

Assemblage Analysis: Inferring Social Patterns through Material Culture

Introduction

On Monday, the 18th of October 2024, I was given a large bag of dry recycling to sort and analyse in order to infer social patterns and demographics at the household level and facilitate broader cultural analysis where possible. Garbology, the study of modern waste, provides insights into human behaviour, consumption patterns, and societal values. William Rathje argues that “what people have owned—and thrown away—can speak more eloquently, informatively, and truthfully about the lives they lead than they ever may.”¹ It can speak more truthfully because people are often discreet about negative, unhealthy or anti-social habits, but much can be revealed in a garbology analysis. It should be noted that the assemblage analysis was performed with the consent of a household member, who donated it for this assignment.

This analysis uses a single sample from a single timeframe from one household to draw insights. It is a recycling bag containing dry waste and not the household’s entire waste production. Therefore, there are limitations as to what can be inferred from this material, specifically in what patterns it can provide. As a result, I will use external research where possible to back up any statements and, where appropriate, offer alternative explanations to account for possible variations in interpretation. This approach ensures a balanced analysis that recognises the evidence's limitations and potential ambiguities.

Assemblage Presentation

The assemblage was presented in a hand-tied semi-transparent plastic bag. Both pictorial and text instructions of what materials could be placed in the bag were printed on one side, with additional instructions at the bottom of what could not be placed inside the bag and that any recycling must be cleaned before adding. Cans, tins, foil, paper, cardboard, aerosols, plastic and cartons were the acceptable materials. Internet research on the bag showed it was a recycling bag from Ceredigion County Council², as neighbouring counties use different containers and sorting



Figure 1: Assemblage presentation.
Photograph taken by Lucy Negus

¹ William Rathje and Cullen Murphy, *Rubbish! The Archaeology of Garbage* (New York: HarperCollins, 1992),

² <https://www.ceredigion.gov.uk/resident/bins-recycling/clear-recycling-bag/>

systems for recyclable waste – Carmarthen³ uses blue bags, Powys⁴, Pembrokeshire⁵ and Gwynedd⁶ use a more complex sorting system in various containers for recyclable waste. Therefore, it is highly probable that the household is based in the county of Ceredigion. Nevertheless, the possibility remains that the household was in the area temporarily, potentially visiting on holiday. The Ceredigion County Council website states the bags are collected weekly⁷, suggesting this is one week's worth of recyclable waste.

Due to the date on the Radio Times Magazine (12-18 October) and expiration dates on some perishable items, we can ascertain that the week of disposal will be the week commencing October 21st.

Methodology

The assemblage contained a variety of materials. I began by sorting the trash into material types: plastic, paper/cardboard, metal and mixed, then further categorised the assemblage into sub-types, plastic-type (e.g. PETE), paper, aluminium foil, etc. I then went through each item, giving each one a unique reference number and adding the following information onto my spreadsheet – Appendix A⁸, listing everything I thought relevant to establish household demographics or social patterns:

- | | |
|----------------------|----------------------------------|
| • Item Number | • Volume of contents |
| • Material | • Labelled |
| • Material Subtype* | • Expiry Date |
| • Description | • Consume within |
| • Object Type | • Country of Origin |
| • Quantity | • Brand Type |
| • Usage | • Brand Name |
| • Content-Type | • Disposal Method |
| • Content Activity | • Contents Transformation Needed |
| • Condition | • Storage |
| • Opening Method | • Recyclable? |
| • Weight of contents | • Additional Note |

By no means exhaustive, categorising the objects within the assemblage in this way assisted my ability to seek patterns in behaviour and see any potential gaps that might give further clues to the household, as I will present below.

