YouGov®

Royal Society of Chemistry: Public Attitudes to PFAS

Conor Cotton, Eleanor White, Mariana Owen, Marcella Williams, Stefan Long

October 2024

YouGov

Table of contents

Key findings

Awareness of PFAS

- Overall, awareness of PFAS among the UK public is low, with only three in ten (29%) reporting having heard of them. This is a consistent finding across groups, though awareness is somewhat higher among those with higher socioeconomic status.
- Among those who are aware of PFAS, levels of self-reported knowledge about them is similarly low. Only 4% report having a high level of knowledge, 29% moderate knowledge, 63% a little and 5% no knowledge.
- The UK public are split when it comes to their perceptions of the risks of PFAS in general. Two in five (41%) believe that all or most PFAS present a significant risk to human health or the environment, 36% believe that only some PFAS present a risk, and 2% believe that no PFAS present a risk.

Management of PFAS

- When it comes to management of PFAS, over half (54%) say that use of toxic PFAS should be stopped immediately. This sentiment was echoed by focus group respondents, with many expressing shock that their sale had not already been banned.
- In contrast, when it comes to low/no toxicity PFAS, the preferred action is that more effective controls should be put in place on their use, with 52% saying this.
- The same is true for PFAS of unknown toxicity, with the majority response (60%) being that these PFAS should be subjected to more effective controls, though a further 24% want to see their use stopped completely. This echoes evidence from the qualitative phase, where some perceived unknown PFAS to be of equal or greater concern than toxic PFAS.

Alternatives to PFAS

- Human health is identified as the top priority when it comes to the principles to be considered when introducing alternatives to PFAS; 68% say their most important principle is that replacements for PFAS must be lower risk to human health than the chemicals they replace, while a further 18% rank this second.
- The next most important principle is the environment; 16% say their top priority is that PFAS be lower risk to the environment than the chemical they replace, while 55% place this in second. Performance and cost-related issues are seen as much lower priorities. Focus

group participants would not accept a significantly higher cost for a PFAS alternative to be passed onto them as consumers, as their health and environment has already been impacted by toxic PFAS.

Changes willing to accept

- Respondents generally express high levels of openness to making changes in the product manufacture process to reduce exposure to PFAS. This is most apparent for toxic PFAS; six in ten would be willing to accept a reduction in the performance of products (61%) or an increase in their cost (60%) if it meant the product didn't contain toxic PFAS, whilst seven in ten (70%) would be willing to accept a reduced availability of certain products.
- The most popular measure is increased regulation on industries using PFAS requiring them to reduce and reverse contamination caused by their processes, with 84% saying they would support this. The least popular measure involves increased costs to consumers in the form of domestic water bills (25%).

Control of PFAS and public trust

- When it comes to who people perceive to be most responsible for reducing levels of PFAS in the natural environment, chemical manufacturers (including those that manufacture PFAS) are most commonly ranked in the top three most responsible among those listed, closely followed by manufacturers of products that use materials containing PFAS (74% and 73%, respectively). The group held by far the least responsible are individual consumers, with only 14% ranking them in the top three, and almost seven in ten (68%) ranking them as the least responsible of any listed group.
- Trust in different organisations to take action to reduce levels of PFAS in the environment is low across all of the entities listed; the highest level of trust is reported for the UK government (29%), closely followed by individual consumers (27%). Only one in seven say they trust manufacturers of products that contain PFAS (14%) or chemical manufacturers (13%). Focus group participants commented manufacturers cannot be trusted to independently reduce levels of PFAS, therefore the government is needed to enforce regulatory measures to reduce the impact of PFAS.

YouGov

Introduction

Overview and interpretation of research findings

The Royal Society of Chemistry commissioned this research in order to better understand attitudes towards Per- and polyfluoroalkyl substances (PFAS) among the UK public. This research project used both quantitative and qualitative methodologies to explore a range of topics, including people's awareness and knowledge of PFAS, risk tolerance towards PFAS, preferred management of PFAS and the changes they would be willing to accept in order to remove PFAS from the product manufacturing process.

Analysis throughout is provided at topline level, as well as on a number of key demographic groups. Where two or more groups are discussed, only statistically significant differences to the 95% confidence interval are mentioned.

Quantitative methodology

The findings for the quantitative portion were collected using online research methods and are based on a sample of n=4,194 adults aged 18+ in the UK. Fieldwork was carried out between 14th-27th August 2024. The research used a quota sampling approach, a non-probability sampling method which involves dividing the population up into mutually exclusive subgroups based on known population characteristics and recruiting respondents until each 'quota' is met. All respondents were recruited from the YouGov UK panel of over 2.5 million individuals who have signed up to take surveys. At the end of the data processing phase, the data was also weighted. All figures quoted are based on weighted data. Weighting adjusts the contribution of individual respondents to aggregated figures and is used to make surveyed populations more representative of a project-relevant population by forcing it to mimic the distribution of that larger population's significant characteristics, or its size.

Qualitative methodology

YouGov's Qualitative Team conducted 2 text-based focus groups on Monday 23rd September 2024 on the topic of understanding the public's attitude, approach and perceptions of responsibilities towards PFAS.

Participants opted into the research at the end of the quantitative survey and were selected for the groups based on their response to an open-ended question (to ensure they could respond to questions clearly through text). 10 participants joined each group, each group had a mix of demographics including age, gender, location, ethnicity and political affiliation.

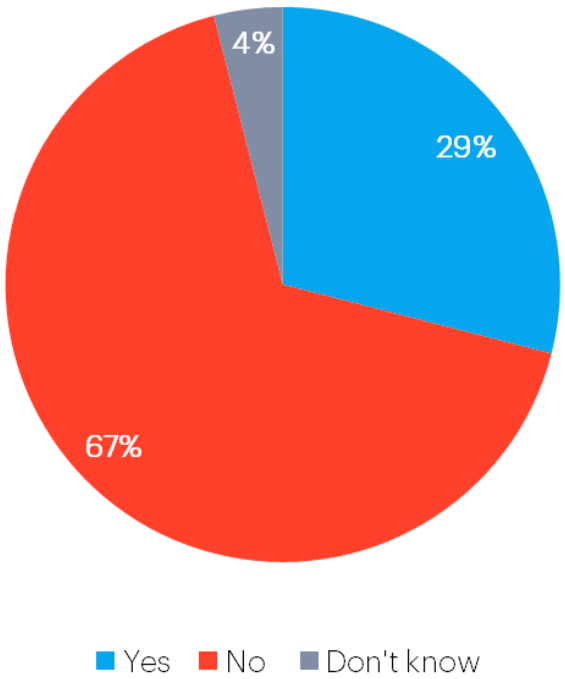
Awareness of PFAS

Awareness and knowledge of PFAS

Overall, awareness of PFAS among the UK public is low, with only three in ten (29%) reporting having heard of them. A minority of respondents report being aware of PFAS across all demographic groups, though slightly elevated levels are seen among those from higher socio-economic backgrounds. Specifically, those with high levels of educational attainment (38%) are more likely to have heard of PFAS than those with medium (26%) or low (18%) attainment. This gap is mirrored when looking at differences in awareness by social grade (34% of ABC1s vs. 22% of C2DEs) and gross household income (38% earning £60,000+ per year vs. 25% earning under £25,000 per year).

Differences in awareness are also seen among other demographics, though the gaps are smaller. 32% of those aged 18-34 say this, compared with 27% aged 55+, while men are more likely to report awareness than women to a similar degree (32% vs. 26%). Analysis of results by party voted for in the 2024 GE show that Green Party (42%) and Liberal Democrat (37%) voters report the highest awareness, while Conservative (27%) and Reform UK (22%) voters are among the lowest.

Figure 1. Awareness of PFAS

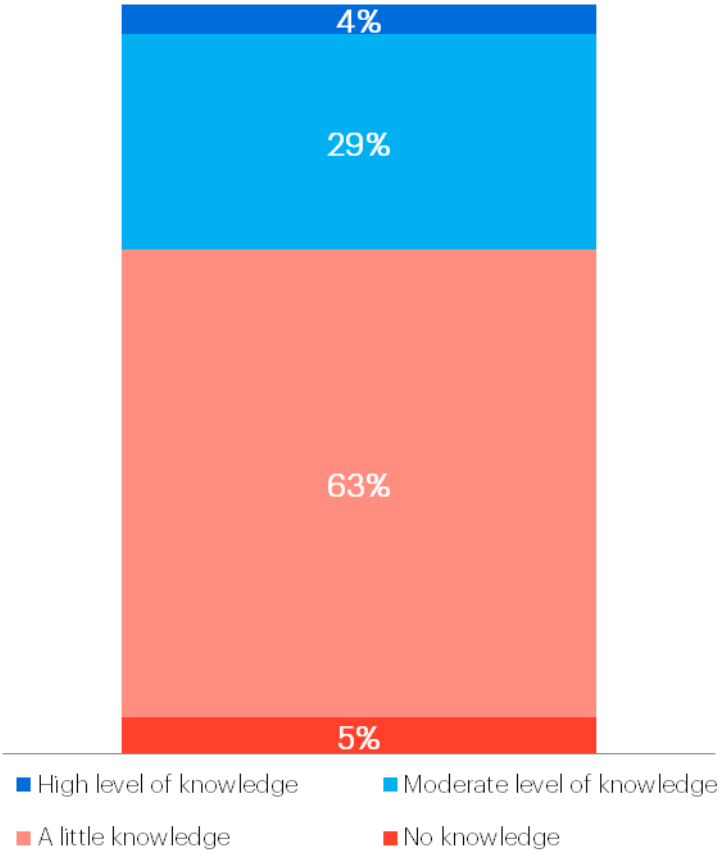


Base: All (n=4,194)

Among those who are aware of PFAS, levels of self-reported knowledge about them is similarly low. Only 4% report having a high level of knowledge, 29% moderate knowledge, 63% a little and 5% no knowledge. This means that only 9% of the UK population overall self-report as having high/moderate knowledge about PFAS.

