

Integrating Sustainable Materials into Spectacle Lens Dispensing Q&A responses by Mrs Emily Andrews, Eyespace Eyewear

- 1 Where was this research done to get these stats on Consumer demand? How big was the sample? and was it geographically diverse?
The statistics presented were taken from a survey conducted by E.ON into 'Renewable Returns'. E.ON commissioned 'Censuswide' to survey 2,000 consumers and 800 senior managers (or above) in SMEs. The research took place between 11th and 16th September 2020
- 2 Where have the definitions come from? And where have the packaging stats come from?
*Our preferred reference tool for definitions is Circulytics from the Ellen Macarthur Foundation. This can be accessed via: <https://ellenmacarthurfoundation.org/topics/circular-economy-introduction/glossary>
The Ellen Macarthur Foundation is a charitable foundation which works to accelerate the transition to a circular economy.
Packaging statistics were taken from Drapers 2021 report into 'Sustainability and the Consumer. This can be accessed via: <https://www.drapersonline.com/guides/sustainability-and-the-consumer-2021>
Some additional statistics were taken from the 2021 UN report 'From Pollution to Solution: a global assessment of marine litter and plastic pollution'. This can be accessed via: <https://www.unep.org/resources/pollution-solution-global-assessment-marine-litter-and-plastic-pollution>*
- 3 We currently stock 1 range of sustainable frames (Sea2See). How many would you recommend stocking?
Our advice would be to stock as many as possible, to cover a range of materials, wearers and price points. In addition to dedicated sustainable eyewear collections we recommend looking for sustainable frames within existing brands. This can be a great way to expand your sustainable offering without necessarily investing in complete new collections.
- 4 Do we need to take care of lens frame combinations? for example, high plus prescriptions?
This will be dependent on the frame material. We would recommend contacting the supplier or manufacturer for details of any glazing restrictions. Bio-based acetate can be a great option due to the fact that it generally behaves the same as regular acetate and does not require any special treatment.
- 5 Apart from Eco eyewear, are there any other manufacturers do eco-friendly frames?
Yes, and the number is increasing all of the time. Some of the companies which we're aware of include:

Eco-Conscious Collection by Eyespace
Sea2See
Botaniq Eyewear by Inspecc
Bird Eyewear
Waterhaul

Eyespace are also introducing eco-friendly styles into the following collections:

Aspinal of London
Land Rover
Cocoa Mint
Jensen
Basebox
Rock Star

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- 6 Do we rely on consumer pushing us to more sustainable products or do we push consumers to spend more on sustainable materials
The eyewear industry and optical practices have a responsibility to offer consumers sustainable frame options and to facilitate them in making more eco-friendly choices. This should not be challenging, and research has indicated that over a third of consumers are already willing to pay more for product manufactured in sustainable materials. Consequently, a lot of consumers will not require any persuasion. Sustainable eyewear at a competitive price is also now available, making eco-friendly eyewear more accessible than ever before.
- 7 With the eco plasticisers, are there any allergy issues?
As eyewear is considered a medical device, all frames placed on the UK market should have passed all requirements according to BS EN ISO 12870:2018/BS EN 16128:2015/ASTM B117-16. This includes conformance with nickel release standards, the most common allergen in spectacle frames. Allergies to acetate frames are rare, and according to research are most commonly caused by additives such as plasticizers and UV stabilizers. We are not aware of any specific testing on the additives and plasticisers used for bio-based frames so would recommend treating as per standard acetate.
- 8 Is it possible to re-glaze eco-friendly products?
All of the eco-friendly products which we manufacture at Eyespace are suitable for re-glazing, however we would recommend checking other brands with the frame supplier for safety.
- 9 As I work for a large multiple what can I do as an environmentally concerned member of staff?
We would firstly recommend contacting the multiple's Head Office, and potentially their 'Sustainability Champion' so that they are aware that this is an area which is important to you. Secondly, we would suggest taking a look at ABDO's sustainability assessment tool which can be accessed through: <https://www.abdo.org.uk/sustainability-questionnaire/> This should hopefully give you some ideas which you can immediately implement or discuss with the multiple's management team.
- 10 Are the optical fashion industry doing enough care of eco materials of the frame launched
At Eyespace all our frames are provided with care labels if the material does need to be treated differently to standard frame materials. Of the materials which we supply, the bio-based acetate does not need any special treatment and we recommend avoiding the use of alcohol or solvent-based cleaners for any bio-based polyamides (injected materials). This is the same advice we would issue for frames manufactured in TR90.
- 11 What is BPA Free?
BPA (Bisphenol A) is an industrial chemical used to make polycarbonate and some epoxy resins. No single study has conclusively proved that BPA is harmful to humans, however BPA has been the subject of a great deal of discussion, due to some animal studies finding high doses causing adverse effects. This is first and foremost linked to when BPA is used for storing food and drink (due to the fact that some research indicates that BPA can seep into food and drink from the containers that are made with plastics using BPA). BPA Free simply means that BPA is not present in the material.
- 12 Are all your frames Eco?
We have put in place a company target to source as many frames as possible in sustainable materials over the next 5 years. At the moment our entire Eco-Conscious Collection is manufactured in sustainable materials, and we have launched eco-friendly materials into our Land Rover and Aspinall of London ranges. 100% Optical will see the introduction of eco-friendly materials into Rock Star, Basebox and Cocoa Mint with other ranges to follow later in 2022. Eventually, we hope to source all models in sustainable materials.

