Title: THE MATERIALS AND ARTICLES IN CONTACT WITH FOOD (ENGLAND) (AMENDMENT) REGULATIONS 2018 IA No: FOOD0160

RPC Reference No: FOOD0160
Lead department or agency: FOOD STANDARDS AGENCY
Other departments or agencies: N/A

Impact Assessment (IA)
Date: April 2018 (updated with 2020 figures)
Stage: Consultation
Source of intervention: EU
Type of measure: Secondary legislation
Contact for enquiries: Tim Chandler +44 (0) 2072768127

## Summary: Intervention and Options

| Cost of Preferred (or more likely) Option |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :---: |
| Total Net | Business Net <br> Present Value <br> Present Value | Net cost to business per <br> year (EANDCB in 2014 prices) | One-In, <br> Three-Out | Business Impact Target <br> Status |  |
|  | $£-0.12 \mathrm{~m}$ | $£ 0.0 \mathrm{~m}$ | Not in scope | Qualifying provision |  |

What is the problem under consideration? Why is government intervention necessary?
Unregulated transfer of chemicals from materials and articles intended to come into contact with food may detrimentally affect consumer health, which could potentially create a negative cost to others such as the National Health Service. Consumers are unable to assess the risks involved when consuming a product that has been in contact with food contact materials, because they cannot observe the level of chemical migration and do not have the full information to make informed choices about such risk. Government intervention is necessary to reduce the chronic and acute health risks to consumers arising from chemical migration from food contact materials into the food they eat.

## What are the policy objectives and the intended effects?

To provide for the execution and enforcement by enforcement authorities in England of Commission Regulation (EC) No. 282/2008 on recycled plastic materials intended to come into contact with foods, Commission Regulation (EU) No. 2016/1416 amending and correcting Regulation (EU) No. 10/2011 on plastic materials and articles intended to come into contact with food, and Commission Regulation (EU) No. 2018/213 on the use of bisphenol A in varnishes and coatings intended to come into contact with food.

To update the existing offences and penalties in the Materials and Articles in Contact with Food (England) Regulations 2012.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)
Option 1: Do Nothing - Do not provide for the enforcement and execution of Commission Regulation (EC) No. 282/2008, nor Commission Regulation (EU) No. 2016/1416 nor Commission Regulation (EU) No. 2018/213. The UK's obligation (under the Treaty on the Functioning of the European Union) to put in place provisions for their enforcement would not be fulfilled which would place the UK at risk of being subject to infraction proceedings.

Option 2 - Make appropriate domestic Regulations for the execution and enforcement of Commission Regulation (EC) No. 282/2008, Commission Regulation (EU) No. 2016/1416 and Commission Regulation (EU) No. 2018/213.

Option 2 is the preferred option as it meets all policy objectives and regulatory obligations.
Will the policy be reviewed? It will be reviewed. If applicable, set review date: 12/2025 (subject to laying date)

| Does implementation go beyond minimum EU requirements? | No |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Are any of these organisations in scope? | Micro <br> Yes | Small <br> Yes | Medium <br> Yes | Large <br> Yes |
| What is the $\mathrm{CO}_{2}$ equivalent change in greenhouse gas emissions? <br> (Million tonnes $\mathrm{CO}_{2}$ equivalent) | Traded: <br> N/A | Non-traded: <br> N/A |  |  |

[^0]Summary: Analysis \& Evidence
Policy Option 1
Description: Option 1: Do Nothing - Do not provide for the enforcement and execution of Commission Regulation (EC) No. 282/2008, nor Commission Regulation (EU) No. 2016/1416 nor Commission Regulation (EU) No. 2018/213.

## FULL ECONOMIC ASSESSMENT

| Price Base <br> Year | PV Base <br> Year | Time Period <br> Years | Net Benefit (Present Value (PV)) (£m) |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :---: |
|  |  | Low: Optional | High: Optional | Best Estimate: |  |  |


| COSTS (£m) | Total Transition (Constant Price) Years |  | Average Annual (excl. Transition) (Constant Price) | Total Cost (Present Value) |
| :---: | :---: | :---: | :---: | :---: |
| Low | Optional |  | Optional | Optional |
| High | Optional |  | Optional | Optional |
| Best Estimate |  |  |  |  |

Description and scale of key monetised costs by 'main affected groups'
There are no monetised incremental costs associated with this option. This is the baseline against which other options are assessed.

Other key non-monetised costs by 'main affected groups'
There are no non-monetised incremental costs associated with this option. This is the baseline against which other options are assessed.

| BENEFITS (£m) | Total Transition <br> (Constant Price) |  | Years | Average Annual <br> (excl. Transition) (Constant Price) |
| :--- | ---: | ---: | ---: | ---: |
|  | Optional | Optional | Total Benefit <br> (Present Value) |  |
| High | Optional | Optional | Optional |  |
|  |  |  | Optional |  |
|  |  |  |  |  |

Description and scale of key monetised benefits by 'main affected groups'
There are no monetised incremental benefits associated with this option. This is the baseline against which other options are assessed.

Other key non-monetised benefits by 'main affected groups'
There are no non-monetised incremental benefits associated with this option. This is the baseline against which other options are assessed.

Key assumptions/sensitivities/risks
Costs of infraction may result from failure to implement the enforcement provisions of the Commission Regulations.

## BUSINESS ASSESSMENT (Option 1)

| $\begin{array}{l}\text { Direct impact on business (Equivalent Annual) £m: } \\ \text { Costs: } 0.0\end{array}$ |  | Benefits: 0.0 | Net: 0.0 |
| :--- | :--- | :--- | :--- |\(\left.\quad \begin{array}{l}Score for Business Impact Target (qualifying <br>

provisions only) £m:\end{array}\right]\)

Summary: Analysis \& Evidence
Policy Option 2
Description: Option 2 - Make appropriate domestic Regulations for the execution and enforcement of Commission Regulation (EC) No. 282/2008, Commission Regulation (EU) No. 2016/1416 and Commission Regulation (EU) No. 2018/213.

## FULL ECONOMIC ASSESSMENT

| Price Base |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :---: |
| Year 2017 | PV Base <br> Year 2017 | Time Period <br> Years 10 | Net Benefit (Present Value (PV)) (£m) |  |  |  |
|  |  | Low: Optional | High: Optional | Best Estimate: -0.12 |  |  |


| COSTS (£m) | Total Transition (Constant Price) Years |  | Average Annual (excl. Transition) (Constant Price) | Total Cost (Present Value) |
| :---: | :---: | :---: | :---: | :---: |
| Low | Optional |  | Optional | Optional |
| High | Optional |  | Optional | Optional |
| Best Estimate | 0.10 |  | 0.0 | 0.12 |

Description and scale of key monetised costs by 'main affected groups'
Industry and Enforcement Authorities will face one-off familiarisation costs with the three EU Regulations and the amendment to the 2012 England Regulations. For England only, these amount to Industry costs of $£ 104,150.04$ (an Annual Equivalent Cost of $£ 12,099.66$ ) and Public-sector costs of $£ 15,673.46$ (an Annual Equivalent Cost of $£ 1,820.87$ ).
Other key non-monetised costs by 'main affected groups'
Some industry sectors may face costs of assessing compliance with the new migration limits for aluminium and zinc from plastics, new migration testing requirements for fresh unpeeled fruit and vegetables, and the migration limit for bisphenol A from varnishes or coatings applied to food contact materials.

Recyclers may face costs associated with the auditing of recycling processes by competent authorities and as a result of restrictions and specifications that may be set in the Commission Decisions.

| BENEFITS (£m) | Total Transition <br> (Constant Price) |  | Years | Average Annual <br> (excl. Transition) (Constant Price) |
| :--- | ---: | ---: | ---: | ---: |
|  | Optional | Optional | Total Benefit <br> (Present Value) |  |
| High | Optional | Optional | Optional |  |
|  |  |  | Optional |  |
|  |  |  |  |  |

Description and scale of key monetised benefits by 'main affected groups'
No monetised benefits have been identified.
Other key non-monetised benefits by 'main affected groups'
The deletion of the generic specific migration limit in Commission Regulation (EU) No. 2016/1416 removes an unnecessarily burdensome testing requirement for approximately 400 substances used in plastic food contact materials for which migration limits have not been specified. The Regulation adds ten new substances that can be used in the manufacture of food contact materials. This Regulation also provides some greater flexibility for business operators when testing plastic materials and articles.
Key assumptions/sensitivities/risks
Discount rate (\%)
3.5

Proportion of micro, small, medium and large firms in England, Wales and Northern Ireland (E,W\&NI) is assumed the same, for each country.

All recycling firms are assumed to be large.
$80 \%$ of plastic manufacturing firms are assumed to be involved with food products.

## BUSINESS ASSESSMENT (Option 2)

| $\begin{array}{l}\text { Direct impact on business (Equivalent Annual) £m: } \\ \text { Costs: } 0.0\end{array}$ |  | Benefits: 0.0 | Net: 0.0 |
| :--- | :--- | :--- | :--- | \(\left.\begin{array}{l}Score for Business Impact Target (qualifying <br>


provisions only) £m:\end{array}\right]\)

## Evidence Base (for summary sheets)

## Problem under consideration and rationale for intervention

1. The unregulated migration of chemicals from materials and articles intended to come into contact with food may detrimentally affect consumer health, which could potentially create a negative cost to others such as the National Health Service. Consumers are unable to assess the risks involved when consuming a product that has been in contact with food contact materials because they cannot observe the level of chemical migration and do not have the information to make informed choices about such risks.
2. Government intervention to regulate such products reduces the chronic and acute health risks to consumers arising from chemical migration from food contact materials into the food they eat. The proposed Materials and Articles in Contact with Food (England) (Amendment) Regulations 2018 ("the proposed Regulations") will amend the Materials and Articles in Contact with Food (England) Regulations 2012 ("the 2012 Regulations") to provide enforcement authorities with the necessary powers for the execution and enforcement of the provisions of the three European Regulations mentioned below. This provides for the continuation of consumer protection against migration of chemicals from food contact materials that could carry an unacceptable long-term risk to consumer health.
3. Commission Regulation (EC) No. 282/2008 on recycled plastic materials intended to come into contact with foods ("the Recycling Regulation") was published in the Official Journal of the European Union (OJ) on 28 March $2008^{1}$ and is directly applicable throughout the EU. Although the Recycling Regulation has been in force since 17 April 2008, several important provisions will only apply from the date of adoption of authorisation decisions on recycling processes. Therefore, the enforcement of the Recycling Regulation in the UK is deferred until the adoption of these decisions which are expected by the end of 2018 (discussed further in this Impact Assessment in paragraph 19).
4. Commission Regulation (EU) No. 2016/1416 ("the revised Plastics Regulation") amending and correcting Regulation (EU) No. 10/20112 ("the Plastics Regulation") on plastic materials and articles intended to come into contact with food, was published in the OJ on 25 August $2016^{3}$. The revised Plastics Regulation came into force on 14 September 2016, and is directly applicable throughout the EU. There is a transition period of one year allowing materials and articles that were compliant before entry into force of this Regulation to remain on the market, whilst the new migration limits for aluminium and zinc, set out in point 2(a) of the Annex and the assignments of food simulants in point 3(c) of the Annex, will apply from 14 September 2018.
5. Commission Regulation (EU) No. 2018/213 ${ }^{4}$ on the use of bisphenol A (BPA) in varnishes and coatings intended to come into contact with food and amending Regulation (EU) No. 10/2011 ("the BPA Regulation") will be applicable from 6 September 2018. The BPA Regulation sets a lower specific migration limit (SML) for the use of BPA in plastics as currently given in the Plastics Regulation, and extends this to BPA use in varnishes and coatings applied to materials and articles intended to come into contact with food. It also bans the use of BPA in varnishes and coatings for food contact materials and in polycarbonate drinking cups which, due to their spill proof characteristics, are intended for infants and young children.

[^1]6. The BPA Regulation requires that varnished or coated materials and articles containing BPA should be accompanied with a Declaration of Compliance (DoC), which should be renewed to reflect any changes in the migration levels from the varnish or coating that has been applied to materials and articles. A DoC is a document that provides assurance to customers that the material or article complies with the legislation.

## Policy objective

7. The proposed Regulations will amend the 2012 Regulations. The purpose of this proposal is to meet several policy objectives:

- to provide for the execution and enforcement in England of Commission Regulation (EC) No. 282/2008 on recycled plastics, Commission Regulation (EU) No. 2016/1416 on plastics and Commission Regulation (EU) No. 2018/213 on bisphenol A
- provide for offences of contravening certain provisions of the three European Regulations
- specify the penalties that the Courts may impose upon conviction for an offence
- make changes to the existing offences and penalties in the 2012 Regulations so that these are more appropriate and proportionate


## Changes to the offences and penalties in the proposed Regulations

8. The 2012 Regulations contain criminal offences for failing to comply with certain provisions of the European legislation they enforce and implement. Currently, the penalties for each of the offences includes failure to comply with:
9. requirements for $a \mathrm{DoC}^{5}$

- 'on conviction on indictment to a fine or to imprisonment for a term not exceeding two years or both; or on summary of conviction to a fine not exceeding the statutory minimum'

2. supporting documentation

- 'on summary conviction to a fine not exceeding level 5 on the standard scale'

9. The proposed Regulations introduce the use of compliance notices to act as a first intervention for the offences listed above. The compliance notice must state:

- the reason for the serving of the notice;
- the steps the person on whom the notice has been served must take;
- what actions are required by a specific date;
- that failure to comply with the notice is an offence; and
- provide details on the right to appeal against the notice

[^2]10. The aim of these changes is to ensure that sanctions are appropriate and proportionate, as the absence of a DoC or supporting documentation does not necessarily mean that the food contact material is a risk to health. Compliance notices are therefore considered a more appropriate first intervention in these instances.
11. A 'backstop' criminal offence will apply if a business fails to comply with a compliance notice, with a penalty on summary conviction of a fine. Without a 'backstop' criminal offence, there would not be a sufficient deterrent for manufacturers of food contact materials who fail to provide a DoC and this could ultimately lead to food contact materials being used inappropriately by the end user. This could result in increased risks for consumer health as the required safety information would not have been passed down the supply chain.
12. For food safety offences, existing criminal sanctions will continue to apply; these include the use of unauthorised substances or exceeding specified permitted limits of authorised substances. This is to ensure consumers are not exposed to migration from materials and articles not manufactured in accordance with good manufacturing practice, which could pose a risk to consumer health.
13. For the Recycling Regulation and the BPA Regulation, two new criminal offences will be created:

- Failure to comply with the safety requirements for recycled plastic
- Failure to comply with the migration limit for varnishes and coatings applied to materials and articles

14. In addition, two compliance notices will be created for failure to comply with the DoC requirements for these Regulations. As with the other changes to the DoC, a backstop criminal offence with the relevant penalties would apply upon failure to abide with a compliance notice.
15. The FSA is reviewing the approach taken to sanctions in food law to ensure these remain effective, dissuasive and proportionate in line with UK Government advice on the use of criminal sanctions. This could potentially lead to changes in the sanctions in the proposed Regulations in the future.

We particularly welcome responses and general feedback to the questions throughout the Impact Assessment. For each question please explain your response and provide evidence (where possible) to support your views.

1(a) We invite stakeholders to comment on the introduction of compliance notices to act as a first intervention for the offences listed above.

1(b) Will the introduction of compliance notices provide adequate protection for consumers?

1(c) We invite stakeholders to comment on the proposal to use 'backstop' criminal offences for failure to comply with a compliance notice. A criminal offence would apply, with a penalty on summary conviction of a fine.

## Background

16. The general principles governing the safety of all materials and articles intended to come into contact with food are established in Regulation (EC) No. 1935/20046 of the European Parliament and of the Council ("the Framework Regulation"). The Plastics Regulation is a specific measure within the meaning of Article 5(1) of the Framework Regulation and establishes the specific rules for plastic materials and articles intended to come into contact with food.

## Requirements for recycled food contact materials and articles

17. Commission Regulation (EC) No. 282/2008 ("the Recycling Regulation") establishes the specific rules for food contact recycled plastic materials and articles ${ }^{7}$. It came into force on 17 April 2008, and is directly applicable throughout the EU. Food contact materials made from recycled plastics can only be placed on the market if they are manufactured from plastic, obtained from an authorised recycling process. Under Article 5 of the Recycling Regulation, the European Food Safety Authority (EFSA) is responsible for carrying out a safety assessment and publishing an Opinion on each recycling processes. This is to determine whether a process reduces potential contamination to a level which will not pose a health risk.
18. The Commission will publish Decisions on each EFSA Opinion to grant or refuse authorisation for individual recycling processes. This will contain a set of criteria and the critical steps associated with the recycling process which need to be adhered to by the recycler. Authorised processes must be managed by a quality assurance system that guarantees the reproducible quality of the recycled plastics.
19. Although the Recycling Regulation has been in force since 17 April 2008, the provisions of Article 3 (requirements for plastic materials and articles), Article 9 (community Register of authorised recycling processes), Article 10 (official control of recycling plants) and Article 12 (DoC and record keeping) will only apply to businesses when the Commission adopts authorisation Decisions on individual recycling processes. These are expected at the end of 2018. These decisions will consider risk assessments from the EFSA on each recycling process.
20. Trade in and use of recycled plastic from a recycling process already in place on the date of entry into force of the Recycling Regulation, for which authorisation is refused or no valid application has been submitted in accordance with Article 13, shall be permitted until six months after the date of the adoption of the Decisions.
21. Trade in and use of recycled plastic materials and articles containing recycled plastic from a recycling process already in place on the date of entry into force of the Recycling Regulation, for which authorisation is refused or no valid application has been submitted in accordance with Article 13, shall be permitted until exhaustion of stocks.

