

Q3 | 2024

FUSION

MAGAZINE

EDTC

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MADE
SIMPLE**

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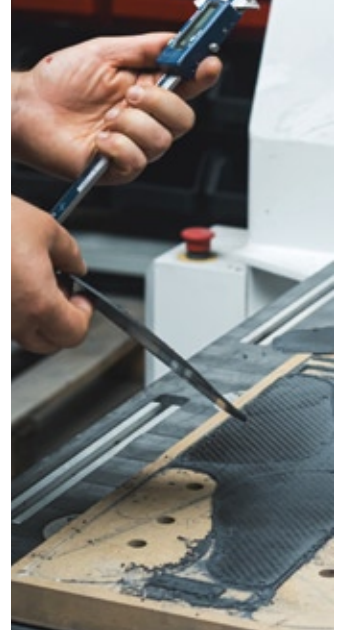
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OUR NEW BRAND UNBOXED



YOUR DEDICATED TEAM FOR SIMPLIFIED SUPPLY

We are pleased to introduce the new look of DTC, marking an exciting new chapter in our journey.

We promise hassle-free solutions, tailored to you. With transparent communication and exceptional service, we make supply simple, so you can focus on your success.

How We Inspired
Our Team:



A TRUE EXTENSION OF YOUR TEAM

At DTC, our underlying purpose is to support you and your production and purchasing teams in manufacturing and finishing of composites by maximising your efficiency.

We achieve this through a comprehensive range of products, market-leading customer service, fast delivery, and innovative online tools. Our mission is to continue to build strong, enduring relationships with you, serving as your preferred partner for essential tools and materials.

We will work closely with you, our customers, providing a seamless and reliable supply chain that ensures you have what you need, when you need it.

Our success is reflected in the high levels of customer satisfaction and repeat business, proving that DTC is the perfect extension to your team.



THE DTC DIFFERENCE

This transformation not only updates our visual identity but also reinforces the principles that truly set us apart.

The DTC Difference is the core of our brand and is embodied in three foundational pillars: Service Excellence, Inventive Solutions and Industry Specialists. These pillars are more than just words; they serve to guide everything we do and represent at DTC.



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MADE
SIMPLE**



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Watch the Video

OUR DTC STOCK MANAGEMENT

CHOOSE YOUR STOCK CUPBOARD

We offer stock cupboards in a variety of sizes to suit all requirements.

Keep your workshop free from clutter with our spacious and organised stock cupboards.

Lock your expensive consumables away to reduce theft and keep control.



1806 x 915 x 457



1016 x 915 x 457

CHOOSE YOUR STOCK

We will work with you to offer a market leading, competitive range of consumables aligned with your production objectives.

From PPE to Abrasives and all the other general ancillaries, we offer a comprehensive assortment like no one else.



CHOOSE YOUR CONTRACT

1 YR

GUARANTEED PRICING

Held for the contract length

3 YR

REBATE SCHEME

Spend to save

5 YR

CONSIGNMENT STOCK

Only pay for what you use

All contracts include:

Free high quality, secure, safe and clean stock cupboard(s)

Free support setting up online account and mapping over stock lists to favourite lists online

Dedicated account manager

Free 1 year subscription to Fusion magazine for as many employees as required

Free DTC & BAXT gifts every month

Free product samples

VIP aftersales experience. With a dedicated account manager and 1 to 1 support, take control of your ordering with our market leading online ordering portal. Or just pick up the phone/email/fax, we're here to help.



Secure



Efficient



Tidy



Budgeted

ELECTRIC VEHICLES EVS AND THE FUTURE OF AUTOMOTIVE TRANSPORTATION

The electric vehicle (EV) market is rapidly evolving, driven by significant advancements in technology and infrastructure. These developments are reshaping the automotive industry and heralding a transition to cleaner and more efficient transportation.

Technological Advancements in Battery Technology

Battery technology is at the heart of EV innovation. Traditional lithium-ion (Li-ion) batteries have revolutionised the market by offering higher energy density and longer lifespans. Tesla's advancements, for instance, have enabled some EVs to achieve over 400 miles on a single charge.

Emerging technologies, such as solid-state batteries, promise to push these boundaries even further. Companies like QuantumScape are leading this charge with prototypes that offer higher energy density, faster charging, and enhanced safety. These advancements could significantly extend the range and efficiency of future EVs.

Expanding Charging Infrastructure

A robust and accessible charging infrastructure is crucial for the widespread adoption of EVs. There are three main types of charging setups: home, workplace, and public charging stations. Home and workplace charging provide convenience for daily use, while public stations, including rapid DC fast chargers, are essential for long-distance travel.

Governments worldwide are investing heavily in expanding this infrastructure. They are installing public charging stations, particularly in urban areas and along major highways, and offering incentives for home charging installations. Such initiatives are vital in reducing range anxiety and making EV ownership more practical and appealing.

Innovations in Vehicle Design and Efficiency

Beyond advancements in battery technology, EV design and efficiency improvements are also pivotal. Modern EVs feature improved aerodynamics and use lightweight materials, such as composites and carbon fibre, to enhance performance and energy efficiency.

These innovations contribute to longer ranges and better overall vehicle dynamics.

Market Growth and Consumer Adoption

The EV market is expanding rapidly, with established automakers and new entrants introducing innovative models. Tesla remains a leader with its Model S and Model 3, known for their impressive range and advanced features. Other automakers, such as Nissan with the Leaf and Chevrolet with the Bolt EV, are also making significant strides.

Consumer adoption is supported by increasing awareness of the environmental benefits of EVs and the long-term cost savings they offer. Government incentives, stricter emissions regulations, and educational campaigns are essential in accelerating this transition.

What's the Future?

The future of automotive transportation is unmistakably electric. Continuous advancements in battery technology, the expansion of charging infrastructure, and innovations in vehicle design are driving this transformation. As these technologies mature and become more accessible, EVs will play a pivotal role in creating a cleaner and more efficient transportation ecosystem.



THE URGENCY OF ADDRESSING COMPOSITE WASTE

THE GROWING COMPOSITE WASTE PROBLEM

Composite materials, such as fibreglass, carbon fibre, and reinforced polymers, are crucial in many sectors including aerospace, automotive, marine, construction, and renewable energy. These materials offer exceptional durability, lightweight properties, and resistance to damage, making

them indispensable. However, their increasing use also leads to a significant rise in composite waste, posing a major environmental challenge.

Currently, effective and sustainable End-of-Life (EoL) solutions for composite waste are limited.

Improper disposal of these materials adds pressure on landfill sites and can cause long-term environmental damage. Transitioning to a circular economy model is essential for industries that rely on composite materials to reduce their environmental impact and support sustainability efforts.