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- 13 What about the balance between sustainability and methane/co2 production i.e., greenhouse gasses
The production of greenhouse gases during manufacturing and air freight remains a challenge for all industries. As frame manufacturers, we are working with our factories to encourage environmentally friendly practices and are trying to find new and innovative ways of working. We have a code of conduct for our entire supply base and where possible our factories are now using clean or renewable energy. The majority of our factories have internal recycling facilities or sell waste to be recycled into new forms of raw product. Some are even re-purposing material scraps into items such as buttons or glasses cases. Sustainable materials such as bio-based acetate use the same manufacturing processes as standard acetate, so we believe are preferable.
- In addition, we are consolidating deliveries wherever possible and using sea freight when it is feasible. Extended lead times and escalating costs remain a challenge with sea freight, this is a universal issue and applies to all industries. We are also investing in 'giving-back' programmes which include working with Project Seagrass and One Tree Planted.*
- 14 Does the optics industry have a long way to go to be eco-friendly?
As with all industries, there are a lot of hurdles to be overcome before the optical industry can truly call itself eco-friendly. The last 12 months has seen a real shift in perspective, the fact that over 500 people have attended this webinar is testament to the enthusiasm within the profession as well as an understanding that we need to act now before it's too late. How quickly eco-friendly practices are adopted industry wide will in-part depend on optical practices and whether they are able to embrace the new initiatives and product being introduced.
- 15 Will frames be marked to indicate their sustainability.
This is a decision for individual frame suppliers, however all Eyespace frames are clearly labelled to ensure that practices and patients are aware of a frames eco credentials.
- 16 Do you think we should encourage wearers to consider wearing frames for much longer? We should promote slow fashion.
Extended frame wear unquestionably has positive effects for the environment, and we are hearing about positive initiatives being carried out in practices across the UK whereby re-glazes are being promoted. Having said that, in a lot of cases, patients only possess a single pair of spectacles which they wear every single day. Consequently, they will not have the same longevity as other accessories and will require replacing even by the most conscious consumer. It should also be considered that some wearers will have a genuine need for more than one pair of frames.
- 17 What frames are manufactured in UK?
At the moment there is only a limited amount of frame manufacturing in the UK. This is due to the complex nature of frame manufacturing, which typically has over 100 processes and requires specialist machinery and expertise, and the additional costs that this incurs. Currently a lot of optical practices and patients are not able or willing to invest in British made eyewear due to the significantly higher costs.
- 18 Are there any British frame manufacturers? What are lens and contact lens companies doing to become more eco-friendly?
Britain has a great history of spectacle frame manufacturing; however, this has been in significant decline since the 1980s. Reasons for this are political, financial and also involve the deregulation of the optical industry in the UK (which happened in the 80's). The good news is that there has started to be a slight resurgence, however the only frame suppliers which we are aware of manufacturing in the UK are Tom Davies and Millmead's Walter and Herbert collection. There may be additional companies as this is an area of growth.
- Reference further information on lens and contact lens companies; unfortunately, as we do not manufacture lenses or contact lenses, we are unable to provide any insights into this area.*