## Auditing of the authorisation process for recycled plastics

22. Under Article 10 of the Recycling Regulation, Member State competent authorities are required to undertake official controls in the form of audits on the authorised recycling processes. These controls are to ensure that a given recycling process is operating in accordance with the relevant Commission Decision and that an effective quality assurance
system is in place, in accordance with Commission Regulation (EC) No. 2023/2006 on good manufacturing practice for materials and articles intended to come into contact with food ${ }^{8}$.
23. The Food Standards Agency (FSA) is preparing for the implementation of this auditing requirement after 2018. The aim is to ensure that these audits produce the minimum administrative and economic burden to industry and competent authorities, whilst ensuring consumer protection. The frequency of auditing is not likely to be specified in the Commission Decisions, but left to individual Member States to decide upon on a risk basis. Proportionate to the potential risks to public health, the likely frequency of auditing is expected to be around every three to five years. The FSA is currently exploring options for the provision of audit functions. A recommendation paper has been written on the auditing options and is under consideration. It is likely that the cost of carrying out the auditing would be passed onto recyclers, in line with European Regulations on Official Controls and the FSA's future regulatory strategy which says that businesses should meet the cost of regulation ${ }^{9}$.

## The Plastics Regulation

24. The Plastics Regulation is routinely amended to improve the clarity of the rules and to keep up with technological innovation. Applicants apply to the EFSA for evaluation of new substances that they wish to use in food contact plastics. The EFSA evaluates the risk to public health arising from the migration of these substances into food. If these substances are considered safe by the EFSA, the Commission amends the Plastics Regulation to include these substances.

## Changes made by the revised Plastics Regulation to the Annexes of the Plastics Regulation

25. The changes to the Annexes to the Plastics Regulation do not require any changes to be made to the enforcement provisions in the 2018 Regulations as a result of the existing ambulatory reference in the 2012 Regulations. Ten new substances that can be used in the manufacture of food contact plastics and amendments to six existing substances have been introduced by ambulatory references. The other main amendments to the Annexes include:

- the introduction of a migration limit of $1 \mathrm{mg} / \mathrm{kg}$ for aluminium from plastics (Annex II point 1)
- a reduction in the existing migration limit for zinc from plastics from $25 \mathrm{mg} / \mathrm{kg}$ to $5 \mathrm{mg} / \mathrm{kg}$ (Annex II point 1)
- allowing the testing in only one food simulant if appropriate scientific evidence is documented showing that that food simulant is the most severe (Annex III point 5)
- allowing the use of processing conditions used by business operators in food processing (such as pasteurisation or sterilisation) as testing conditions for migration testing (Annex V section 2.1.3 of chapter 2)
- allowing the use of a single screening test to screen compliance with the Regulation if the migration behaviour of a material or article is well established (Annex III point 5)
- the introduction of specific migration testing methods for fruits and vegetables (Annex III table 2)

[^3]26. Several other minor clarifications and corrections have been made to the Annexes to remove any doubt about the application of the Plastics Regulation.
2) We welcome stakeholders' comments on whether the new migration limit for aluminium from plastics; the lower migration limit for zinc from plastics; and simulant testing for unpeeled fruit and vegetables, is likely to lead to significant costs and whether any other costs are expected as a result of the EU Regulation.
Please explain your response and provide evidence (where possible) to support your views.

## Changes made by the revised Plastics Regulation to the Articles in the Plastics Regulation (not covered by ambulatory references)

27. Very minor changes are required to Schedule 1 to the 2012 Regulations to take account of changes made to the Articles in the Plastics Regulation by the revised Plastics Regulation.
28. The revised Plastics Regulation amends Articles 3, 6, 11, 13, 17 and 18 of the Plastics Regulation. The specific changes include:

- Article 3 was amended to revise the definitions for 'non-fatty food' and introduce a definition of 'hot fill'
- Article 6 (3) was replaced to clarify that the derogation for specified metal salts of authorised acids, alcohols and phenols applies to multiple salts and not just double salts
- Article 11 (2) was deleted to remove the requirement to test plastic materials that are not subject to specific migration limits with the generic specific migration limit of $60 \mathrm{mg} / \mathrm{kg}$
- a new point 4 was added in Article 11 to clarify that where it is specified that no migration of a particular substance is permitted, compliance shall be established using appropriate migration test methods selected in accordance with Article 11 of Regulation (EC) No. $882 / 2004$ that can confirm the absence of migration above a specified limit of detection
- Article 13 (3) was amended to clarify that substances not listed in the Union list, nor the provisional list, should not migrate through a functional barrier in accordance with the newly amended Article 11 (4)
- Article 17 3(a) was amended to clarify how migration limits should be specified for caps, gaskets and stoppers and similar sealing articles
- Article 18 (4) was amended to clarify that the whole of chapter 3 of Annex V is relevant for the verification of compliance with the overall migration limit for materials and articles not yet in contact with food
- Article 18 (7) was amended to clarify that the correction factors in point 3 of Annex III and Chapter 4 of Annex $V$ should be applied before comparing specific and overall migration test results with the migration limits


## Requirements for bisphenol A (BPA) in varnishes and coatings intended to come into contact with food

29. BPA is a chemical substance used in the manufacture of certain food contact materials such as plastic (polycarbonates) and coatings (epoxy resins). Polycarbonate is mainly used in food contact applications such as water cooler bottles based on the properties that it provides compared to other plastics. BPA-based epoxy resin is used to make the coatings applied to the inside of metal food and beverage cans to act as a barrier to protect the surface of the packaging material from damage from certain foods.
30. In accordance with Article 6 of the Framework Regulation, some Member States have adopted national provisions in those areas for which specific measures have not been established at European level.
31. Due to these divergent rules in some Member States, the Commission felt it necessary to introduce a specific measure on the use of BPA in coatings and varnishes applied to food contact materials. This Regulation sets a Specific Migration Limit (SML) of $0.05 \mathrm{mg} / \mathrm{kg}$ for the migration of BPA from varnishes and coatings applied to food contact materials. This SML is derived from the temporary tolerable daily intake ( t -TDI) that the EFSA set for BPA in $2015{ }^{10}$. The t-TDI takes account of some remaining uncertainties in relation to potential health effects and exposure estimates and therefore the precautionary principle is applied. It is expected that on-going long-term research will help to reduce these uncertainties.
32. The EFSA concluded that the dietary exposure to BPA for the highest exposed groups, which includes infants, children and adolescents, is below the t-TDI, indicating that there is no health concern at the estimated levels of exposure. The BPA Regulation amends the Plastics Regulation, reducing the existing SML for BPA so it is in line with the BPA Regulation.
33. The BPA Regulation also specifies that there shall be no permitted migration of BPA from varnishes or coatings applied to materials and articles specifically intended to come into contact with either infant formula, follow-on formula, processed cereal-based food, baby food, food for special medical purposes developed to satisfy the nutritional requirements of infants and young children, or milk-based drinks and similar products specifically intended for young children.
3) We invite stakeholders to comment on our assessment that there may be costs associated with testing to demonstrate compliance with the new migration limits for BPA from coatings and varnishes.

If you agree or disagree with this assessment, please explain your response and provide evidence (where possible) to support your views.

## Sectors affected

34. We have used the Interdepartmental Business Register (IDBR) to identify which sectors and industries in England, Wales and Northern Ireland (E,W\&NI) may be affected by the policy. The IDBR is a comprehensive register of businesses, which covers $99 \%$ of UK economic activity. The data in the register is structured by the UK Standard Industrial Classification of Economic Activities (SIC 2007). Given the aggregate nature of the IDBR, it has been difficult to identify precise subsectors that will be affected by the proposed Regulations. This means that the sectors identified and used in the analysis will be larger (in terms of number of

[^4]businesses affected) than the number affected by the policy. For example: "manufacture of plastic packing goods" SIC-2222 refers to all plastic packaging manufacturers not exclusively those in contact with food. To minimise the impact of these uncertainties we have provided sensitivity analysis around the final costings (sector size of $50 \%$ and $80 \%$, respectively, of the actual sector size in the available data), see Annex 2. The central estimate of $80 \%$ (which remains conservative) is used to calculate the best estimate of the costs and benefits.

## Industry

The Recycling Regulation
35. This Regulation will affect:

- the eight recycling businesses in England producing recycled material for food contact use (assuming their processes are authorised by Commission Decisions)
- businesses using the recycled material produced from these recycling processes to make new materials and articles for food contact
- businesses using recycled material produced from other authorised EU recycling processes

36. The FSA does not envisage that the adoption of the authorisation decisions on recycling processes will lead to additional costs for recyclers. Some of the authorisation decisions may set restrictions on the amount of recycled material that can be incorporated into finished products as a result of the safety assessments carried out by the EFSA. The eight businesses in England who have pending applications for authorisation of their recycling processes may therefore already be complying with any restrictions as the decisions are likely to closely follow the EFSA opinions. As mentioned in paragraph 23 it is likely that there will be a small cost to recyclers associated with the auditing provisions required by the Recycling Regulation. Conversely, there may also be a benefit for recyclers, as the authorisation decisions may open new markets for the recycled plastic produced under EUauthorised recycling processes.

## The revised Plastics Regulation

37. Any costs to industry associated with the revised Plastics Regulation relate to businesses involved in the manufacture of plastic materials and articles intended to come into contact with food (including articles such as food packaging, cookware, cutlery, tableware, work surfaces and food contact parts of processing equipment), not the whole packaging industry. This will apply equally to all businesses in this sector regardless of size.

## The BPA Regulation

38. The FSA does not envisage that a reduction in the specific migration limit for BPA from plastics will change the existing cost of compliance for plastic manufacturers. There will be a cost for businesses associated with testing for compliance with the new SML for BPA from varnishes and coatings applied to food contact materials and articles. However, at present businesses are still required to demonstrate compliance with the Framework Regulation on food contact materials, Regulation (EC) No. 1935/2004.
39. This Impact Assessment is based on England and all costs and benefits are provided for England only. However, as changes to the legislation in England will require similar changes
to be enacted in each of the devolved administrations we have provided analysis for E,W\&NI; Tables 1 and 2 summarise the distribution across E,W\&NI of the sectors that are affected by the proposed Regulations. A more detailed description of the SIC codes is provided in Annex 3. There remains uncertainty as to the number of affected businesses using IDBR SIC classification. As a result, the number of businesses set out in Tables 1 and 2 represents $80 \%$ of the maximum number of potentially affected businesses (full sensitivity analysis can be found in Annex 2).

Table 1: Option 2 - Sectors affected by the Regulation by Country

| Country | England | Wales | Northern <br> Ireland | Total |
| :--- | :---: | :---: | :---: | :---: |
| Plastics manufacturer (2222) | 376 | 24 | 8 | 408 |
| Recyclers producing material for food contact | 8 | 0 | 0 | 8 |
| Food canners/coatings manufacturers (2529, <br> 2592, 2561) | 1455 | 60 | 45 | 1560 |

Source: IDBR 2020. For details and SIC codes see Annex 3
Table 2: Option 2 - Sectors affected by firm size for E,W\&NI

| Firm Size | Micro | Small | Medium | Large | Total |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Plastics manufacturer (2222) | 164 | 146 | 84 | 13 | 408 |
| Recyclers producing material for food contact | 0 | 0 | 0 | 8 | 8 |
| Food canners/coatings manufacturers (2529, <br> 2592, 2561) | 938 | 490 | 116 | 16 | 1560 |

Source: IDBR 2020. For details and SIC codes see Annex 3
4) We invite stakeholders to comment on whether we have adequately captured the nature of the England, Wales and Northern Ireland markets or not. If not, please provide us with an approximation of the number of firms affected and their size in terms of number of employees.

## Enforcement bodies

40. Enforcement authorities will also be affected by the proposed Regulations as they will be responsible for providing for the enforcement of the Recycling Regulation, the changes to the Plastics Regulation made by the revised Plastics Regulation and the BPA Regulation. There will also be one-off costs to enforcement bodies for familiarisation with the proposed Regulations and the three EU Regulations. Table 3 shows the number of enforcement authorities that are affected by the proposed Regulations. This includes Local Authorities (LAs), Port Health Authorities (PHAs) and Official Control Laboratories (OCLs).

Table 3: Number of LAs, PHAs and public OCLs in each country

| Enforcement Body | England | Wales |  |
| :--- | :---: | :---: | :---: |
| LA | 347 | 22 | Northern <br> Ireland |
| PHA | 15 | 0 | 0 |
| OCL | 7 | 4 | 1 |

Source: FSA internal data

## Options Considered

Option 1: Do not provide for the enforcement and execution of Commission Regulation (EC) No. 282/2008, nor Commission Regulation (EU) No. 2016/1416, nor Commission Regulation (EU) No. 2018/213.
41. Under this option, the three directly applicable European Regulations would still be applicable in England and the rest of the UK. However, enforcement authorities in England would not have the necessary powers to enforce certain provisions, which could consequently have adverse impacts on public health. Non-compliance with these legal requirements could not be prevented and penalties could not be imposed on those in breach of the requirements. The UK's obligation (under the Treaty on the Functioning of the European Union) to put in place provisions for their enforcement would not be fulfilled which would place the UK at risk of being subject to infraction proceedings.

Option 2: Make appropriate domestic Regulations for the execution and enforcement of Commission Regulation (EC) No. 282/2008, and Commission Regulation (EU) No. 2016/1416 and Commission Regulation (EU) No. 2018/213.
42. This option will provide enforcement authorities with the necessary powers and administrative arrangements to execute and enforce the provisions of the three EU Regulations in England. This ensures that enforcement authorities fulfil the requirement placed upon them and that the Courts can impose the associated penalties.

## Options Appraisal

## Costs and Benefits

Option 1: Do not provide for the enforcement and execution of Commission Regulation (EC) No. 282/2008, nor Commission Regulation (EU) No. 2016/1416, nor Commission Regulation (EU) No. 2018/213.
43. There are no relatable costs or benefits associated with this option to the main affected groups. This is the baseline against which the other policy option is appraised. There is however the risk of costs as a result of infraction proceedings as a failure to implement the enforcement provisions of the Commission Regulations.

Option 2: Make appropriate domestic Regulations for the execution and enforcement of Commission Regulation (EC) No. 282/2008, and Commission Regulation (EU) No. 2016/1416 and Commission Regulation (EU) No. 2018/213.
44. This is the preferred option as it will enable the execution and enforcement of the three European Regulations in England.