INDUSTRIES GENERATING THE MOST COMPOSITE WASTE

Aerospace

The aerospace industry extensively uses advanced composites due to their high strength-to-weight ratio and durability. As aircraft reach the end of their service life, the composite materials used in their construction become waste. The Aircraft Fleet Recycling Association (AFRA) estimates that around 15,000 aircraft will be retired in the next two decades. Composite waste from these aircraft represents a significant portion of total waste, highlighting the urgency of addressing this issue.

Wind Energy

Wind turbine blades are primarily made from fibreglass-reinforced polymers (FRP) or carbon fibre to balance strength, flexibility, and lightness. The wind energy sector faces the challenge of disposing of thousands of decommissioned blades. By 2023, approximately 14,000 blades could be decommissioned, generating significant composite waste. Blade waste alone will account for 10% of the total projected composite waste by 2025.

Automotive

The automotive sector uses composites to produce lightweight and fuel-efficient vehicles. Components like body panels, frames, and interior features are often made from composites, generating waste when vehicles are retired, or components are replaced. The global automotive composites market is projected to reach USD 16.3 billion by 2030, indicating a substantial increase in composite waste.

CURRENT COMPOSITE WASTE MANAGEMENT METHODS

Landfilling

Landfilling is the most common method of disposing of composite materials, but it is not sustainable. Composite materials can take a very long time to decompose, occupying significant landfill space.

Incineration

Some composites can be incinerated for energy recovery. However, this process can release harmful emissions and leave behind hazardous ash that must be handled appropriately.

Recycling

Recycling composite waste involves mechanical, thermal, or chemical processes to reclaim valuable materials. Each method has its challenges and limitations.

Repurposing and Reuse

Some initiatives focus on finding new uses for EoL composite materials, such as using decommissioned wind turbine blades to create structures like bridges or playground equipment.

Regulations Impacting Composite Waste

European Commission initiatives emphasise the need to reduce landfill waste and encourage effective waste management strategies for EoL products. Non-compliance with these regulations can result in fines and the need for costly redesigns or recalls. National legislation in countries like Germany, the Netherlands, France, China, Japan, and Korea also addresses composite waste management.

CIRCULAR INITIATIVES AND INDUSTRY EFFORTS

Aerospace

The aerospace industry has incorporated recycled materials into products and repurposed aircraft components for unconventional uses. Boeing's collaboration with VAS and ELG Carbon Fibre in 2018 successfully dismantled a Boeing 787, recovering approximately 380,000 pounds of carbon fibre for reuse.

Wind Energy

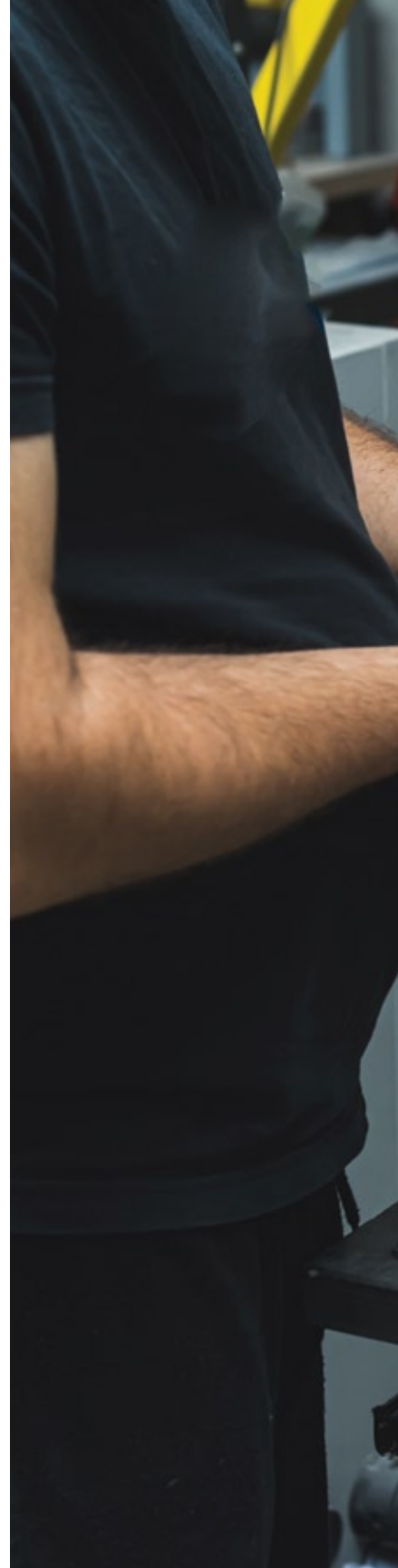
The wind energy sector repurposes decommissioned blades for building pedestrian bridges and other uses. Recycled composite materials from turbines are used in the automotive sector and for various industrial applications.

