BROADWAY

YOUR ROAD TO PERFECT PACKAGING

COLOURS & EFFECTS

for branded products and packaging

Colour is a beautiful thing

Broadway is a market leading UK manufacturer of <u>colours</u> and special effects for plastics. We've been supplying colours for use in consumer packaged goods for over <u>25 years</u>. Our materials are specified by multinational corporations such as Unilever, Procter & Gamble, SC Johnson, Reckitt and Boots.

Our experienced team understands the requirements of brand owners and plastic moulders alike. Our impressive effects portfolio proves popular and is utilised to enhance the appearance of plastic products or packaging. Our award-winning customer service means you'll always be well-supported throughout the entire process.

Our colourists have produced over 50,000 unique colour matches. They work to an industry-leading colour tolerance and have vast experience in formulating colours for use in recycled materials. Our technical team has a deep understanding of the regulatory landscape surrounding plastics. You can rest-assured that our materials will be accurate, consistent and will comply with any standards you specify.

Concentrating on relationship building and understanding our own requirements fundamentally makes Broadway stand out from the crowd.

Ben M.

Head of Sales & Marketing ACME Whistles



CARET N

Making <u>sustainable</u> choices

Plastic is a material which is much maligned, largely due to the disproportionate focus on the end of life mismanagement. Nobody wants to see plastics, or any other litter spoiling our planet or endangering wildlife – but greenwashing sees brands moving away from plastics, only to use alternatives which may be more harmful.

Key considerations when choosing packaging materials must be recycling compatibility and the carbon emissions it generates. We ask brand owners and packaging technologists to study life cycle analyses to minimise the environmental impact of their products. The science suggests that plastics are frequently more favourable than alternatives. This means plastics shouldn't simply be overlooked due to misguided consumer perceptions.

Whenever plastic is the right choice, Broadway is on hand to help make your products look their best. We promote the mantra of reduce, reuse, recycle and we encourage our customers to increase their use of PCR (post-consumer recycled) resins in their plastics whenever appropriate. Our team has vast experience in formulating colours for use in PCR, where tints in the base material will impact the colour of the moulded component. Our on-site colour matching suite means we can demonstrate this first hand. This facility allows a range of new colours to be developed and approved in a single day.

Responsible manufacturing

In addition to our ISO 14001 certified environmental management, we've been awarded Ecovadis Silver Sustainability Ratings in 2022 and 2023.

We've made great strides in the past 12 months with our Ecovadis rating being just short of a Gold award in 2023. We're proud to say our Ecovadis score places us in the 92nd percentile for our sector. This improvement was partly thanks to a big investment in green energy with the installation of 1,700 solar panels on our factory roof. These will generate up to 60% of the power our plant uses. Other improvements include hitting our targets for reducing the amount of waste we produce and ensuring that as far as possible this is sorted for recycling. Ecovadis recognised our progress in the following areas: Ethics, Environmental, Labour and Human Rights. Our internal CSR team are already working on an action plan, in order for us to make further improvements in the way we operate.

As well as reducing the impact of our operations, our R&D scientists have focussed their efforts on developing new products which support the sustainable use of plastics. You can read more about these on page 24.









YOU & US COLOUR COLLABORATION

Colour is a power which directly influences the soul

Wassily Kandinsky

Big brands trust Broadway

Multinational consumer goods companies specify our colourants and effects. Our materials are used throughout the UK and Europe. They're favoured by many leading brands for use in the manufacture of their plastic components or packaging.

Our knowledgeable, friendly team reacts quickly to enquiries, providing brand owners with fast turnarounds on new colour samples as well as the expert advice they need. Our colourists have many years of experience. Their deep understanding of pigments, dyes and polymers allows them to deliver accurate, <u>cost-efficient</u> colour matches for plastics. We work to a colour tolerance of just one Delta E – which is tighter than the industry standard, so you can be sure your brand colour is in safe hands.

Regulatory compliance is of course an important consideration when packaging food, beverages, cosmetics and personal care products, but we've got you covered. We'll ensure our materials are compliant with customer-specified regulatory standards, whilst seeking to minimise costs with intelligent raw material choices.

