas to marketable products. Our dedicated technical service teams of composite experts in chemistry, processing and testing will collaborate with you to deliver the right results, while managing and taking responsibility for a successful outcome.

To date, our onsite and offsite availability ensures that more than 80% of requests are solved before the deadline.

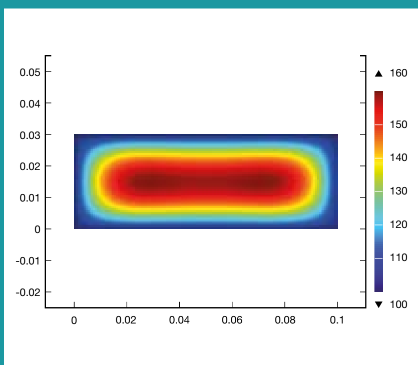
Once you have selected the right materials for your composite part, you can then focus on cost optimization and ensuring your part has the properties you require.

PROCESS PRESELECTION GUIDELINE



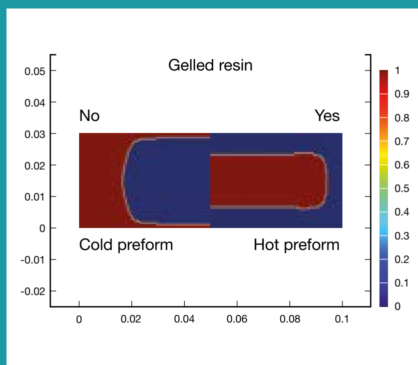
Find the right materials for the composite part you want to produce.

PROCESS SCENARIOS FOR COST OPTIMIZATION



Understand the drivers for cost optimization of your manufacturing process, e.g. thickness of the part, temperature variation, etc.

PROCESS INSIGHT FOR PART OPTIMIZATION



Optimize your part with the right preform heating strategy, e.g. to steer the gelation profile to be able to apply pressure during cure.

QUALITY ISN'T JUST A DRIVER IT'S A PROCESS

Performance
MADE POSSIBLE

Our application engineers can give you expert advice and practical recommendations on how to optimize your chosen manufacturing process. Our core strengths in synthesis and formulation mean you will be fully supported across a broad range of areas, including those highlighted opposite.

It is vital that your product development process integrates superior production efficiency with exceptional end-product performance to deliver a stronger competitive advantage.

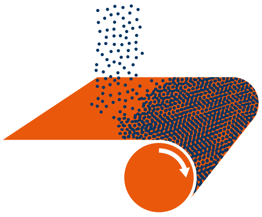
That is why you need a partner with the global resources and experience to support all your product development requirements. With Huntsman Advanced Materials, you can be sure your composite solution will meet demanding and highly regulated specifications – and stay within budgets.

We can help you to drive quality and efficiency across your entire production process, from concept development through to supply security, with proven methods and technologies to reduce costs and maintain a more sustainable business platform.

YOUR PROCESS IS COVERED

Our unique process expertise not only gives you greater confidence when developing new products with specific performance characteristics, but it also means we can support you in other key areas, such as lowering production waste and processing times, and by improving your production line stability.

PREFORMING

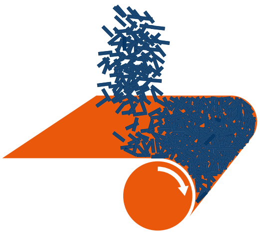


HP RESIN TRANSFER MOLDING

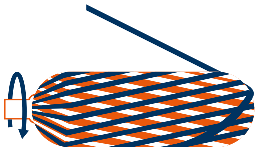
PULTRUSION

WET COMPRESSION MOLDING

SHEET MOLDING COMPOUND



WET FILAMENT / TOWPREG WINDING



CHEMISTRY AND PROCESS TO INCREASE PRODUCTIVITY

PRODUCTION EFFICIENCY WITH DFCM

Dynamic Fluid Compression Molding (DFCM) is a new process that removes the need for high-pressure injection and a bonded fiber preform, eliminating a complex and costly step in production.

Resin impregnation of the fibers through-thickness virtually eradicates fiber-wash; a common problem with high-volume Resin Transfer Molding production parts.

DFCM also reduces void content of laminates in comparison to conventional Wet-Compression Molding. It allows typical porosity content of less than 1%, making it comparable to high-pressure RTM or autoclave prepregs.

Fiber wet-out is so effective that fiber volume contents of up to 65% can be easily achieved with no special processing conditions.

AUTOCLAVE QUALITY IN ONE MINUTE

Combining a novel process and fast-cure ARALDITE® epoxy solutions, highly structural parts with outstanding properties and quality can be produced in one minute.

This process is simple, fast and cost effective, requiring low pressure (typically 30 bar) and often removing the need for a fiber preform.

This gives you exceptional benefits versus standard wet compression molding, such as outstanding mechanical performance thanks to fiber volume content up to 65% in a low wastage process, simple processing, even with heavy-tow industrial reinforcements, and void-free parts produced consistently straight from the mold.

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