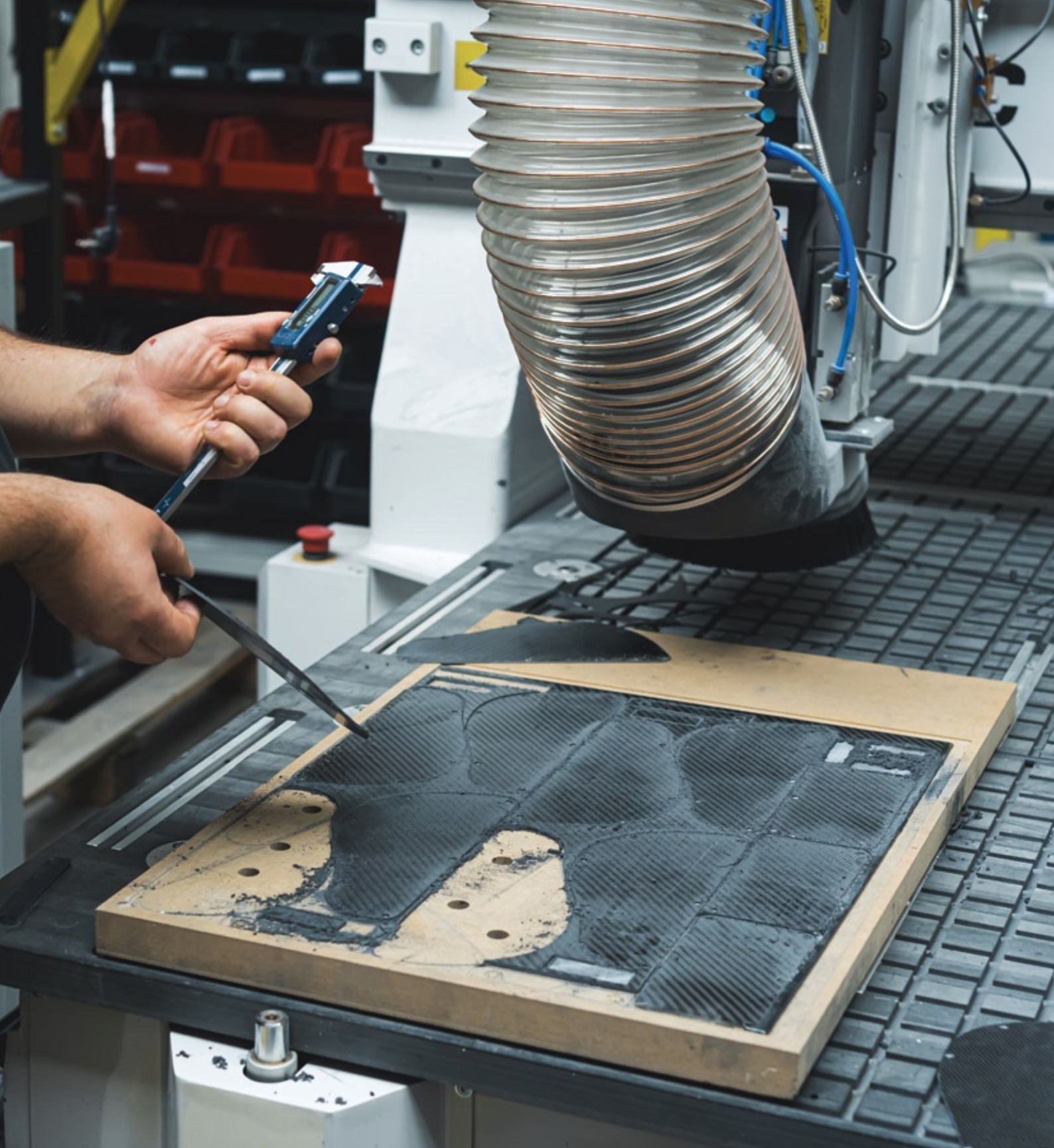
Automotive

BMW, in collaboration with SGL Group, pioneered a recycling program for carbon fibre reinforced plastics (CFRP) used in their i-Series vehicles. EoL composite components are recycled and repurposed for non-structural uses, demonstrating the versatility of recycled composites.

The EuReComp Project

The EuReComp project is a multi-stakeholder research initiative aimed at developing sustainable recycling and repurposing methods for composite materials. Circularise, a participant in this project, provides blockchain-based software for secure data sharing, contributing to effective recycling and allocation of EoL components.





SUMMARY

Addressing composite waste is crucial for reconciling industrial progress with sustainability. Industries must adopt robust waste management strategies and collaborate on innovative recycling and repurposing methods. The initiatives and regulations in place are initial steps toward a circular economy. Pioneering efforts in the aerospace, wind energy, and automotive

sectors must be expanded globally. Effective traceability systems and data sharing will be instrumental in achieving a sustainable future, where waste is managed responsibly, and innovation aligns with environmental conservation.





BAXT

C3

PREPPER



BAXT

C5

LAMINATOR



BAXT

C7

PAINTER

COVERALL SYSTEM

It doesn't have to be a "1 suit fits all" approach with the new BAXT range of coveralls - the most comprehensive range of protective coveralls for the composite industry. All coveralls offer incredible value and have a specification to meet your needs.

The back cover system was developed to address originate in the industry. We created a simple system of three covers the PREPPER, LAMINATOR and PAINTER. This system is saving many companies 40% in cost against the leading brands.

From a health and safety standpoint. The colours and unique features offer something not available in the market before.

Everywhere we went, we noticed people using coveralls to the wrong specification. The PREPPER is made from a highly breathable smart

material. It will keep dust out and is splash proof. So it's perfect for the preppers and your team. The LAMINATOR has a premium max protect breathable material on the front, offering the wearer maximum protection from resins and chemicals and then has airflow smart material on the back, ensuring total comfort for the wearer. Lastly, the PAINTER.

This is made entirely from Max protect, which gives total protection and maximum comfort.

All of the backs cover a range come with premium features, including knitted wrists, elasticated back anti-slip stitching and a two-way quality. Here we are doing a simple demonstration to show the

breathability of our back suit. The fan in the table has no effect when blown through a market leading product but has significant impact on the back products.

Here we are doing a simple demonstration to show that while still is breathable, the backs cover all offers far superior protection. The WD 40 easily penetrates through market leading product, but not the backs cover.



Scan the QR Code & Watch our Coverall Video

A leading composite manufacturing company sought to upgrade their personal protection equipment for workers in their spray booth to enhance safety and comfort while maintaining cost-effectiveness.

The company required coveralls that offered superior breathability, durability, and protection against various workplace hazards.

CHALLENGE

The manufacturing environment posed several challenges, including exposure to dust, grime, and liquid splashes. Additionally, the protective gear needed to be comfortable for long durations to ensure worker productivity and compliance with safety protocols.

SOLUTION

The company opted for the BAXT C7 Disposable Coverall, which provided the following key benefits:

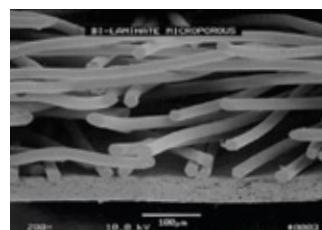
- **30% More Breathable Than Leading Competitors:** Tested using BS3424: Part 34: Method 37 for Moisture Vapour Permeability, the BAXT C7 offered superior comfort by allowing more moisture vapour to escape through the fabric. 80% Less Liquid.
- **Penetration:** Tested with BS EN20811 – Hydrostatic Head, the BAXT C7 ensured exceptional protection against liquid penetration, significantly reducing safety risks.
- **Strong Seam:** Featuring a seam with three interlocked threads, the coverall provided enhanced durability around raw fabric edges, crucial for extended use in demanding environments.
- **Technically Advanced Film:** The BAXT C7's material led the market in breathability and protection, making it suitable for a wide range of applications.
- **Virtually Lint-Free:** This feature minimises contamination risks, especially important in environments requiring high cleanliness standards.
- **Certified to EN14126:** The coverall met the standards for resistance to infectious agents, adding an extra layer of security for the workers.
- **Suitable for Dust and Splash Applications:** Versatile protection ensured that workers remained safe in various hazardous conditions.
- **Three-Piece Gusset:** Designed for added strength, reducing the risk of tearing, and increasing the coverall's longevity.
- **CE Types 5 & 6 Certification:** Provided reliable protection against dust and light splashes, complying with essential safety standards.

Comparison of BAXT C7 Coverall vs. Industry-Leading Product

The following images compare the fabric structure of the BAXT C7 Coverall with that of an industry-leading product.