## Costs - Option 2

Industry Familiarisation (one-off costs)
45. Under Option 2, there will be a one-off cost to industry for reading and familiarising themselves with the Recycling Regulation, the revised Plastics Regulation and the new BPA Regulation.
46. Familiarisation costs are quantified by multiplying the time it will take for a manager to familiarise themselves with the Regulations, by the median hourly wage rate of that manager, uplifted by $20 \%$ to allow for overheads. Total costs in England are calculated by multiplying total business cost by the number of businesses within that industry. We have assumed that for industry it will be one or more of either the regulatory, technical or production manager that will be responsible for familiarisation with the three EU Regulations. The median hourly wage rate for a production manager in the Annual Survey
of Hours and Earnings (ASHE 2019) is £22.45, which uplifted for overheads is $£ 26.94{ }^{11}$. There is no median hourly wage posted for regulatory or technical managers within the ASHE. Therefore, the assumption has been made that their median hourly wage rate will be similar to that of a production manager, which will be taken as representative of the costs incurred for each role. The businesses affected under this Option are:

A] recyclers of plastic materials and articles producing material for food contact (there are 8 recyclers in England)

B] manufacturers of plastic packaging goods and other plastic products that are intended to come into contact with food, including businesses that use recycled plastic to produce these goods

C] coatings manufacturers, can makers and food canners.
A] Familiarisation costs for plastic recyclers producing material for food contact
47. We have assumed that one production manager at a recycling plant will be responsible for familiarisation with the Regulations. As they will already be familiar with the requirements of the Recycling Regulation through making an application for authorisation under the Regulation, we have assumed that costs will only result from familiarising themselves with the requirements of the authorisation Decision.
48. We estimate that 2 hours are required for familiarisation; one hour for the authorisation Decision and another hour to disseminate the information within the organisation. This results in a familiarisation cost per business of $£ 53.88$, giving a total familiarisation cost to plastic recyclers in England of $£ 431.04$. Table 4 presents total familiarisation costs by firm size and country and Table 5 presents familiarisation costs as annual equivalent costs:

Table 4: Familiarisation costs for plastic recyclers producing material for food contact

|  | Micro |  | Small | Medium | Large |  | Total |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| England | $£ 0.00$ | $£ 0.00$ | $£ 0.00$ | $£ 431.04$ | $£ 431.04$ |  |  |
| Wales | $£ 0.00$ | $£ 0.00$ | $£ 0.00$ | $£ 0.00$ | $£ 0.00$ |  |  |
| NI | $£ 0.00$ | $£ 0.00$ | $£ 0.00$ | $£ 0.00$ | $£ 0.00$ |  |  |

Table 5: Annual Equivalent Costs (AEC) for plastic recyclers producing material for food contact

|  | England | Wales | Northern <br> Ireland |  |
| :---: | :---: | :---: | :---: | :---: |
| AEC $(£)$ | $£ 50.08$ | $£ 0.00$ | $£ 0.00$ | $£ 50.08$ |

## B] Familiarisation costs for plastic manufacturing industry (includes users of recycled material)

49. The revised Plastics Regulation is specific to food contact materials and articles manufactured from plastic. We have assumed that one production manager will be responsible for familiarisation.
50. We estimate that two and a half hours are required for familiarisation; one hour for the revised Plastics Regulation, half an hour for the requirements for recycled plastic used to make plastic materials and articles and another hour to disseminate the information within the organisation. This results in a familiarisation cost per business of $£ 67.35$, giving a total

[^5]familiarisation cost to the plastic manufacturing industry in England of $£ 25,323.60$. Table 6 presents total familiarisation costs by firm size and country and Table 7 presents familiarisation costs as annual equivalent costs:

Table 6: Familiarisation costs for the plastic manufacturing industry (includes users of recycled material)

|  | Micro | Small | Medium | Large | Total |
| :--- | :---: | :---: | :---: | :---: | :---: |
| England | $£ 10,184.49$ | $£ 9,083.47$ | $£ 5,229.87$ | $£ 825.77$ | $£ 25,323.60$ |
| Wales | $£ 650.07$ | $£ 579.80$ | $£ 333.82$ | $£ 52.71$ | $£ 1,616.40$ |
| NI | $£ 216.69$ | $£ 193.27$ | $£ 111.27$ | $£ 17.57$ | $£ 538.80$ |

Table 7: Annual Equivalent Costs (AEC) to the Plastic Manufacturing Industry (includes users of recycled material), by Country

|  | England | Wales | Northern <br> Ireland | Total |
| :--- | :---: | :---: | :---: | :---: |
| AEC $(£)$ | $£ 2,941.98$ | $£ 187.79$ | $£ 62.60$ | $£ 3,192.36$ |

C] Familiarisation costs for coatings manufacturers, can makers and food canners
51. We have assumed that one production manager will be responsible for familiarisation with the BPA Regulation.
52. We estimate that two hours are required for familiarisation, one hour for the amendments and another hour to disseminate the information within the organisation. This results in a familiarisation cost per business of $£ 53.88$, giving a total familiarisation cost for coatings manufacturers, can makers and food canners of $£ 78,395.40$. Table 8 presents total familiarisation costs by firm size and country and Table 9 presents familiarisation costs as annual equivalent costs:

Table 8: Familiarisation costs for coatings manufacturers, can makers and food canners

|  | Micro | Small | Medium | Large | Total |
| :--- | :---: | :---: | :---: | :---: | :---: |
| England | $£ 47,143.18$ | $£ 24,630.99$ | $£ 5,826.69$ | $£ 794.55$ | $£ 78,395.40$ |
| Wales | $£ 1,944.05$ | $£ 1,015.71$ | $£ 240.28$ | $£ 32.76$ | $£ 3,232.80$ |
| NI | $£ 1,458.04$ | $£ 761.78$ | $£ 180.21$ | $£ 24.57$ | $£ 2,424.60$ |

Table 9: Annual Equivalent Costs (AEC) for coatings manufacturers, can makers and food canners

|  | England | Wales | Northern <br> Ireland | Total |
| :--- | :---: | :---: | :---: | :---: |
| AEC $(£)$ | $£ 9,107.60$ | $£ 375.57$ | $£ 281.68$ | $£ 9,764.85$ |

Table Notes:

1. Totals may not sum due to rounding.
2. Due to the aggregated nature of IDBR, some subsectors covered by the analysis will be larger than the actual subsection covered by the policy. The IDBR does not disaggregate data by sector, business size and country simultaneously. These categorisations are therefore estimated based on the proportion of businesses in each country, for each size of business.
3. Costs are estimated by uplifting wage rates by $20 \%$ to account for overheads; this means the wage rates reported in the text are approximate to 2 decimal places and when grossed may result in rounding error.
5) We welcome stakeholders' comments on whether our estimates of familiarisation costs to industry (outlined in Tables 4, 6 and 8) and our assumption that it will take businesses up to one hour to familiarise themselves with the requirements of the EU Regulations (plus half an hour for the Recycled Plastics requirements where pertinent) and one hour to disseminate to other members of staff (two or two-and-a-half hours in total) is reasonable.
If you agree or disagree with our assumptions, please explain your response and provide evidence (where possible) to support your views/comments.

## Other Costs

## Recyclers

53. As discussed in paragraphs 22 and 23 , recycling processes that are authorised by Commission Decisions will have to undergo auditing by Member States.

## Plastic manufacturers

54. The revised Plastics Regulation introduces a limit on the migration of aluminium from plastic food contact materials of $1 \mathrm{mg} / \mathrm{kg}$. This is derived from the tolerable weekly intake for aluminium of 1 mg of aluminium per kilogram of bodyweight per week, as a significant part of the population exceeds this level. Assessing compliance with this migration limit will only affect those manufacturers that use aluminium in their processes. Similarly, the revised Plastics Regulation reduces the existing migration limit of zinc from plastic food contact materials.
55. The revised Plastics Regulation also introduces specific migration testing provisions for plastic materials and articles in contact with fresh unpeeled fruits and vegetables. This will offer improved consumer protection from substances that could migrate from such plastics. It is a requirement that a food simulant should be assigned to certain products for the purposes of testing but this may result in overestimation (depending on size and shape of the fruits and vegetables, and whether fruits and vegetables are peeled or not). The overestimation should be addressed with a correction factor. Depending on the circumstances (type of food simulant required), additional costs may be incurred.

## BPA

56. The introduction of a SML for migration of BPA from coatings and varnishes applied to food contact materials has cost implications with regards to migration testing and possibly the frequency of such tests. The coatings industry has said that they will no longer be able to use total extraction to measure the migration of BPA.
57. Despite the costs of compliance, the industry was very keen to see this measure adopted as it will lead to harmonisation of the internal market, which is expected to outweigh their costs.

## Enforcement Authorities Familiarisation (one-off costs)

58. There will be a one-off cost to Enforcement Authorities (EAs) for reading and familiarising themselves with the new Regulations. Local Authorities (LAs) and Port Health Authorities (PHAs) are responsible for enforcing food safety and food hygiene legislation in their
respective areas and as such, will need to be aware of the legislative changes. In addition, there will also be a one-off cost to Official Control Laboratories (OCLs) for reading and familiarising themselves with the changes to testing requirements.
59. Familiarisation costs are quantified by multiplying the time it will take for an official to familiarise themselves with the Regulations, by the median hourly wage rate of the official, uplifted by $20 \%$ to allow for overheads, and the number of enforcement authorities or laboratories affected. A two-hour familiarisation time for all enforcement authorities and OCLs was used as per the original impact assessment.
60. For LAs and PHAs, either an Environmental Enforcement Officer (EEO) or a Trading Standards Officer (TSO) will be required to familiarise themselves with the new enforcement provisions. To account for the differences across enforcement authorities ${ }^{12}$, wage rates for both TSOs and EEOs are used to produce a range of values for hourly pay. As the lower bound we have used the uplifted, median hourly wage of a TSO ( $£ 19.01^{13}$ ) and as the upper bound the uplifted, median hourly wage rate of an EEO (£23.29 ${ }^{14}$ ). This gives a central estimate of $£ 21.15$. (For full sensitivity analysis, see Annex 1 ).
61. For OCLs we have used an ASHE median hourly wage estimate for a science and technology professional of $£ 21.48$ which increases to $£ 25.78$ when adjusted for overheads.
62. We have estimated that that one enforcement officer per EA and one science professional per OCL is required for familiarisation.

For LAs and PHAs, this results in a lower bound familiarisation cost of $£ 38.02$ and an upper bound familiarisation cost of $£ 46.58$ and a central (mid-point) estimate of $£ 42.30$ per authority. For OCLs the familiarisation cost per authority is $£ 51.55$. Multiplying the cost per authority by the number of authorities, taking into account the wage differences between PHAs/LAs and OCLs, results in a total familiarisation cost to E,W\&NI enforcement of $£ 117,369.42$. Table 10 presents the familiarisation costs by country.

For one-off costs to be compared with annual costs on an equivalent basis across the entire time span of the policy, one-off costs are converted into Annual Equivalent Costs (AEC) by dividing the one-off cost by an annuity factor.

The total one-off cost to enforcement authorities and OCLs in England affected by this proposal is estimated to be $£ 15,673.46$ which yields an annual equivalent cost of $£ 1,820.87$ for a period of 10 years. Table 11 presents familiarisation costs as annual equivalent costs.

Table 10: Table summarising the familiarisation costs by country

|  | England | Wales | Northern <br> Ireland | Total |
| :--- | :---: | :---: | :---: | :---: |
| LA | $£ 14,678.10$ | $£ 930.60$ | $£ 507.60$ | $£ 16,116.30$ |
| PHA | $£ 634.50$ | $£ 0.00$ | $£ 0.00$ | $£ 634.50$ |
| OCL | $£ 360.86$ | $£ 206.21$ | $£ 51.55$ | $£ 618.62$ |
| Total | $£ 15,673.46$ | $£ 1,136.81$ | $£ 559.15$ | $£ 17,369.42$ |

## Table Notes:

1. Totals may not sum due to rounding.

[^6]2. Costs are estimated by uplifting wage rates by $20 \%$ to account for overheads; this means the wage rates reported in the text are approximate to 2 decimal places and when grossed may result in rounding error.

Table 11: Annual Equivalent Costs (AEC) for enforcement authorities by country

|  | England | Wales | Northern <br> Ireland | Total |
| :--- | :---: | :---: | :---: | :---: |
| EAC | $£ 1,820.87$ | $£ 132.07$ | $£ 64.96$ | $£ 2,017.90$ |

6) We invite stakeholders' comments on whether our estimates of familiarisation costs to enforcement bodies and official control laboratories (outlined in Table 10) and our assumption that it will take enforcement bodies and official control laboratories one hour to familiarise themselves with the requirements of the EU Regulations, and one hour to disseminate to other members of staff (two hours in total) is reasonable.
If you agree or disagree with our assumptions, please provide explain your response and provide evidence to support your views / comments.

## Benefits - Option 2

Industry
63. A benefit of the revised Plastics Regulation is that it allows industry to use new substances in the manufacture of plastic materials and articles to keep up with innovation. The requirement to test for compliance with the generic specific migration limit for substances for which no specific migration limit has been set has been removed as the migration levels from all substances are already subject to compliance with an overall migration limit. The removal of this overly burdensome testing requirement will be a benefit to businesses. Another benefit of the revised Plastics Regulation is that it provides more flexibility in compliance testing.
64. Having all the legislation in one place is helpful for smaller businesses if they are given confidence there is only one main regulation they need to reference to ensure compliance. Without this reassurance there will be concern that a regulation amendment such as this may be missed.
7) We welcome stakeholders' comments on our assessment that there may be benefits to industry for using new substances in the manufacture of plastic materials and articles, and benefits from the removal of the generic specific migration limit.
If you agree or disagree with this assessment, please explain your response and provide evidence (where possible) to support your views / comments.

## Enforcement authorities

65. The amendment will provide for the execution and enforcement in England of Commission Regulation (EC) No. 282/2008 on recycled plastics, Commission Regulation (EU) No. 2016/1416 on plastics and Commission Regulation (EU) No. 2018/213 on bisphenol A; and provide for offences of contravening certain provisions of the three European Regulations,
provide for the provision of Compliance Notices, together with specifying the penalties that the Courts may impose upon conviction for an offence.
66. As with business, local authorities have expressed the attitude that a single consolidated piece of legislation is a benefit as it provides clarity on the EU Regulations they provide enforcement for. They are unlikely to miss the new requirements due to fragmentation of the legislation, and will provide the clarity as to their powers to enforce the new European legislations.

## Consultation

67. During the course of negotiations with the Commission, FSA officials have frequently consulted interested organisations, including industry, research institutes, consumer groups, enforcement bodies, public analysts and others with an interest in policy issues related to food contact materials.
68. Numerous consultations on harmonising food contact materials have been carried out/conducted since 2002. The FSA carried out two informal consultations in 2004 and 2008, which enabled the FSA to acquire useful information on the practicalities of setting out auditing provisions within the recycling Regulation. The 2008 consultation involved comments from enforcement bodies, allowing the FSA to consider frequency of auditing and other factors.
69. The FSA continued to hold informal discussions with stakeholders whilst keeping in touch with developments at the EU level. In 2014, the FSA wrote to local authorities and other government departments to help identify who would be best placed to perform the official controls. The latest comments form the basis of on-going consideration of the auditing provisions of the Recycling Regulation.
70. In 2017, the Commission and the EFSA welcomed comments via a public consultation on the draft BPA Regulation and the hazard assessment protocol respectively. The FSA actively encouraged stakeholder participation for both consultations. For the BPA Regulation, there was the option for stakeholders to share their views via the FSA rather than responding directly to the consultation platform. This helped inform the UK on its negotiation position on BPA.
71. A total of 151 comments from European stakeholders were received via the public consultation on the hazard assessment protocol, which was held between 30 June to 3 September 2017. The EFSA had also carried out separate public consultations on BPA in 2013 and 2014, which focussed specifically on general BPA human exposure and BPA toxicology, respectively. Almost 500 comments from European stakeholders were received from these earlier consultations.

## Formal Consultation

72. The FSA will conduct a formal public consultation from 9 April 2018 on this Impact Assessment and draft Statutory Instrument. This will be of interest to businesses that manufacture, import, wholesale and/or retail plastic and recycled plastic materials and articles intended to come into contact with food, PHAs, Local Enforcement Authorities, consumers and other parties that deal with policy and legislation on food contact materials.

## Small and Micro Businesses Assessment

73. As the $\mathrm{E}, \mathrm{W} \& \mathrm{NI}$ food and drink packaging industry sector is comprised of mainly small and micro businesses, these will be impacted the most by changes in the new EU Regulations. For this reason, the FSA assesses the impact on small and micro businesses as standard when undertaking impact assessments.
74. The food and drink packaging industry is highly fragmented and diverse and is served by many suppliers. In 2001, the packaging industry employed approximately 100,000 people in around 2,700 companies $-85 \%$ of which are described as small-to micro-sized companies. In $2003^{15}$, a study of the UK's entire packaging industry identified 13,000 packaging companies which combined, employ 250,000 people. The study also revealed that half of all packaging companies have a turnover less than $£ 10$ million, and that $85 \%$ are small to medium size enterprises. It should be noted however, that not all the packaging would be destined as food packaging.
75. The potential commercial impact of the proposals applies equally to all businesses involved, small or large. EU legislation generally applies to food businesses regardless of size, as requirements are intended to be risk based to reflect the activities undertaken. Due to the high ratio of small and micro food businesses in E,W\&NI, which was highlighted within this Impact Assessment, it is often not feasible to exempt smaller businesses from new food measures. This is because it would fail to achieve the intended effect of reducing risks to consumer health. That said, the FSA makes every effort to minimise burdens on small and micro businesses and pays particular attention to impacts on them.
8) We invite stakeholders' comments on whether or not you agree with our assumption that there will not be a significant impact on small or microbusinesses as a result of this legislation.
If you agree or disagree with this assessment, please explain your response and provide evidence (where possible) to support your response.

## Statutory Post-Implementation Review

76. The FSA is required by the UK Government to carry out a review every five years on the way in which EU legislation is implemented and enforced by the relevant domestic legislation and, to the extent that it is reasonably practicable, to compare that with how the same EU measures are implemented or enforced in other Member States. The FSA will carry out a review in October 2023 (or earlier) to assess whether the Regulations are achieving their intended objectives.

Race/Gender/Disability Equality Issues
77. There will be no impacts on existing health, wellbeing or other social inequalities, on human rights, on levels of crime or crime prevention, or on skills and education. There will be no differential impact on rural or urban areas, nor are there any specific local or regional effects.
9) We welcome stakeholders' comments on whether you are aware of any other impacts as a result of the EU Regulations and national Regulation?
Please explain your response and provide evidence (where possible) to support your response.