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- 19 Surely producing frames in Britain would be more eco-friendly, when will frame companies consider this?
Frame companies are very keen to manufacture in Britain, unfortunately at the moment a lot of optical practices and patients are not willing or able to invest in British made eyewear due to the significantly higher costs involved.
- There are also manufacturing challenges; the production of a single frame typically has over 100 processes and requires specialist machinery. In addition, there is the issue of raw materials and components which for the most part would still need to be imported as production facilities do not exist in the UK.*
- Whilst there are obvious environmental benefits to eyewear being made in the UK and not imported, British made eyewear is not necessarily manufactured in sustainable materials. This is something which may be of high importance to the frame wearer so needs to be considered.*
- 20 As I do locum work now would I be able to see touch/sample these frames at say an expo such as 100% optical
Yes, absolutely. All major UK suppliers will be exhibiting at 100% Optical and sustainability is a key theme for next year's show. Full information can be found via: <https://www.100percentoptical.com>
- 21 As a locum, working mainly at weekends only, how/where can I find out more information about a frames material history/manufacture? I don't get any contact with frame reps and websites can be rubbish!
Our recommendation would always be to contact the Head Office of the relevant company with any queries you may have. If the company has a Sustainability Officer, a good practice principle for any eco-friendly organisations, it would be worthwhile making contact with them as they are likely to be passionate about materials and manufacturing processes and should be able to answer your queries.
- 22 Should manufacturers be made list components on products like the food & drink industry? We as ECP's need to know what the material is to adjust & fit correctly & give the correct advice to Px's
This information should be readily available on request as it is a legal requirement for manufacturers to hold technical data detailing frame materials. If you are unsure, our advice is always to reach out to the manufacturer.
- 23 LDPE materials - do we need to store them in a different way - specific humidity or temperature?
LDPE stands for low density polyethylene and is a standard type of plastic. LDPE is now available with a biodegradable additive and the material is suitable, and now being used, for polybags. At Eyespace the biodegradable LDPE bags which we have sourced will biodegrade in under 5 years in landfill conditions and do not require any special storage.
- 24 So, if most materials aren't tested as biodegradable what is the law around claiming it is biodegradable?
The most common testing standards to look out for to confirm biodegradability are BS EN ISO 14855-1:2012 and ISO 15985:2014. Certification offers clarity and transparency; however, it should be noted that the lack of certification is not evidence in itself that a material isn't biodegradable.
- 25 Do you expect these products to last as long as classic materials?
All Eco-conscious Collection frames from Eyespace have been thoroughly tested and there have been no results indicating that this product is likely to have a shorter lifespan than product manufactured from classic materials.
- 26 Do the non-toxic plasticisers work as well as the more usual ones used & does it affect the longevity of the frame?
The bio-based acetate which we have chosen to use is the result of years of R&D. The natural, non-toxic plasticiser has not been found to negatively affect the longevity of the frame and the only difference we have noticed is during the manufacturing process, whereby additional treatment steps are required to ensure stability.

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- 27 Are the bio-based acetate as flammable as cellulose acetate? Do we have to careful with heat?
*It is safe to adjust both regular cellulose acetate frames and bio-based cellulose acetate frames with a gentle heat. All Eyespace frames are compliant with BS EN 12870 which includes being resistant to ignition (clause 4.9).
 Cellulose nitrate is more flammable than cellulose acetate and fortunately has not been sold in the UK for many years.*
- 28 Are the colours /dyes used likely to run on contact with acidic skin?
The bio-based acetate which we use is not surface dyed, so it is extremely unlikely to run. In addition, all our frames at Eyespace are compliant with BS EN 12870, clause 4.7 'Resistance to perspiration' which requires testing according to ASTM B117-09 (this is a salt-spray test).
- 29 What can you tell us about the adjustability of the various materials please? Including the option for us to shorten sides
*We can only accurately advise on the materials which we have in our current collections. This currently includes bio-based acetate and recycled stainless steel (with a lot more being launched in 2022). Both the variants of these materials which we have used can be treated exactly the same as their regular counterparts.
 For safety, we would always recommend reaching out to the manufacturer with queries such as this as some eco-friendly materials do require more careful handling.*
- 30 Might put a dampener to this but is the manufacturer of these materials eco-friendly because isn't that swapping 1 type of pollution for another?
This is a really valid point and something which conscientious manufacturers will be extremely aware of. At Eyespace, our supply chain is required to sign-up to our strict code of conduct and are subject to internal and external audits. Where possible, they also commit to using clean/and or renewable energy. In addition, the majority of our supply base have internal recycling facilities, or they will sell waste to be recycled back into new forms of raw product. There are no perfect solutions, but we endeavour to do the right thing at every opportunity.
- 31 Apart from stainless steel, are there any other metals that are recyclable? Also, is buffalo horn considered sustainable?
*All metal eyewear is recyclable; however, this can be tricky due to the number of components on a frame and the different materials used e.g., plastic nose pads. This is possible through specialist companies such as Recycline: <https://www.recycline.co.uk>
 Buffalo horn, particularly when it's a by-product, can be considered sustainable, however as with any animal product, we would recommend investigating its providence to ensure that the supplier is sourcing responsibly.*
- 32 What is your opinion on buffalo horn as a natural material?
As with other natural materials, such as leather, our opinion is that the providence is of high importance. Asking questions of the supplier such as "are you a member of the Animal Welfare Association?" can be very useful and clarify any queries or concerns.
- 33 We have some ocean plastic frames in stock but if heat applied, they break down marginally/ fibres appear so very difficult to adjust. Do we have to accept that it just can't be adjusted or is there an art to it that I have missed!
Unfortunately, we do not currently have any direct experience of adjusting this material so we would recommend contacting the supplier directly.