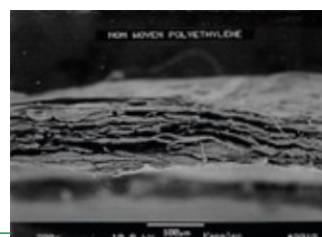
BAXT C7 Coverall (200x zoom)

The below image shows the BAXT C7 fabric, which is highly breathable due to the ample space between the fibres. This structure allows air to pass through easily while maintaining a sealed surface for maximum protection.



Industry Leading Coverall (200x zoom)

The second image displays the fabric of an industry-leading coverall. Here, the fibres are more tightly packed, indicating reduced breathability. Additionally, the fabric appears porous and less uniformly sealed, which may compromise its protective capabilities.



These microscopic images highlight the superior breathability and sealing efficiency of the BAXT C7, making it a better choice for ensuring both comfort and protection.

Results

After implementing the BAXT C7 Disposable Coverall, the manufacturing company observed several positive outcomes:

Enhanced Worker Comfort and Productivity: The superior breathability and comfort of the BAXT C7 allowed workers to remain comfortable during long shifts, leading to increased productivity.

Improved Safety Compliance: With its high level of protection against dust, liquids, and infectious agents, the coverall helped the company maintain strict safety standards.

Cost-Effective Protection: The durable and long-lasting nature of the BAXT C7 provided a cost-effective solution, reducing the need for frequent replacements.

SUMMARY

The BAXT C7 Disposable Coverall proved to be an effective solution for the manufacturing company, enhancing both worker safety and comfort. By choosing the BAXT C7, the company was able to achieve a higher standard of workplace safety while ensuring their employees remained comfortable and productive.

ENVIRONMENTAL REGULATIONS IN MARITIME

The maritime industry is undergoing significant changes as it shifts towards sustainability, driven by new environmental regulations. Notably, the EU Emissions Trading System (ETS) and the International Maritime Organisation's (IMO) Carbon Intensity Indicator (CII) are leading this charge, pushing shipping companies to adopt cleaner technologies and optimise fuel usage to meet stringent emissions standards. These regulations are essential steps towards fostering a greener future for shipping.

EU Emissions Trading System (ETS)

The EU ETS is a key policy in the European Union's fight against climate change. It works on a cap-and-trade principle, setting a limit on the total amount of greenhouse gases that can be emitted by all participating entities. Recently, shipping companies have been included in this system, requiring them to purchase allowances for their emissions. This inclusion aims to incentivise the reduction of emissions through the adoption of cleaner technologies and more efficient operations.

IMO's Carbon Intensity Indicator (CII)

The IMO's CII measures the operational carbon intensity of ships, providing a rating based on their emissions. Ships must meet specific performance standards, with a goal of reducing carbon intensity by at least 40% by 2030 compared to 2008 levels. This regulation encourages shipping companies to adopt energy-efficient practices and technologies, such as improved hull designs, advanced propulsion systems, and the use of alternative fuels.

Impact on the Maritime Industry

These regulations are driving significant changes within the maritime sector. Companies are investing in cleaner technologies, such as scrubbers to reduce sulphur emissions, and alternative fuels like liquefied natural gas (LNG) and biofuels. Additionally, digital solutions for optimising fuel consumption and route planning are becoming more common, helping to minimise the carbon footprint of maritime operations.

Fostering a Greener Future

The adoption of these environmental regulations is crucial for mitigating the impact of shipping on climate change. By compelling the industry to reduce emissions and improve efficiency, the EU ETS and IMO's CII are pivotal steps towards a more sustainable maritime sector. These efforts not only benefit the environment but also promote innovation and competitiveness within the industry, paving the way for a greener future.

As the maritime industry navigates these regulatory waters, the commitment to sustainability will ensure that shipping continues to be a vital component of global trade while protecting our planet for future generations.



DTC SAVES A CUSTOMERS SUPPLY CHAIN

Our client is a long-established, large and well-known manufacturer of composite performance boats, with manufacturing bases in Southern England.

With their consumables supplier ceasing operations, they were faced with a challenge to quickly find and onboard a new, reliable partner to ensure continuity of their operations.



CHALLENGES

To provide a seamless switchover to the full supply of over 1600 consumable products in a timeframe of 6 weeks, to multiple locations.



SOLUTIONS

A full audit of the current products and a tailored portfolio of straight switches and recommendations for alternatives to improve efficiencies.



RESULTS

A seamless transition to the supply of all the 1600 SKUs in two weeks across 41 locations and 2 sites, as well as successful implementation of the DTC Hub, providing easy access to reporting and stock control.



The Six Week Supply Challenge

Our client faced a huge operational hurdle when their main contracted supplier of manufacturing consumables went into administration, leaving them with just six weeks to find an alternative source.

This sudden disruption threatened to seriously interfere with the production of performance vessels, essential for the continuation of their operations.

Their primary challenge was to quickly find a new supplier that met their strict quality requirements and could immediately supply over 1600 like-for-like products to ensure a seamless changeover.

A Swift and Future Proof Solution

The solution for their supply chain needs was a customised package of over 1600 SKU's across multiple categories, supplied direct to more than 40 stock locations on two manufacturing sites in Southern England.

The DTC Hub stock management system was introduced to ensure real-time stock management and insights for the complete tailored portfolio of products, creating a resilient and reliable supply chain.

Uninterrupted Operations

The result was a seamless transition to DTC and the new supply system within two weeks, including 100% replacement of like-for-like products, ensuring there was no interruption to their manufacturing process. All 41 locations across the two sites were set up with two weekly stock takes and restocks with dedicated on-site and offsite support personnel.

This swift implementation meant that production continued without delay, enabling our client to focus on their operations and mitigating the consequences of having their original supplier ceasing trading.

The combination of both the tailored consumables package we offered plus the DTC Hub stock management system was instrumental in maintaining their critical operations under tight deadlines.



“We selected DTC as our new VMI vendor due to their demonstrated value for money and their ability to scale up quickly. We have been very pleased with the service received by DTC so far, they are always responsive to any issues and resolve them promptly.”

Senior Procurement Manager

MAINTAINING SAFETY STANDARDS AROUND CARBON FIBRE DUST



As carbon fibre becomes more popular as a lightweight and durable product, more individuals are beginning to work a lot more with the material. Many are adhering to necessary safety protocols by wearing protective gear. However, there is still a significant portion of the workforce that remain vulnerable due to inadequate safety measures.

This article will discuss what kind of precautions should be taken when working with the material.

Suitable Filtration for Carbon Fibre Dust

Implementing suitable extraction and filtration systems is crucial when working with carbon fibre. On-tool extraction stands out as one of the most efficient methods for removing dust, significantly reducing operator risk. Its immediacy to the source ensures effective removal before dust becomes airborne, making it a vital safety feature.

On Tool Extraction

If you're only going to provide one kind of extraction method for your workforce, it should be on tool extraction. It's one of the most effective and efficient methods of removing dust and can dramatically reduce risk to operators. It is considered it to be an essential safety feature for any operator that is working with carbon fibre.