[^7]20

## N.B: Annex 4 is an additional Annex that was not previously included within the

 original 2018 Impact Assessment that accompanied the consultation pack.78. Given that the proposed laying date of the Materials and Articles in Contact with Food (England) (Amendment) Regulations 2018 is now expected to be in 2020, the original Impact Assessment has been updated to account for latest figures (to update the original familiarisation costs) and these can be found within the main body of the Impact Assessment and within Annex 1, 2 and 3. Full details of the updates, including direct links to the published summary of responses to the original 2018 consultation can be found within the newly created Annex 4.

Annex 1 Sensitivities of One-off Familiarisation Costs under Different Wage Rates (Central, Low or High) per LA, PHA and OCL by Country (updated to reflect 2020 rates)

| Enforcement Body | England | Wales | Northern Ireland |
| :---: | :---: | :---: | :---: |
| LA | 347 | 22 | 12 |
| PHA | 15 | 0 | 0 |
| OCL | 7 | 4 | 1 |
| Familiarisation Cost LA |  |  |  |
| Low | £13,191.55 | £836.35 | £456.19 |
| Central | £14,678.10 | £930.60 | £507.60 |
| High | £16,164.65 | £1,024.85 | £559.01 |
| Familiarisation Cost PHA |  |  |  |
| Low | £570.24 | $£ 0.00$ | £0.00 |
| Central | £634.50 | $£ 0.00$ | $£ 0.00$ |
| High | £698.76 | $£ 0.00$ | £0.00 |
| Familiarisation Cost OCL |  |  |  |
| Central | £360.86 | £206.21 | £51.55 |
| Total (low) | £14,122.66 | £1,042.56 | £507.74 |
| Total (Central) | £15,673.46 | £1,136.81 | £559.15 |
| Total (high) | £17,224.27 | £1,231.06 | £610.56 |

Annex 2 Sensitivities of One-off Familiarisation Costs under percentages of plastics manufacturers involved in food contact materials (Central, Low or High)


Annex 3 Description of the SIC codes

| Industry <br> Manufacturing: Food Contact Plastics | SIC Code |
| :--- | :---: |
| Manufacturer of plastic packaging goods | 2222 |
| Manufacture of other plastic products | 2229 |
| Manufacturing | SIC Code |
| Manufacture of other tanks, reservoirs and containers of metal | 2529 |
| Treatment and coating of metals | 2561 |
| Manufacture of light metal packaging | 2592 |

## Annex 4 Updated Impact Assessment and FSA responses to the consultation

## N.B. Please note that Annex 4 is a new Annex as a result of updating the Impact Assessment.

- The original consultation ran from 9 April to 4 June 2018, which included a published Impact Assessment for the proposed regulations. Given that there has been a delay in implementing these provisions, the FSA has now updated the Impact Assessment to ensure that it accurately accounts for the latest 2020 figures and rates. Should you wish to view the original Impact Assessment that accompanied the 2018 consultation pack, it can be viewed at:
https://www.food.gov.uk/sites/default/files/media/document/materialsandarticlesincontact withood 0.pdf
- As indicated in the Explanatory Memorandum, we had responded to the feedback obtained from two stakeholders following the original 2018 consultation. Our original responses were previously provided in the 'Summary of responses' section on our website.


## Original responses (refer to 'Summary of responses')

- To view the original published responses, please refer to 'Summary of responses' at the consultation page. The Explanatory Memorandum can be referred to for additional details.
https://www.food.gov.uk/news-alerts/consultations/the-materials-and-articles-in-contact-with-food-england-amendment-regulations-2018
- The comments received by industry on the familiarisation costs within the original Impact Assessment was that it did not account for time spent by industry to discuss declarations of compliance with their suppliers. The FSA considered this, however the potential discussions involving declarations of compliance could be construed as normal practice given that a declaration of compliance is already required for certain types of food contact materials, including for plastic articles (the BPA Regulation amends the Plastics Regulation). Many of these suppliers will also be aware of the need to provide a declaration of compliance for materials and/or articles that they are already manufacturing.
- The Trading Standards Association (TSA) said that they didn't completely agree that the additional burden as a result of these changes on enforcement authorities would be minimal, due to the additional training required for all food officers, including implementation of new internal policies and procedures; and the redrafting of business information leaflets. Similarly, the FSA had considered this. As there has been a delay in implementing these new provisions, several food policy areas have, or are, in the process of introducing compliance notices as a first line of intervention, therefore there will be a standard template in which enforcement officers can use and they should be becoming familiar with the enforcement process, particularly given the delay in making these enforcement provisions. The FSA is happy to support individual enforcement authorities with any initial concerns. A paper on the proposals was also shared with the Food Standards \& Labelling Focus Group, which delivered updates to Local Authorities. It helped to increase awareness of proposed and existing food contact material enforcement requirements. The FSA had previously noted this feedback, and this was one of the actions that it had taken.
- The FSA has also regularly provided updates to Local and Port Health Authorities concerning specific high-profile issues at the EU level and appropriate enforcement. Although enforcement is the responsibility of the enforcement authorities, the FSA provided advice and recommendations about how to potentially approach the enforcement of complex articles whilst EU work was ongoing and not fully unresolved.
- The TSA's additional concerns about auditing of recycled plastic processes is no longer relevant as the FSA is looking to obtain a third party to carry out these audits. At the time, the FSA responded to say that it was developing a national strategy for the auditing of recycling processes which is not envisaged to involve enforcement officers at the local authority level. This has not changed as the FSA recently published a tender in an attempt to acquire a suitable third party to carry out the individual audits of recycled plastic processes within the UK, which is an EU requirement for operators that are placing recycled plastic material onto the EU market. The FSA can confirm that Local Authorities will not need to carry out additional training in relation to this.

Please also refer to Annex 5 below for further information on the data included within the Impact Assessment.
Annex 5: 2020 Data to accompany the updated IA for Materials and Articles in Contact with Food (England) Regulations
2020 Data

UK 3 Countries | $\infty$ |
| :---: | :---: | :---: | :---: | :---: | :---: | $80 \%$ assumption applied



[^8]
## Industry:


Familiarisation Costs for plastic recyclers producing material for food

Familiarisation Costs for coatings manufacturers, can makers and food

|  | Micro | Small | Medium | Large | Total |
| :---: | :---: | :---: | :---: | :---: | :---: |
| England | £47,143.18 | £24,630.99 | £5,826.69 | $£ 794.55$ | £78,395.40 |
| Wales | £1,944.05 | £1,015.71 | £240.28 | £32.76 | £3,232.80 |
| NI | £1,458.04 | £761.78 | £180.21 | £24.57 | £2,424.60 |


|  | Micro | Small | Medium | Large | Total |
| :---: | :---: | :---: | :---: | :---: | :---: |
| England | £10,184.49 | £9,083.47 | £5,229.87 | £825.77 | £25,323.60 |
| Wales | £650.07 | £579.80 | £333.82 | £52.71 | £1,616.40 |
| NI | £216.69 | £193.27 | £111.27 | £17.57 | £538.80 |


Annual Equivalent Costs for coatings manufacturers, can makers and food

2016: Workforce data, 22 (plastics \& rubber manufacturers)
Option 2 Sectors affected by country and firm size

27

| Number of Firms | Micro | Small | Medium | Large | Total |
| :--- | ---: | ---: | ---: | ---: | ---: |
| England | 3,015 | 1,440 | 510 | 80 | 5,045 |
| Wales | 180 | 75 | 40 | 5 | 300 |
| NI | 150 | 40 | 20 | 5 | 215 |
| UK | 3,470 | 1,625 | 595 | 95 | 5,785 |
|  |  |  |  |  |  |
| Percentage | Micro | Small | Medium | Large | Total |
| England | $86.89 \%$ | $88.62 \%$ | $85.71 \%$ | $84.21 \%$ | $87.21 \%$ |
| Wales | $5.19 \%$ | $4.62 \%$ | $6.72 \%$ | $5.26 \%$ | $5.19 \%$ |
| NI | $4.32 \%$ | $2.46 \%$ | $3.36 \%$ | $5.26 \%$ | $3.72 \%$ |

Enforcement Authorities (EA):

| Enforcement Body | England | Wales |  | Northern Ireland | 3 Countries | United Kingdom |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| LA | 347 | 22 |  | 12 | 381 | 428 |
| PHA | 15 | 0 |  | 0 | 15 | 15 |
| OCL | 7 | 4 |  | 1 | 12 | 16 |
| Familiarisation Cost LA |  |  |  |  |  |  |
| Low | £13,191.55 | £836.35 |  | £456.19 |  |  |
| Central | £14,678.10 | £930.60 |  | $£ 507.60$ |  |  |
| High | £16,164.65 | £1,024.85 |  | £559.01 |  |  |
| Familiarisation Cost PHA |  |  |  |  |  |  |
| Low | £570.24 | £0.00 |  | $£ 0.00$ |  |  |
| Central | £634.50 | £0.00 |  | £0.00 |  |  |
| High | £698.76 | £0.00 |  | £0.00 |  |  |
| Familiarisation Cost OCL |  |  |  |  |  |  |
| Central | £360.86 | £206.21 |  | $£ 51.55$ |  |  |
|  |  |  |  |  |  |  |
| Total (low) | £14,122.66 | £1,042.56 |  | £507.74 |  |  |
| Total (Central) | £15,673.46 | £1,136.81 |  | £559.15 |  |  |
| Total (high) | £17,224.27 | £1,231.06 |  | £610.56 |  |  |

[^9]|  | England | Wales | Northern Ireland | Total |
| :---: | :---: | :---: | :---: | :---: |
| LA | £14,678.10 | £930.60 | £507.60 | £16,116.30 |
| PHA | £634.50 | £0.00 | £0.00 | £634.50 |
| OCL | £360.86 | £206.21 | £51.55 | £618.62 |
| Total | £15,673.46 | £1,136.81 | £559.15 | £17,369.42 |

Familiarisation:

| EAC |
| ---: |


Plastic recyclers producing material for food contact

| Cost | Description | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Total | Average/EAC | Present Value |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| One-off cost | Familiarisation costs | 431 |  |  |  |  |  |  |  | $£ 431.04$ | $£ 50.08$ | $£ 431.04$ |  |  |

Coatings manufacturers, can makers and food canners | Cost | Description | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Total | Average/EAC | Present Value |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | ---: | ---: | ---: | ---: | ---: |
| One-off cost | Familiarisation costs | 84052.8 |  |  |  |  |  |  | $£ 84,052.80$ | $£ 9,764.85$ | $£ 84,052.80$ |  |  |  |

Enforcement
Lower bound


Central estimate


| Cost | Description | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Total | Average/EAC | Present Value |
| :--- | :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| One-off cost | Familiarisation costs LA | 16116.3 |  |  |  |  |  |  |  | $£ 16,116.30$ | $£ 1,872.31$ | $£ 16,116.30$ |  |  |
|  | Familiarisation costs PHA | 634.5 |  |  |  |  |  |  | $£ 634.50$ | $£ 73.71$ | $£ 634.50$ |  |  |  |
|  | Familiarisation costs OCL | 618.624 |  |  |  |  |  | $£ 618.6$ | $£ 618.62$ | $£ 71.87$ | $£ 618.62$ |  |  |  |

Wage data:
Industry

Plastic recyclers producing material for food contact
Plastic manufacturing industry
Production managers and directors
ners


Enforcement
LA


OCL
Position
Technology professional





| Information technology and telecommunications directors | $\begin{array}{r} 113 \\ 6 \end{array}$ | 35 | 36.39 |
| :---: | :---: | :---: | :---: |
| Functional managers and directors n.e.c. | $\begin{array}{r} 113 \\ 9 \end{array}$ | 69 | 26.34 |
| Financial institution managers and directors | 115 | 66 | 24.76 |
| Financial institution managers and directors | $\begin{array}{r} 115 \\ 0 \end{array}$ | 66 | 24.76 |
| Managers and directors in transport and logistics | 116 | 200 | 15.56 |
| Managers and directors in transport and distribution | $\begin{array}{r} 116 \\ 1 \end{array}$ | 72 | 18.17 |
| Managers and directors in storage and warehousing | $\begin{array}{r} 116 \\ 2 \end{array}$ | 128 | 14.10 |
| Senior officers in protective |  |  |  |
| services | 117 | 18 | 25.62 |
|  | 117 |  |  |
| Officers in armed forces | 1 |  |  |
|  | 117 |  |  |
| Senior police officers | 2 | 10 | 27.65 |
| Senior officers in fire, |  |  |  |
| ambulance, prison and related | 117 |  |  |
| services | 3 | 8 | 20.37 |
| Health and social services |  |  |  |
| managers and directors | 118 | 66 | 23.94 |
| Health services and public health managers and directors | $\begin{array}{r} 118 \\ 1 \end{array}$ | 47 | 25.32 |
| Social services managers and | $118$ | 20 | 19.62 |
| Managers and directors in retail |  |  |  |
| and wholesale | 119 | 345 | 13.12 |
| Managers and directors in retail | 119 |  |  |
| and wholesale | 0 | 345 | 13.12 |
| Other managers and proprietors | 12 | 450 | 14.84 |
| Managers and proprietors in agriculture related services | 121 | 18 | 13.59 |
| Managers and proprietors in | 121 |  |  |
| agriculture and horticulture | 1 | 14 | 13.23 |




| Managers and proprietors in forestry, fishing and related services | $\begin{array}{r} 121 \\ 3 \end{array}$ | x | 13.98 |
| :---: | :---: | :---: | :---: |
| Managers and proprietors in hospitality and leisure services | 122 | 126 | 12.22 |
| Hotel and accommodation managers and proprietors | $\begin{array}{r} 122 \\ 1 \end{array}$ | 18 | 13.78 |
| Restaurant and catering establishment managers and proprietors | $\begin{array}{r} 122 \\ 3 \end{array}$ | 55 | 11.16 |
| Publicans and managers of licensed premises | $\begin{array}{r} 122 \\ 4 \end{array}$ | 11 | 11.98 |
| Leisure and sports managers | 122 | 38 | 14.37 |
| Travel agency managers and proprietors | $\begin{array}{r} 122 \\ 6 \end{array}$ | x | 14.20 |
| Managers and proprietors in health and care services | 124 | 74 | 16.63 |
| Health care practice managers | 124 1 | 18 | 16.63 |
| Residential, day and domiciliary care managers and proprietors | $124$ | 56 | 16.61 |
| Managers and proprietors in other services | 125 | 232 | 16.18 |
| Property, housing and estate managers | $\begin{array}{r} 125 \\ 1 \end{array}$ | 117 | 17.34 |
| Garage managers and proprietors | $\begin{array}{r} 125 \\ 2 \end{array}$ | 7 | 16.52 |
| Hairdressing and beauty salon managers and proprietors | $\begin{array}{r} 125 \\ 3 \end{array}$ | 8 | 11.54 |
| Shopkeepers and proprietors wholesale and retail | $\begin{array}{r} 125 \\ 4 \end{array}$ | 10 | 13.01 |
| Waste disposal and environmental services managers | 125 | 6 | 20.79 |
| Managers and proprietors in other services n.e.c. | $\begin{array}{r} 125 \\ 9 \end{array}$ | 84 | 15.36 |
| Professional occupations | 2 | 6,045 | 21.11 |
| Science, research, engineering and technology professionals | 21 | 1,388 | 21.48 |




| Natural and social science professionals | 211 | 134 | 19.71 |
| :---: | :---: | :---: | :---: |
|  | 211 |  |  |
| Chemical scientists | 1 | 12 | 16.58 |
| Biological scientists and | 211 |  |  |
| biochemists | 2 | 55 | 19.74 |
|  | 211 |  |  |
| Physical scientists | 3 | 12 | 22.81 |
|  | 211 |  |  |
| Social and humanities scientists | 4 | 7 | 17.14 |
| Natural and social science | 211 |  |  |
| professionals n.e.c. | 9 | 48 | 19.94 |
| Engineering professionals | 212 | 420 | 20.75 |
|  | 212 |  |  |
| Civil engineers | 1 | 48 | 20.45 |
|  | 212 |  |  |
| Mechanical engineers | 2 | 34 | 20.46 |
|  | 212 |  |  |
| Electrical engineers | 3 | 23 | 24.18 |
|  | 212 |  |  |
| Electronics engineers | 4 | X | 23.29 |
| Design and development | 212 |  |  |
| engineers | 6 | 93 | 21.03 |
| Production and process | 212 |  |  |
| engineers | 7 | 50 | 20.58 |
|  | 212 |  |  |
| Engineering professionals n.e.c. | 9 | 167 | 20.46 |
| Information technology and telecommunications professionals | 213 | 728 | 22.45 |
|  | 213 |  |  |
| IT specialist managers | 3 | 172 | 24.46 |
| IT project and programme | 213 |  |  |
| managers | 4 | 21 | 26.57 |
| IT business analysts, architects | 213 |  |  |
| and systems designers | 5 | 122 | 24.53 |
| Programmers and software | 213 |  |  |
| development professionals | 6 | 252 | 22.04 |
| Web design and development | 213 |  |  |
| professionals | 7 | 51 | 16.15 |