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- 34 Should we be promoting re-glazing pxs own frames
Re-glazing is a sustainable solution and definitely has beneficial effects for the environment. In an ideal world re-glazing would be promoted more and we are hearing about positive initiatives being carried out in practices across the UK. Having said that, in a lot of cases, patients only possess a single pair of spectacles which they wear every single day. Consequently, they will not have the same longevity as other accessories and a re-glaze may not be possible, even for the most conscious consumer. It should also be considered that some wearers will have a genuine need for more than one pair of frames.
- 35 Often there's rx difficulties in relation to 'some' eco frames. In regards to some of these materials, is there any restrictions?
This will be dependent on the frame material. We would recommend contacting the supplier or manufacturer for details of any glazing restrictions. Bio-based acetate can be a great option due to the fact that it generally behaves the same as regular acetate and does not require any special treatment.
- 36 Is recycled plastic more difficult to adjust? Certainly, find that the marine plastic frames that we have are hard to adjust
We would recommend contacting the supplier or manufacturer for specific adjustment instructions as there are so many different materials now available.
- 37 We have recently had a lens company approach us about plant-based lenses, is this something you know anything about
We are aware of development in this area but have not seen this material tried and tested in the marketplace yet (we are primarily in the frame arena so the situation could have evolved already). We are familiar with biodegradable AC polymers for demo lenses (and are currently investigating biodegradable RX lenses) as this is the material which we have chosen to use on all of our eco-friendly frames. This is a great material for demo lenses as it biodegrades in landfill in under 5 years.
- 38 We used to use a lot of glass lenses in the 70's & early 80's mainly because of subsidised NHS specs. Would glass be a better recyclable option than CR39?
In an ideal world, glass would be used more as it is more sustainable and can have greater longevity than CR39 (as it does not scratch as easily). Unfortunately, there are challenges with both weight and cost as glass lenses can be cost prohibitive for some wearers.
- 39 In the future would you say majority of the frames will be made with eco material?
Yes, 100%. This is definitely the way that the industry is moving and is something which we wholeheartedly support. Eyespace are already in the process of introducing eco materials into all of our collections.
- 40 Will Eyespace plan to make all their frames from recyclable materials in the future?
At Eyespace, we have put in place targets to source as many frames as possible in sustainable materials over the next 5 years. Biodegradable materials also have a place in this conversation as they have an important role to play in improving frame supply and reducing the environmental damage done by the optical industry.
In our opinion, manufacturing frames in sustainable and biodegradable materials is a higher priority as specialist companies are now able to recycle all optical frames so technically all of our frames are already recyclable.
- 41 Why not use recycled stainless steel and make the slight uneven areas a feature. e.g., a "shabby" look.
This is a great idea, however the imperfections in recycled stainless steel are too small and sparse for this to be aesthetically pleasing and we are not sure that all customers would accept. There would likely be a large reject rate as frames were mistakenly thought to be scratched etc which would lead to unnecessary frame wastage. It is definitely something we would consider for other materials in the future, and we have come across some great "raw" plastic and card finishes.