What makes on tool extraction so good is that the extraction happens extremely close to where the dust is being created. This means that the vast majority of it is removed and out of harm's way before it becomes airborne and enters the atmosphere of your workshop. It's clean, it's efficient, and it's reasonably inexpensive.

Centralised Solutions

Centralised extraction systems are cost-effective and highly efficient, making them a standard choice for many workshops. While not specifically tailored to carbon fibre dust, their ability to handle various particulates makes them a viable option for maintaining a clean and safe working environment.

ATEX Compliant Filters

When filtering carbon fibre particulate, utilising ATEX compliant filters is imperative, especially with potentially flammable resins. These filters are designed to minimise

ignition risks from static electricity, offering enhanced safety without significant cost differences.

Downdraft Benches

Downdraft benches, though very popular, may not have as effective results as an on-tool extraction. Ideally, combining both methods will maximise the extraction effectiveness. However, if this isn't feasible, prioritising on-tool extraction is recommended.

Appropriate Clothing

If you utilise all (or most) of the extraction systems above you should be able to remove a huge amount of the particulate created by working with carbon fibre before it becomes into contact with operators. However, even a small amount of carbon fibre dust can become an issue, so appropriate clothing must be worn.

Appropriate Respiratory Protection, Skin Protection, Eye Protection to combat carbon fibre dust

Despite effective extraction systems, wearing appropriate protective clothing is still an essential requirement. Respiratory protection is paramount due to potential health risks, especially considering the introduction of new resins with uncertain safety profiles.

Skin protection, through heavy-duty gloves and barrier creams, along with eye protection, further reduces the risks associated with handling carbon fibre.

Conclusion

These safety precautions provide a foundational understanding of handling carbon fibre responsibly. For further guidance, reach out to our knowledgeable sales team for personalised recommendations tailored to your organisation's needs.



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The Mirka® DEROS II and Mirka® DEOS II are not just power tools; they are game changers. It's precision and power like never seen before, featuring new brushless electric motors with as much as a 20% increase in power, providing better efficiency in performing tasks.

For further information or to arrange a demonstration, please contact Customer Services on 01908 866100.

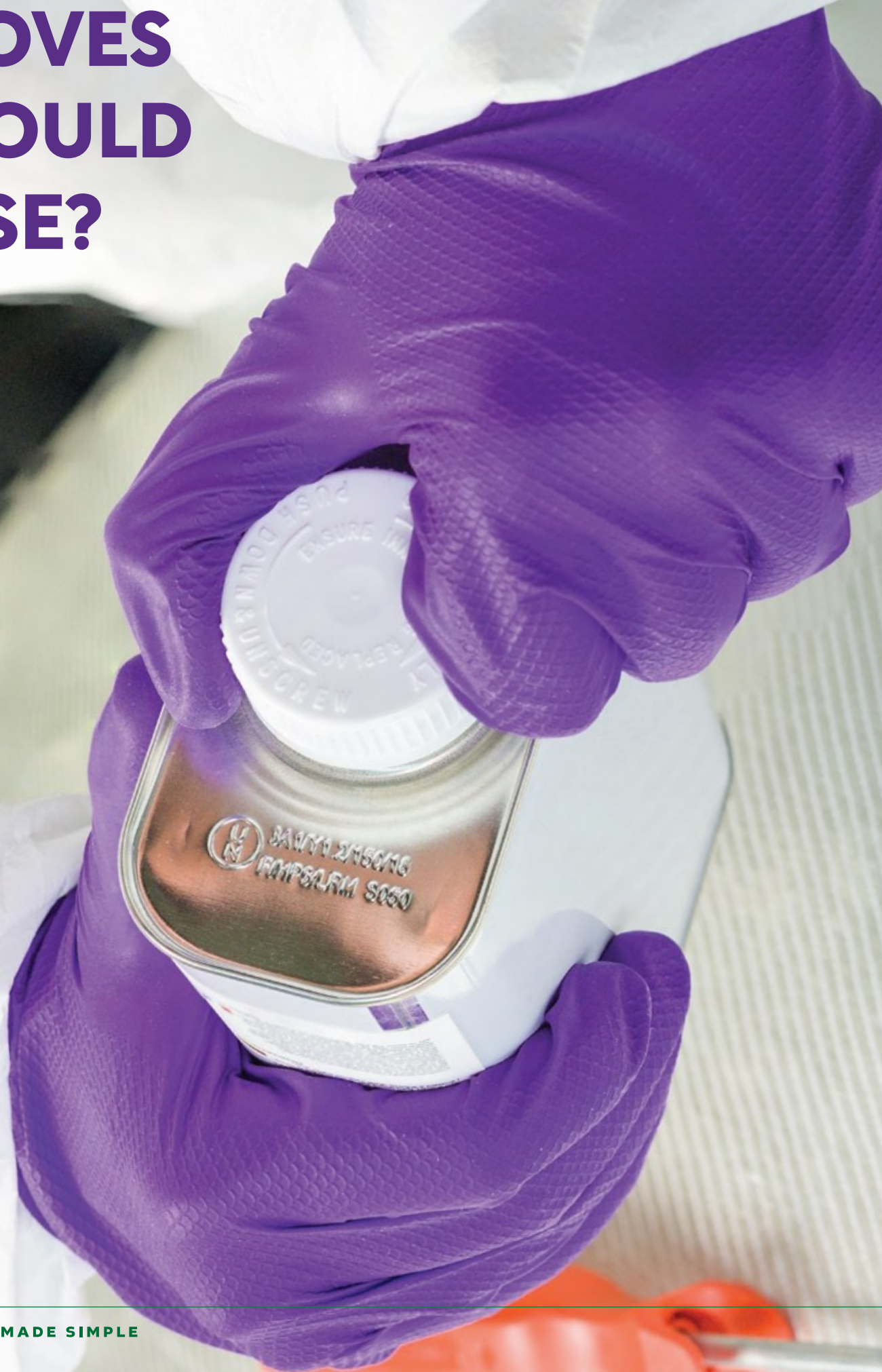
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WHICH DISPOSABLE GLOVES SHOULD I USE?



When deciding what disposable gloves to choose for your operators, there are a myriad of options available, and there's often no single best solution. There are also a huge range of products to choose from.

To narrow your choice down, there are a few key factors to consider:

- **LATEX VS NITRILE DISPOSABLE GLOVES**
- **COST**
- **CHEMICAL RESISTANCE**
- **DURABILITY**
- **DEXTERITY**
- **ENVIRONMENT**

Nitrile disposable gloves are generally the more popular option as they're made from a synthetic rubber that contains no latex proteins. This means they're hypoallergenic – a safer option for those who suffer from a latex allergy.