³ <https://www.carmarthenshire.gov.wales/council-services/recycling-bins-and-litter/blue-bags-recycling/>

⁴ <https://en.powys.gov.uk/article/726/What-do-I-do-with-my-recycling-and-rubbish-household/>

⁵ <https://www.pembrokeshire.gov.uk/waste-collections/replacement-bags-and-boxes>

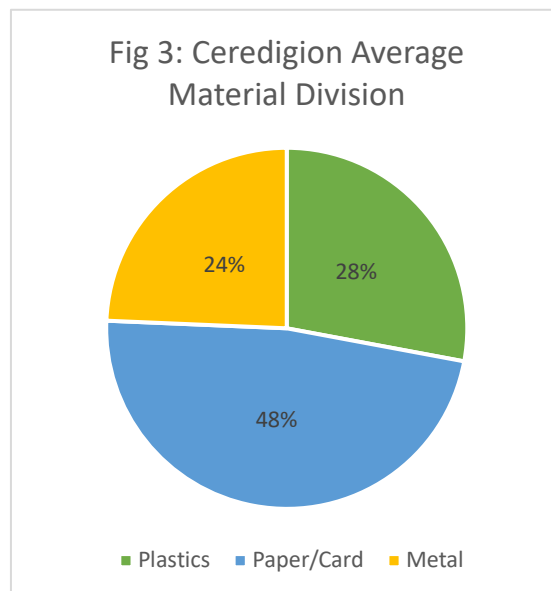
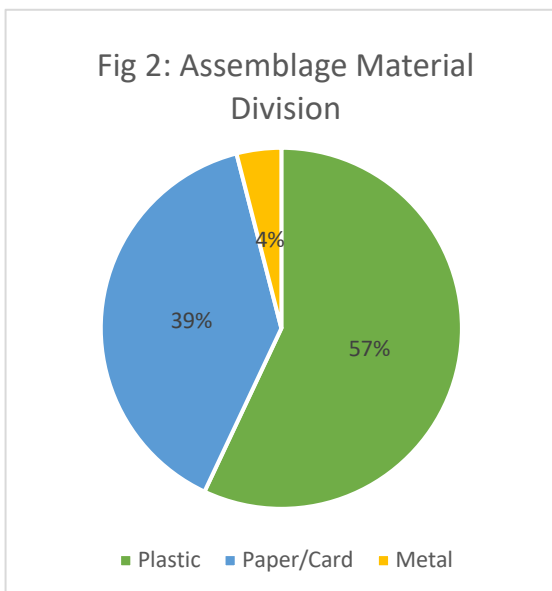
⁶ <https://www.gwynedd.llyw.cymru/en/Residents/Bins-and-recycling/Order-a-new-or-replacement-bin.aspx>

⁷ <https://www.ceredigion.gov.uk/resident/bins-recycling/clear-recycling-bag/>

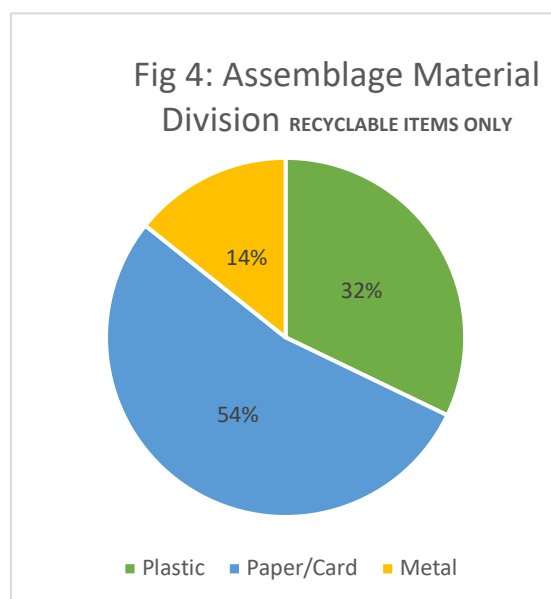
⁸ See Appendix A, data provided by Lucy Negus

Material Type Analysis

As shown in Appendix A, of the 91 items present, 48 were plastic, 30 were paper or card, 4 were metal, and 9 were mixed. Please see the pie chart below (Fig. 2) for the percentage rate of material types. For comparative purposes, I have further separated the mixed items into paper and plastics. In comparison, statistics from myrecyclingwales.org.uk⁹ for