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- 42 So far, it has been difficult to find labs that are able to successfully glaze wood. Are there guidelines available for each of the new eco materials?
Unfortunately, this is not a material which we have direct experience of. We would highly recommend contacting a wood frame manufacturer as most likely they will be able to recommend a glazing lab with the relevant experience.
- 43 How do you glaze wood frames?
Unfortunately, this is not a material which we have direct experience of. We would highly recommend contacting a wood frame manufacturer for their guidelines.
- 44 What do you clean wood frames with?
Unfortunately, this is not a material which we have direct experience of. We would highly recommend contacting a wood frame manufacturer for their guidelines.
- 45 Does wood degrade or delaminate over time?
Unfortunately, this is not a material which we have direct experience of. We would highly recommend contacting a wood frame manufacturer for their advice.
- 46 Does Eyespace use recyclable frame bags?
This is actually a very confusing area as technically all frame bags are recyclable as soft plastic recycling is offered by the majority of larger supermarkets in the UK (usually at the same location as the recycling point for plastic carrier bags).

We are developing recycled frame bags, but this can also be complex as they are available with varying recycled content. Our preference is for 100% recycled frame bags, which do not introduce any virgin plastic into the system, but this is currently price prohibitive (although may change rapidly over the next 12 months).

We use biodegradable frame bags across all of our collections. The frame bags that we elected to use breakdown naturally within 5 years, as opposed to 200-500 years for standard plastic.
- 47 Do we have the capacity within the UK to recycle plastics to reuse - as much as 85% is shipped overseas to be processed which seems crazy!
We would recommend visiting: <http://recyclenow.com> for more information on recycling in the UK. 'Recycle Now' is the national recycling campaign for England, supported and funded by Government, managed by WRAP.
Terracycle (<https://www.terracycle.com/en-GB/>) also has some very useful information on this topic.
- 48 Do you have any extra tips to assist in recycling packaging?
Re-using packaging is a great, and cost-saving way, to help with plastic recycling. Next time you receive a package from one of your frame suppliers, we recommend storing the packaging and then re-using when you next need to return a frame or send for glazing.
Another great way to recycle packaging is through nationwide programmes, such as those run by Terracycle (<https://www.terracycle.com/en-GB/>). Some of the programmes are free so this can be a cost-effective option too.
- 49 What is the best way to implement a recycling process in stores without increasing outgoing costs?
Ultimately this is an area which practices should be embracing and investing in. There are cost effective options, such as re-using packaging and participating in programmes such as those run by Terracycle, but this is such an important issue, and one that individuals and businesses are contributing to, that we believe it does warrant some investment of time and money by optical practices.

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- 50 Are there any plans for recycling frames or glasses?
There are already specialist companies such as Recycline (<https://www.recycline.co.uk>) who recycle frames which is great news. Recycline advise that they separate plastics and metals, allowing the individual materials to be put back into industry as a raw material rather than go to landfill, or more worryingly polluting our waterways, oceans and seas and becoming a burden on the environment. This is currently a relatively niche area; however, we hope that in the future it will be easier to recycle frames with more outlets offering this service.
- 51 We used to send lots of old glasses to vision aid overseas. Now that they don't take them is there another way to recycle them or any frame parts?
The only company that we are aware of currently recycling frames is Recycline: <https://www.recycline.co.uk> . We have not partnered with them directly but believe that they are currently being used by a number of optical retailers. We would also recommend reaching out to local homeless charities to see if they have a requirement for optical frames and are able to re-purpose for those in need. Whilst some national charities are no longer accepting frame donations, this may not be the case on a more local level.
- 52 Although not directly related to recycling why has Vision Aid Overseas stopped sending old unwanted specs to 3rd world countries. I assume this was due to Covid but specs being re-distributed to those that really need them is surely better than them going to landfill.
Vision Aid Overseas have issued a statement on this. This can be accessed through: <https://www.visionaidoverseas.org/vision-aid-overseas-position-statement-on-recycling>
- 53 There is good evidence we can use recycled plastic with effort, but are there any initiatives within the industry from any recycling options? Many of my customers want to donate old spectacles to those less fortunate rather than send them to landfill but post-Covid these channels have dried up.
We follow the three 'r's – reduce, reuse and recycle – and would always encourage giving a product a second life, both for the environment and to support disadvantaged wearers. However, prescription eyewear is typically worn daily for an average of two years and can be unsuitable for reuse at the end of its life and may not reglaze well. As mentioned above, we would recommend contacting local charities, however if no local charities are accepting frame donations, we would suggest introducing frames in sustainable and recyclable materials to reduce the environmental damage of frame wear and use.
- 54 I have customers that want to donate old spectacles to those less fortunate. These channels have dried up pre and post Covid. Are there any industry initiatives in the pipeline to reuse old spectacles? We might be able to move on for future products, but there are existing issues we need to deal with.
We would recommend starting at a "grass roots" level and reaching out to local homeless charities to see if they have a requirement for optical frames and are able to re-purpose for those in need. Local food banks sometimes also request non-food items, details can usually be found on their websites. Whilst some national charities are no longer accepting frame donations, this may not be the case on a more local level.
- 55 Does a recycled product require more energy to reprocess compared to the virgin product?
It is well documented that making products from recycled materials requires less energy than making them from new raw materials, however there will still be a carbon footprint, so this is an incredibly valid question.
There can be a huge difference in energy. For example, Friends of the Earth cite that producing new products from steel that is recycled uses 70% less energy than creating steel products from scratch. This will depend on the individual material though and it is important that companies are held accountable for any claims that they make reference the use of recycled material.