They are generally more resistant to oils, solvents, and chemicals than latex gloves, which means they're a great choice in the paintshop where they're less likely to denature from exposure to solvents.

Nitrile gloves are also generally more puncture resistant, making them a good choice for use in the composites industry where they're more likely to get damaged this way.

The one downside to nitrile gloves is that they're not quite as dextrous as latex gloves, although this has improved significantly over the last few years.

Best all-round Nitrile Disposable Gloves

For the very best nitrile glove which offers excellent chemical resistance, strong puncture resistance as well as a textured finish for ultimate grip, the BAXT CARBONgrip glove is the industry-leader. With extra-long cuffs as well, these protect your operators' wrists as well for the ultimate protection. These are the perfect glove for longer shifts or where an operator is required to wear PPE for long periods of time and needs long-lasting protection without needing to change gloves.



Good for Chemical Resistance

If chemical or solvent resistance is the main consideration, then the BAXT CHEMshield is a great choice. With a thicker than standard construction and a roughened palm, these gloves offer excellent grip and long-lasting protection.



A Cost-Effective Option

If your operators are going to be changing gloves frequently and budget is a key consideration, the BAXT DEEPblack gloves are the gloves to choose. With excellent chemical and solvent resistance and a roughened palm, these gloves offer the ultimate protection at an affordable price point.



Latex Disposable Gloves

Latex gloves used to be the most common option available, but popularity has waned in the last few years due people with latex allergies.

However, they are still an excellent choice for more manual jobs due to their superior flexibility, comfort, and tactile sensitivity. They offer less chemical resistance than nitrile gloves.

Another key reason to use Latex gloves is because they're made from natural latex rubber from the sap of rubber trees, which makes them biodegradable. They take around 5 years to degrade, although this can be significantly longer in landfill which doesn't have optimal conditions for degrading and can take several decades in this instance.

Either way though, they'll naturally degrade a lot faster than nitrile which can take centuries.

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Powdered vs Powder-Free Latex Gloves

Powdered gloves have a light coating of cornstarch on the inside, which make them easier to put on and remove, particularly if the operator has very sweaty hands. This is a key consideration for fast-paced jobs where frequent glove changes are necessary. The cornstarch also absorbs sweat making them more comfortable to wear.

There are situations where powdered gloves are not a good choice, and this includes situations where the powder can leave a residue on the work surface. The powder can also form a wet residue on your hands if you sweat profusely, which some users find unpleasant and needs washing off after removing the gloves.

Vinyl Disposable Gloves

Vinyl disposable gloves are generally extremely cost-effective and are good for low-risk tasks that require frequent changes but are not recommended for high-risk environments.

THE TAKEAWAY:

Which disposable gloves should I use?

Nitrile Disposable Gloves: Best for protection and performance

When it comes to the ultimate protection and unrivalled quality, nitrile gloves are hard to beat. Choose these for jobs that require high levels of chemical or solvent protection, as well as superior grip and long-lasting quality.

Latex Disposable Gloves: Best for the environment and dexterity

If environmental consideration is a high priority, then latex gloves are your best option. Bear in mind though, that biodegrading times are dependant on the method of disposal.

Latex gloves are also the most comfortable and dextrous gloves but consider whether any of your workforce suffer from a latex allergy.

Vinyl Disposable Gloves: Best for budget

When budget is the key consideration and your operators aren't handling strong chemicals or solvents, these are a good, cost-effective choice. They're also good for short periods of use and frequent changes.





737U Sheets are changing!!

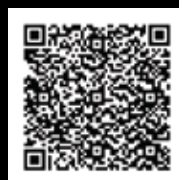


3M™ Cubitron™ II Hookit™ Clean Sanding Sheet Roll 737U

Precision-Shaped Grain (PSG) abrasives, triangular-shaped grains that cut faster and last longer, now available in “sheet on roll” format.

Sheets are dispensed from a pre-cut roll, enabled by a unique “kiss cut” technology. This perforation allows multiple product lengths to be extracted from a single roll.

- Our unique kiss cut scoring technology makes it easy to select whatever sheet length is best for the project.
- Less part numbers to order; less packaging and less inventory.
- For best results, fold and then tear the perforations. The perforations are strong enough to remain intact during use, but can be torn cleanly using this method.
- 3M™ Hookit™ hook-and-loop style abrasive attaches firmly, but removes quickly for fast change-out.
- Sheets can be used on any Hookit™ block.
- Clean Sanding multi-hole pattern delivers excellent dust extraction.



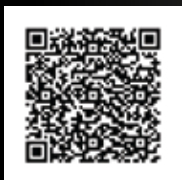
Abrasives part
number selector.

Scotch® Performance Masking Tape 233+, Green

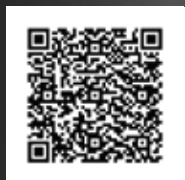


3M's new Scotch® Performance Masking Tape 233+, Green is new to the range and will be replacing the current 3M™ Scotch® Premium Auto Refinish Masking Tape 3030, Green.

To find out which tape from our range is ideal for your repair task, view our brochure or selection guide below.