Our custom colour masterbatches and compounds are manufactured with high-quality raw materials and operational excellence. Our quality management is ISO 9001 certified and every product we dispatch must pass our rigorous QC process.















We'll make your ideas a reality

Customers often say it's the quality of our service which sets us apart from other suppliers. We work with brands big and small, supporting their product development with our colouring expertise. Those with little or no experience in plastic manufacturing can trust Broadway to explain any challenges and suggest solutions, without the industry jargon. Our expert team is happy to offer helpful advice on colours, effects, additives, materials and regulatory matters. We can even offer training to provide your people with a greater understanding of the complexities of colouring plastics.

We'll always seek to understand your priorities. Whether it's appearance, sustainability, cost, compliance or enhancing performance, we'll provide high-quality, customised, material solutions which work for you. With well-resourced teams, specialist infrastructure and established processes, we'll deal with every detail efficiently. This helps us to keep lead times to a minimum for colour matches, samples and production orders.

Pigment precision

Colour matching plastics is an art which cannot be easily mastered. A powerful combination of old heads and new colouring technology helps us provide accurate, compatible and cost efficient colour formulations, with fast turnaround times.

We'll ask all the right questions at the start of the process as our colourists need to take a number of important criteria into account when selecting pigments or dyestuffs for your formulation. These include heat stability, polymer compatibility, lightfastness, toxicity, metamerism and <u>cost</u>. <u>Metamerism</u> is a phenomenon where the colour of two objects appears the same under a particular light source, but a colour difference between them is revealed under a different light source. This is why when requesting a new colour match, it's important to specify the intended light source under which your end product will be viewed.

Once we've formulated your new colour, we'll provide you with colour plaques for approval. This service is all free of charge. Upon request we can also provide material samples for line trials.





Save time with on-site colour matching

Many brands already enjoy the benefits of working directly with us. Recent examples include Bayliss & Harding, Revolution Beauty and Professional Beauty Systems. They each found this offers an efficient and streamlined process for their colour development.

Broadway's colour suite allows brand owners, moulders or product designers to join us onsite to approve their matches. <u>This process</u> saves precious time on product development as several new colour samples can be approved in a single day. Wall displays showcase colours, <u>special effects</u> and moulded products – providing extra inspiration should you need it. A window to our laboratory gives sight of our colourists at work and most importantly, our expert team will be on hand to offer support and advice, as you need it.

We're situated in Suffolk, reachable in around 135 minutes from London (LST) – and we're happy to pick you up from our local train station. With free Wi-Fi and exclusive access to our showroom, you can keep on top of your emails, or just sit back and enjoy the coffee.





BOOK a match on site, or ask for further details











Experts in <u>colouring PCR</u>

With the world focused on reducing plastic waste; brand owners, moulders and consumers are rightly seeking sustainable options. PCR (Post Consumer Recycled) plastics offer an obvious solution reprocessing waste packaging into usable materials for re-moulding. The introduction of the UK Plastic Packaging Tax has accelerated this trend. Now, any packaging which contains less than 30% PCR (post-consumer recycled) material will incur additional taxes. With brands increasingly turning to packaging with high PCR content, it's vital to have a supplier with expertise in colouring recycled plastic.

Broadway has been colouring PCR material for many years, we deliver dozens of colour matches for use in PCR every week. PCR material is typically tinted, so lighter, brighter and translucent colours are not always achievable. A good analogy would be washing your brush in a pot of water when using watercolour paints. As more colour is washed into the water, it becomes 'muddy'. Once it loses its original clarity, it becomes impossible to make that water clear again or turn it into a bright colour. Using PCR is very similar as the inherent tint of the

Working with Broadway was great, as not only were they able to explain in great detail how the colour can be affected. but they were also able to show us, first-hand, how it looked.

> <u>Get in</u> touch to book your FREE colour match

base material will limit the effect the colour can have when dosed into it. Using sample material from your specific batch, our team will demonstrate how your PCR content will impact the colour of the end component. You can see this first hand when approving new matches in our on-site colour suite.

The other challenge is that the tint of the recycled polymer will vary from batch to batch. So a colour which works with one batch of material, may need adjustments to the formula to give the same result when used with a different batch of PCR. Our team can provide helpful advice and our short lead times on new colour matches can prove highly beneficial.