| $\stackrel{\underset{\sim}{n}}{ }$ | $\times$ | $\times$ | $\times$ | $\times$ | $\times$ | $\underset{\underset{M}{\Gamma}}{\Gamma} \sim$ | $\frac{\Omega}{\Omega}$ | $0_{0}^{0}$ |  |  |  |  |  | $\times$ |  |  | $\text { < } \underset{\text { Ni }}{ }$ |  | $\times$ | $\times$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ${\underset{N}{\infty}}_{\infty}^{\infty}$ | $\stackrel{\star}{N}$ | $\times \infty$ |  |  | No | N |  | م | $\frac{7}{ल}$ | م | $\times$ | $\times \underset{\sim}{\underset{\sim}{\sim}}$ |  |  |  | $\times{ }^{\circ}$ | $\begin{aligned} & \infty \\ & \underset{N}{N} \end{aligned}$ |  |  |  |
| $\stackrel{\text { O}}{N}$ | ${\underset{\sim}{N}}^{\dot{N}}$ |  |  |  | $\hat{e}^{\infty}$ |  | $m$ | $\stackrel{\oplus}{\dot{q}}$ | $\overline{\text { Fin }}^{\circ}$ |  |  | $\times \underset{\sim}{\sim}$ |  | $\stackrel{\infty}{N}^{\infty}$ |  | $\times \underset{\sim}{\underset{\sim}{N}}$ | $\underset{\sim}{N}$ | $\cdots$ | $\stackrel{L}{\sim}$ | $\stackrel{0}{\stackrel{0}{N}}$ |
| $\stackrel{\sim}{N}_{\sim}^{\sim}$ | $\begin{aligned} & 0 \\ & \frac{0}{\mathrm{~N}} \end{aligned}$ |  |  |  | ${\underset{N}{N}}^{\sim}$ | $\begin{array}{rll} \infty \\ \text { Ñ } & 0 \\ \hline \end{array}$ | $\llcorner$ | $\underset{寸}{O} \bullet$ |  | $\underset{\sim}{\underset{\sim}{+}}$ | $\begin{aligned} & \text { ơ の } \\ & \dot{\sim} \end{aligned}$ | $\times \frac{1}{N}$ |  | مـ | $\frac{\varphi}{N}-$ | $-{ }_{-1}^{\infty}$ | $\stackrel{\sim}{N}_{\infty}^{\infty}$ | の |  | $\frac{0}{i}$ |
| $\stackrel{\sim}{N}^{\sim}-$ | $\begin{aligned} & \hat{+} \\ & \stackrel{\rightharpoonup}{+} \end{aligned}$ |  |  |  | $\stackrel{N}{N}$ | $\bar{\Gamma}_{\stackrel{1}{N}}^{0}$ |  | $: 6$ | $\stackrel{\Gamma}{N}^{\infty}$ | No | $\stackrel{\oplus}{\underset{\sim}{\oplus}} \underset{ }{+}$ | $\frac{0}{4} 0$ | $\frac{1}{N}$ | $+\infty$ | $\overline{\mathrm{N}}^{\infty}$ | $\begin{aligned} & \infty \quad \infty \quad 0 \\ & \stackrel{\infty}{-} \end{aligned}$ |  | r | مْ | $\stackrel{\rightharpoonup}{\dot{\sigma}}$ |
| $\stackrel{\sim}{\infty}^{\infty}$ | $\stackrel{O}{\mathrm{~N}}^{\mathrm{m}}$ |  |  |  | N ${ }_{\text {N }}$ | $\stackrel{\text { ® }}{\sim}$ |  | ${\underset{\sim}{N}}^{\circ}$ | $\hat{N}^{\circ}$ | $\stackrel{\text { ® }}{ }_{\infty}^{\infty}$ | $\bar{N}^{\text {N }}$ | $\times \underset{\sim}{\infty}$ |  | $\stackrel{\Gamma}{\dot{\sigma}}$ |  | ט | $\stackrel{0}{N}$ | $\pm$ | $\underset{\sim}{-}$ | $\stackrel{\omega}{\bullet}^{\circ}$ |
| $\stackrel{\text { OM }}{\sim}$ | $\stackrel{\sim}{\underset{\sim}{n} \sim}$ |  |  |  | مِ. |  | $0 \text { o }$ | ${\underset{N}{N}}^{m}$ | $\stackrel{N}{\infty}$ | $\stackrel{\sim}{\infty} \underset{\sim}{\infty}$ | $\begin{array}{ll} \infty \\ \stackrel{0}{\mathrm{~N}} \end{array}$ | $\begin{aligned} & N \\ & \underset{\sim}{N} \end{aligned}$ | $\hat{\varphi}_{\dot{0}} \sim$ |  | $\stackrel{\underset{\sim}{r}}{\sim}$ | مـ مٌ مـ | $2 \underset{\sim}{\circ}$ |  |  | ما مٌ |
| $\stackrel{\oplus}{\stackrel{\Gamma}{\Gamma}}$ | $\stackrel{N}{\Gamma}_{\infty}^{\infty}$ | ¢ ${ }_{\text {¢ }}^{\text {¢ }}$ |  |  | $\stackrel{0}{\circ}^{\circ}$ | $\underset{\sim}{\infty} \underset{\sim}{\infty} \times \underset{\sim}{\alpha}$ | ¢ | $\frac{\infty}{\stackrel{\infty}{N}}$ |  |  | مٌ | $\times$ | $\underset{\sim}{N}$ |  | $\stackrel{\circ}{\stackrel{+}{\sim}}$ | $\underset{\underset{\sim}{\circ}}{\circ}$ |  |  |  | $\stackrel{\underset{\sim}{\circ}}{\stackrel{\circ}{\infty}}$ |
| $\stackrel{\varphi}{\underset{\sim}{\bullet}}$ | $\hat{N}^{\circ}$ |  |  |  | $\begin{aligned} & \infty \\ & \infty \\ & \infty \end{aligned}$ |  | $-c$ | $0-$ | $\begin{array}{ll} \hat{N} \\ i_{0}^{2} \\ \hline \end{array}$ | N | ${\underset{\sim}{\infty}}_{\infty}^{m}$ |  |  | مٌ | $\begin{aligned} & \underset{\sim}{\infty} \\ & \stackrel{\infty}{\infty} \end{aligned}$ |  | $\stackrel{\underset{\sim}{\sim}}{\underset{\sim}{\infty}}$ | N |  | $\stackrel{\underset{\sim}{\underset{\sim}{r}}}{ }$ |
| $\overline{\mathrm{N}}^{-}$ | $\stackrel{\text { me m }}{\stackrel{-}{F}}$ | $\times$ |  |  | $\forall \varnothing$ | $\underset{\sim}{\Gamma}$ | $\bigcirc$ | $\underbrace{\circ}_{i}$ | $\hat{m}_{-}^{\sim}$ | $\begin{aligned} & \underset{\sim}{\mathrm{N}} \end{aligned}$ |  |  | $\stackrel{N}{\sim}^{\circ} \text { م }$ | $\underset{\underset{\sim}{\leftarrow}}{\underset{\sim}{r}}$ |  | $\times \underset{\sim}{\mathrm{m}}$ | $\underset{\sim}{\mathrm{N}}$ | $\stackrel{\text { ® }}{\substack{~}}$ |  | $\stackrel{\text { ®in }}{\sim}^{\circ}$ |
| $\stackrel{\sim}{̣}$ | $\stackrel{\infty}{\sim}$ | +i | $\stackrel{\circ}{\dot{\gamma}}$ | $\stackrel{\uparrow}{\Gamma}$ | $\stackrel{\underset{i}{+}}{\Gamma}$ | $\stackrel{\infty}{\mathrm{N}}$ | $\overline{\text { ָּ }}$ |  | $\stackrel{m}{\infty}$ |  | $\stackrel{\Gamma}{0}$ | $\stackrel{\ominus}{\square}$ | $0$ | $\stackrel{\sim}{1}$ | $\stackrel{\oplus}{\bullet}$ | $\underset{\sim}{\bullet}$ | $\stackrel{\bullet}{\circ}$ | $\bar{\circ}$ | $\stackrel{\oplus}{\bullet}$ | $\bar{\circ}$ |
| ${\underset{N}{N}}^{\text {No }}$ | $\bar{\sigma}_{\Gamma}^{\sim}$ |  |  |  |  | $\overline{\mathrm{N}}$ | ${\underset{N}{N}}_{N+-}^{N+1}$ | $\begin{aligned} & \text { No } \\ & \dot{m} \end{aligned}$ | $\stackrel{N}{\sim} \underset{\sim}{\sim}$ | $\frac{0}{N}$ | $\stackrel{\oplus}{\stackrel{\omega}{N}}$ |  |  | No | $\begin{aligned} & \stackrel{\infty}{\Gamma}_{-}^{-} \end{aligned}$ | $\text { - } \underset{\sim}{\circ} \text { m }$ | $\stackrel{\sim}{\infty}{ }_{\sim}^{\sim}$ |  |  | $\begin{aligned} & \underset{\infty}{\infty} \\ & \stackrel{\infty}{\infty} \end{aligned}$ |
| $\stackrel{+}{\circ}$ | $\stackrel{\uparrow}{\dot{\gamma}}$ | ○ | $\begin{aligned} & \infty \\ & \stackrel{\circ}{\circ} \end{aligned}$ | $\stackrel{m}{N}$ | $\stackrel{m}{N}$ | $\bar{\varphi}$ | wo | $\begin{aligned} & 0 \\ & \hline \end{aligned}$ | $\stackrel{9}{\sim}$ | $\stackrel{0}{0}$ | $$ |  | $\underset{0}{*}$ | $\bigcirc$ | $\begin{aligned} & \infty \\ & \dot{\omega} \end{aligned}$ | $\begin{array}{lll} \infty & \stackrel{0}{\circ} & \end{array}$ | $\stackrel{O}{+}$ | $\stackrel{\sim}{\sim}$ | $\hat{\mathrm{N}}$ | $\stackrel{\oplus}{\oplus}$ |
| $\begin{aligned} & \infty \\ & \\ & \text { N } \end{aligned}$ | O $\sim$ $\infty$ |  | $\sim$ $\sim$ $\sim$ | $\stackrel{\leftarrow}{\stackrel{\sim}{\circ}}$ | $\begin{aligned} & \Gamma \\ & \stackrel{N}{N} \\ & \hline \end{aligned}$ | $\begin{aligned} & \bullet \\ & \stackrel{+}{+} \\ & \underset{\sim}{2} \end{aligned}$ | $\stackrel{\text { 「 }}{\text {＋}}$ | $\stackrel{\underset{\sim}{\dot{M}}}{\stackrel{-}{-}}$ | $\begin{aligned} & \mathbb{\infty} \\ & \underset{\sim}{\sim} \end{aligned}$ |  | $\begin{aligned} & \text { ® } \\ & \text { N் } \end{aligned}$ | $x$ | $\stackrel{\text { N̈ }}{\text { N}}$ | $\stackrel{\text { F－}}{\text { ¢ }}$ | $\stackrel{\text { \％}}{\text { ¢ }}$ | Y + $\sim$ | $\stackrel{\infty}{\infty} \stackrel{\infty}{\infty}$ | $\stackrel{\sim}{\sim}$ | ＋ | $\stackrel{N}{¢}$ |
| 읃 | $\stackrel{10}{+}$ | F | ¢ | ¢ | \％ | $\begin{aligned} & 0 \\ & 0 \\ & \hline \end{aligned}$ | $\stackrel{\infty}{+}$ | N | ¢ |  |  | $\infty$ | N |  | N | －$\stackrel{\square}{7}$ | N | ก | $\stackrel{1}{0}$ | $\stackrel{\square}{\sim}$ |
| $\stackrel{m}{N}^{\infty}$ | $\stackrel{\pi}{N}$ | $\frac{N}{N}-\frac{N}{N}$ | $\stackrel{\pi}{N}^{\sim}$ | $\frac{10}{N} \stackrel{10}{N}$ | $\frac{n}{N} 0$ | $\mathbb{N}$ | $\underset{N}{N}$ | $\bar{N}^{-}$ | $\bar{N}^{\sim}$ | $\bar{N}^{m}$ | $\stackrel{\underset{N}{N}}{ }$ | ${\underset{N}{N}}^{n}$ | $\bar{N}^{\infty}$ | $\underset{\sim}{N}$ | $\bar{\sim}^{\infty}$ | ${\underset{N}{N}}^{\infty}$ | N |  | $1 \sim$ | ${\underset{N}{N}}^{m}$ |
|  |  |  |  |  |  | Health professionals |  |  | $\infty$ 0 0 0 $\frac{0}{0}$ $\frac{0}{0}$ 0 |  | sue！э！！do ग！шןецџчdo |  |  |  | $\begin{aligned} & \frac{0}{0} \\ & \frac{0}{y} \\ & \hline 0 \\ & \hline 0 \\ & \hline 0 \end{aligned}$ |  | Therapy professionals |  |  |  |


| Therapy professionals n.e.c. | $\begin{array}{r} 222 \\ 9 \end{array}$ | 19 | 19.30 | 2.7 | 19.0 8 | 1.5 | 12.3 8 | 13.2 | 13.4 1 | 14.4 9 | 17.0 7 | 20.5 | 22.8 4 | 24.3 6 | 25.3 | X |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Nursing and midwifery |  |  |  |  | 18.8 |  | 12.8 | 14.8 | 15.4 | 16.0 | 17.1 | 19.5 | 20.9 | 21.6 | 22.6 | 25.5 |
| professionals | 223 | 995 | 18.26 | 5.4 | 4 | 6.2 | 4 | 6 | 9 | 0 | 2 | 2 | 5 | 6 | 6 | 2 |
|  | 223 |  |  |  | 18.7 |  | 12.8 | 14.7 | 15.4 | 15.9 | 17.0 | 19.4 | 20.7 | 21.5 | 22.5 | 25.4 |
| Nurses | 1 | 952 | 18.08 | 5.2 | 4 | 6.1 | 1 | 8 | 0 | 1 | 0 | 0 | 1 | 8 | 0 | 1 |
|  | 223 |  |  |  | 21.0 |  | 15.5 | 17.4 | 18.5 | 19.1 | 19.8 | 21.9 | 23.4 | 24.0 | 24.9 |  |
| Midwives | 2 | 44 | 21.02 | 10.0 | 7 | 11.8 | 5 | 3 | 4 | 1 | 5 | 1 | 5 | 0 | 7 | X |
| Teaching and educational professionals | 23 | 1,536 | 23.16 | 2.1 | 23.9 1 | 1.9 | 14.0 1 | 17.1 1 | 18.3 4 | 19.5 8 | 21.4 1 | 24.7 4 | 26.8 4 | 28.1 3 | 29.8 5 | 34.6 7 |
| Teaching and educational |  |  |  |  | 23.9 |  | 14.0 | 17.1 | 18.3 | 19.5 | 21.4 | 24.7 | 26.8 | 28.1 | 29.8 | 34.6 |
| professionals | 231 | 1,536 | 23.16 | 2.1 | 1 | 1.9 | 1 | 1 | 4 | 8 | 1 | 4 | 4 | 3 | 5 | 7 |
| Higher education teaching professionals | 231 | 169 | 26.76 | 2.0 | 29.1 9 | 2.7 | 17.2 0 | 20.5 2 | 21.7 7 | 23.0 3 | 25.2 2 | 28.6 8 | 31.7 9 | 33.0 2 | 35.4 6 | 41.9 3 |
| Further education teaching professionals | 231 2 | 143 | 20.47 | 2.2 | 21.1 6 | 2.0 | 14.0 1 | 16.2 3 | 17.3 3 | 17.9 4 | 19.0 5 | 22.3 2 | 24.4 9 | 25.2 3 | 26.3 8 | 30.0 3 |
| Secondary education teaching | 231 |  |  |  | 23.9 |  | 15.2 | 18.5 | 19.7 | 20.5 | 22.3 | 25.3 | 27.1 | 28.2 | 29.5 | 33.0 |
| professionals | 4 | 473 | 23.63 | 3.2 | 9 | 2.5 | 3 | 8 | 5 | 9 | 8 | 8 | 9 | 6 | 5 | 2 |
| Primary and nursery education teaching professionals | $\begin{array}{r} 231 \\ 5 \end{array}$ | 478 | 22.09 | 1.4 | 22.1 0 | 1.4 | 13.9 9 | 16.6 5 | 17.9 7 | 19.2 6 | 20.6 5 | 23.2 6 | 24.6 8 | 25.8 8 | 27.1 6 | 30.9 6 |
| Special needs education | 231 |  |  |  | 20.5 |  | $11.1$ | 14.8 | 16.1 | 16.7 | 19.9 | 22.8 | 24.5 | 25.7 | 27.2 |  |
| teaching professionals | 6 | 43 | 21.68 | 1.9 | 8 | 0.1 | 6 | 4 | 3 | 9 | 5 | 8 | 2 | 8 | 7 | X |
| Senior professionals of | 231 |  |  |  | 32.6 |  | 17.1 | 21.5 | 23.5 | 25.1 | 29.0 | 35.3 | 38.3 | 40.6 | 42.5 | 49.0 |
| educational establishments | 7 | 106 | 32.40 | 3.5 | 0 | 2.5 | 2 | 0 | 9 | 8 | 0 | 4 | 2 | 0 | 6 | 7 |
| Education advisers and school | 231 |  |  |  | 21.1 |  | $11.0$ | 13.1 | $14.8$ | 15.7 | 18.0 | 22.9 | $25.8$ | $26.8$ | 28.8 |  |
| inspectors | 8 | 18 | 20.63 | -5.6 | 2 | -3.8 | 6 | 5 | 0 | 5 | 6 | 2 | 7 | 6 | 7 | x |
| Teaching and other educational | 231 |  |  |  | 16.7 |  | 10.0 | 11.5 | 12.2 | 13.2 | 15.1 | 18.7 | 21.2 | 22.8 | 24.7 | 30.0 |
| professionals n.e.c. | 9 | 106 | 17.29 | 4.4 | 9 | 4.7 | 0 | 0 | 6 | 4 | 0 | 8 | 9 | 0 | 2 | 3 |
| Business, media and public service |  |  |  |  | 23.4 |  | 12.4 | 15.0 | 16.0 | 17.0 | 18.9 | 22.7 | 25.5 | 27.0 | 29.2 | 36.8 |
| professionals | 24 | 1,516 | 20.63 | 3.4 | 9 | 1.8 | 7 | 2 | 8 | 3 | 1 | 1 | 0 | 4 | 0 | 6 |
|  |  |  |  |  | 32.4 |  | 14.7 | 17.8 | 19.6 | 20.8 | 23.6 | 31.0 | 36.9 | 41.0 | 44.8 | 56.7 |
| Legal professionals | 241 | 138 | 26.18 | 0.7 | 0 | 2.8 | 7 | 9 | 1 | 4 | 4 | 3 | 9 | 4 | 5 | 2 |
|  | 241 |  |  |  | 20.2 |  |  |  |  | 12.0 |  | 22.2 |  |  |  |  |
| Barristers and judges | 2 | 9 | X |  | 9 | -14.6 | X | X | X | 4 | X | 4 | X | X | X | X |
|  | 241 |  |  |  | 27.2 |  | 13.8 | 16.6 | 17.8 | 19.1 | 21.1 | 25.6 | 29.8 | 32.7 | 35.5 |  |
| Solicitors | 3 | 82 | 22.99 | 0.0 | 8 | 1.8 | 7 | 9 | 6 | 5 | 2 | 4 | 2 | 4 | 7 | X |
|  | 241 |  |  |  | 43.1 |  | 20.2 | 25.5 | 26.1 | 28.1 | 35.2 | 45.5 | 50.9 | 52.6 | 57.4 |  |
| Legal professionals n.e.c. | 9 | 48 | 39.73 | 3.9 | 3 | 2.8 | 2 | 4 | 7 | 9 | 2 | 0 | 5 | 2 | 8 | x |
| Business, research and |  |  |  |  | 24.4 |  | 13.3 | 15.8 | 16.9 | 17.9 | 19.7 | 24.3 | 26.9 | 28.7 | 30.8 | 37.5 |
| administrative professionals | 242 | 740 | 21.90 | 3.1 | 6 | 0.8 | 6 | 5 | 2 | 3 | 2 | 1 | 9 | 5 | 1 | 4 |