A difference by socio-economic background is again seen in levels of self-reported knowledge, though it is limited specifically to levels of educational attainment; among those aware of PFAS, 37% with high educational attainment say they have high/moderate knowledge about them, compared with 28% with medium/low education. Key differences are instead seen here among other demographic groups; men (39% vs. 25% of women), under 35s (46% vs. 27% aged 35+) and those from an ethnic minority background (47% vs. 30% of white respondents) are most likely to report high/moderate levels of knowledge about PFAS.

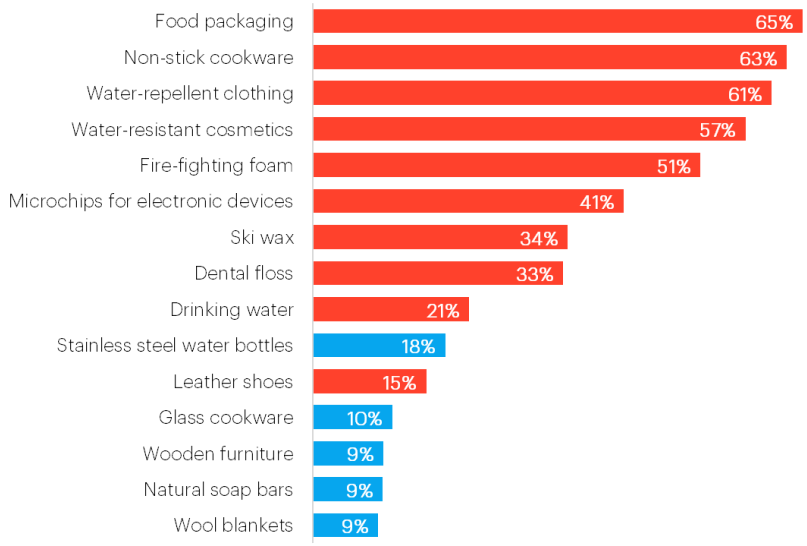
Figure 2. Knowledge of PFAS



Base: All aware of PFAS (n=1,229)

In order to further interrogate people's understanding and knowledge of PFAS, a follow-up question was asked, with respondents presented with a list of 15 different types of products, and asked to select all that they believed typically contained PFAS. As is shown in Figure 3 below, ability to identify PFAS-containing products from those listed was relatively strong; with one exception, the products in red which do typically contain PFAS rank higher than all of the products in blue which typically do not, with majorities able to identify many products as typically containing PFAS. It should be noted that there are certain key exceptions, particularly for example drinking water, where only one in five identify this as typically containing PFAS.

Figure 3. Knowledge of products containing PFAS



Base: All (n=4,194)

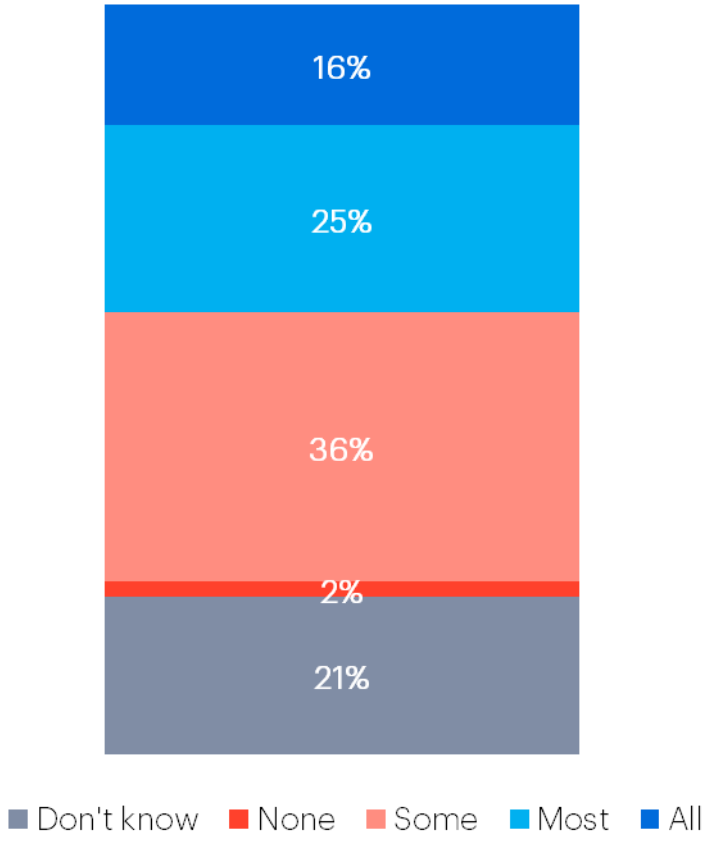
Based on these results, an index was created to enable comparison of the data across groups. Respondents received a score of +1 for each product typically containing PFAS they correctly identified, and -1 for each incorrect product they selected. Overall, 6% received a score of 0 or lower, 68% a score of 1-5 and 26% a score of 5-10. The groups most likely to achieve a score of 6 or higher include those aged 55+ (33% vs. 26% aged 35-54 and 15% of under 35s), white respondents (27% vs. 13% from an ethnic minority background) and those with high educational attainment (30% vs. 25% with medium and 20% low). It is interesting to note that the trends by age and ethnicity run in the opposite direction to that seen for self-reported level of knowledge of PFAS, while no difference was also seen by gender despite men being more likely to report having high/moderate knowledge. Indeed, crossing the data for this question by differing levels of self-

reported knowledge shows no statistically significant difference between those with different levels of self-reported knowledge of PFAS in their ability to identify actual products that contain them.

Risk perception of PFAS

The UK public are split when it comes to their perceptions of the risks of PFAS in general. Two in five (41%) believe that all or most PFAS present a significant risk to human health or the environment, including 16% saying 'all' and 25% 'most'. A similar proportion (37%) believe that only some or no PFAS present a significant risk; this is almost entirely made up of those responding 'some' (36%), with only 2% believing no PFAS present a risk.

Figure 4. What proportion of PFAS present a significant risk to human health and the environment



Base: All (n=4,194)

There are few substantial differences by demographic group in terms of perceived risk of PFAS. The groups most likely to believe that all/most present a risk include women (44% vs. 38% of men) and those from an ethnic minority background (48% vs. 40% of white respondents), though these differences aren't overly large. Green Party (50%) and Liberal Democrat (47%) voters are also

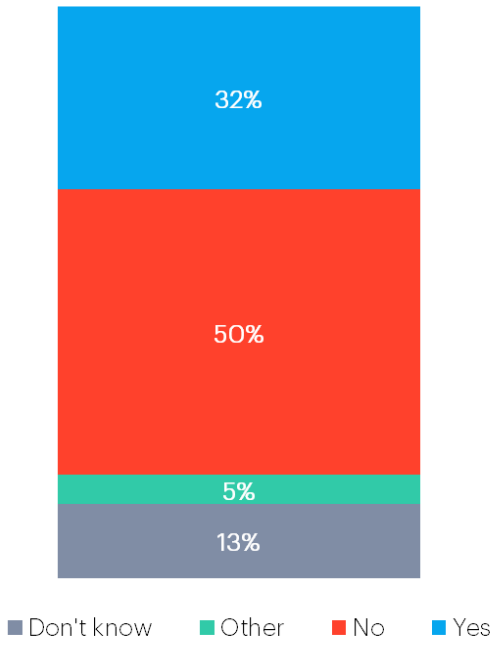
somewhat more likely to say this than voters for the other major parties in 2024 (Labour 41%, Reform UK 40%, Conservative 37%).

Larger differences are seen when comparing by levels of awareness and knowledge. A majority (54%) who had heard of PFAS previously say that some/most present a risk to human health and the environment, compared with 36% of those who haven't heard of them, though this difference is driven by the latter being more likely to say they 'don't know' (27% vs. 8%). Similarly, 71% of those who self-report as having high/moderate knowledge say this, compared with 46% with a little/no knowledge. This data indicates that those currently most engaged with this topic swing strongly towards perceiving greater risk.

Impact of PFAS on purchasing decisions

Among those aware of PFAS, one in three (32%) report that knowing a product contained PFAS impacted their decision to purchase it in the past. Half (50%) say they have not, while the remainder (18%) responded other/don't know. The groups most likely to report that they have avoided purchasing a product include women (38% vs. 28% of men) and under 35s (40% vs. 33% 35-54 and 24% 55+).

Figure 5. Has knowing a product contained PFAS impacted your decision to purchase it



Base: All aware of PFAS (n=1,229)

Among those who say that they have never avoided purchasing a product in the past because they knew it contained PFAS, lack of knowledge is by far the key factor. Seven in ten (72%) of this group say that the reason for this is that they don't know enough about PFAS and/or the products containing them for it to inform their purchasing decisions. Of the other reasons listed, 22% say it is because other factors such as cost and performance have a greater influence over their purchasing decisions, while 7% say it's because they don't consider PFAS to be of much risk to human health/the environment.

Attitudes towards PFAS

Participants in the focus groups had limited understanding of PFAS before completing the quantitative survey. Those who did have knowledge of them learnt about PFAS from news articles and were concerned about their potential impact on their health.

"I've gradually learned about them [PFAS] through articles in the media (like The Guardian) plus through some environmental organisations - magazines and newsletters." (35-44, Female, ABC1, Liberal Democrat, more concerned about PFAS)

Some were concerned about lack of knowledge around PFAS and how they could impact the health of the public in the future, while others were surprised by the lack of public information about PFAS and their wide-ranging impacts, along with how they are embedded into our daily lives.