Using high levels of PCR material will often pose limitations, so aesthetic compromises sometimes need to be accepted. We support our customers in increasing their use of PCR, we're happy to provide free colour matching as well as an expert opinion. Improving sustainability should be a priority for us all. We believe that consumers will increasingly accept and even embrace compromises in packaging aesthetics, if they understand this is necessary to improve its sustainability.

SPECIAL EFFECTS

Achieved using a select group of pigments, <u>special effects</u> are increasingly favoured in the design of modern plastic mouldings. Broadway is a market leader in special effects for plastics. Effects from our extensive portfolio have been used in plastic packaging for over 20 years, by brands such as Nescafé, Glade, V05 and Sensodyne. If you're seeking visual distinction, then our special effect masterbatches can give your products the edge. Masterbatch typically forms a small proportion of the overall material and production costs. A little extra investment here can make a big difference to the aesthetics of your plastic component or packaging, enhancing your product's value.

SPARKLE

Our sparkle effects feature pigments which utilise coloured flecks of aluminium to provide a very striking appearance. Coarse particles create a textured, glittery effect.





FROSTED

Our frosted effect for PET has been described as the best available. Used in injection stretch blow moulding, this effect allows a frosted finish to be achieved, without the need to switch or modify the moulding tool.

FIBRE

Our fibre effects distribute small fibres throughout the moulding. Different particle types, colours and sizes can be used to achieve a variety of effects – these will usually provide a matt finish.

We're developing a new range of fibre and speckle effects utilising sustainable materials such as coffee grounds and almond shells. We've had great feedback on material trials for these products, enquire for further details.



METALLIC

The main metallic pigments consist of aluminium, bronze and copper powders. We can produce metallic effects in a variety of colours, with different particle sizes available.

PEARLESCENT

Pearlescent pigments are made with granules of mica coated in titanium dioxide. Like metallic pigments, these come in a number of particle sizes for smooth or coarser effects.



INTERFERENCE

Interference effects have a similar finish to pearlescents. Titanium coating is used within the pigments, creating 'interference' of visible reflected light. Multiple colours can be seen within the moulding, as the viewing angle is altered.

FLUORESCENT

Fluorescent pigments will fluoresce under an ultra-violet light, appearing far brighter than standard pigments.

Colour masterbatches can be used to create opaque or translucent colours. The examples pictured here show translucent plaques with an 'edge-glow' effect. Fluorescent colourants can make the edges or embossing on a moulding appear brighter than the flat surfaces.



MARBLE

Our marble effects offer a great solution for anyone looking to achieve one-of-a-kind mouldings. The marble effect is achieved by dosing a carefully curated masterbatch mix under specific processing conditions. This results in a random, marble-like appearance, meaning no two mouldings will ever look exactly the same.

SPECKLE

A speckle masterbatch allows large particles to be dispersed throughout the moulding to provide irregular patternation within the surface of the end component. Depending on the type of particle used, these may appear similar to fibre or sparkle effects.



SUPPORTING PLASTIC **CIRCULARITY**

Broadway's in-house technical team have focussed their recent efforts on supporting a circular plastic economy. Two of our most significant product developments are our NIR-detectable Piano Black Masterbatches and our Odour Neutraliser Additives. Our NIR blacks are designed to improve the recycling compatibility of black plastics and our odour neutraliser will suppress odours commonly found in recycled plastics. In addition, our new Blowing Agent Masterbatches can be utilised to reduce the amount of polymer required to manufacture some rigid packaging components by around 10%, without altering the size, shape or quality of the moulding.

NIR Detectable 'Piano' Black

High opacity, high gloss black plastics are a popular choice, often favoured for use in food packaging to offer products a premium appearance. However, tonnes of black plastic items end up in landfill due to a reliance on colourants which contain high levels of carbon black pigments.

Recycling centres commonly use near infrared (NIR) spectroscopy to characterise and sort plastic items, allowing them to be recycled. Carbon black pigments are strong absorbers of infrared radiation, so items containing traditional black pigments will not reflect a signal to the detector. This impedes the ability to sort the item, resulting in otherwise recyclable plastic going to landfill.