Ceredigion for the year 2023-2024, as shown in the second pie chart (fig 3), shows a 29% difference in the amount of plastic recycled, at 28%, as opposed to the assemblage's high rate of 57%. There is also higher metal recycling in the average Ceredigion household of 24%, as opposed to a meagre 4% in the assemblage. Paper/card recycling is also less than the Ceredigion average, at 39%, as opposed to Ceredigion's 48%. The difference is likely due to the amount of non-recyclable material within the assemblage, which should have been put with general waste and not recycled. According to Appendix A, 9 of the 52 plastic items (including mixed items containing plastic) were fully recyclable, with 17 of the 52 clearly labelled 'do not recycle at home'. This would bring the plastic percentage down to 17% of the total assemblage materials, over 10% under the county average. 15 of the 39 paper card items (30 paper, 9 mixed) were recyclable, and all of the metal items in the assemblage were recyclable. (Note: These figures and the corresponding pie chart (fig 4) are for packaging that clearly states 'do



⁹ https://myrecyclingwales.org.uk/local_authorities/ceredigion

not recycle' or the recycling is unknown; it does not include contaminated items, which would also not be suitable for recycling.)

What are the possible reasons for this extent of waste mismanagement? There is certainly evidence of either carelessness or hastiness when recycling – the mixed ready meal containers (Appendix A – items 59-62) did not have the plastic window removed from the plastic, as directed on the packaging. The same could be said for the cereal boxes (Appendix A items 55 & 56), which had the plastic bags inside the cardboard container. Although many of the containers were clean, there was no evidence of water droplets or condensation, inferring the items were not rinsed, and the carbonated drink bottles still had liquid inside them. As contaminated items are not suitable for recycling, we could, in accordance with Lee, Hutchens and Krieger's article *Resolving the Do/Do Not Debate: Communication Perspective to Enhance Sustainable Lifestyles*¹⁰ refer to their addition to the assemblage as 'wish-cycling, which refers to the practice of recycling questionable items in hopes of them being recycled.' Wish-cycling could occur for many reasons; for example, it could infer hectic lifestyles within the household, with no time to check. It could infer an older age demographic of the household, unused to the recycling demands of schemes introduced in Wales in the last 25 years.¹¹ It could infer the presence of neurodivergence, such as ADHD, known for its symptoms of inattentiveness or lack of focus.¹²

Demographic Indicators

Within the assemblage, there were some seemingly obvious indicators of key demographics. The first is the presence of a Radio Times Magazine (Appendix A Item 44). The average age of a Radio Times Reader is 61¹³. There is evidence of this being a two-person household, by way of the ready meals (Appendix A items 59-62) stating 'serves 2' on the packaging, the number of takeaway boxes (4 – Appendix A item 1), and the general amount of food containers in the overall assemblage. Due to this, one would assume the household comprises two people in their late 50's – mid 60's. I could find no objective evidence of a particular gender.

Co-op and Sainsbury's are two leading grocery shops in the assemblage of food produce. There are also paper clothes tags for a charity shop - tŷ hafan (appendix A Item 46). A Google Maps search of Sainsbury's branches in Ceredigion reveals only one – in Lampeter¹⁴.

¹⁰ Donghee N. Lee, Myiah J. Hutchens, Janice L. Krieger, 'Resolving the Do/Do Not Debate: Communication Perspective to Enhance Sustainable Lifestyles' *Sustainability* Vol: 14, 796.
<<https://doi.org/10.3390/su14020796>>

¹¹ <https://www.gov.wales/how-wales-became-world-leader-recycling>

¹² <https://www.nhs.uk/conditions/attention-deficit-hyperactivity-disorder-adhd/symptoms/>

¹³ <https://www.inpublishing.co.uk/articles/radio-times-constantly-evolving-22841>

¹⁴ https://www.google.co.uk/maps/search/sainsbury/@52.1473104,-4.4047828,10z?entry=ttu&g_ep=EgoyMDI0MTAyOS4wLWIKXMDSoASAFQAw%3D%3D

The town also has a Co-op store nearby and a tŷ hafan charity shop. This heavily points to the household being in or very near Lampeter.