Participants were also concerned by the amount of time PFAS have been known about for and how much of a widespread impact they have already had on both health and the environment, however some in Group 2 (those less concerned about PFAS) felt that these harms are hard to avoid in the modern world and that they would not be willing to make significant lifestyle changes to remove PFAS from their lives. Parents tended to be more concerned about the impact of PFAS in the future and the long-term impact on their children.

"I think it has become a huge part of our lives that it is very difficult to replace them with more sustainable solutions" (25-34, Male, ABC1, Scottish National Party, more concerned about PFAS)

"You would think that if we were aware since the 1950s that a better solution would be available" (55+, Male, C2DE, Liberal Democrat, less concerned about PFAS)

"I am a bit more concerned now I know that there are risks but on the other hand they are in so many products that it's almost impossible to avoid" (35-44, Female, ABC1, Conservative, less concerned about PFAS)

After reviewing additional information about PFAS many expressed fear, shock and frustration around the lack of public information about PFAS and their impact, particularly the impact on children and pregnant women.

Participants in group 2 (those less concerned about PFAS) were more likely to call for more information and research on the topic of PFAS before they were able to decide on their consumption, although most stated that they would try to avoid products containing PFAS in the future (if they are able to identify them).

Participants in both groups commented that due to their lack of awareness of PFAS they would be unable to identify them and therefore avoid them in store. They called for warning labels, like traffic light system or vegan/gluten free warnings on food, to be included on products containing PFAS, in particular for confirmed harmful or toxic PFAS. There were also calls to have mandatory warning notes across products and brands, these warning notes could then be used by consumers to make informed decisions about their purchases.

"I think more research and testing needs to be done. Statistics and other information to back up findings" (35-44, Female, ABC1, Conservative, less concerned about PFAS)

"I did not know PFAS existed before this survey, so I have not been able to try to avoid a product containing PFAS." (25-34, Female, C2DE, Labour, less concerned about PFAS)

"It would be good if they contained a warning note, but if this is not a statutory obligation then companies will not do so, as potential buyers will be put off." (45-54, Female, ABC1, Scottish National Party, less concerned about PFAS)

Finally, participants felt varying levels of discomfort towards PFAS based on the product e.g. if a product is ingested there are higher levels of discomfort due to the potential impact on the body, participants tend to be less concerned about clothing, although some are concerned by potential skin absorption.

"I think anything you ingest is going to cause more harm, especially if it's on a regular basis" (45-54, Female, ABC1, Scottish National Party, more concerned about PFAS)

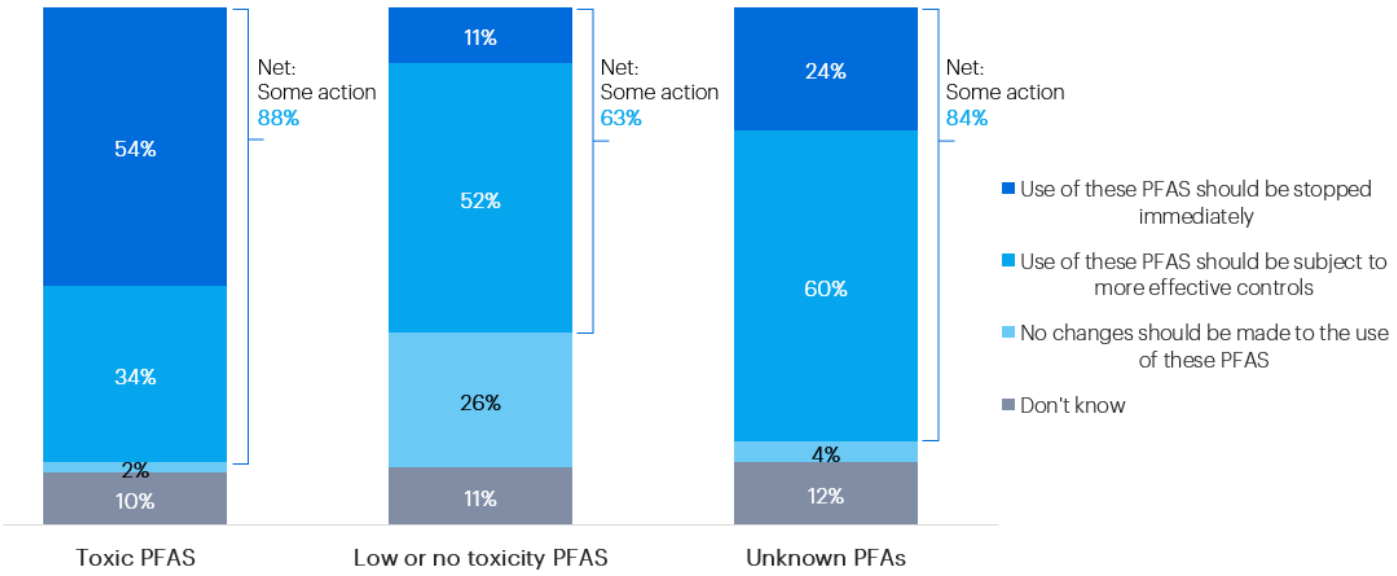
Management of PFAS

Preferred management of PFAS

Respondents were also asked how they would prefer for PFAS of varying levels of toxicity to be managed. Figure 6 shows that almost nine in ten (88%) would prefer for some action to be taken to better manage toxic PFAS, including over half (54%) saying that use of these should be stopped immediately, and a third (34%) who say use of these PFAS should be subject to more effective controls. Only 2% say no changes should be made to the use of toxic PFAS. In contrast, the proportion of those who believe some action should be taken against low or no toxicity PFAS is just over three in five (63%), with only 11% who say that use of these PFAS should be stopped immediately, and around half (52%) that use of low or no toxicity PFAS should be subject to more effective controls. A quarter (26%) say no changes should be made.

A similar proportion say that some action should be taken for PFAS of unknown toxicity (84%) as those of high toxicity. However, a smaller proportion of these respondents say that use of PFAS of unknown toxicity should be stopped immediately (24%), with a greater proportion saying that they should be subject to more effective controls instead (60%). Only 4% say no changes should be made to their use, again similar to PFAS of high toxicity.

Figure 6. Preferred management of PFAS



Base: All (n=4,194)

Women are more likely than men to say that use of toxic PFAS should be stopped immediately (59% vs. 50% men), whereas men are more likely to say that use of these PFAS should be

subject to more effective controls (37% vs. 30% women). Conversely, women are more likely to say that use of low or no toxicity PFAS should be subject to more effective controls (54% vs. 50% men), whilst men are more likely to say that no changes should be made to use of these PFAS (28% vs. 25%).

For all types of PFAS, those aged 35-54 are among the most likely to say that the use of all types of PFAS should be stopped immediately (58% toxic, 13% low/no, 27% unknown), whilst those aged over 55 are the most likely to say that their use should be subject to more effective controls (38% toxic, 54% low/no, 65% unknown).

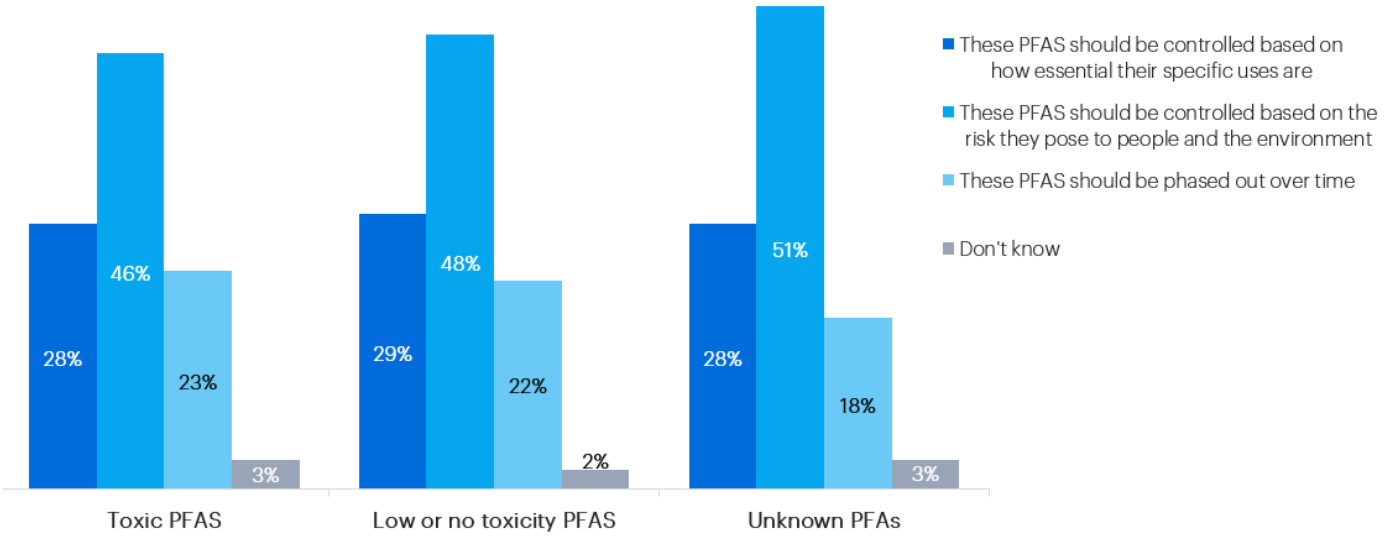
Finally, a socioeconomic gap is present, with those with low levels of educational attainment, in lower social grades (C2DE), and earning the lowest household incomes (less than £25,000) all more likely than other groups to say they don't know what their preferred management of any type of PFAS involves. This may in part be driven by lower levels of PFAS awareness among these groups; those who reported that they had heard of PFAS before the survey were significantly more likely than those who had not to say that the use of each type of PFAS should be stopped immediately (66% toxic, 14% low/no, 28% unknown).