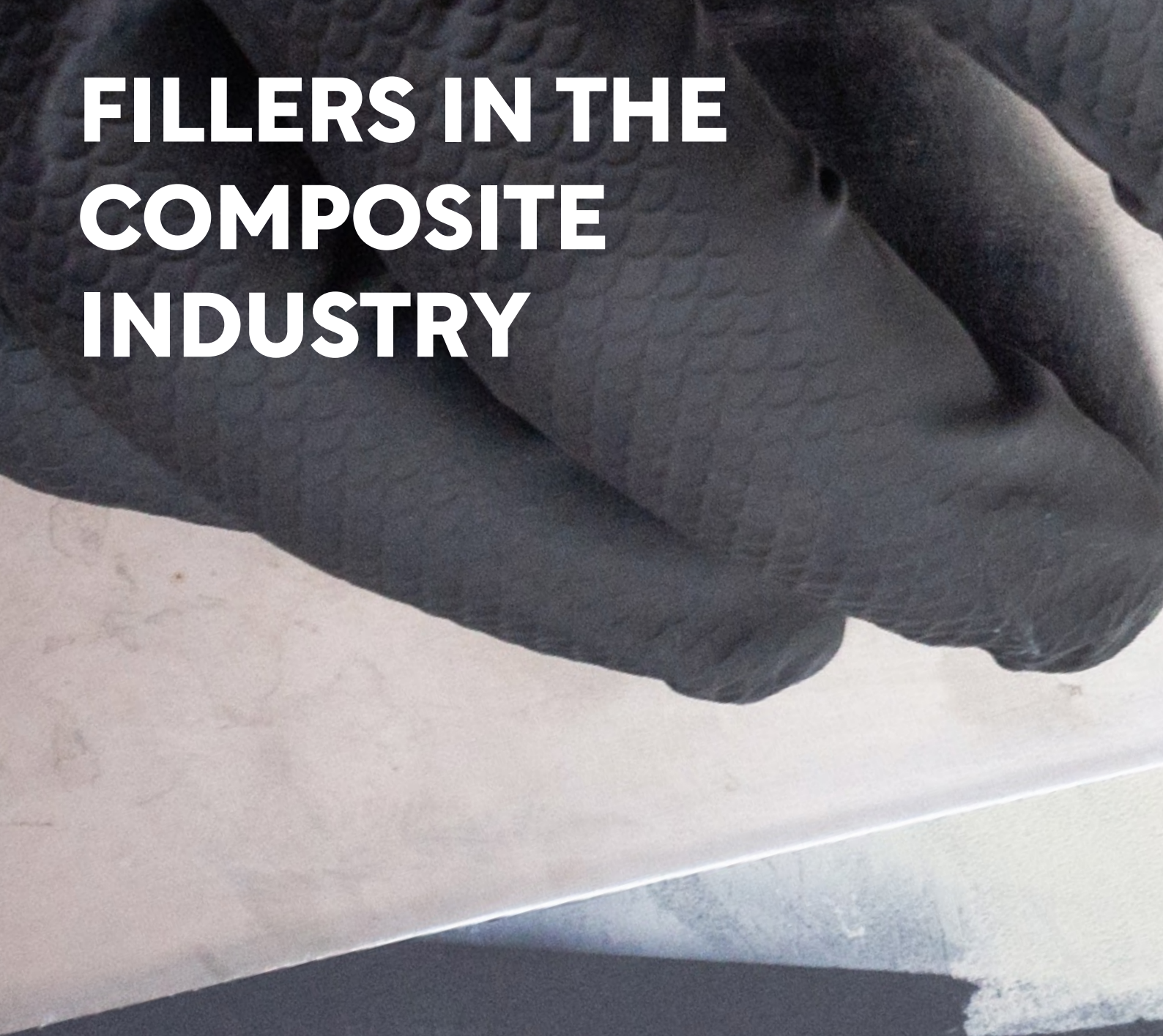


New brochure to
explore the range.



Masking tape
selection guide.

For additional information, including important safety and warranty information regarding 3M Automotive Aftermarket products, visit www.3m.co.uk/aad-info.
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FILLERS IN THE COMPOSITE INDUSTRY

The Role of Fillers in the Composite Industry: Enhancing Performance and Pushing Boundaries

In the ever-evolving world of composite materials, fillers are the unsung heroes driving innovation and enhancing performance. These materials, often overlooked in favour of more glamorous components, play a crucial role in defining the properties and applications of composite products. As the composite and paint markets continue to expand, understanding the significance and potential of fillers becomes imperative for professionals seeking to stay ahead of the curve.

Understanding Fillers: The Basics

Fillers are materials added to a composite matrix to modify its properties, improve performance, or reduce cost. They can be organic or inorganic, and their selection depends on the desired characteristics of the final product. Common fillers include minerals like calcium carbonate, talc, and silica, as well as synthetic options such as glass beads and carbon black.

These additives are not merely "fillers" in the traditional sense. They are critical in enhancing mechanical properties, thermal stability, and durability of composites. By carefully selecting and incorporating fillers, manufacturers can tailor composites to meet specific requirements, making them suitable for a wide range of applications from aerospace to automotive, and even consumer goods.

Enhancing Mechanical Properties

One of the primary functions of fillers in composites is to enhance mechanical properties. For instance, adding carbon black or silica can significantly improve the tensile strength and stiffness of a composite material. This is particularly important in applications where high performance and reliability are paramount, such as in the aerospace and automotive industries.

Moreover, fillers like glass beads and ceramic particles are used to improve the wear resistance and impact strength of composites. This makes them ideal for components subjected to harsh operating conditions, extending the lifespan and reliability of the products.

Thermal Stability and Conductivity In applications where thermal stability is crucial, fillers play an

indispensable role. For example, boron nitride and aluminium oxide are commonly used to enhance the thermal conductivity of composites, which is essential for electronic and electrical applications. These fillers help in dissipating heat, thereby preventing overheating and ensuring the longevity of the components.

On the other hand, fillers like mica and talc improve the thermal stability of composites, making them suitable for high-temperature environments. This property is particularly beneficial in the automotive industry, where components are often exposed to extreme temperatures.

Cost Efficiency and Weight Reduction

Fillers also contribute to the cost efficiency and weight reduction of composite materials. By replacing a portion of the more expensive resin



matrix with fillers, manufacturers can reduce the overall material cost without compromising on performance. This is particularly advantageous in the production of large-scale components where cost savings can be substantial.

Additionally, lightweight fillers such as hollow glass microspheres and certain polymeric fillers are used to reduce the density of composites. This results in lightweight materials that are highly desirable in industries like aerospace and automotive, where reducing weight can lead to significant fuel savings and improved performance.

Surface Finish and Aesthetic Appeal
In the paint and coatings industry, fillers play a vital role in enhancing the surface finish and aesthetic appeal of products. Fillers like calcium carbonate and talc improve

the opacity and whiteness of paints, resulting in a smoother and more attractive finish. Furthermore, these fillers can improve the rheological properties of paints, making them easier to apply and ensuring a more uniform coverage.

Innovations and Future Trends

The field of fillers in composites is witnessing continuous innovation, driven by the need for materials with superior properties and sustainability. Recent research into this, explores the development of novel fillers derived from renewable sources and industrial by-products. These eco-friendly fillers not only enhance the properties of composites but also address environmental concerns, making them an attractive option for the future.

Nanotechnology is also playing a pivotal role in the evolution of

fillers. Nanofillers, such as carbon nanotubes and graphene, offer exceptional mechanical, thermal, and electrical properties, opening new possibilities for advanced composite materials. These nanofillers are set to revolutionise various industries by enabling the production of composites with unprecedented performance characteristics.

Summary

Fillers are integral to the advancement of composite materials, offering a myriad of benefits that enhance performance, reduce costs, and enable new applications. As the composite and paint markets continue to grow, staying informed about the latest developments in filler technology is crucial for professionals aiming to drive innovation and maintain a competitive edge.

By embracing the potential of fillers, we can push the boundaries of what composite materials can achieve, paving the way for a future where composites are stronger, lighter, and more versatile than ever before. The journey of fillers from mere additives to vital components is a testament to the relentless pursuit of excellence in the composite industry.



CARBONfil™
Black Polyester Filler

THE POWER OF PURPLE

Polyester filler, applicable with knife or plastic spreader, with an excellent filling capacity and very easy to sand. It is recommended both for filling and little touches-up. Thanks to its high black dye content, Carbonfil can be clear coated over to retain true black visual aspect.