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Other benefits of using recycled materials include the fact that it can conserve natural resources by removing harvesting and processing of fossil fuels. In addition, re-using plastic prevents plastic waste from being irresponsibly disposed of, e.g., finding its way into the sea.

- 56 On same token people ask about disposable contact lens - how biofriendly are the blister packs?
Unfortunately, we do not have any direct experience regarding contact lens packaging. We understand that blister packs are often made from PP (polypropylene) plastic which is accepted for recycling but suggest you check with your local recycling guidelines.
- 57 Can you recommend a good company for recycling contact lens packaging?
Our research indicates that TerraCycle® and ACUVUE® have partnered to create a free recycling programme for any brand of soft contact lenses and blister packs. The programme operates through a network of public drop-off locations throughout the UK. At the time of checking there were 1331 participating locations.
- We understand that blister packs are often made from PP (polypropylene) plastic, which is accepted for recycling, although we suggest you check with your local recycling guidelines. Cardboard packaging is widely accepted for recycling.*
- 58 Frames look terrible without dummy lenses, make them more friendly, wont they melt down?
This is a sentiment we 100% agree with and we have already introduced biodegradable demo lenses into all of our eco-friendly and sustainable frames. We plan to roll out for all models in the near future, however this is currently price prohibitive. As soon as the cost comes down, which we hope is imminent due to increased demand, this is a policy we will be implementing. There is no perfect solution to challenges such as this, however the landscape is constantly evolving and as long as practices are choosing sustainable options over non-sustainable ones wherever possible, progress is being made.
- 59 What can be done with dummy lenses?
It is now possible to produce demo lenses made of biodegradable materials, which more and more frame manufacturers are choosing to use. These particular lenses can be disposed of with normal waste and will biodegrade in landfill conditions.
- We also understand that recycled demo lenses are now an option, although lenses with a 100% recycled content (our preferred route to avoid any new plastic entering the system) can be price prohibitive.*
- We recommend checking with your frame manufacturers to confirm whether their standard plastic dummy lenses are in a sustainable material.*
- 60 Why do we need demo lenses in a frame, seems a complete waste of money
A large number of practices still use demo lenses for measurement purposes, such as marking up the pupil centres. Demo lenses can also be printed with product information, such as material type, sustainability credentials or specialist sizing, that will support practitioners selling the benefits of the frame to customers.
- 61 Can the industry work together to scrap/recycle/reuse dummy lenses? How many tonnes would be saved per year?
Industry bodies and leading manufacturers are certainly moving for change in this arena and are driving the industry to utilise more and more environmentally friendly materials for dummy lenses and other frame components. I'm afraid we couldn't quantify how many tonnes of plastic would be saved per year as we do not have access to frame sales across all manufacturers within optics.
- 62 Do customers mind trying frames on without the dummy lenses.
We think that customers would adapt to trying on frames without demo lenses, however our market research has indicated that it can lower the perceived value, particularly when a brand name is removed.

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Highlighting the brand on the demo lens can be a selling tool and consumers, particularly those buying into a brand, anticipate being able to easily identify the brand from the lens.

As already mentioned, we are also aware that a large number of practices still use demo lenses for measurement purposes.