Factors affecting management of PFAS

Respondents who said that PFAS should be subject to more effective controls were asked how specifically they would like to see them controlled. For all types of PFAS, respondents are most likely to say that these should be controlled based on the risk they pose to people and the environment, with around half selecting this option (46% toxic, 48% low/no, 51% unknown). The second most commonly selected option is control based on how essential their specific uses are, with around three in ten selecting this (28% toxic, 29% low/no, 28% unknown). The least common perception for all PFAS types is that PFAS should be phased out over time (23% toxic, 22% low/no, 18% unknown).

Those who reported that they had heard of PFAS before the survey are significantly more likely than those who had not to say that every type of PFAS should be phased out over time (32% toxic, 28% low/no, 21% unknown). In contrast, those who had *not* heard of PFAS before the survey are more likely to say that every type of PFAS should be controlled based on the risk they pose to people and the environment (50% toxic, 51% low/no, 53% unknown). There are few other demographic differences in which factors respondents consider most important when controlling PFAS.

Figure 7. Factors in controlling types of PFAS



Base: All who think PFAS should be subject to more effective controls (Toxic, n=1,415; Low/no toxicity, n=2,213; Unknown toxicity, n=2,544)

Approach towards PFAS

Participants in the focus groups were presented with information regarding toxic PFAS, non-toxic PFAS and unknown PFAS to understand how concerned they are about them and what actions should be taken to restrict their use.

Toxic PFAS are concerning too many because their impact on human health and the environment has been evidenced and established. Most participants felt that their use should be stopped immediately and were shocked that their sale had not already been banned across all product types. However, some felt that use should be monitored until an effective alternative can be implemented, because some products are embedded into daily life and certain industries could be detrimentally impacted by a total ban. Focus group participants identified consumable products or those that are in contact with skin (e.g. drinking water or shampoo) as products to be prioritised for a PFAS use ban.

"We know for definite that they cause harm to human health. It is not ethical to use these chemicals knowing this" (45-54, Female, ABC1, Scottish National Party, more concerned about PFAS)

"Surely if toxicity is established, we should be seeking alternatives?" (45-54, Female, ABC1, Scottish National Party, less concerned about PFAS)

Low or non-toxic PFAS were considered risky in the long term as some risks may be 'undiscovered', many felt that additional research was needed to increase transparency. As well as the potential long term impact others were concerned about impact based on the amount of low and non-toxic PFAS they may have consumed. Overall participants felt that low or nontoxic PFAS should be phased out over time whilst alternatives are discovered and monitored.

"Depends on how much "low or non-toxic" PFAS we are consuming or exposed to" (35-44, Female, ABC1, Labour, more concerned about PFAS)

"I think you should have a long-term goal to phase out all PFAs however low or non-toxic should have a longer time for phasing out than toxic PFAs this way there can be a transition to a healthier alternative." (25-34, Male, ABC1, Scottish National Party, more concerned about PFAS)

*"Key thing here is that evidence * currently * suggests they do not pose a risk - that position may change as more evidence comes to light" (45-54, Female, ABC1, Scottish National Party, less concerned about PFAS)*

There was a mixed response to unknown PFAS, some felt that the limited amount of evidence was reassuring, but others felt that they are more concerning than toxic PFAS. Participants commented that research on PFAS should be expedited to identify the risks on human health and the environment. Once research has taken place any potential risks should be monitored. However, others felt that their sale and use should be banned until these potential risks have been identified and accurate labels can also be added to products.

Participants in both groups felt a preventative and cautious approach is needed towards unknown PFAS as the dangers have not been established and there is low confidence in companies sharing their research into PFAS. The lack of information on unknown PFAS means that it cannot be effectively or accurately regulated or labelled, which is a cause for concern and led some to think it should be regulated as tightly as toxic PFAS.

"I think these are the worst category of PFAS. They could be even worse than the currently known toxic ones. I am shocked that we allow these to be used when there is a lack of research and study" (25-34, Male, ABC1, Scottish National Party, more concerned about PFAS)

“I find their use more concerning as toxic PFAS can be labelled and instruction given on their safe use. You cannot give instruction on safe use of a PFAS if you don't understand it's toxicity” (25-34, Female, C2DE, Labour, less concerned about PFAS)

“Same controls as toxic PFAs - we have to work on assumption that unknown ones could be as toxic or more so” (45-54, Female, ABC1, Scottish National Party, less concerned about PFAS)

Overall participants would like to see the government taking a cautious approach where the composition and impact of PFAS can be monitored in both the short and long term, alongside this research should be encouraged to find safer and similarly effective alternatives.

“I think currently the risk mitigation is always weighted towards financial risk and not health or safety so there needs to be a rebuild of the process all the way from the top of government down to the individual” (25-34, Male, ABC1, Scottish National Party, more concerned about PFAS)

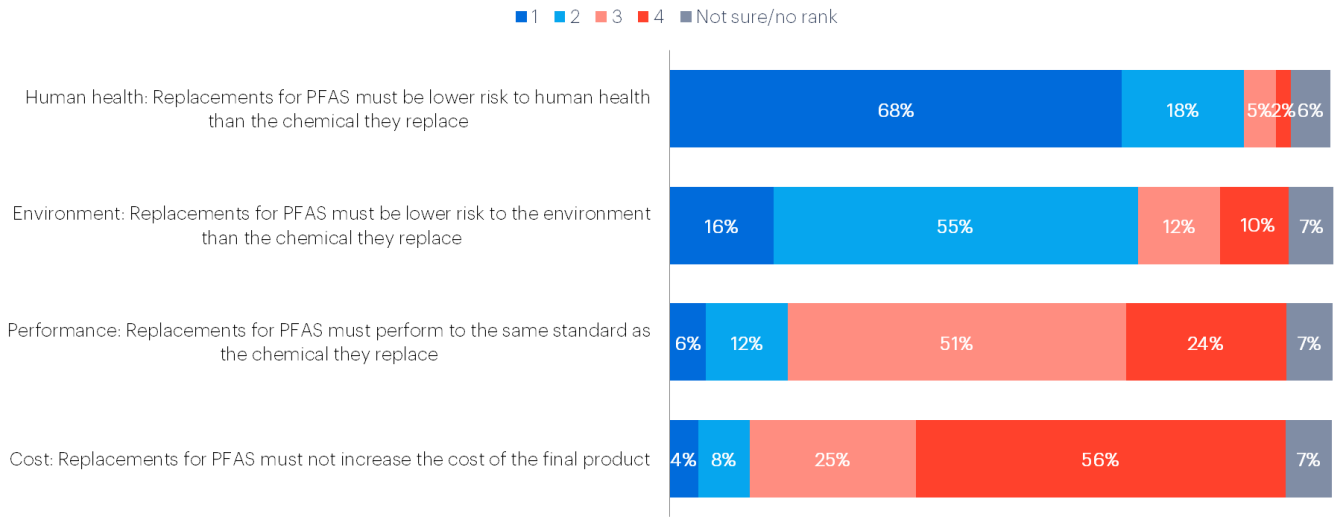
Alternatives to PFAS

Priorities for alternatives to PFAS

Respondents were asked to rank four different principles based on how important they were to them when it comes to introducing alternatives to PFAS in product manufacture and the supply chain. Human health ranks most important by far; 68% say their most important principle is that replacements for PFAS must be lower risk to human health than the chemicals they replace, while a further 18% rank this second. This is a finding that holds across all key demographic groups. The next most important principle is the environment; 16% say their top priority is that PFAS be lower risk to the environment than the chemical they replace, while 55% place this in second.

Performance and cost are far lower priorities; only 18% say that replacements for PFAS performing to the same standard as the chemical they replace is among their top two priorities, while 12% say the same about replacements for PFAS not increasing the cost of the final product.

Figure 8. Priorities for alternatives to PFAS



Base: All (n=4,194)

Participants across focus groups emphasized the importance of prioritising alternatives to PFAS that do not have a negative impact on their health or the environment. Cost and product performance were noted as important but not as important than health and environmental concerns.

Participants highlighted the perceived connection between cost and product performance, expressing a desire for these alternatives should remain affordable without compromising on quality. For products associated with health and safety measures particularly, it was emphasised

that lower performance could lead to additional safety concerns, whereas products essential for the daily life should stay affordable for everybody.

"Human and environmental health comes first, then a balance in costs and performance" (35-44, Female, ABC1, Green, more concerned about PFAS)

"I think they need to be careful that reduced performance doesn't cause additional safety concerns. Especially in healthcare equipment, fire safety or aircraft." (25-34, Male, ABC1, Scottish National Party, more concerned about PFAS)

"They should all be balanced. If the cost is passed onto the consumer for an essential product, you could be depriving many communities." (25-34, Female, C2DE, Labour, less concerned about PFAS)

Group 1 participants (more concerned about the risk of PFAS) expressed their willingness to spend more money on PFAS-free products to alleviate concerns about the safety of these items. Group 2 (less concerned about the risk of PFAS), on the other hand, take several factors into account before they decide whether they are willing to pay more or not on PFAS-free products. They are inclined to pay more for products that are essential and frequently used, or in cases where there are no alternatives available.

They also expressed frustration around manufacturers not investing time or money to create a safer alternative to products containing PFAS. There was also a perception that most alternatives were of reduced quality and wouldn't last, participants also commented that alternatives were not always available to them.