A large amount of 'convenience' is present in the assemblage, particularly the food-type containers. At least three meals in one week were partially ready meals (Appendix A – Items 8, 59-62), perhaps with some cooked vegetables on the side. Another meal was a Chinese takeaway. There are all the elements of a traditional Sunday lunch – whole chicken, roast potatoes, peas, carrots, green beans, and Bisto gravy, which, although constitutes a homecooked meal, still has evidence of convenience, namely frozen 'Aunt Bessie's' Roast Potatoes. This level of convenience food could indicate a dislike of cooking or little time to make a meal from scratch, implying that both people in the couple have busy working lives and little time to spare. If this is the case, one or both have not reached retirement age.

The price of the convenience food is also an indicator of wealth. The frozen Cook ready meals cost between £9.50 and £9.95 each¹⁵ and are premium ready meals. They are not available to purchase in the shops nearby; one must travel a minimum of 12 miles¹⁶ to the nearest outlet. Special travel has been made to buy these items, or they are specifically ordered online. This implies preplanning, a decision to purchase these convenience foods rather than hastily picking something up after work. Other wealth indicators are premium bacon and known brands such as Birds Eye Frozen Veg and Coca-Cola Diet Coke. While there are no high-end luxury brands such as Fortnum and Mason biscuit tins to denote an Upper-Class household, the evidence suggests a middle-class household in the A or B social grade.¹⁷

With the one exception of the Alpro Vegan yoghurts, there are no alternative or whole foods here, no quinoa packets, alternative milk cartons or designer coffee pods. The overall impression the food gives is traditional. Although there are no signs of healthy eating per se, there are no red meat items, except for the cured Polish sausage and the premium bacon. It would be a stretch to suggest that the Polish brand sausage implies a nationality; any other evidence does not back this up. One item I can't help but notice is missing is a bread wrapper. What is present is a Sainsbury's Taste the Difference Wholemeal Seeded Bread Flour (Appendix A Item 47). This infers a potential hobby, breadmaking. Could this be a Sunday morning activity, taking the time to bake bread for the week before making a Sunday roast? Or perhaps this activity is also marked by convenience, dumping the flour and other ingredients in a bread-maker and pressing 'Go'.

Other evidence of hobbies includes gardening materials, namely, the Orchid repotting Mixture (Appendix A Item 26) and containers for various bulbs: tulips, anemones, and gladiolus. The bulbs almost certainly infer that the household is a purchased or long-term rental—the age and social status of the occupants would imply they are homeowners.

¹⁵ <https://www.cookfood.net/menu/main-meals/meals-for-2>

¹⁶ <https://www.cookfood.net/shops/>

¹⁷ <https://www.abc1demographic.co.uk/>

Moving onto habits, there is evidence of at least one heavy smoker in the household. Two empty 50g Golden Virginia packets, the equivalent of 400 cigarettes¹⁸. As per data from the Health Survey for England 2021 (see Appendix B). If both packets were smoked during one week, that would equate to around 57 cigarettes per day. The Office of National Statistics¹⁹ stated the average daily cigarette consumption in Great Britain is 10.6. The Rizla rolling paper packets equate to 400 cigarettes, but again, it must be noted that these packets may have been held onto and thrown away at a later date after finishing the packet. But it would still be a safe estimation that one or both of the household are heavy smokers.

There is also evidence of a sweet tooth, with seven empty Diet Coke bottles, a Rubicon fizzy drink bottle, and the sweet cereals – Krave and Honey Nut Shredded Wheat.