Our highly skilled in-house technicians have developed NIR detectable 'piano black' masterbatches for PFT and PP. These colourants deliver a rich black colour. During extensive in-house NIR spectroscopybased tests they returned a distinct and statistically significant spectroscopic signature. This means mouldings containing our NIR detectable blacks have the potential for identification during NIR recycling.



"Broadway's new NIR detectable piano black masterbatches are a real achievement for our team. After months of development work. the result is a colourant which provides a rich, highgloss black, whilst retaining the potential for NIR detectability.

This demonstrates our commitment to diverting materials away from landfill whilst also maintaining a resolute focus on the aesthetics of the moulded component. With a genuine commercial appeal, we see this as a real solution for the packaging industry."

Dr Stephen Rayner Technical Manager, Broadway





"With our customers increasingly requesting colour matches for use in recycled plastics, the need for odour neutralisers is more prevalent than ever.

Minerals within our new odour neutraliser additives act to absorb and trap odour molecules. This significantly reduces the amount of odorous particles which are released, therefore reducing the perceived smell of the material. We've explored a number of surface modified minerals in order to find a commercially viable solution which delivers optimum performance."

Dr Chrysoula Pateraki R&D Project Manager and Compliance Lead, Broadway



Odour Neutraliser

In recent years we've seen a big increase in new colour requests for use in recycled materials. This is a trend that's likely to continue as we see taxes on virgin plastics, whilst brand owners, plastic moulders and consumers all seek sustainability improvements.

There are obvious circularity advantages to using recycled materials, but there are challenges too, one of those being the smell. Recycled plastics come from a range of sources and carry a multitude of contaminants, many of these can cause odours which still remain apparent after reprocessing. Even some virgin plastics can carry smells which need suppressing.

Whilst these can be masked with a fragrance, this isn't always desirable, particularly in applications such as toiletries or food packaging. It's also a temporary solution, which soon fades. Our R&D scientists invested months of research, exploring odour neutraliser additives for plastics. They consider these a more effective and permanent solution than attempting to mask smells with a fragrance. We can supply this product as a stand-alone additive masterbatch, or within your colours as a combined masterbatch.

Blowing Agent

In the competitive world of consumer goods, marginal gains can make the difference between profit and loss. A blowing agent masterbatch can offer multiple benefits, most notably weight and cost savings.

The foaming effect results in tiny gas bubbles becoming trapped in the moulding. As the gas is lighter than plastic, this offers the benefit of reducing the weight of the plastic component. A secondary benefit is of course that less polymer is required to achieve the same size moulding. Using less polymer is beneficial both from an environmental and commercial perspective. Plastic taxes, such as the UK Plastic Packaging Tax are typically based on the weight of polymer processed. Therefore by reducing the polymer required, polymer costs are reduced and so is your tax bill.

Production trials on a packaging component delivered excellent results. Polymer savings of around 10% were achieved, with no reduction in quality – there was no perceivable difference between the control and trial mouldings. The cap shown to the right was moulded under conditions which highlight the foaming effect.



"It's been great to collaborate with new and existing customers, to develop this material with the support of our brilliant in-house technical team. Our endothermic blowing agent masterbatch shows Broadway's marketoriented approach to product development.

The positive results we've seen from a number of trials prove that this product adds real value – with many benefits for a wide range of applications, including significant cost savings. Please get in touch if you'd like to consider utilising this additive in your plastic components or packaging."

Chris Bird Sales Manager, Broadway

THE BENEFITS OF BROADWAY

- ✓ Free, fast and accurate <u>colour matching</u> service
- ✓ Save time with on-site colour approvals
- Dedicated colourist, excellent hospitality and expert support
- · Exclusive access to our showroom, with refreshments and Wi-Fi
- Return transport from the local train station
- Great when formulating new colours for use in recycled material
- Ecovadis silver sustainability rating and ISO certification
- ✓ Impressive <u>special effects</u> portfolio
- Solutions to support the sustainable use of plastics
- Experts in <u>regulatory compliance</u>
- ✓ Consistent, premium-quality materials
- Cost-efficient formulations
- Fast turnarounds on samples and production orders
- Established, family-owned business, trading globally

Our Values

Embodied by our staff, our values are the keystone of our organisation. Our interactions, processes and decisions are made with these in mind.