| $\underset{\underset{m}{e}}{\underset{\sim}{\circ}}$ | $\times \times$ | $\times$ |  | $\times$ | $\times$ | $\times$ |  | $\underset{\sim}{\infty}$ | $0 \propto$ | $\begin{aligned} & \infty \\ & \underset{N}{\mathrm{~N}} \end{aligned}$ | $\frac{\varphi}{\underset{N}{N}}$ | $\times$ |  | $\stackrel{\sim}{\underset{\sim}{\sim}}$ | $\times$ | $\times \quad \times$ |  | $\begin{aligned} & \text { N } \\ & \underset{\sim}{\circ} \end{aligned}$ | $\times$ | $\times$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ${\underset{\sim}{N}}_{\substack{0}}$ | $\stackrel{\underset{N}{N}}{\stackrel{+}{M}}$ |  | $\begin{aligned} & 0 \\ & \stackrel{1}{N} \end{aligned}$ |  | $\underset{\underset{\sim}{\sim}}{0} 0$ | $\stackrel{\sim}{N}^{n}$ |  | $\begin{gathered} \text { Ǹ } \end{gathered}$ |  | $\begin{aligned} & \text { No の } \\ & \stackrel{\sigma}{r}^{2} \end{aligned}$ | ${\underset{\sim}{\infty}}^{\infty}$ | $\stackrel{N}{\Gamma}^{\infty}$ |  | $\frac{\varphi}{N}$ |  | $\times \underset{\sim}{N}$ | O | ${\underset{\sim}{N}}_{\sim}^{\star}$ | $\underset{\sim}{\infty}$ | ${\underset{\sim}{\infty}}^{\infty}$ |
| $\begin{aligned} & \underset{\sim}{N} \\ & \stackrel{1}{N} \end{aligned}$ | $\begin{aligned} & \dot{\sim}-\infty \\ & \underset{\sim}{N} \\ & \text { No } \end{aligned}$ | $\frac{m}{\underset{\sim}{N}}$ |  |  | $\stackrel{\rightharpoonup}{\text { Ni }}$ | $\stackrel{\rightharpoonup}{\circ}^{\circ}$ | $\begin{aligned} & \infty \\ & \stackrel{0}{N} \end{aligned}$ | $\stackrel{i}{N}$ |  | ${ }_{\infty}^{\infty} 0$ | $\stackrel{\text { N }}{\sim}$ | ${\underset{\sim}{m}}^{-}$ |  | $\stackrel{+}{\underset{\sim}{*}}$ |  | $\times \underset{0}{0} 9$ | $\stackrel{\sim}{N}_{\sim}^{\infty}$ | ${\underset{\sim}{\bullet}}_{\substack{\infty \\ \hline}}$ | $\stackrel{\bullet}{N}$ | ${\underset{N}{ }}_{\infty}^{\infty}$ |
| ${\underset{\sim}{N}}_{\underset{\sim}{*}}$ | $\begin{aligned} & \overleftarrow{i}_{\mathrm{N}}^{\text {No }} \\ & \end{aligned}$ | $\frac{0}{\frac{1}{N}}$ | $\stackrel{\Gamma}{\underset{N}{N}}$ |  | $\underset{\sim}{\underset{N}{N}}$ | $\begin{aligned} & \text { No の } \\ & \stackrel{\sigma}{r}^{\circ} \end{aligned}$ | $\stackrel{\omega}{\sim}$ | $\stackrel{+}{\square}$ | $\infty$ | Nツ | ${\underset{\sim}{\bullet}}^{\sim}$ | $\begin{aligned} & \mathrm{O}_{\mathrm{N}} \end{aligned}$ | $\underset{\sim}{\infty}$ | $\stackrel{\sigma}{\sigma}^{\circ}$ |  | $\begin{aligned} & \text { × ما ما } \\ & \stackrel{0}{\Gamma} \end{aligned}$ | $\stackrel{\sigma}{0}$ | ما | $\underset{\sim}{*}$ | ${\underset{\sim}{0}}^{\sim}$ |
| ${\underset{\sim}{N}}^{\sim}$ |  | ${\underset{\sim}{\mathrm{N}}}^{-0}$ | $\begin{aligned} & \text { No } \\ & \stackrel{1}{N} \end{aligned}$ |  | No ${ }_{\text {Ni }}$ | ${\underset{\sim}{\circ}}^{\circ}$ | $\stackrel{+}{\dot{N}}$ |  |  |  | $\underset{\underset{\sim}{\sigma}}{\underset{\sim}{r}}$ | $\stackrel{\oplus}{\tau}^{\circ}$ | $\underset{\sim}{\star}$ | $\underset{\sim}{\sim}$ |  | $\times \underset{\underset{\sim}{\forall}}{\underset{\sim}{*}}$ | $\begin{aligned} & \mathrm{N} \\ & \stackrel{N}{n}^{\circ} \end{aligned}$ | $\underset{\sim}{\underset{\sim}{*}}$ | $\stackrel{\rightharpoonup}{1}^{\infty}$ | $\begin{aligned} & 00 \\ & 10 \\ & \hline \end{aligned}$ |
| $\stackrel{\sigma}{\sigma}^{\sigma}$ |  | $\begin{aligned} & \text { ón } \\ & \dot{\square} \end{aligned}$ | ${ }_{-}^{0}$ |  |  | $\begin{aligned} & \infty \\ & \stackrel{\infty}{\sim} \end{aligned}$ | $\stackrel{i}{\circ}^{\circ}$ | $\begin{aligned} & \text { O } \\ & \underset{\sim}{r} \end{aligned}$ |  | $\stackrel{\bigcirc}{\text { ¢ }}$ | $\begin{aligned} & \stackrel{\rightharpoonup}{\sim} \\ & \underset{\sim}{0} \end{aligned}$ | $\underbrace{\infty}_{0}$ | $\log ^{0 \times}$ |  | $\frac{\sigma}{\leftarrow}$ | $\begin{aligned} & -\infty \\ & \underset{\sim}{N} \end{aligned}$ | $\stackrel{N}{\stackrel{N}{r}}$ | $\begin{aligned} & \stackrel{\circ}{\mathrm{N}} \end{aligned}$ | $\begin{aligned} & \infty \\ & \stackrel{\infty}{\Gamma} \end{aligned}$ | $\begin{aligned} & \text { ṃ } \\ & \text { ले } \end{aligned}$ |
| ${\underset{\sim}{N}}_{\sim}^{N}$ | $\begin{aligned} & \infty \wedge \underset{\sim}{\infty} \underset{\sim}{\infty} \quad \infty \end{aligned}$ | ${\underset{\sim}{\sim}}_{\infty}^{\infty}$ | $\stackrel{\sim}{\sim}$ |  |  | ${\underset{\sim}{N}}_{\sim}^{\circ}$ | $\stackrel{ \pm}{N}$ | $\begin{aligned} & \text { o } \\ & \underset{\sim}{*} \end{aligned}$ |  | $\cdots$ | $\stackrel{\sim}{r}^{\infty}$ | $\stackrel{N}{0}$ | $\stackrel{\bullet}{\dot{+}}$ | ${\underset{\sim}{\infty}}^{\infty}$ | $\stackrel{\text { m }}{ }$ | $\begin{aligned} & \text { م } \underset{\sim}{\sim} \\ & \underset{\sim}{n} \end{aligned}$ | ${\underset{\sim}{N}}_{\underset{\sim}{N}}$ | $\stackrel{\theta}{0}$ | $\stackrel{\circ}{\Gamma}_{\stackrel{\infty}{\top}}$ | $\begin{aligned} & \mathrm{N} \\ & \stackrel{\sim}{\sim} \end{aligned}$ |
| م® | $\begin{aligned} & \underset{\sim}{\sim} N \underset{N}{N} \end{aligned}$ | ${\underset{\sim}{i}}^{\circ}$ | $\begin{aligned} & \bullet \\ & \stackrel{\omega}{r} \end{aligned}$ |  | $\underset{\sim}{\underset{\sim}{\star}}$ | $\begin{aligned} & \underset{\sim}{\mathrm{N}} \end{aligned}$ | $\underbrace{n}$ | $\xrightarrow{\text { セ }}$ |  | ${\underset{T}{N}}^{N}$ | $\stackrel{\sigma}{O}^{\circ}$ | テ | $\underset{\sim}{\underset{\sim}{\bullet}} \mathrm{N}$ | $\begin{aligned} & \text { 우 N } \\ & \underset{\sim}{r} \end{aligned}$ |  | $\times \underset{\underset{-}{\infty}}{\infty}$ | ${\underset{N}{N}}_{\underset{\sim}{N}}$ | $\stackrel{\odot}{\circ} \mathrm{N}$ | $\begin{aligned} & \stackrel{Q}{*}^{+} \\ & \underset{\sim}{*} \end{aligned}$ | ${\underset{\sim}{\sim}}_{\underset{\sim}{\sim}}{ }^{+}$ |
| $\underset{\underset{\sim}{\pi}}{\infty}$ | $\begin{array}{ll} \infty & \infty \\ \underset{\sim}{n} & \stackrel{1}{r} \end{array}$ | $\stackrel{m}{n}^{N}$ | $\begin{aligned} & \sigma \subset \\ & \stackrel{\sim}{\sim} \end{aligned}$ |  | $\stackrel{N}{c}^{\circ}$ | $\stackrel{\omega}{\tau}_{\sim}^{\sigma}$ | $\underset{\sim}{ \pm}$ |  |  | ${\underset{o}{o}}^{\circ}$ | $\underset{\sim}{+}$ | $\begin{aligned} & \text { N} \\ & \text { N } \end{aligned}$ | $\stackrel{\text { N}}{\sim}^{\bullet}$ | $\begin{aligned} & \text { ๓̣ } \\ & \stackrel{N}{\sim} \end{aligned}$ |  |  | $\sigma \cdots$ | $\overleftarrow{O}_{\square}^{N}$ | $\begin{aligned} & \sigma \\ & \stackrel{\sigma}{\tau} \end{aligned}$ | $\underset{\underset{\tau}{\tau}}{\underset{\sim}{r}}$ |
| $\begin{aligned} & \bullet \\ & \stackrel{\sim}{\sim} \end{aligned}$ | $\begin{aligned} & \circ \\ & \stackrel{\sim}{\mathrm{N}} \\ & \underset{\sim}{\sim} \end{aligned}$ |  | $\begin{aligned} & \underset{\sim}{\tau} 0 \\ & \tau \end{aligned}$ |  |  | $\underbrace{\infty}_{0}$ | ${\underset{N}{N}}_{\underset{\sim}{N}}$ | $\stackrel{-}{0}$ |  | $\stackrel{\rightharpoonup}{\circ}$ | － | － 0 | $\times$ | $\stackrel{O}{0}^{\infty}$ |  | $\times \underset{\underbrace{\infty}}{\infty}$ | $\stackrel{+}{+}$ | $\begin{aligned} & \text { N } \\ & 0 \end{aligned}$ | $\stackrel{\sim}{O}^{\circ} \bullet$ | $\xrightarrow[O]{O}$ |
|  | $\begin{array}{ll} N & M \\ 0 & \text { ì } \end{array}$ | $\bigcirc$ |  | － | $\overline{0}$ | N | $\begin{aligned} & \infty \\ & \underset{\sim}{\infty} \end{aligned}$ |  | $P_{1}$ | $\underset{o}{0}$ | 「． | $\stackrel{+}{\leftarrow}$ | $\stackrel{\oplus}{\oplus}$ | Ọ | $\stackrel{\infty}{N}$ | $\infty$ | $\begin{aligned} & \infty \\ & 0 \end{aligned}$ | $\stackrel{\bullet}{\sim}$ | $\stackrel{+}{\circ}$ | $\stackrel{0}{1}$ |







| Fire service officers (watch manager and below) | $\begin{array}{r} 331 \\ 3 \end{array}$ | 52 | 15.98 |
| :---: | :---: | :---: | :---: |
| Prison service officers (below principal officer) | $331$ $4$ | 29 | 14.85 |
| Police community support officers | $\begin{array}{r} 331 \\ 5 \end{array}$ | 12 | 14.07 |
| Protective service associate professionals n.e.c. | $\begin{array}{r} 331 \\ 9 \end{array}$ | 26 | 16.90 |
| Culture, media and sports occupations | 34 | 265 | 13.68 |
| Artistic, literary and media occupations | 341 | 71 | 15.82 |
| Artists | 341 1 | 7 | 14.07 |
|  | 341 |  |  |
| Authors, writers and translators | 2 | 15 | 15.53 |
| Actors, entertainers and | 341 |  |  |
| presenters | 3 | X | X |
|  | 341 |  |  |
| Dancers and choreographers | 4 | X | X |
|  | 341 |  |  |
| Musicians | 5 | X | 19.78 |
| Arts officers, producers and | $341$ |  |  |
| directors | 6 | 19 | 18.15 |
| Photographers, audio-visual and broadcasting equipment operators | $\begin{array}{r} 341 \\ 7 \end{array}$ | 18 | 13.54 |
| Design occupations | 342 | 88 | 14.04 |
|  | 342 |  |  |
| Graphic designers | 1 | 52 | 13.46 |
| Product, clothing and related | 342 |  |  |
| designers | 2 | 37 | 14.85 |
| Sports and fitness occupations | 344 | 105 | 11.67 |
|  | 344 |  |  |
| Sports players | 1 | 13 | X |
| Sports coaches, instructors and | 344 |  |  |
| officials | 2 | 60 | 12.08 |
|  | 344 |  |  |
| Fitness instructors | 3 | 33 | 10.25 |