Conclusion

In conclusion, this assemblage analysis offers a snapshot of a household's social patterns and behaviours, derived from their dry waste. Through the application of garbology principles, the analysis reveals demographic indicators, such as probable age range, household composition, and possible socioeconomic status. The high rate of convenience foods, premium branded items, and certain lifestyle habits, such as gardening and potential breadmaking, collectively suggest a middle-class, middle-aged couple likely leading busy professional lives. Despite some environmentally conscious practices—like recycling—there is evidence of “wish-cycling” and improper recycling methods, indicating either a lack of time or limited understanding of recycling requirements.

However, it is essential to acknowledge the limitations of this study. This analysis is based on a single week's worth of recyclables and thus may not represent the household's typical consumption patterns or broader lifestyle choices. Additional factors, such as occasional purchases, seasonal habits, and external influences, could have influenced this week's assemblage.

Overall, this analysis underscores how material culture, even in the form of waste, provides a valuable lens through which to infer social patterns, demographics, and consumption habits. By studying discarded materials, we can gain insights into contemporary behaviours and values, illustrating how garbology has become a powerful tool for understanding societal norms and shifts in lifestyle in modern archaeology and anthropology.

¹⁸ <https://forums.digitalspy.com/discussion/1513342/cost-of-normal-cigs-v-roll-ups>

¹⁹

<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/drugusealcoholandsmoking/methodologies/adultsmokinghabitsintheukaveragecigaretteconsumptionmethodology#:~:text=Average%20daily%20cigarette%20smoking%20consumption,2015%2C%20but%20lower%20than%202000.>

Appendix A - Assemblage Data Set

Ref	Material	Material Subtype*	Description	Object Type	Quantity	Usage	Content Type	Content Activity	Condition	Opening Method	Weight of contents
1	Plastic	PP	Takeaway Containers with lids	Box & Lid	4	Takeaway Food Container	Cooked Food	Eat	Relatively clean, some oil, smell of Chinese Food		Unknown
2	Plastic	PETE	Diet Coke bottles	Bottle & Lid	7	Drink Container	Carbonated Drink	Drink	Condensed, liquid residue		N/A
3	Plastic	PETE	Rubicon Sparkling Orange Mango Bott	Bottle & Lid	1	Drink Container	Carbonated Drink	Drink	Condensed, liquid residue		N/A
4	Plastic	HDPE	Sainsbury Whole Milk Bottle	Bottle & Lid	1	Drink Container	Dairy	Drink/Cook	Intact		N/A
5	Plastic	HDPE	Milk carton Lid	Lid	1	Partial Drink Container	Dairy	Drink/Cook	Clean, intact		N/A
6	Plastic	HDPE	Lurpack Container	Box & Lid	1	Food Container	Dairy		Clean, intact		250g
7	Plastic	HDPE		Pot	2	Food Container	Vegan		Clean, intact		150g
8	Plastic	HDPE	Green Readymeal Container	Box	1	Food Package	Partially Cooked Food		Clean, intact		N/A
9	Plastic	Unknown	Onion net with label	Net & label	1	Food Package	Vegetable		Clean	Torn Open	585g
10	Plastic	LDPE	Welsh cake Packet (6 cakes)	Plastic Wrapper	1	Food Package	Baked Goods		Come crumbs, relatively clean	Torn Open	300g
11	Plastic	LDPE	Polish Sausage Wrapper	Plastic Wrapper	1	Food Package	Cured Meat		Rinsed	Scissors	520g
12	Plastic	LDPE	Aunt Bessies Frozen Roast Potatoes	Plastic Bag	1	Food Package	Frozen vegetable		Unclear	Torn Open	720g
13	Plastic	LDPE	Birds Eye Frozen Petit Pois	Plastic Bag	1	Food Package	Frozen vegetable			Scissors Hastily Cut	545g
14	Plastic	Unknown	Golden Virginia Rolling Tobacco Packet	Plastic Bag	2	Smoking material package	Smoking Material	Smoking	Well handled*	As per packet instruction	50g
15	Plastic	LDPE	Large Whole Chicken Wrapper	Plastic Wrapper	1	Food Package	Raw Meat		Clean	Torn Open	2.134kg
16	Plastic	R PET & LDPE	Plastic Grape Punnet with film	Punnet & film	1	Food Package	Fruit		Clean	Torn open, film not removed completely	500g
17	Plastic	R PET & LDPE	Plastic punnet with film	Punnet & film	2	Food Package	Food*		Clean	Torn open, film not removed completely	Unknown
18	Plastic	R PET	Plastic punnet, no film	Punnet	1	Food Package	Fruit		Clean, intact	Unknown	500g
19	Plastic	LDPE	Nectarines plastic wrapper	Plastic Wrapper	1	Food Package	Fruit		Clean	Torn Open	
20	Plastic	LDPE	Fine green beans plastic wrapper	Plastic Wrapper	1	Food Package	Vegetable		Clean	Torn Open	200g
21	Plastic	LDPE	Fine green beans plastic wrapper	Plastic Wrapper	1	Food Package	Vegetable		Clean	Torn Open	200g

