

Vegan Food and Drink Manufacturing Considerations

White Paper

Author:
Jessica Sage
Food Safety & Quality Consultant



Contents

Introduction	3
Vegan claims vs free from	3
Manufacturing considerations	4
Analytical considerations	6
Conclusion	7



Introduction

More people than ever before are choosing to cut out or reduce the amount of animal-derived foods they consume, instead opting for vegan and vegetarian alternatives. The key drivers for this change in eating habits range from the perceived health benefits, to environmental and ethical concerns, with social media also playing a key role in popularising the trend.

Food manufacturers, retailers and food service businesses are all racing to make the most of this opportunity, and with sales expected to exceed £1 billion by 2024, it is not hard to see why. There has never been so much choice for those looking to adhere to a vegan diet or to simply reduce their intake of animal-derived foods.

However, this new huge opportunity for growth didn't come without its complications. As the availability of vegan products increased, we began to see that consumers suffering with allergies to animal-derived ingredients such as egg and milk, were taking advantage of the growing trend, as the term 'vegan' suggested to them that the foods did not contain the ingredients they were allergic to.

Sadly, this led to several incidents where allergic individuals consumed products that were not safe for them, and we saw allergic reactions to products described as vegan being reported in the media.

This paper will focus on considerations for food manufacturers, although many of the principles outlined will also be applicable to food service and other food businesses.

Vegan Claims vs Free From

The root cause of the disparity between how a 'vegan' claim is interpreted by the consumer versus the food manufacturer essentially comes down to the fact that historically, those choosing to purchase vegan products were primarily consumers who were following veganism as a lifestyle choice. Hence, the vegan claim was not being made as a food safety claim, but as an indication that the product did not intentionally include animal-derived materials within its ingredients. This is not the same thing as making a 'free from' claim. In the case of a 'free from' claim, the manufacturer or retailer is indicating that the product has been made in such a way as to guarantee absence of the material in question. These sorts of claims are usually food safety claims and are indicating to specific consumers whether a particular ingredient is present in a product and therefore whether it is safe for them to consume. Given that there is currently no legal definition for the term 'vegan', food manufacturers and retailers alike are still essentially able to decide for themselves what the claim means.

This difference in how the claim 'vegan' is interpreted initially led to criticism of retailers that allowed the use of 'may contain' labelling for animal-derived allergens on products that also carried a 'vegan' claim, despite this being accepted by the Vegan Society. Consumers with these allergies were outraged that a claim of 'vegan' did not necessarily equate to a guarantee of absence.

Though this initial uproar seems to have quietened as consumers have become accustomed to seeing precautionary warnings for animal-derived ingredients

on vegan foods, it is still a topic of debate and there is still the risk that consumers will rely on the claim as an indicator of absence. For this reason, manufacturers considering making these claims must make the decision about what the term ‘vegan’ means to the business and be really clear on this before embarking on the vegan journey.

While there are currently no legal definitions for the term ‘vegan’, there is now an ISO Standard that provides guidance on best practices, however it is not a legal requirement for a business to adhere to this. Any claims that a food business chooses to make on a product should be able to be substantiated, and so there are a number of practical strategies that manufacturers can adopt to ensure they are doing everything possible to ensure their vegan-labelled products do not contain animal-derived ingredients.

Manufacturing Considerations

When considering whether it will be possible to make a vegan claim on a product, a thorough risk assessment should be carried out. This should incorporate not only on-site practices, but also the supply of raw materials. The output of this assessment should allow the site to identify where controls are needed to manage the risks that could invalidate the vegan claim. These control measures must be validated to demonstrate that they are effective. Some examples of areas for consideration follow.

Supplier assurance

Having a supplier approval process in place is standard practice but ensuring that supplier continues to meet requirements is an ongoing job, which is only possible to manage through frequent communication and robust review of the supplied documentation. The years 2020 and 2021 proved to be very challenging for completing supplier assessments, and it really highlighted the importance of an open channel of communication throughout the supply chain, as well as documentation that is clear and easy to interpret.

Ideally, on-site visits should be conducted to really understand the supplier’s practices and how they are controlling risks to the materials they are supplying. However, this is not always practical, so building a relationship of trust with the supplier through regular communication will be beneficial to all parties. Ensuring they understand the potential impacts of any changes they make on-site to your vegan products will help the supplier to understand why communication about any changes is so important. Also critical will be understanding what their interpretation of the term ‘vegan’ is – if they are supplying ingredients to you against a vegan specification, are they treating this as a ‘free from’ claim, and more importantly, what do you expect them to be doing? As we have already highlighted, the term can be interpreted differently, and it is down to you to be clear on what you need it to mean.



Segregation or dedication

Production of vegan foods in non-dedicated facilities is commonplace. Provided a thorough risk assessment has been conducted and the necessary controls have been implemented and validated, it should be possible to make safe, high-quality products in these environments.

Given that full dedication of a site, or even a production line, is not necessarily a commercially viable proposition, manufacturers producing vegan foods in non-dedicated facilities will need to explore other options that can work well, provided they are thoroughly planned and robustly controlled.

Production could be physically segregated through the use of temporary floor to ceiling curtains or more permanent physical barriers, such as walls. These not only help to control environmental movement of materials, but also the movement of people, which may have been identified as a potential route for contamination.

Production could also be segregated by time by only allowing manufacture of certain products at specific times or on specific days when other products that could cause contamination concerns are not being run. Production scheduling could also be designed with the idea of building the number of animal-derived ingredients over the production shift, so starting with vegan products and subsequently running products containing increasing amounts of animal-derived ingredients, much as might be done with allergens.

For all segregation controls, evidence is needed to demonstrate their efficacy. It's not enough to simply assume the chosen control method is working, it must be validated.