| Business and public service |  | 2,232 | 17.10 |
| :---: | :---: | :---: | :---: |
| Transport associate professionals | 351 | 17 | 36.60 |
|  | 351 |  |  |
| Air traffic controllers | 1 | X | X |
| Aircraft pilots and flight | 351 |  |  |
| engineers | 2 | 8 | 37.43 |
|  | 351 |  |  |
| Ship and hovercraft officers | 3 | X | X |
| Legal associate professionals | 352 | 64 | 15.01 |
|  | 352 |  |  |
| Legal associate professionals | 0 | 64 | 15.01 |
| Business, finance and related associate professionals | 353 | 580 | 17.30 |
| Estimators, valuers and | 353 |  |  |
| assessors | 1 | 48 | 15.30 |
|  | 353 |  |  |
| Brokers | 2 | 13 | X |
|  | 353 |  |  |
| Insurance underwriters | 3 | 24 | 18.63 |
| Finance and investment analysts | 353 |  |  |
| and advisers | 4 | 137 | 18.99 |
|  | 353 |  |  |
| Taxation experts | 5 | 16 | 26.10 |
|  | 353 |  |  |
| Importers and exporters | 6 | X | 14.38 |
| Financial and accounting | 353 |  |  |
| technicians | 7 | 32 | 22.04 |
|  | 353 |  |  |
| Financial accounts managers | 8 | 117 | 18.36 |
| Business and related associate | 353 |  |  |
| professionals n.e.c. | 9 | 190 | 14.84 |
| Sales, marketing and related |  |  |  |
| associate professionals | 354 | 1,125 | 18.25 |
|  | 354 |  |  |
| Buyers and procurement officers | 1 | 60 | 15.44 |
|  | 354 |  |  |
| Business sales executives | 2 | 252 | 15.32 |
| Marketing associate | 354 |  |  |
| professionals | 3 | 153 | 14.31 |


|  | $\frac{\sigma}{+}^{\infty}$ | $\times$ |  | $\times$ | $\times$ | $\stackrel{+}{\stackrel{+}{N}}$ | $\begin{aligned} & \text { No } \\ & \mathrm{N}^{\prime} \end{aligned}$ | $\stackrel{\text { ®in }}{ }^{N}$ | ${\underset{N}{N}}^{m}$ |  | $\times$ | $\times$ |  |  | م | $\underset{\sim}{\infty}$ | $\sim_{\infty}^{\infty}$ | $\underset{\sim}{N}$ | $\times$ | +் |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\stackrel{\tau}{5}^{m}$ |  | $\stackrel{\omega}{6}^{\circ}$ |  | $\times$ | $\times$ | $\begin{aligned} & \omega \\ & \stackrel{\sigma}{\sigma}^{\circ} \end{aligned}$ | $\begin{aligned} & \text { No } \\ & {\underset{\sigma}{n}}^{( } \end{aligned}$ | $\underset{\Gamma}{\dot{\sigma}}$ | $\begin{aligned} & \text { م̣ } 0 \\ & \stackrel{0}{\sigma} \end{aligned}$ |  | $\times$ |  | ${\underset{\sim}{N}}^{\bullet}$ | $\stackrel{\rightharpoonup}{0}+$ | ${\underset{\sim}{1}}^{-1}$ | $\stackrel{\text { ®® }}{\text { ® }}$ | $\begin{aligned} & \infty \quad 0 \\ & \omega^{\circ} \end{aligned}$ | ${\underset{\sigma}{\square}}^{\square}$ | $\times$ | $\stackrel{\omega}{\omega}^{\infty}$ |
| $\underset{\sim}{\underset{\sim}{r}} \infty$ | ${\underset{\sim}{\mathrm{M}}}^{\infty}$ | $\underset{\underset{T}{\infty}}{\infty}$ |  | $\times$ | $\times$ | ${ }_{\infty}^{\infty}$ | $\stackrel{\sigma}{\sigma}^{\circ}$ | $\underset{\sim}{\infty}$ | $\begin{aligned} & \infty \\ & \infty \\ & \infty \end{aligned}$ | $\stackrel{\cong}{N}$ |  |  | ${\underset{\sim}{N}}^{\text {No }}$ | $\underset{\underset{\sim}{\sim}}{ }$ | $\underset{\sim}{\underset{\sim}{\sim}}$ | $\stackrel{\leftarrow}{\sim}$ | $\underset{\sim}{\infty}$ | $\stackrel{\forall}{\stackrel{1}{r}}$ | $\times$ | $\begin{aligned} & 0 \\ & \stackrel{1}{n}^{\circ} \end{aligned}$ |
| $\stackrel{N}{\dot{M}}^{-}$ | $\begin{aligned} & 0 \\ & \underset{\sim}{\infty} \end{aligned}$ | $\stackrel{N}{n}^{m}$ |  | $\times$ | $\times$ | مٌ | ${\underset{\sigma}{\infty}}_{\underset{\sim}{+}}$ | $\underset{\sim}{N}$ | $\stackrel{\bullet}{N}^{( }$ | $\begin{aligned} & 0^{\circ} \\ & 6 \end{aligned}$ | $\cdots$ | $\underset{\sim}{\infty}$ | ${\underset{\mathrm{O}}{\mathrm{~N}}}^{10}$ | べツ | $\underset{\sim}{\circ} \underset{\sim}{\circ}$ | $\underset{\sim}{\underset{\sim}{\sim}}$ | $\underset{\sim}{\text { ON }}$ | $\underset{\underset{\sim}{\oplus}}{\bullet}$ | $\underbrace{\oplus}$ | $\underset{\underset{r}{N}}{\underset{\sim}{r}}$ |
| $\begin{aligned} & {\underset{N}{N}}^{\circ} \\ & \underset{\sim}{c} \end{aligned}$ | $\begin{aligned} & \stackrel{1}{N} \sim \\ & \stackrel{y}{N} \end{aligned}$ | $\begin{aligned} & \infty \\ & \underset{\sim}{N} \end{aligned}$ | $\stackrel{\leftarrow}{\sim}$ |  | $\stackrel{\leftarrow}{\sim}$ | $\stackrel{\varphi}{\varphi}$ | ${\underset{\sim}{\infty}}^{\infty}$ | $\stackrel{\omega}{\sim}_{\sim}^{\infty}$ | ${\underset{\sim}{\odot}}^{\circ}$ | $\begin{aligned} & \text { mis } \\ & \stackrel{1}{6} \end{aligned}$ |  | $$ | ${\underset{\sim}{\infty}}^{\infty}$ | $\stackrel{\sim}{\sim}$ | $\begin{aligned} & \bullet \rightarrow \\ & \underset{\sim}{\sim} \end{aligned}$ |  | $\stackrel{\text { ®}}{ }^{\circ}$ | $\stackrel{m}{r}^{\infty}$ | $\stackrel{\underset{\sim}{\sim}}{\underset{\sim}{r}}$ | ${\underset{\sim}{N}}^{\circ}$ |
|  | $\begin{gathered} \text { Nor } \\ \mathrm{N}^{\prime} \end{gathered}$ | $\stackrel{\infty}{\infty}{ }_{\sim}^{\circ}$ |  |  | $\underset{\sim}{6}$ | $\underset{\sim}{\underset{\sim}{*}}$ | $\begin{aligned} & \infty \quad \infty \\ & \stackrel{\omega}{\Gamma} \end{aligned}$ | ${\underset{\sim}{\Gamma}}^{\bullet}$ | $\stackrel{N}{\Gamma}^{\infty}$ | $\begin{aligned} & \underset{\sim}{\sim} \\ & \underset{\sim}{n} \end{aligned}$ |  | $\underset{\sim}{\underset{\sim}{\bullet}}$ | $\underbrace{m} \text { セ }$ | $\bigcirc$ | $\begin{aligned} & \text { oi N } \\ & \stackrel{0}{\circ} \end{aligned}$ | $\underset{\sim}{¢}$ | $\stackrel{\Gamma}{\tau}$ | $\begin{aligned} & \sigma \\ & \frac{\sigma}{\sigma} \end{aligned}$ | ${\underset{\sim}{\mathrm{N}}}^{\text {® }}$ | ${\underset{\sim}{N}}^{\sim}$ |
| $\stackrel{O}{O}^{\circ}$ | $\begin{aligned} & N \\ & \sim_{\infty}^{\infty} \end{aligned}$ | － |  | 1 | $\underbrace{}_{0}{ }^{\circ}$ | Nr ¢ | $\mathrm{N}^{\text {No}}$ | 인 $\stackrel{1}{\sim}$ | $\stackrel{\infty}{\mathrm{N}}^{-}$ | $\frac{m}{\square}$ |  | $\begin{aligned} & \infty \\ & \underset{\sim}{\oplus} \end{aligned}$ | $\stackrel{\tau}{n}^{\top}$ |  | $\stackrel{\sigma}{\circ}^{\infty}$ | $\begin{aligned} & \sigma \rightarrow 0 \\ & \stackrel{O}{r} \end{aligned}$ | $\hat{N}^{\text {No }}$ | ${\underset{F}{F}}^{\mp}$ | $\begin{aligned} & \underset{\sim}{\sim} \end{aligned}$ | + |
| $\begin{aligned} & 10 \\ & 0 \\ & \hline \end{aligned}$ | ${\underset{\sim}{N}}^{N}$ | － |  | $\begin{aligned} & \infty \\ & \infty \\ & \infty \end{aligned}$ | $\begin{aligned} & \infty \\ & \infty \\ & \infty \\ & \hline \end{aligned}$ | $\begin{aligned} & \text { م̣ m } \\ & \stackrel{\sim}{\sim} \end{aligned}$ | $\stackrel{T}{i}^{-\infty}$ | $\underset{\sim}{\underset{\sim}{\tau}}$ | $\begin{aligned} & \text { 웅 } \\ & \underset{\sim}{r} \end{aligned}$ | $\hat{N}^{1}$ |  | $\begin{aligned} & \text { חٌ m } \\ & \stackrel{m}{n} \end{aligned}$ | $\underset{\underset{\sim}{\infty}}{\infty}$ | $\stackrel{?}{\circ}$ | $\stackrel{\sigma}{\sigma}$ | $\hat{o}^{\sim}$ | $\hat{o}^{\top}$ | $\underbrace{0}_{0}$ | $\stackrel{0}{0}^{\infty}$ | $\stackrel{O}{O}^{\infty}$ |
| © | $\begin{aligned} & \sigma \\ & \stackrel{\rightharpoonup}{6} \end{aligned}$ | $\begin{aligned} & \text { N} \\ & \text { Ǹ } \end{aligned}$ |  | $\times$ | $\times$ | $\stackrel{\infty}{\Gamma}$ | $\underset{\sim}{\dot{+}}$ | $\stackrel{O}{O}^{0}$ | $\stackrel{\oplus}{\sigma}$ | $\begin{aligned} & \text { m m } \\ & \stackrel{0}{2} \end{aligned}$ |  |  | $\begin{aligned} & \text { N の } \\ & \underset{\sim}{*} \end{aligned}$ | $\begin{aligned} & \stackrel{\rightharpoonup}{N} \\ & \dot{N} \end{aligned}$ | + 0 0 | $\stackrel{0}{\circ}$ | $\stackrel{\sim}{0}^{\circ}$ | $\underset{\sim}{+\infty}$ | $\underset{\sim}{\forall}$ | $\stackrel{\sim}{\sim}$ |
| $\stackrel{\oplus}{\stackrel{1}{\infty}}$ | $\begin{aligned} & \stackrel{N}{\top} \\ & \stackrel{\sim}{r} \end{aligned}$ | ＋ |  | $\times$ | $\times$ | ${ }_{0}^{n}$ | $\stackrel{\underset{\sim}{*}}{\stackrel{\rightharpoonup}{*}}$ | $\begin{aligned} & \text { O } \\ & \text { in } \end{aligned}$ | $\overleftarrow{O}_{\square}^{N}$ |  | $\cdots$ | $\stackrel{\square}{\square} \sim$ | ${\underset{N}{N}}^{-}$ | 10 | $\stackrel{N}{\sim}$ | $\begin{aligned} & \text { ぶ } \\ & \dot{\sigma} \end{aligned}$ | $\begin{aligned} & \text { ণ } \\ & \text { ぶ } \end{aligned}$ | ¢ | $\stackrel{\infty}{\infty}$ | $\cdots$ |
| ָ | $\stackrel{\sim}{\sim}$ | $\stackrel{\Gamma}{\top}$ | $\bigcirc$ | 0 | $\bigcirc$ | $\stackrel{\bigcirc}{-}$ | $\stackrel{N}{\Gamma}$ | $\stackrel{\sim}{0}$ | $\stackrel{\sim}{N}$ |  | $\stackrel{+}{*}$ | $\stackrel{\square}{0}$ | $\stackrel{+}{\circ}$ | $\stackrel{\sim}{\circ}$ | $\stackrel{\ominus}{\oplus}$ | $\stackrel{\sim}{\sim}$ | $\bigcirc$ | $\stackrel{\sim}{N}$ | N | $\stackrel{m}{0}$ |


| $\begin{aligned} & \stackrel{\Gamma}{\Gamma} \\ & \stackrel{N}{\square} \end{aligned}$ | $\stackrel{N}{n}^{N}$ | $\stackrel{\rightharpoonup}{\dot{\sim}}$ | ${\underset{\sim}{\sim}}^{m}$ | ${\underset{\sim}{\sim}}^{m}$ | ${\underset{\omega}{\bullet}}^{\bullet}$ | $\stackrel{\oplus}{\underset{\sim}{\sim}}$ | ${\underset{\sim}{N}}^{\infty}$ | $\begin{aligned} & \infty \\ & \stackrel{\rightharpoonup}{n}^{\infty} \end{aligned}$ | $\underset{\underset{\sim}{\sigma}}{\underset{\sim}{r}}$ | $\stackrel{\oplus}{\infty}_{\infty}^{\infty}$ | $\stackrel{\infty}{\infty}$ |  | $\begin{aligned} & \grave{N} \\ & \end{aligned}$ | $\stackrel{0}{\boldsymbol{m}}$ |  | $\begin{aligned} & \omega \\ & \stackrel{\omega}{\omega} \end{aligned}$ | $\stackrel{+}{\dot{\omega}}$ |  | $\stackrel{\omega}{\sim}_{\sim}^{\infty}$ | $\stackrel{\infty}{\infty}{ }_{\sim}^{\infty}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\sigma$ | $\pm$ | $\bigcirc$ | $\infty$ | $\infty$ | $\bigcirc$ | N | $\cdots$ | 5 | $\infty$ | $\ulcorner$. |  | $\infty$ | $\bigcirc$ |  | $\bigcirc$ | $\bigcirc$ | $\cdots$ | $N$ | م | F |
| N | $\leftarrow$ | ¢ | $\bigcirc$ | $\bigcirc$ | N | $\bigcirc$ | $\bigcirc$ | ヘ | $\bigcirc$ | ウ |  | $\bigcirc$ | ツ |  | ¢ | ヘ | $\bigcirc$ | N | 0 | － |


| Estate agents and auctioneers | 354 4 | 29 | 11.75 |
| :---: | :---: | :---: | :---: |
| Sales accounts and business development managers | $\begin{array}{r} 354 \\ 5 \end{array}$ | 589 | 22.45 |
| Conference and exhibition managers and organisers | 354 6 | 41 | 12.00 |
| Conservation and environmental associate professionals | 355 | 6 | 11.40 |
| Conservation and environmental associate professionals | 355 0 | 6 | 11.40 |
| Public services and other associate professionals | 356 | 440 | 15.67 |
| Public services associate professionals | 356 1 | 90 | 16.77 |
| Human resources and industrial relations officers | $\begin{array}{r} 356 \\ 2 \end{array}$ | 153 | 14.41 |
| Vocational and industrial trainers and instructors | $\begin{array}{r} 356 \\ 3 \end{array}$ | 125 | 14.99 |
| Careers advisers and vocational guidance specialists | $356$ $4$ | 15 | 13.48 |
| Inspectors of standards and regulations | 356 5 | 23 | 15.84 |
| Health and safety officers | 356 7 | 33 | 17.49 |
| Administrative and secretarial occupations | 4 | 3，026 | 11.47 |
| Administrative occupations | 41 | 2，426 | 11.74 |
| Government and related organisations | 411 | 187 | 12.59 |
| National government administrative occupations | 411 2 | 112 | 12.34 |
| Local government administrative occupations | 411 3 | 66 | 12.78 |
| Officers of non－governmental organisations | 411 4 | 10 | 13.21 |
| Administrative occupations： Finance | 412 | 542 | 12.01 |