- 63 Are demo lenses actually needed in most frames these days? Digital dispensing requires the removal of demo lenses before measurements are taken
- Our research has indicated that demo lenses are still needed and whilst the technology is now available, it is not accessible to all practices and many still use the demo lenses for measurement purposes. In addition, demo lenses can also be printed with product information, such as material type, sustainability credentials or specialist sizing, that will support practitioners selling the benefits of the frame to customers.*
- 64 How about leaving the demo lenses out completely? and maybe invent a tool that clips in any frame to mark up.
- We would definitely be open to leaving demo lenses out completely, however we are aware that a large number of practices still use demo lenses for measurement purposes, so this may not be desirable. The concept of a tool that could be used for measurement purposes is a great idea, however we believe that a lens manufacturer would be better placed to develop.*
- 65 What would be the rough difference in unit price if switching the material for demo lenses. pence? Pounds?
- It completely depends on where the frame is manufactured, and the volume ordered. At the moment biodegradable demo lenses cost around 10 times more than a standard demo lens, consequently, to introduce across all frames would require a significant investment, or a price increase. Prices are starting to lower as more practices are investing in eco products and as soon as it is viable, we will be introducing across our entire product portfolio. This will be driven by optical practices embracing eco-friendly and sustainable innovations from frame manufacturers.*
- 66 What are the cost implications to practices for these sustainable materials? Do you find they are more expensive due to the processes that go into producing these frames?
- We aim to make sustainable eyewear as affordable as possible. Eco-friendly materials are currently more costly than their previous alternatives, but we find environmentally conscious consumers are happy to invest more in sustainable product. The more that optical practices support this type of product, the more it will fall in line with standard price points, so we anticipate prices reducing over the coming months.*
- 67 Frame made from recyclable plastics seem to be more expensive for the end consumer. If the materials are sourced for free and the energy used to produce is far less, why aren't these frames super cheap? Vast profit margins made by playing on people's consciences?
- Sustainable materials are still very much in their infancy. It is well known that new technologies and material innovations are more expensive to initially produce. However, as more and more people adopt them and the volumes of these materials increases, cost per unit will decrease over time. R&D (research and development) is also a very costly exercise for manufacturers, as a process of sourcing, thoroughly researching, testing and auditing the viability of new innovations and their supply-chain is time and resource-intensive for every organisation.*
- Research has shown that this is a genuine concern for consumers and consequently if you have any concerns about the pricing of an eco-friendly product, we would recommend contacting the manufacturer as they are ultimately accountable and are likely able to justify any additional costs. If this information can be relayed to the customer, it will greatly enhance their confidence in making a sustainable purchase.*

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- 68 I was mostly met with laughter when suggesting marine plastic frames. Most people thought they were very expensive. Any advice?
We are disappointed to hear of this response as the recycling of marine plastic is a huge area of interest and excitement across all industries. This is also not typical across the industry, and we would like to re-assure you that there are now lots of options available at different price points (Eyespace will be launching marine plastic into Rock Star and Basebox in early 2022).
- It is slightly more expensive to source marine recycled plastic. This is due to the fact that the fishermen or coastal communities collecting the waste deserve to be paid a fair wage and the processing of this material is far more complicated than a virgin material. We believe that it is worth investing in as marine pollution is a source of great public concern – particularly to younger wearers – and this type of material has very high tangible added value and consumer appeal.*
- 69 Are the frames considerably more expensive, what sort of retail or recommend price
Eco-friendly frames are more expensive (both the raw materials and production processes), however not inaccessibly so – it is a commercially desirable product which is proven to sell well. We would recommend pricing in the same way as frames in standard materials to encourage wearers to purchase product which is less damaging to the environment. We believe that optical practices can be at the forefront of eco innovation and early adopters will have a commercial edge.
- 70 Pricewise - How much more should a consumer expect to pay for a more eco-friendly frame compared to a standard acetate less eco frame?
At Eyespace, our Eco-conscious collection is very competitively priced. There is also added value due to our partnership with 'One Tree Planted' (<https://onetreepanted.org>) and Project Seagrass (<https://www.projectseagrass.org>) as well as USP's such as the plastic free packaging and biodegradable demo lenses.
- Consumers are willing to pay more for eco-friendly products, as long as they understand and trust the story behind it. It is important that optical practices are aligned with the manufacturer's pricing and ensure that they offer at a fair price to the consumer in order to maintain confidence in sustainable eyewear.*
- 71 Is a recycled frame a more expensive product to produce and ultimately sell on?
Yes, but not inaccessibly so – it is a commercially desirable product which is proven to sell well. In addition, if more optical practices invest in eco-friendly frames, more industries will produce sustainable materials which will make these products more affordable in the future. With the support of optical practices, this process can be significantly accelerated.
- 72 Where is the greater cost in frame manufacturing, base material costs, production costs of transport costs? (Is UK production a viable option yet?)
In general, the greatest cost is frame manufacturing, although this can be closely followed by raw materials, particularly if branded materials are used. Creating a frame typically has over 100 processes, many of which are done by hand and can only be executed by highly skilled workers. We have a code of conduct which specifies that all of our partners must pay their employees fairly and wages, at a minimum, must meet national legal standards as well as industry benchmark standards (whichever is higher). Freight costs are also notable with sea freight in particular seeing a significant increase over the past 12 months.
- 73 What are the best methods of cleaning the new eco frames as the ones I have come across don't react well with some cleaning sprays?
This is dependent on the frame material so we would recommend contacting the supplier or manufacturer for details of any cleaning recommendations. Although it does vary, as a general rule we would not recommend alcohol or solvent based cleaners for any bio-based polyamides (injected materials) such as those with a castor oil base and would recommend treating as TR90.