"It makes me feel like many of us will be stuck between a rock and a hard place, because if you choose the more health-conscious option (e.g. no PFAs) then you will likely pay a lot more for that choice." (35-44, Female, ABC1, Conservative, more concerned about PFAS)

"Living rurally, my choices are often limited so sometimes I don't have a option" (25-34, Male, ABC1, Scottish National Party, more concerned about PFAS)

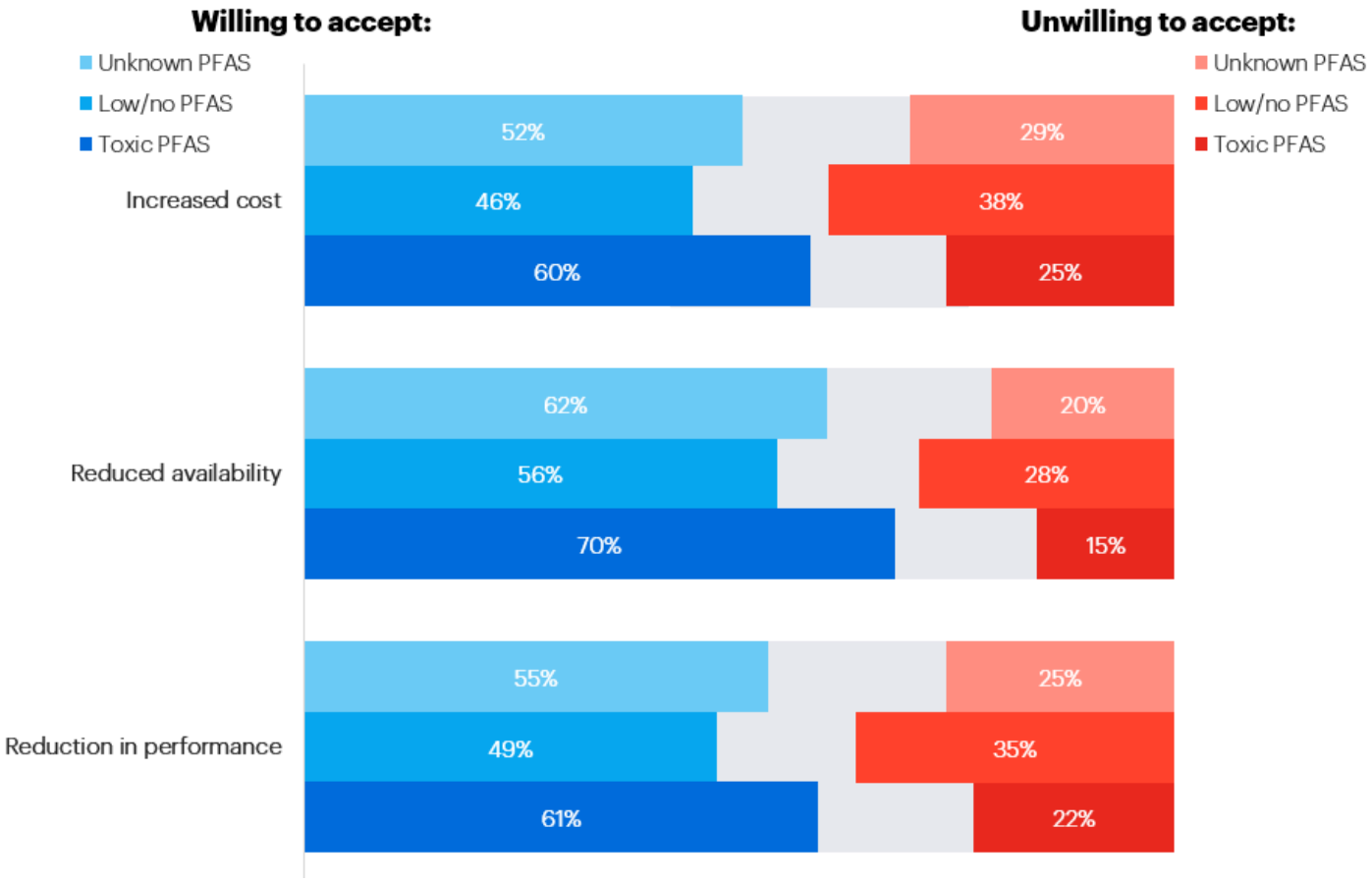
Changes willing to accept

Willingness to accept changes to products

Respondents were asked how willing they would be to accept changes to products if PFAS of varying levels of toxicity were not used in their manufacture. Specifically, they were asked about their willingness to accept reductions in performance of products, reduced availability or increased cost. In line with previously discussed findings that respondents were most likely to say that some action should be taken to manage toxic PFAS, there is the highest levels of willingness to accept changes to performance, availability, and cost for toxic PFAS compared with no, low, and unknown toxicity PFAS.

Figure 9 shows that six in ten would be willing to accept a reduction in the performance of products (61%) or an increase in their cost (60%) if it meant the product didn't contain toxic PFAS, whilst seven in ten (70%) would be willing to accept a reduced availability of certain products. For low or no toxicity PFAS, these proportions drop to 46% who would accept an increase in cost, 49% who would accept a reduction in performance, and 56% who would accept a reduction in availability. For PFAS of unknown toxicity, willingness is slightly higher, at 52% for increased cost, 55% for reduced performance, and 62% for reduced availability. This pattern is mirrored by the proportions who are unwilling to accept these changes, with highest levels of unwillingness reported for low/no toxicity PFAS and lowest levels for toxic PFAS.

Figure 9. Willingness to accept changes to products if PFAS were not used in their manufacture



Base: All (n=4,194)

For all PFAS, regardless of their toxicity, those aged 18-34 are most likely to say they would *not* be willing to accept reduced availability, increase in cost, and reduced performance. Conversely, those aged over 55 are the most likely to say they *would* be willing to accept all of these compromises if it meant that their products did not contain any PFAS, regardless of toxicity.

Other demographic groups more likely to say they *would* be willing to accept reduced availability, reduced performance, and increased cost for all PFAS, regardless of their toxicity, include: those in higher social grades (ABC1); those with high levels of educational attainment; those with gross household incomes over £60,000; those who voted in the 2024 election; and those who had heard of PFAS before the survey.

When considering PFAS of unknown toxicity, those who report having knowledge about PFAS before taking the survey are more likely than those without prior knowledge to be willing to accept a reduction in the performance of their products (68% vs. 50% no knowledge). There are few other

differences when comparing levels of prior knowledge, perhaps because additional information about PFAS was provided to respondents between these questions.

Participants in the focus groups were of the opinion that PFAS-free products should generally not be priced higher than products that pose health risks. Especially essential products such as water, food and personal care products are emphasized so as not to place a financial burden on people from lower socioeconomic backgrounds.

"I would be willing to spend more on product free of PFAS for my peace of mind. I don't want to be cautious every time I use a product." (18-24, Male, C2DE, Other political party, more concerned about PFAS)

"I think if the product was a necessity such as water or food I don't think there should be a change in the price. Socio-economic inequality is one of the worst things that exists in our country, and this is an opportunity to ensure than those with less don't experience health consequences because of cost" (25-34, Male, ABC1, Scottish National Party, more concerned about PFAS)

"It really depends on how often I use the product, what alternatives are available and how much the increase is." (35-44, Male, ABC1, Other political party, less concerned about PFAS)

"I would not be willing to pay more for anything but if an essential product, e.g. deodorant, became more expensive I would have no choice but to continue purchasing at the higher price." (25-34, Female, C2DE, Labour, less concerned about PFAS)

Most participants are willing to pay no more than 10% more for PFAS-free products, though their willingness to accept a price increase varies depending on the type of product and the monetary value they attach to the product.

"It completely depends on the necessity of the product and the impact to cost. If something became too expensive I may have to decide to stop using it altogether." (25-34, Female, C2DE, Labour, less concerned about PFAS)

"I wouldn't want it to be more than around 10% if possible. It really depends on the product." (45-54, Female, ABC1, Scottish National Party, more concerned about PFAS)

"That depends on the product. If the product itself is of low monetary value, then perhaps a lot more in relation to the original cost. This wouldn't apply to high value items." (45-54, Female, ABC1, Scottish National Party, more concerned about PFAS)

Some believe that PFAS-free products will initially be more expensive but anticipate that prices will eventually stabilize in relation to other household products. A few participants expressed reluctance to pay more for PFAS-free products, citing that alternatives to PFAS may not be entirely safe to their health and could contain other potentially harmful substances that have yet to be discovered.

"Eventually if the majority of household items are PFA free, then I wouldn't expect them to cost more than the items now. I understand if things cost a bit more in the beginning whilst these changes happen." (35-44, Female, ABC1, Green, more concerned about PFAS)

"Look at organic food now, more expensive than ever, the same will happen to products not containing PFAs, but I don't think there are any now after being involved with this discussion." (55+, Male, C2DE, Reform UK, less concerned about PFAS)

"I would never pay more as I don't trust something would be 100% healthy even after paying more, who knows they might come up with something unhealthy in the products that is not yet discovered." (25-34, Male, ABC1, Reform UK, less concerned about PFAS)

Willingness to accept product recalls

Participants in the focus groups were asked about their responses to being informed about the recall or disposal of a product they own because it contains PFAS, with reactions mixed. Some expressed concern and anxiety regarding the potential health risks of such products, with some reporting feelings of shock, particularly if the product had been in use for a long period. They also emphasised the importance of receiving further information about the specific health risks they may have been exposed to. Products that are mentioned to be of greatest concern in this respect were consumables such as food, cosmetics or hygiene products.

"I would be worried and anxious. I would want to know the health and environmental risks." (45-54, Female, ABC1, Scottish National Party, less concerned about PFAS)

"Unsafe, I would want to know how toxic it was and what harm it could have on me and family." (35-44, Female, ABC1, Labour, more concerned about PFAS)

"If it's a product I have used for a long time, I will definitely be shocked." (18-24, Male, C2DE, Other political party, more concerned about PFAS)

Other participants claim that they would remain calm and follow advice and recommendations from the government or reputable organisations. They expressed a need for advice on the steps to

take in the event of a product recall or disposal, noting that most had not previously encountered such a situation. Additionally, they expect to be compensated, stating that they would appreciate receiving a refund for the affected product or a suitable alternative product. The availability of alternative products that can replace the affected product also seem to reassure participants.