QUALITY

We're proud to provide premium-quality products; accurate, consistent and delivered with quick turnarounds. We achieve this through understanding, innovation, use of high-quality raw materials, operational excellence, stringent QC and exceptional customer service.

EXPERTISE

Deep knowledge and experience run through the spine of our organisation. We can overcome technical challenges with innovative solutions and expert guidance. A broad product portfolio along with skilled staff and modern infrastructure helps us to cater for specific requirements with customised solutions.

ADAPTABLE

We're agile in our approach. We'll consider things from a customer's perspective and we'll always strive to meet their requirements with our flexible, can-do attitude. We adapt to changing market requirements, developing new products to meet evolving customer requirements.

RESPONSIBLE

As a manufacturer of plastic materials, we promote the benefits of plastics and appreciate the need to manage our environmental impact responsibly. We support customers in embracing the use of PCR and we offer materials to support the sustainable use of plastics.

TRUSTWORTHY

We're a family-owned business, trust and integrity are fundamental. We care for our staff and we form sustainable practices, helping us to build lasting business relationships with suppliers and customers.





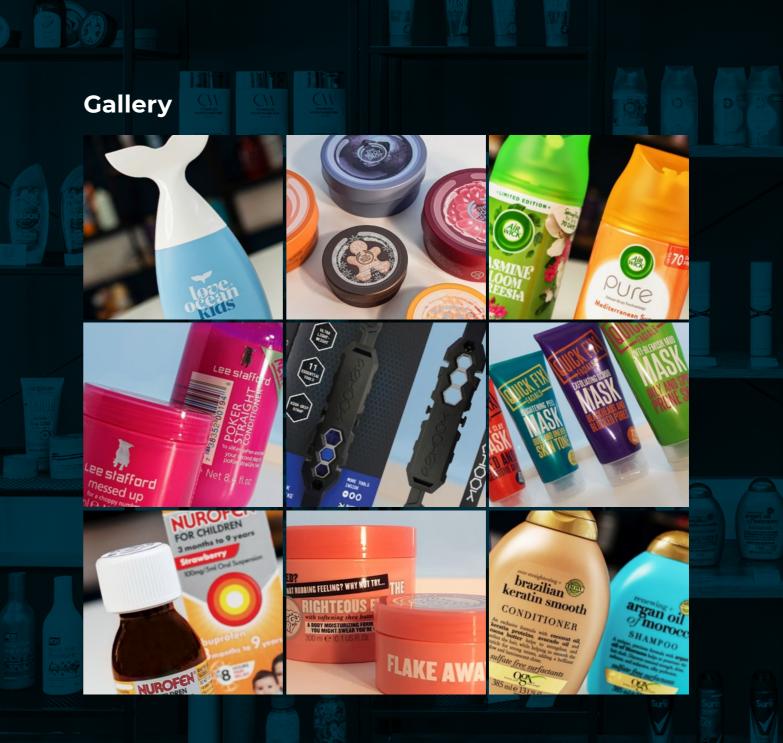


Reassuringly Compliant

Our in-house laboratory team are on hand to provide swift, accurate information on <u>regulatory</u> matters. We'll engineer product formulas to ensure the materials we supply comply with any regulatory standards you've specified. This will be backed with compliance statements issued upon request. Our quality management is ISO 9001 accredited, this internationally recognised standard illustrates our commitment to providing the very highest quality.

We use high quality raw materials. All constituents used in our formulations must pass a thorough trial process. This covers colour accuracy, regulatory compliance and any other relevant characteristics. Only approved materials are used in production.

We regularly communicate with suppliers to ensure the raw materials we use remain REACH compliant. Our other compliance measures include Commission Regulation (EU) No 10/2011, Resolution AP89.1, EN-71:Pt3, FDA and RoHS. For more details, please visit our website or request a copy of our compliance document. We can produce materials which comply with other regulations upon request.



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<u>masterbatch</u> / <u>compounds</u> / <u>roto powder</u>