Labelling, traceability and packaging control

This is an area where we continue to see mistakes which result in product recalls. We still frequently hear about errors in ingredient information, misuse of ingredients, or the incorrect packaging being applied to a product, which then result in product on the market that has potential to be dangerous to a manufacturer's brand, or in the worst cases, to a consumer.

Suppliers make changes to their ingredients, and a system needs to be in place to ensure that when these changes are made, the appropriate action can be taken to update the finished product information if this is affected. This again relates to the importance of good communication within the supply chain, as discovering the change six months down the line when they are next being reviewed could be too late.

Labelling and traceability of ingredients used on-site is critical in ensuring the product is made according to recipe. If ingredients are not identifiable, then this massively increases the risk of the wrong thing being used. If an ingredient is not traceable back to its source, this inhibits the ability to check whether the right material has been used and again will increase the chances of misuse.

Packaging controls must be in place to ensure that the right packaging is used 100% of the time. This should include line clearance checks and start up checks, potentially combined with in-line scanning.



Cleaning as a control

On shared lines, cleaning is a key control between products that contain animal-derived ingredients and those that do not. The cleaning procedure should be validated to demonstrate that it is effective at removing the material from the line, meaning the risk of carry over into the next product has been minimised.

As testing for some animal-derived materials is either not possible or is very challenging (examples might include gelatine or fish oil), it might be necessary to validate the cleaning using another target that is more straightforward to detect using analytical testing methods currently available. Collecting analytical data to show that the cleaning is effective at removing something that is present at a high level to start with and is hard to clean away should be sufficient to support that the animal-derived ingredient is also likely to be removed by the same cleaning procedure.

If the validation fails, and despite following all possible steps to improve the cleaning procedure, it continues to fail, this provides evidence that carry over into the next product cannot always be prevented. In this scenario, if the 'vegan' claim is being treated as a 'free from' claim, then this should be reconsidered, as the validation has demonstrated there is a risk of carry over of animal-derived ingredients. However, if the use of 'may contain' labelling has been agreed as acceptable, the results of this validation work would support its application to the product.

Analytical Considerations

Testing can be used as a tool to substantiate vegan claims, however it is important to partner with a laboratory with expertise in this area that can guide you to making the right testing choices.

It is critical that supplier assurance and manufacturing controls are in place, in order to minimise risks and also be able to narrow down as much as possible the potential sources of any contamination. Understanding what your contaminants are most likely to be will allow you to make better choices when it comes to testing.

PCR (Polymerase Chain Reaction) can be used to detect DNA from animals, however this method is only semi-quantitative and so interpreting a result in terms of amount of contaminating material that could be present can be challenging. These tests are also targeted, meaning that you need to know what you are looking for in order to run the test.

Similarly, ELISA testing is also a targeted method. It can be used to detect the presence of proteins from animal-derived ingredients such as egg and milk. ELISA testing can provide quantitative results (within a specific range), which means it makes a good choice of method to use for cleaning validations.

In order to offer a screening method that can look for DNA from multiple species in one test, RSSL has validated a vertebrate DNA test, which essentially can detect the presence of DNA from any animal with a backbone. This test can be used when there are potentially multiple contaminating species.

As mentioned previously, some animal-derived ingredients are very difficult to test for using the methods that are currently available, and in these cases, it is recommended that further advice is sought. If a thorough risk assessment has been conducted and control measures are effectively managing the risks identified, then testing to substantiate the claim may not be necessary.



Conclusion

Supplier assurance and controls within the manufacture of vegan products are critical in ensuring the claim can be substantiated.

GMP must be in place and working well to provide the foundation for these additional controls to be layered on to. A well-embedded food safety culture will help the site in adjusting to any new requirements introduced around these products, so spending some time focussed on assessing this and identifying any gaps could be beneficial and save time and effort in the long run. Communication to all about the new products and the new requirements is important, as mistakes often can be tracked back to gaps in communication.

Ongoing due diligence is also a key part of the strategy. A series of regular checks will provide evidence that everything is as it should be, or conversely highlight that it's not, in which case this will allow the appropriate action to be taken swiftly.

How RSSL can help

From plant-based product innovation, to texture optimisation, product analysis and support with claim substantiation, RSSL's expert technical team can help you successfully navigate every stage of your vegan and vegetarian food product development and manufacturing plans.



About the author

Jessica Sage

Food Safety & Quality Consultant

Jessica is a consultant within RSSL's Food Safety and Quality team, where she undertakes projects for clients from different sectors of the food industry, including manufacturers, retailers and food service businesses. Jessica's main area of focus is allergen management, and her work in this area has ranged from reviewing of policies and procedures, to practical on-site training and gap analysis assessments.

About Reading Scientific Services Ltd (RSSL)

RSSL is a cutting-edge Contract Research Organisation, pushing the boundaries of science and innovation to help make our world safer, healthier and more sustainable.

Our clients trust us to deliver innovative solutions to real-world problems facing the global food and consumer goods industries.

From our state-of-the-art facilities in Reading, UK, our multi-disciplinary team of >350 scientists, professional chefs and regulatory experts work hand in hand with our clients to scope, develop and manufacture products that are not only innovative and relevant to customer needs but are also trusted for their safety, quality and sustainability.

We offer a diverse range of product development, analytical testing and scientific consultancy services supporting the full product life cycle.

Contact us to find out how we can support your vegan and vegetarian food goals.



Reading Scientific Services Ltd
The Reading Science Centre
Whiteknights Campus
Pepper Lane
Reading
Berkshire RG6 6LA

Tel: **+44 (0)118 918 4076**
Email: **enquiries@rssl.com**
Web: **www.rssl.com**

© 2022 RSSL. All rights reserved.