A few participants would be angry about the information and demand the company to be responsible for the disposal of such products and even wish the company to be punished accordingly.

"I'd calmly follow advice from the government or reputable organisations around it, we're talking long-term impacts here so I wouldn't panic." (35-44, Female, ABC1, Liberal Democrat, more concerned about PFAS)

"I'd want clear advice on how to dispose of it in a way that prevented harm to the environment." (35-44, Female, ABC1, Liberal Democrat, more concerned about PFAS)

"I would just follow the advice. If it was very bad I'd want a replacement or money back (I have never dealt with a recall before, so unsure how that works)." (35-44, Female, ABC1, Green, more concerned about PFAS)

The financial cost of removing PFAS from the environment

Respondents were asked which measures to fund the removal of PFAS from the environment they would support. The most popular measure is increased regulation on industries using PFAS requiring them to reduce and reverse contamination caused by their processes, with 84% saying they would support this. The second and third most popular measures are additional government funding for research and innovation into reversing environmental contamination caused by PFAS (77%) and a fee or tax on industries that use PFAS to fund end of life product management and environmental clean-up (75%). The least popular measure involves increased costs to consumers in the form of domestic water bills (25%).

Participants in the focus groups highlighted measures they would support to remove PFAS from the environment, this included regulation of industries and conducting research on PFAS, these measures must be enforced in both the short and long term so that the health of the public and the wider environment can be protected. Participants commented that the government plays a critical role in ensuring measures are taken because industries are not felt to be reliable to enact changes independently.

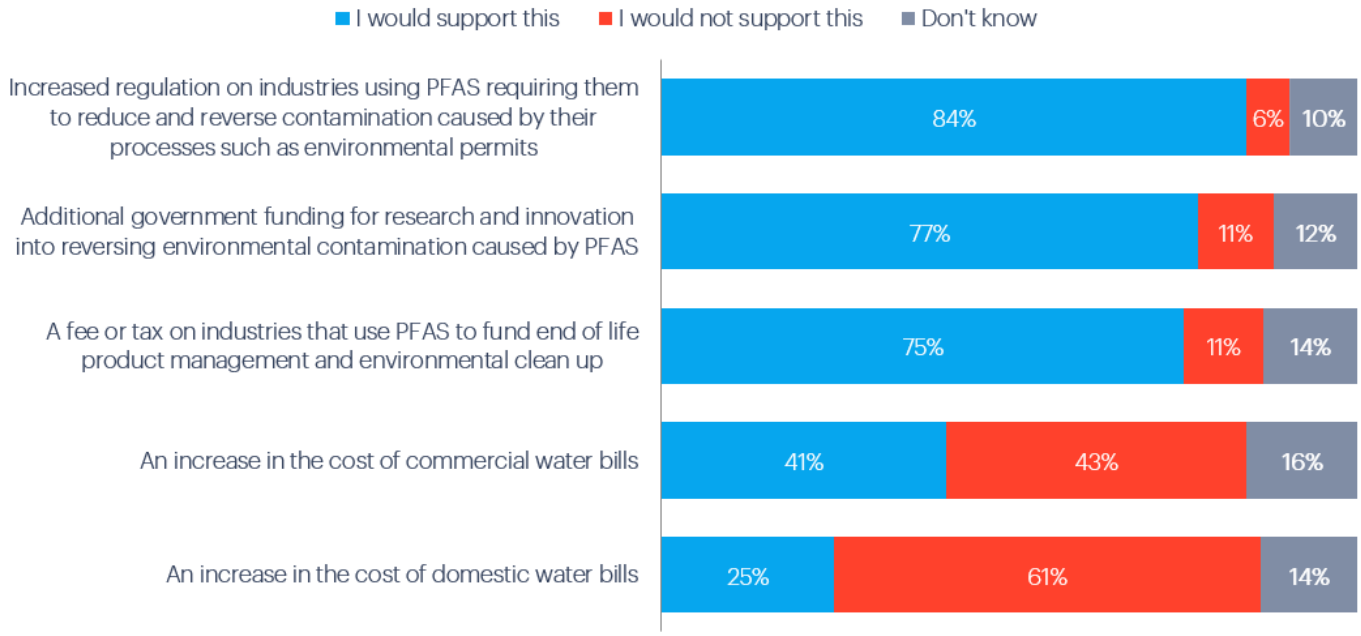
Focus group participants reflected that the costs for a PFA alternative should not be passed on to them as consumers due to the cost-of-living crisis already increasing their bills and the perceived responsibility of manufacturers to discover and implement alternatives.

"Ultimately it's the responsibility of the organisation using the PFAs to take the action as they are the last stop before consumers are affected. I do think this should be backed up with strict controls and legislation, especially in the case of known toxic PFAs" (40-54, Female, SNP, ABC1, more concerned about PFAS)

"As an individual consumer, I can only take responsibility through awareness and knowledge. There needs to be transparency and awareness of the risks and dangers of PFAs for consumers to play their part in reducing transmission of PFAs into water courses" (40-54, Female, SNP, ABC1, less concerned about PFAS)

"I think health should be the main factor, however, we are in a cost of living crisis. Some families or individuals simply cannot afford it." (25-39, Female, Labour, ABC1, more concerned about PFAS

Figure 10. Support for measures to fund removal of PFAS from the environment

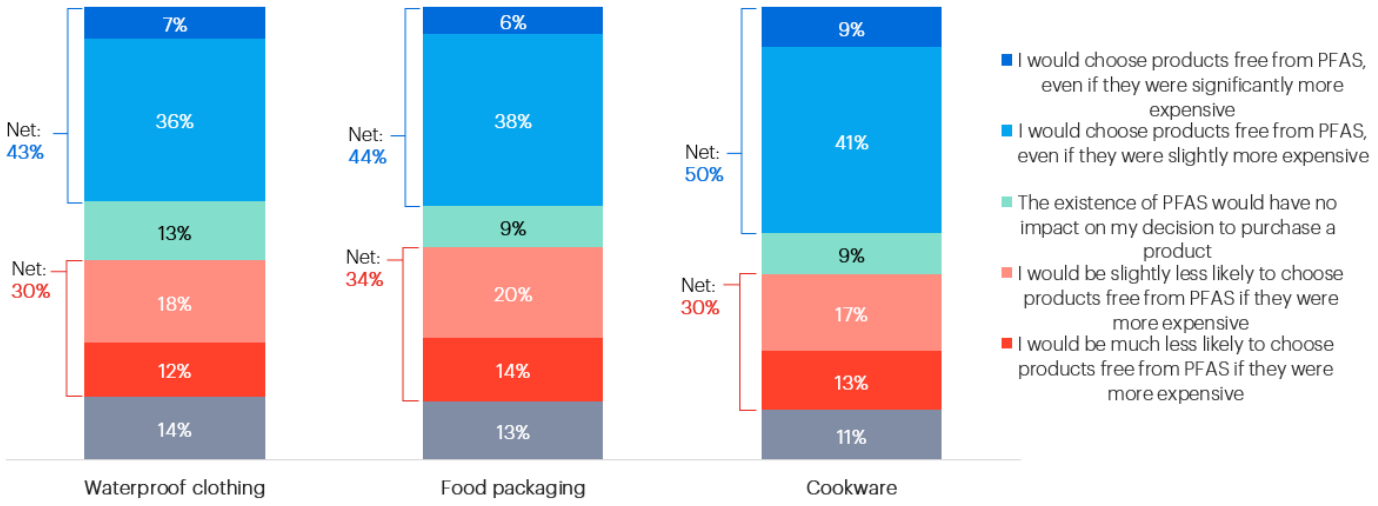


Base: All (n=4,194)

Respondents aged over 55 are consistently more likely than younger age groups to support these measures. The greatest differences in support by age is for increased regulation on industries using PFAS, which 89% of those aged 55+ support compared to 78% of those aged 18-34 and 83% of those aged 35-54. Those in higher social grades (ABC1) are also more likely to support all listed measures compared with those in lower social grades (C2DE), as are: those with high levels of educational attainment compared with those with low levels; those with a gross household income more than £60,000, compared with those with a gross household income of less than £25,000; and those who voted in the 2024 election, compared with those who did not.

The sample was randomly split into three groups, with each group shown a different product and asked how likely they would be to choose these products if they were free from PFAS even if they were more expensive. Respondents would be the most likely to choose cookware products if they were free from PFAS, even if they were more expensive (50%), followed by food packaging (44%) and waterproof clothing (43%). For all products, around a third of respondents said they would be less likely to choose a PFAS-free product if it was more expensive (30% cookware and waterproof clothing, 34% food packaging).