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STARSHIP ACHIEVED IN SPACEX'S FOURTH LAUNCH: TEST FLIGHT

SpaceX's ambitious Starship project achieved a significant milestone in June as its fourth test flight concluded with both stages successfully returning to Earth, despite encountering challenges during descent.

The launch, which took place from SpaceX's facility in Boca Chica, Texas, marked another step forward in the development of the largest rocket ever built. The mission saw the Super Heavy first stage and the Starship second stage performing their respective roles before executing controlled splashdowns in separate oceans.

During ascent, the Super Heavy booster faced a technical setback when one of its 33 Raptor engines failed to ignite as intended. Nevertheless, the rocket continued its trajectory towards space, demonstrating robust performance and successful stage separation.

The Super Heavy booster completed its mission by descending back to Earth and executing a soft splashdown in the Gulf of Mexico, just minutes after liftoff. Despite initial concerns, the booster's engines reignited in a critical manoeuvre, slowing its descent to a gentle hover mere meters above the ocean surface before gracefully splashing down.

Meanwhile, Starship achieved orbit at an altitude exceeding 200 kilometres', accelerating to speeds

surpassing 27,000 kilometres per hour. However, during its return journey, observations from SpaceX's live feed revealed potential damage to one of its control fins and a cracked camera lens. The spacecraft appeared to stabilise briefly before descending into the Indian Ocean, where it also performed a soft splashdown.

This latest test flight focused on refining Starship's ability to return from orbit, building upon lessons learned from previous missions. SpaceX opted for ocean landings due to current safety considerations, employing controlled descent techniques akin to those used for land-based landings.

Looking ahead, SpaceX aims to enable rapid refurbishment and reuse of Starship, like its established

practices with the Falcon 9 rocket. Today's mission incorporated new software and hardware upgrades, reflecting ongoing efforts to enhance reliability and performance based on past test outcomes.

Despite encountering challenges, today's success underscores SpaceX's commitment to advancing space exploration capabilities with its revolutionary Starship program. Each test flight serves as a vital step towards realising the vision of cost-effective and sustainable space travel, setting the stage for future missions and advancements in aerospace technology.

QUICK INSIGHT: AMMONIA POWER IN MARINE ENGINEERING

Ammonia Power

Mitsubishi Shipbuilding, a key player in the global maritime industry, has recently completed a pivotal feasibility study with Amogy, a catalyst in ammonia-to-power technology. This collaboration explores the potential of ammonia as a primary fuel source, leveraging proprietary ammonia-cracking technology and the Mitsubishi Ammonia Supply and Safety System. The study's focus is twofold: developing a powertrain that combines ammonia cracking with hydrogen fuel cells for ships and establishing a hydrogen supply facility to support ammonia fuel engines. This innovative approach addresses the urgent need for sustainable, high-energy-density fuels in the marine sector.

Why Ammonia?

Amogy's CEO, Dr. Seonghoon Woo, emphasises ammonia's advantages: it's a carbon-free molecule, widely traded globally for fertiliser production, and boasts a higher energy density than liquid hydrogen. Ammonia is liquid at room temperature, facilitating easy transportation and storage, and it offers the lowest price per megajoule compared to other future fuels. Amogy's technology is revolutionary. It converts liquid ammonia into hydrogen and nitrogen, using the hydrogen to generate power via a conventional proton exchange membrane (PEM) fuel cell. This method diverges from traditional combustion, offering a cleaner and more efficient power source.

Scaling Innovation

Amogy's journey began with powering a 5-kW drone in 2021, followed by a 100-kW John Deere tractor in 2022 and a 300-kW Freightliner Cascadia semi-truck in 2023. These milestones underscore the scalability and versatility of ammonia power across various platforms, paving the way for its marine applications.





IS THE SKILLS SHORTAGE HOLDING BACK UK COMPOSITES?

The UK composites industry, vital for future high-value manufacturing, faces a significant skills shortage. Despite being at the forefront of composite materials development and having the potential to grow the market from £2.3bn to £12bn by 2030, several challenges impede progress. Regulatory barriers, limited production capabilities, and a lack of skilled professionals are primary concerns.

Addressing the Skills Shortage

The skills shortage in composites stems from years of underinvestment in STEM education and vocational training. To overcome this, companies must consider innovative upskilling methods and attract individuals with transferable skills. Programs like the Composites Technician Trailblazer Apprenticeship can have a high influencing impact.

Educational Influence

Schools and universities have an important role in promoting careers in composites and engineering. Initiatives like those at Teesside University, which emphasise industry collaboration and practical experience, are essential. Teesside University's investment in Siemens' software and automation technology is a prime example of how institutions can better prepare students for industry demands.

This partnership has enhanced student learning through hands-on experience with advanced engineering tools, bridging the gap between education and industry requirements.

Government and Industry Collaboration

The Government's Industrial Strategy supports collaboration between the Department for Business Innovation and Skills (BIS) and the composites industry to transition from early research to industrial production. The National Composites Centre, part of the High Value Manufacturing Catapult, also plays a pivotal role in this effort. The Labour government has come in with education aspirations, with one of many being to provide pathways to good prospects for all. Although it is difficult to anticipate the potential impact this could have, it allows for

a presumption that students will have better support to pursue other career paths.

Future Directions

Addressing the skills shortage requires a concerted effort from industry leaders, educational institutions, and government bodies. By fostering robust industry-education partnerships and investing in comprehensive training programs, the UK can ensure a steady pipeline of skilled professionals ready to drive the composites industry forward.

Conclusion

The UK composites industry is on the cusp of significant growth. By tackling the skills shortage head-on and fostering educational partnerships, the sector can achieve its full potential and maintain its leadership in composite materials research and application.



Technical Support:

Aeronix Technologies are your composite processing partner, helping you to achieve the best manufacturing solutions for your challenges. From simple advice on how to get started, through to more technical

support on everything from infusion processes through to wet lay-ups; if you need support, our experts are on hand to help overcome your manufacturing challenges.

Market Mission:

As a company that prides itself on its market leading levels of service and support, we are continually looking to improve and develop our range of high quality products. If you cannot find what you are looking for, or are

unhappy with the products you are currently using, give us a call. We have the ability to manufacture a wide range of products and will work with you to create the right solution.

A robust mobile vacuum station that can be used for any composite manufacturing environment.



benefits

- Configurable to your application requirements
- Robust design for use in busy composite manufacturing environments
- Designed to be easily mobile, incorporating an integrated lifting point and braked casters
- Incorporates, Becker, long-lasting vacuum pumps with low maintenance and running costs
- Becker pumps include integrated suction filter, vacuum regulating valve and blow-off valve
- Gauge protector is standard fitment; pump and catch pot can be configured according to customer requirements
- Minimal maintenance



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