Appendix A - Assemblage Data Set

22	Plastic	LDPE	Fine green beans plastic wrapper	Plastic Wrapper	1	Food Package	Vegetable		Clean	Torn Open	170g
23	Plastic	LDPE	Sweetcorn plastic wrapper	Plastic Wrapper	1	Food Package	Vegetable		Clean	Torn Open	250g
24	Plastic	LDPE	Carrots plastic wrapper	Plastic Wrapper	1	Food Package	Vegetable		Clean	Torn Open	500g
25	Plastic	LDPE	Little Gem Lettuce wrapper	Plastic Wrapper	1	Food Package	Vegetable		Clean	Torn Open	Unknown
26	Plastic	LDPE	Orchid repotting mix plastic wrapper	Plastic Bag	1	Planting Material Package	Graded Bark	Gardening	Not washed, some soil inside	Torn Open	N/A
27	Plastic	Unknown	Plastic bulb container - mixed	Plastic Wrapper	4	Planting Material Package	Plant Bulb	Gardening	Not washed, some soil inside	Torn Open	Unknown
28	Plastic	Unknown	Plastic plug cover	Plastic Cover	1	Protective packaging during	Electrical	Household	Clean	N/A	Unknown
29	Plastic	LDPE	Plastic Bag	Plastic Bag	1	Unknown, carrier bag or pac	Unknown	Unknown	Clean	Torn Open - unrecognisable	Unknown
30	Plastic	Unknown	Plastic Pot	Plastic Pot	2	Unknown*	Unknown*	Unknown*	Clean, intact	Unknown	Unknown
31	Plastic	Unknown	Cigarette filter plastic casing	Plastic Wrapper	1	Smoking material package	Smoking Material	Smoking	Clean	N/A	Unknown
32	Plastic	R PET & LDPE	Plastic tray and film	Plastic Wrapper	1	Unknown*	Unknown*	Unknown*	Clean	Torn open, film not removed completely	Unknown
33	Paper/Card	Card	Rizla Cigarette Paper Packets	Cardboard Packa	4	Smoking material package	Smoking Material	Smoking	Clean, intact		
34	Paper/Card	Card	Swan Cigarette Paper Packets 6 pack	Cardboard Packa	1	Smoking material package	Smoking Material	Smoking	Clean, intact		
35	Paper/Card	Paper	Gift Wrapping Paper fragments	Paper wrapping	7	Gift Wrap	Unknown	Gift	Clean, ripped	N/A	
36	Paper/Card		Shop tags	Paper Tag	3						
37	Paper/Card		Toilet Roll Tube		1						
38	Paper/Card		bananas label		1						
39	Paper/Card		Bacon label		1						
40	Paper/Card		partial bulb label		2						
41	Paper/Card		6 Egg Box		1						
42	Paper/Card		Partial cardboard inner packaging	Cardboard Packa	1						
43	Paper/Card		Crisis Charity Promo Leaflet		1						
	Paper/Card		Radio Times Magazine		1						
45	Paper/Card		Easy Peel Satsuma packaging		1						
46	Paper/Card		Tulip label		2						
47	Paper/Card		Wholemeal Bread Four Packet		1						
48	Paper/Card		Bonne Maman Yogurt		1						
49	Paper/Card		Elastoplast plaster wrappers		1						
50	Metal		Aluminium Foil		1						
51	Metal		Foil Mini Cheddars Crisp Packet		1						
52	Metal		Foil Alpro Yoghurt Lid		1						
53	Metal		Sweetcorn Tin		1						