Figure 11. Likelihood to choose products free from PFAS even if they were more expensive



Base: All asked about: (Waterproof clothing, n=1,405; Cookware, n=1,394; Food packaging, n=1,395)

Demographically, women are more likely than men to say they would choose PFAS-free cookware (53% vs. 47%) and waterproof clothing (48% vs. 38%) products even if they were more expensive. Similarly, those aged over 55 are more likely than younger age groups to say they would choose any of the three product categories if they were PFAS free, regardless of increased price. Those from higher social grades (ABC1), those with a high educational level, those with a gross

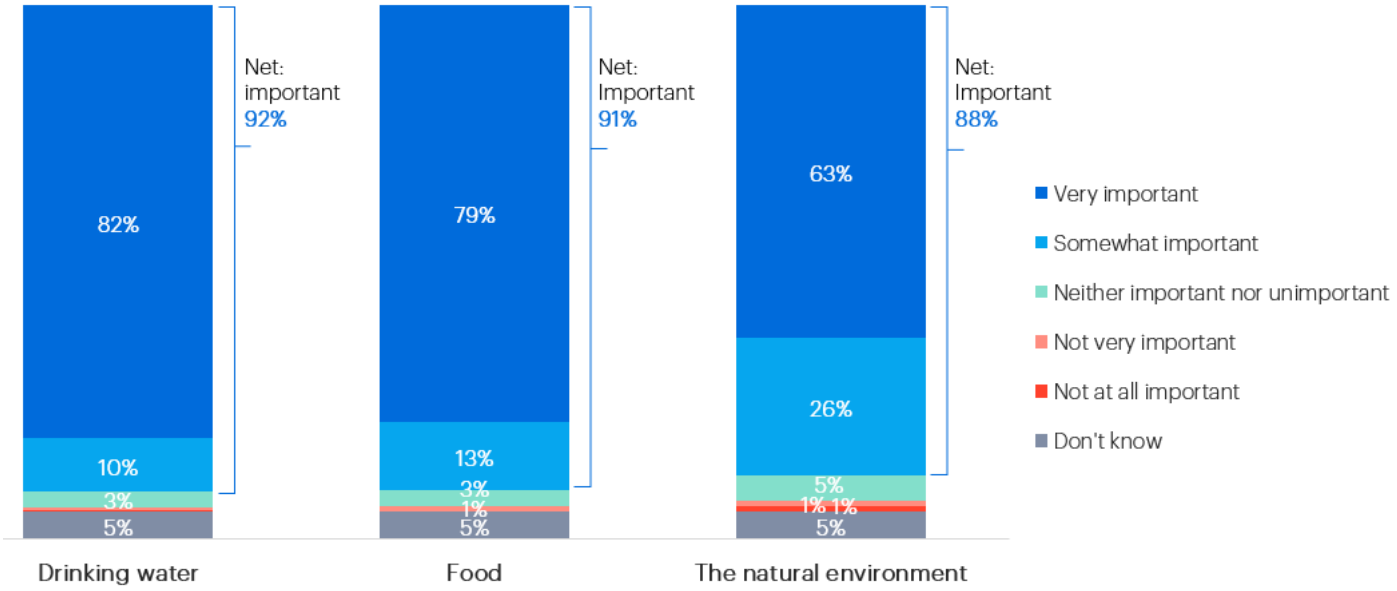
household income of more than £60,000, those who voted in the 2024 election, and those who had heard of PFAS before the survey are also more likely to say they would choose PFAS-free products, in line with previous findings.

Control of PFAS and public trust

Importance of controlling levels of PFAS

Respondents were asked how important it is to more strictly control levels of PFAS in drinking water, food, and the natural environment. The vast majority – around nine in ten – say it is important to more strictly control PFAS levels in all three categories (92% drinking water, 91% food, 88% the natural environment). Of these, most say it is *very* important, with eight in ten thinking this for drinking water (82%) and food (79%), and six in ten thinking this for the natural environment (63%). Very few respondents say it is *not* important to more strictly control PFAS levels in each of these categories.

Figure 12. Importance of more strictly controlling levels of PFAS



Base: All (n=4,194)

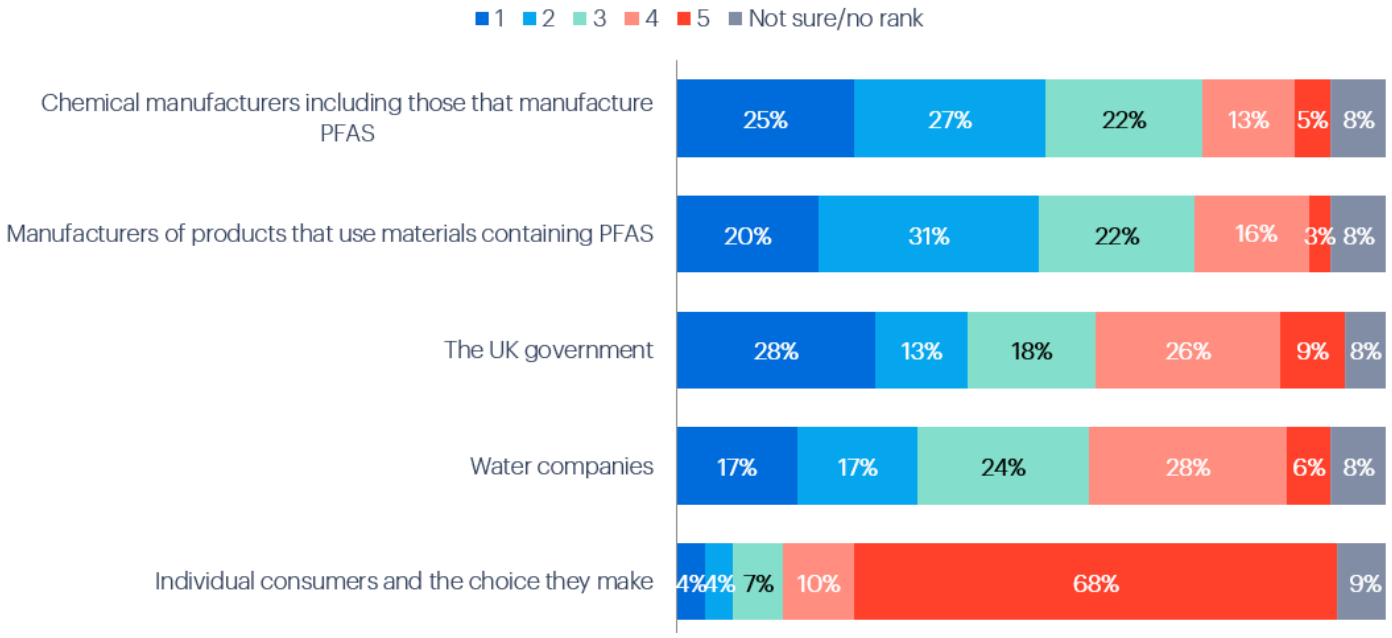
Demographically, those aged over 55 are slightly more likely to say it *is* important to more strictly control standards across each of these three categories. Similar to previous findings, other groups who are more likely to say it is important include those in higher social grades (ABC1), those with high levels of educational attainment, those with gross household incomes more than £60,000, those who voted in the 2024 election, and those who had heard of PFAS before taking the survey.

Responsibility of and trust in organisations controlling levels of PFAS

Given this recognition of the importance of more strictly controlling levels of PFAS, respondents were asked to rank from one to five the organisations or groups that should be responsible for reducing PFAS levels in the natural environment (where one is most responsible). Figure 13

shows that chemical manufacturers (including those that manufacture PFAS) are most commonly ranked in the top three most responsible, closely followed by manufacturers of products that use materials containing PFAS (74% and 73%, respectively). Fewer rank the UK government and water companies in the top three most responsible (both 58%), although the UK government is most likely to be ranked first (28%). The group held by far the least responsible are individual consumers, with only 14% ranking them in the top three, and almost seven in ten (68%) ranking them as the least responsible of any listed group.

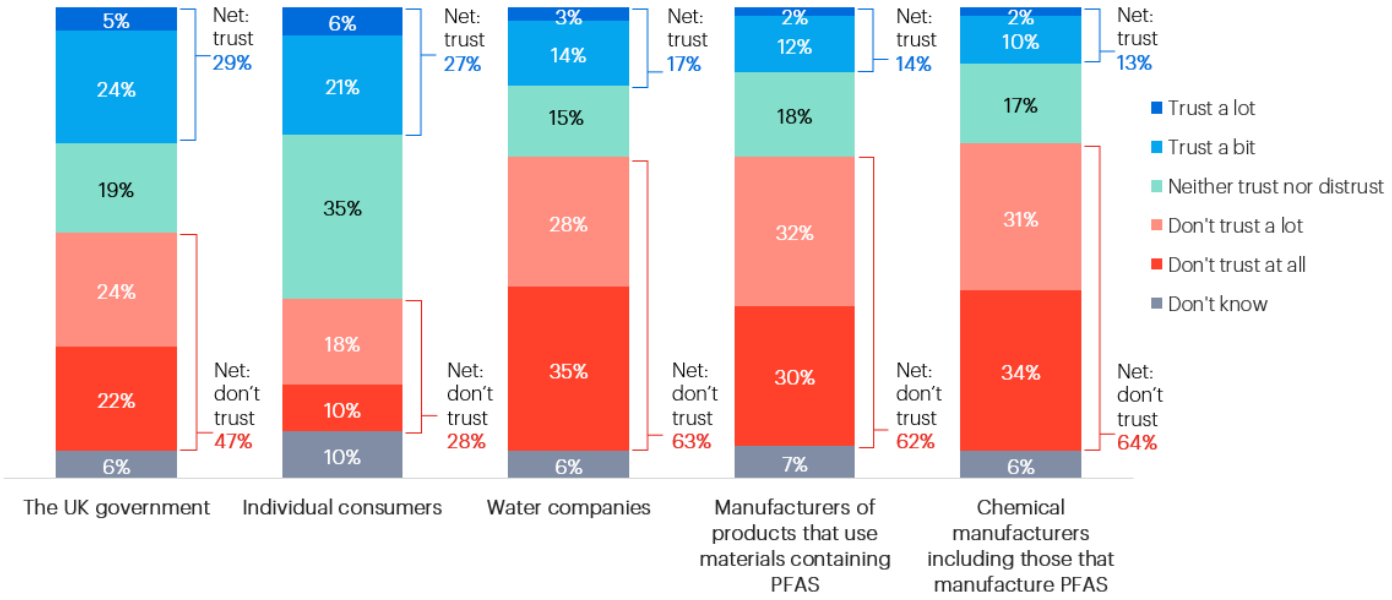
Figure 13. Responsibility for reducing PFAS levels



Base: All (n=4,194)

Finally, respondents were asked which of these organisations they trust to take action to reduce levels of PFAS. Figure 14 shows that the highest level of trust is reported for the UK government (29%), closely followed by individual consumers (27%). Only one in seven say they trust manufacturers of products that contain PFAS (14%) or chemical manufacturers (13%), despite these organisations being most highly ranked in terms of their perceived responsibility to reduce PFAS levels. For all listed organisations and groups, respondents report equal or higher levels of distrust than trust. Individual consumers are the least distrusted at 28%, rising to almost half for the UK government (47%), and over six in ten for water companies (63%), manufacturers of products that contain PFAS (62%) or chemical manufacturers (64%).