Integrating Sustainable Materials into Spectacle Lens Dispensing

Q&A responses by Mrs Emily Andrews, Eyespace Eyewear

If you are new to eco-friendly materials, bio-based acetate can be a great option due to the fact that it generally behaves the same as regular acetate and does not require any special treatment or cleaning.

- 74 Do you think ultraviolet light cleaners work?
Yes, absolutely. There is very strong evidence that ultraviolet cleaners work and UVC radiation has effectively been used for decades to reduce the spread of bacteria, such as tuberculosis. For this reason, UVC lamps are often called "germicidal" lamps. UVC cleaning is used as a method of sterilisation in hospitals, planes and is even used in the process of sanitising drinking water. For more information, we would recommend contacting a specialist manufacturer such as Centro Style (http://www.centrostyleproducts.com/ENG/MACCHINARI_ENG//index.html).
- 75 Could you do refillable spray cleaning?
This would be a very welcome innovation and something we have seen offered by companies such as Glasklar (<https://glasklaroptica.com/en>). Unfortunately, we do not have experience at producing or supplying spray cleaner and therefore cannot personally offer this service to practices.
- 76 What efforts are being made to reduce the plastic packaging that the frames arrive in.
At Eyespace, this is an area we are investing significantly in with a view to reduce as much as possible over the coming months. Currently, some packaging is still required in order to prevent frames from being scratched when in transit. To address this, we have moved to biodegradable plastic polybags and temple sleeves with a view to protect frames in the most environmentally friendly manner possible. The plastic that we are using biodegrades in under 5 years in normal landfill conditions. We would recommend asking your frame suppliers about how the actions that they are taking to address this.
- 77 Have you any knowledge of the average carbon footprint of a traditional frame?
To our knowledge there is no 'average' carbon footprint calculation on frame manufacture. This would vary according to very extensive and varied elements specific to each frame produced, including material and component types; location(s) of production; manufacturing methods utilised during production; modes of transportation employed throughout the entire production and delivery process; and types of packaging. If this information becomes available, we will endeavour to share with the industry.
- 78 Should frame manufactures be made to declare the carbon footprint for each individual frame design?
This would be an extremely interesting statistic, but as there is currently no way (that we're aware of) to calculate the carbon footprint of a frame we do not believe that this is feasible. Frame manufacturing is a very complicated process and generally requires the collaboration of multiple factories and suppliers and therefore it would be very difficult to accurately generate a figure that could be trusted. Frame manufacturers are going to great lengths to reduce their carbon footprint, but do require the support of optical practices (by investing in sustainable products) to maintain this.
- 79 Is it possible to do 3D printing sustainably
Yes, this is an area of significant R&D as 3D printed frames can be made in sustainable materials. In addition, MOQs tend to be lower and production times shorter. This leaner method of production means that natural resources are not used unnecessarily and there is less wastage. Traditionally, colour and finish has been limited, making production on a large-scale challenging, however this is an area which is evolving very quickly.
- 80 Are 3D printed CE certified
Although we do not currently produce 3D printed glasses, if we were to launch these would be CE and UKCA certified as this is a legal requirement for any medical device being sold on the European and UK markets. This is definitely something to look out for as it signifies that the frame is compliant with all relevant legislation.

Integrating Sustainable Materials into Spectacle Lens Dispensing Q&A responses by Mrs Emily Andrews, Eyespace Eyewear

- 81 Can we 3D Print glasses with these bio plastics?
Yes, it is possible to 3D print glasses using bio plastics. The most common eco material used is a polyamide bio-based powder created from castor oil.

We anticipate a great deal of development and innovation in this area over the coming months as historically colours as well as compatible componentry has been limited.