Appendix A - Assemblage Data Set

54	Mixed	Card / Plastic	baby Plum Tomaties Packaging		1												
55	Mixed	Card / Plastic	Shredded Wheat Cereal Packaging		1												
56	Mixed	Card / Plastic	Krave Cereal Packaging		1												
57	Mixed	Card / Plastic	Used postage tap tube		1												
58	Mixed	Card / Plastic	Bisto Instand Gravy Packaging		1												
59	Mixed	Card / Plastic	Cook Ready/meal Chicken Tikka Masala Packaging		1												
60	Mixed	Card / Plastic	Cook Ready/meal Cheesecake Packaging		1												
61	Mixed	Card / Plastic	Cook Ready/meal Chicken Dijon Packaging		1												
62	Mixed	Card / Plastic	Cook Ready/meal Chicken & Mushroom Lasagne Packagin		1												

Appendix A - Assemblage Data Set

Volume of contents	Labelled	Expiry Date	Country of Origin	Brand Type	Brand Name	Disposal Method	Contents Transformation Needed	Storage	Recyclable?	Additional Notes
Unknown	N	N/A	Unknown	None	None		Possibly reheated, but already suitable for consumption	Immediate disposal	Y	
2l	Y	31/03/2025	Unknown	Branded	Coke	Crushed under arm	None	Ambient, chilled before consumption	Y	
1.5l	Y	04/25	Unknown	Branded	Rubicon	Crushed under arm	None		Y	
1.13l	Y	21/10/2025	UK	Own Brand	Sainsburys		None		Y	
N/A	N	N/A	Unknown	Unknown	Unknown		N/A		Y	Only lid present - suggest bottle reused?
N/A	Y	23/11/2024	Denmark	Branded	Lurpack		Edible with other products, used for cooking		Y	
N/A	Y	Unknown	Unknown	Branded	Alpro		None		Y	
Unknown	N	N/A	Unknown	Unknown	Unknown		Unknown		Unknown	
N/A	Y	N/A	Norfolk UK	Own Brand	Coop		Can be eaten raw but most likely cooked	Ambient	N	
N/A	Y	02/11/2024	Wales	Branded	Tan y Castell Bakery		None	Ambient	Unknown	
N/A	Y	10/11/2024	Poland	Branded	Krakus		None	Refrigerate	Unknown	
N/A	Y	06/26	HQ Ireland	Branded	Birds Eye		Cooked, Oven	Freeze	N	(smaller size - denoting household size?)
N/A	Y	01/26	HQ Ireland	Branded	Birds Eye		Cooked, hob/microwave	Freeze	N	
N/A	Y	N/A	HQ is Bristol	Branded	Golden Virginia		Rolled to smoke	Ambient	Unknown	some colour of packet rubbed off - infers carried on person and handled regularly
N/A	Y	23/10/2024	UK	Own Brand	Sainsburys		Cooked, Oven		N	
N/A	Y	16/10/2024	Spain	Own Brand	Sainsburys		None	Refrigerate	Y & N	
Unknown	N	N/A	Unknown	Unknown	Unknown		Unknown	?	Y	Possibly paired with item – as part of packaging for readymeal
N/A	N	Unknown	N/A	Unknown	Unknown		None	Ambient	N	likely fruit storage
	Y	Unknown	Spain	Own Brand	Co-op		None	Fridge	N	
N/A	Y	13.10.24	Kenya	Own Brand	Sainsbury's		Cooked, hob/microwave	Fridge	N	
N/A	Y	15.10.24	Kenya	Own Brand	Sainsburys		Cooked, hob/microwave	Fridge	N	