Figure 14. Trust in organisations to take action to reduce levels of PFAS



Base: All (n=4,194)

Levels of trust vary by demographic. For example, men are more likely than women to trust the UK government (32% vs. 25% women), chemical manufacturers (14% vs. 11% women), and manufacturers of products containing PFAS (16% vs. 12% women). Similarly, younger respondents aged between 18 and 34 are more likely to trust every listed organisation or group compared with older age groups. Those from higher social grades (ABC1) are more likely to say they trust the UK government (31% vs. 25% C2DE), but are more likely to say they *distrust* all other organisations and groups.

Most participants across the focus groups agreed that it is the government's responsibility to create and enforce PFAS related laws and legislation. Participants also believed manufacturers of products which contain PFAS must comply with these regulations. Some participants in both groups expressed distrust in water companies and manufacturers of products which contain PFAS to self-regulate, thus emphasising the need for government oversight.

"It's the government's responsibility to legislate and then on the companies to comply." (35-44, Male, ABC1, Other political party, less concerned about PFAS)

"Those who profit from use of PFAS are most responsible, BUT government has to take the role of forcing action." (35-44, Female, ABC1, Liberal Democrat, more concerned about PFAS)

"They [the government] can force legislation to influence change in industry, manufacturers and people's health related choices." (25-34, Male, ABC1, Scottish National Party, more concerned about PFAS)

Both groups expressed distrust in PFAS manufacturers, viewing them as 'driven by profit and greed', which would make their information biased. Participants were concerned they would not receive the full truth from these sources.

"I would be hesitating to trust them [Manufacturers of PFAS] as ultimately they want us to buy the products so can tell us whatever they want to." (35-44, Female, ABC1, Conservative, less concerned about PFAS)

They were also shocked by the lack of concern shown by manufacturers and frustrated that they had not researched and implemented safer alternatives. Although some participants are willing to use their 'consumer power' to purchase PFAS-free products, most feel it is the manufacturer's responsibility to research and implement alternatives and that consumers should not have to bear the cost. Participants also commented the manufacturers should be monitored for their use of PFAS and fined if they do not abide by legal requirements set by government.

"Cost is the barrier for the manufacturers, producers, retailers etc. That's why there needs to be more education, so consumers can use consumer power. For instance, I recently deliberately bought some cookware which is ceramic and PFAS-free" (35-44, Female, ABC1, Liberal Democrat, more concerned about PFAS)

"I feel torn really. On the one hand a lot of these products with PFAS are essential to our lives, and yet some can be toxic and cause harm. If finding an alternative costs, a lot of money that would make these products unattainable for a lot of people." (45-54, Female, ABC1, Scottish National Party, more concerned about PFAS)

"We have the right to correct and free information to make an informed choice" (25-34, Male, ABC1, Scottish National Party, less concerned about PFAS)

Participants across the groups said they would trust charity organisations to give them information about PFAS, as they are nonprofit and provide unbiased opinions and research. However, this trust depended on the charity being well-established and evidence based. A few participants were

distrustful of charity organisations due to own their experience in the sector and concerns about funding sources.

"I would trust them, I feel it is charitable and non-profit organisations that have done the best so far in getting the message out to consumers." (35-44, Female, ABC1, Liberal Democrat, more concerned about PFAS)

"I would trust a charity, as long as they were speaking from an evidence-based position." (45-54, Female, ABC1, Scottish National Party, less concerned about PFAS)

"I would listen then do research on the charity to see what their credentials are to decide if their advice is trustworthy." (45-54, Female, ABC1, Scottish National Party, more concerned about PFAS)

Many participants in Group 1 (more concerned about risk of PFAS) expressed trust in scientists and environmental health experts but noted instances, such as Covid-19 and climate change, where experts are not always listened to. Some participants acknowledged there can be differing scientific views and highlighted they would also want to conduct their own research. In Group 2 (less concerned about risk of PFAS), most participants said they would trust scientists because they have the most knowledge about PFAS, but only if they were independent and not funded by parties that could influence their research such as politicians or manufacturers.

"I would only trust a Scientist with no political influence." (25-34, Male, ABC1, Reform UK, less concerned about PFAS)

"I would trust the experts. At the end of the day, you can't be sceptical of everyone and everyone is driven by some level of bias and agenda. I would trust the most educated/experienced voice on the topic." (25-34, Female, C2DE, Labour, less concerned about PFAS)

Both groups felt they would trust an independent body with relevant expertise to give them information about PFAS, but they would want to know where their funding was coming from as they want to ensure there is no agenda or bias.

"I would trust them based on their expertise and independence from the topic. I would like to trust that they are not driven by some personal agenda." (25-34, Female, C2DE, Labour, less concerned about PFAS)

Group 1 (more concerned about risk of PFAS) trusted the government to take the strongest action against PFAS due to the severity of the issue and its duty to protect the public. They also believed

the government has the power and capacity to enforce regulations on manufacturers. Others in Group 2 (less concerned about risk of PFAS), however, placed the most trust in scientists and independent bodies, viewing them as unbiased and qualified with expert knowledge. Some across the groups trusted the government to legislate PFAS control but felt it should rely on advice from scientists and experts. Overall, participants in both groups expressed concerns that profit, greed, and political or financial agendas affected their trust in information about PFAS. They believed that information from unbiased sources was seen as more trustworthy. Participants believe it is the government's responsibility to enforce legislation on manufacturers, who must comply.

"Government needs to step in, because of the severity of this." (35-44, Female, ABC1, Conservative, more concerned about PFAS)

"The hierarchy in government needs to force change in industry and manufacturing that then feeds down to consumer attitudes changing." (25-34, Male, ABC1, Scottish National Party, more concerned about PFAS)

"The Government should take action based on the findings from Scientists and Independent bodies." (25-34, Male, ABC1, Reform UK, less concerned about PFAS)

While most participants believe that changes should be instituted by the government onto manufacturers, it is important for any changes to be mandated consistently across companies. Participants feel that the government must hold responsibility to ban and monitor the use of toxic PFAS as companies have demonstrated their inability to act independently. Participants felt that responsibility should not be passed onto the consumer who tend to have limited choice, access or funds to change their lifestyles.

"I think policy can force change at pace, but it requires a unified approach from everyone" (25-34, Male, ABC1, Scottish National Party, more concerned about PFAS)

"Ideally stopped immediately, but realistically this won't be possible so they should be phased out over time while being subject to stricter controls" (45-54, Female, ABC1, Scottish National Party, less concerned about PFAS)

"Governments and international standards bodies should be responsible for the control of PFAS. Companies should take personal responsibility to practice good ethics." (25-34, Female, C2DE, Labour, less concerned about PFAS)

Across both groups there was an appetite to learn more about PFAS and for information to be shared with the public. Some believe information would be shared through labelling on products so that consumers are able to make informed decisions about their purchases.

"I want to know more, and I want other people to find out about the risks" (25-39, Female, ABC1, Liberal Democrat, more concerned about PFAS)

"I want to see clear labels on products to warn us of this" (40-54, Female, ABC1, Conservative, more concerned about PFAS)

"I would like to understand more to make informed decisions" (40-54, Female, ABC1, SNP, less concerned about PFAS)

Participants commented that their preferred channels and methods for communication about PFAS included established news channels, where information could be shared with the public widely. Social media was also felt to play an important role especially in educating young people, whilst there were concerns about information not being accurate many felt that information shared through this channel would be accessible.

"Covering the media is the best because TV gets many people, but social media gets younger people and other groups" (25-39, Female, ABC1, Liberal Democrat, more concerned about PFAS)

"All reputable sources - social media definitely not - to many cranks" (40-54, Female, ABC1, Reform, more concerned about PFAS)

These findings support the survey, which found that those who use social network websites as their main media source are significantly less likely than average to be able to correctly identify many household items containing PFAS including nonstick cookware (58%), water-repellent clothing (53%) and water-resistant cosmetics (51%). Those aged under 34 are most likely to use social network websites as their main media source (46%, 23% 35-54, 8% 55+), as are those in lower social grades (25% C2DE, 22% ABC1).

Conversely, those who use news apps as their main media source are more likely than average to correctly identify many products containing PFAS, including non-stick cookware (69%), food packaging (69%) and water-resistant cosmetics (62%). Those who use online news outlets (either websites or apps) as their main media source are also more likely to have heard of PFAS (42% newspaper website, 38% news website not associated with newspaper, 33% news app). Those in higher social grades are more likely to use these media sources (newspaper website: 66% ABC1,

34% C2DE; news website not associated with newspaper: 67% ABC1, 33% C2DE; news app 64% ABC1, 36% C2DE), as are those with high educational attainment and gross household incomes over £60,000.

Focus groups similarly commented that it is important that any information has been verified and is shared by independent experts or by people and organisations with influence e.g. NHS or World Health Organisation.

"I want to hear from people with influence, similar to how Davina McCall helped to kickstart more public discussions around menopause" (25-39, Female, ABC1, Liberal Democrat, more concerned about PFAS)

"I would be happy at this stage with just some general Internet research but if there were any scientists / experts speaking on the subject I would prioritize that" (Female, 40-54, SNP, ABC1, less concerned about PFAS)