|  | $\stackrel{\oplus}{\sim}^{\top}$ |  | $\times$ | ${\underset{N}{N}}^{\sim}$ | $\begin{aligned} & \text { m} \\ & \underbrace{N} \end{aligned}$ | $\stackrel{\omega}{6}_{\underline{\omega}}$ |  | ${\underset{\sigma}{6}}^{-}$ | ${\underset{N}{N}}^{N}$ |  |  | ${\underset{N}{N}}^{N}$ | $\underset{\sim}{10}$ | $\stackrel{ষ}{N}$ | $\begin{aligned} & 6 \\ & \stackrel{1}{N} \end{aligned}$ | مـ مٌ | $\times$ | $\begin{aligned} & \infty \\ & \underset{\sigma}{\top} \end{aligned}$ | $\begin{aligned} & \infty \\ & {\underset{\sigma}{0}}^{N} \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\stackrel{N}{n}^{m}$ | $\stackrel{\oplus}{N}^{\sim}$ |  | $\underset{\sim}{\underset{\sim}{*}} N$ | $\underset{\underset{\sim}{ \pm}}{+}$ | $\begin{aligned} & \text { ® } \\ & \stackrel{m}{\square}^{\circ} \end{aligned}$ | $\underset{\sim}{\underset{\sim}{\sim}}$ | $\underset{\underset{\sim}{O}}{\substack{\sim}}$ | $\stackrel{N}{\Gamma}^{N}$ | $\underset{\sim}{\underset{\tau}{\top}}$ | $\frac{\underset{\sim}{\sigma}}{\circ}$ | ${\underset{\sim}{\sim}}_{\underset{\sim}{\sim}}$ | $\begin{aligned} & \mathrm{N} \\ & \underset{\sim}{n} \end{aligned}$ | $\stackrel{\underset{\sim}{r}}{\stackrel{1}{2}}$ | $\stackrel{O}{\ominus}^{\circ}$ | $\begin{array}{ll} N \\ \underset{\sim}{\circ} & \dot{C} \end{array}$ | $\overleftarrow{K}_{\mathrm{N}} 0$ | $\stackrel{N}{n}^{\circ}$ | $\begin{aligned} & \infty \\ & \stackrel{\infty}{\Gamma} \end{aligned}$ | $\begin{aligned} & \infty \quad 0 \\ & \underset{\sim}{\infty} \end{aligned}$ |
| $\stackrel{+}{\dot{N}}$ | $\overleftarrow{\epsilon}^{\circ}$ |  | $\underbrace{\infty}$ | $\stackrel{\oplus}{\stackrel{\oplus}{r}}$ | $\begin{aligned} & \text { m N } \\ & \end{aligned}$ | $\begin{aligned} & \text { m} \\ & \stackrel{\infty}{-} \end{aligned}$ | $\stackrel{\oplus}{\stackrel{\oplus}{\Gamma}}$ | $\begin{aligned} & \infty \\ & \underset{\sim}{\sim} \end{aligned}$ | $\underset{\sim}{\dot{+}} \boldsymbol{+}$ | $\begin{aligned} & \text { No } \\ & \stackrel{\rightharpoonup}{\sigma} \end{aligned}$ | $\begin{aligned} & 0 \\ & \stackrel{1}{N} \end{aligned}$ | $\underset{\underset{\sim}{\underset{\sim}{r}}}{ }$ | $\begin{aligned} & \infty \\ & \underset{\sim}{\sim} \end{aligned}$ | $\underset{\underset{\sim}{\sim}}{\underset{\sim}{n}}$ |  | مـ | $\stackrel{N}{n}^{\sim}$ | $\begin{aligned} & \underset{\sim}{N} \\ & \underset{\sim}{N} \end{aligned}$ | $\begin{aligned} & \mathrm{N}^{\mathrm{N}} \end{aligned}$ |
| $\begin{aligned} & \stackrel{\circ}{\dot{c}} \mathrm{O} \end{aligned}$ | ${\underset{\sim}{n}}^{\sim}$ |  | $\stackrel{N}{n}^{\circ}$ | $\begin{aligned} & \underset{\sim}{N} \\ & \underset{\sim}{N} \end{aligned}$ | ${\underset{\sim}{\mathrm{N}}}^{\infty}$ | $\stackrel{\sim}{\mathrm{N}}_{\sim}^{\circ}$ | $\underset{\sim}{\dot{\Gamma}}$ | $\begin{aligned} & \text { mo } \\ & \underset{\sim}{*} \end{aligned}$ | $\stackrel{\text { ले}}{\sim}^{\infty}$ | $\stackrel{\sim}{\tau}^{\infty}$ | ${\underset{N}{N}}_{\stackrel{1}{N}}$ | $\underset{\underset{\sim}{\oplus}}{\stackrel{\sim}{r}}$ | $\stackrel{M}{\mathrm{~N}}^{-}$ | $\begin{aligned} & \stackrel{\Gamma}{\Gamma} \\ & \stackrel{\oplus}{r} \end{aligned}$ | $\begin{array}{ll} N \\ \infty \\ \infty & r \end{array}$ |  | ষ の | $\begin{aligned} & \stackrel{N}{N} \\ & \underset{\sim}{n} \end{aligned}$ | ${\underset{N}{N}}^{m}$ |
| $\stackrel{\sim}{\mathrm{N}}_{\underset{\sim}{\mathrm{N}}}$ | $\stackrel{N}{\Gamma}^{\top}$ |  | $\underset{\underset{-}{\bullet}}{\underset{\sim}{*}}$ | $\stackrel{\oplus}{\Gamma}_{\infty}^{\infty}$ | $\underset{\sim}{\infty}$ | ${\underset{\sim}{\sigma}}_{\square}^{\text {® }}$ | $\begin{aligned} & \text { مٌ } \\ & \underset{\sim}{\sim} \end{aligned}$ | $\stackrel{\sim}{\tau}_{\sim}^{\sim}$ | $\begin{aligned} & \infty \\ & \stackrel{\infty}{\sim} \end{aligned}$ | $\stackrel{O}{0}_{\infty}^{N}$ | $\stackrel{\oplus}{\tau}_{\Gamma}^{\top}$ | ${\underset{\sim}{\mathrm{N}}}^{\mathrm{N}}$ | $\frac{م}{\Gamma}$ | $\stackrel{\tau}{\mathrm{N}}^{\circ}$ |  | $N$ |  | $\begin{aligned} & \text { 오 } \\ & \stackrel{\square}{r} \end{aligned}$ | $\begin{aligned} & \text { 욷 } \\ & \frac{1}{r} \end{aligned}$ |
|  | $\begin{aligned} & N: ~ \\ & \underset{\sim}{r} \end{aligned}$ | ${\underset{o}{n}}^{\circ}$ | ${\underset{\sim}{G}}_{\underset{\sim}{n}}$ | $\begin{aligned} & \text { n } 0 \\ & \underset{\sim}{0} \end{aligned}$ | $\begin{aligned} & \underline{\circ} \mathrm{O} \\ & \stackrel{O}{\mathrm{O}} \end{aligned}$ | $\stackrel{\bullet}{\circ}$ | $\begin{aligned} & \text { 응 } \\ & \mathrm{F}^{\circ} \end{aligned}$ | $\bar{\sigma}^{\infty}$ | $\bar{F}_{\Gamma}^{\sim}$ | $\bar{\circ}^{\circ}$ | $\stackrel{+}{\circ}$ | $\stackrel{\text { ® }}{\substack{+\\}}$ | ${\underset{o}{N}}^{\sim}$ | $\begin{aligned} & \text { mo } \\ & \stackrel{0}{-} \end{aligned}$ | $\stackrel{0}{0} \times$ | ما | $\infty \quad \text { ৷ }$ | 0 0 0 | 0 0 0 |
| $\begin{aligned} & 90 \\ & \stackrel{0}{0} \end{aligned}$ | $\hat{O}^{\wedge}$ |  | ${\underset{\sim}{N}}_{\sim}^{+}$ | $\begin{aligned} & \mathbf{+} \\ & \dot{\infty} \end{aligned}$ | $\stackrel{O}{0}^{N}$ | $\overleftarrow{\sigma}^{m}$ | $\stackrel{\rightharpoonup}{\circ}$ | $\begin{aligned} & \text { n } \\ & \stackrel{0}{0} \end{aligned}$ | $\begin{aligned} & \text { n } \\ & \stackrel{0}{0} \end{aligned}$ | $\begin{aligned} & 10 \\ & 0 \\ & 0 \end{aligned}$ | $\begin{gathered} 0 \\ \stackrel{N}{0} \end{gathered}$ | $\begin{aligned} & 9 \\ & \cdots \\ & \infty \end{aligned}$ | $\begin{aligned} & \text { O } \\ & 0 \\ & \hline \end{aligned}$ | $\begin{aligned} & \infty \\ & \infty \\ & \infty \end{aligned}$ | $\begin{aligned} & \dot{\sim} \sim \\ & \underset{\sim}{N} \end{aligned}$ | $\mathrm{j}^{\infty}$ | $\stackrel{N}{\sim}$ | $\stackrel{N}{\text { N}}$ | $\frac{N}{\infty}$ |
| بٌ | $\stackrel{0}{0}^{\text {n }}$ | $\stackrel{\Gamma}{N}$ |  | －180 | $\stackrel{\infty}{\uparrow}$ | $\begin{aligned} & \stackrel{\infty}{\sim} \\ & \dot{\sigma} \end{aligned}$ | $\bar{\sigma}^{N}$ | －さ | $\begin{aligned} & \underset{O}{N} \\ & \overbrace{0} \end{aligned}$ | － | $\bigcirc$ | － | －＋ | $\stackrel{\circ}{\circ}$ | $\begin{aligned} & \sigma \sim \sim \\ & F \\ & \Gamma \end{aligned}$ | $\underset{\sim}{\sim}{ }^{+}$ | $\stackrel{\leftrightarrow}{\infty}_{\infty}^{\infty}$ | No | No |
| $\begin{aligned} & \text { m m } \\ & \stackrel{0}{0} \end{aligned}$ | $\stackrel{O}{O}^{\circ}$ | ¢ | $\stackrel{\Gamma}{\tau}$ | $\stackrel{\infty}{\infty}$ | $\stackrel{?}{7}$ | $\begin{gathered} \infty \\ \stackrel{0}{1} \\ 0 \end{gathered}$ | $\begin{aligned} & \infty \\ & \infty \\ & \hline \end{aligned}$ | － | 「 | $\infty$ 0 0 | N N | $\stackrel{\square}{\text { ® }}$ | － | $\stackrel{\downarrow}{\top}$ | $\begin{aligned} & \text { חִ } \\ & \underset{\sim}{\square} \end{aligned}$ | $\Omega \text { の }$ | $\underset{\sim}{\oplus}$ | － | － |
| $\begin{aligned} & \infty \\ & 0 \\ & 0 \end{aligned}$ | － |  | ${ }_{0}$ | $\stackrel{+}{+}$ | $\cdots$ | $\stackrel{N}{\infty}$ | N | $\cdots$ | 10 $\infty$ $\infty$ | $\frac{N}{\square}$ | $\stackrel{N}{N}$ | ＋ | N00 | $\bigcirc$ | $\infty$ | $\bigcirc$ | ® ®̈ | $\stackrel{1}{\sim}$ | N $\sim$ |
| $\stackrel{\oplus}{r}$ | $\stackrel{9}{9}$ | $\stackrel{+}{+}$ | $\stackrel{+}{*}$ | $\cdots$ | $\stackrel{\sim}{*}$ | $\stackrel{\oplus}{\infty}$ | $\bigcirc$ | $\stackrel{\bigcirc}{+}$ | $\stackrel{\bullet}{\text { ® }}$ | N | $\bar{\sigma}$ | $\stackrel{\oplus}{\oplus}$ | $\bigcirc$ | $\stackrel{\square}{9}$ | $\stackrel{+}{\text { ¢ }}$ | $\stackrel{\square}{*}$ | $\bigcirc$ | $\stackrel{\sim}{\infty}$ | $\stackrel{m}{\infty}$ |
| $\begin{aligned} & \text { மの } \\ & \stackrel{\text { N }}{1} \end{aligned}$ | $\underset{\leftarrow}{\underset{+}{*}}$ |  | ${\underset{\sigma}{0}}_{\infty}^{0}$ | $\begin{aligned} & \text { OO } \\ & \stackrel{1}{\mathrm{~N}} \end{aligned}$ | $\begin{aligned} & \underset{\sim}{N} \\ & \underset{\sim}{N} \end{aligned}$ | $\xrightarrow[\mathrm{M}]{\mathrm{M}}$ | $\begin{aligned} & \text { 안 } \\ & \stackrel{+}{2} \end{aligned}$ | ${\underset{\sim}{\infty}}^{\infty}$ | ${\underset{\sim}{\mathrm{N}}}^{+}$ | ！－ | $\stackrel{\leftarrow}{\sim}{ }_{\sim}^{-}$ | $\stackrel{m}{\sim}$ |  | + $\stackrel{+}{-}$ | $\begin{aligned} & \infty \\ & \dot{\theta}^{N} \end{aligned}$ | ল | $\bullet$ |  | $\frac{9}{\square}$ |
| $\underset{\sim}{\sim}$ | $\stackrel{\circ}{\mathrm{N}}$ | $\stackrel{\rightharpoonup}{\circ}$ | $\stackrel{+}{\circ}$ | $\stackrel{\Gamma}{\sim}$ | $\underset{\sim}{\ominus}$ | $\stackrel{\Gamma}{8}$ | $\stackrel{\stackrel{\rightharpoonup}{*}}{\stackrel{1}{2}}$ | $\dot{j} \quad \underset{\sim}{\mathrm{j}}$ | $\stackrel{\Gamma}{\mathrm{N}}$ | $\xrightarrow[~ N]{\sim}$ |  | $\underset{\sim}{\circ}$ | $\hat{O}$ | $\stackrel{\ominus}{+}$ | $\overline{\mathrm{N}}$ | $\dot{\infty}$ | $\begin{gathered} \infty \\ \dot{m} \end{gathered}$ | N | N |
| $\begin{aligned} & \bar{O} \\ & \text { ヘ̀ } \end{aligned}$ | $\begin{aligned} & \text { N } \\ & \stackrel{\sim}{\mathrm{N}} \end{aligned}$ | $\begin{aligned} & \underset{\sim}{\sim} \\ & \underset{\sim}{7} \end{aligned}$ | $\begin{aligned} & \infty \\ & 0 \\ & \end{aligned}$ | F $\stackrel{\tau}{\square}$ | $\frac{\square}{\square}$ | $\stackrel{N}{N}$ | $\pm$ $\stackrel{\rightharpoonup}{\square}$ $\sim$ | N | $\infty$ $\infty$ $\sim$ | $\stackrel{\sim}{\bullet}$ | J O $\square$ | $\stackrel{\sim}{\square}$ | N <br>  | $\stackrel{\sim}{\square}$ | $\stackrel{\sim}{\text { ¢ }}$ | ＋ | N <br>  <br>  | N | N |
| $\stackrel{\bullet}{\sim}$ | ¢ | $\stackrel{\infty}{\sim}$ | $\cdots$ | $\stackrel{\sim}{\sim}$ | $\stackrel{\oplus}{\circ}$ | $\stackrel{10}{\sim}$ | ¢ | － | $\bigcirc$ | ก | $\cdots$ | $\stackrel{\text { 울 }}{\text { ᄃ }}$ | N | ¢ | N | ¢ | ल | $\overline{6}$ | ¢ |
| $\frac{N}{\dot{G}}$ | $\frac{N}{\sigma}^{N}$ | $\frac{N}{\dot{\sigma}} \text { m }$ | $\stackrel{N}{\underset{\sim}{*}}$ | $\frac{N}{\top}^{\circ}$ | $\frac{m}{\square}$ | $\frac{m}{\dot{q}}$ | $\frac{m}{\sigma}^{N}$ | $\frac{m}{\sigma} \text { m }$ | $\frac{\oplus}{\star}$ | $\stackrel{m}{\dot{q}}^{n}$ | $\frac{m}{\dot{~}}^{\infty}$ |  | $\frac{10}{+}{ }^{-}$ | $\frac{1}{i}^{\circ} 0$ | $\frac{0}{2}$ | $\frac{0}{\sigma}$ | $\frac{6}{\sigma} N$ | $\stackrel{\text { }}{*}$ | $\stackrel{\sim}{\sim}$ |
|  |  |  |  |  |  | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |  |  |  | Library clerks and assistants |  |  | 0 <br> 0 <br> 0 <br> 0 <br> 0 <br> 0 <br> 0 <br> 0 <br> 0 <br> 0 <br> 0 <br> 0 <br> 0 |  |  |  | 0 <br> 00 <br> 00 <br> 0 <br> 0 <br> 0 <br> 0 <br> 0 <br> 0 <br> 10 <br> 0 |  |  |




| Medical secretaries | 421 1 | 44 | 11.50 |
| :---: | :---: | :---: | :---: |
|  | 421 |  |  |
| Legal secretaries | 2 | 26 | 11.27 |
|  | 421 |  |  |
| School secretaries | 3 | 23 | 10.48 |
|  | 421 |  |  |
| Company secretaries | 4 | 15 | 11.59 |
| Personal assistants and other | 421 |  |  |
| secretaries | 5 | 213 | 12.30 |
|  | 421 |  |  |
| Receptionists | 6 | 261 | 9.28 |
| Typists and related keyboard | 421 |  |  |
| occupations | 7 | 19 | 10.16 |
| Skilled trades occupations | 5 | 1,917 | 12.50 |
| Skilled agricultural and related trades | 51 | 103 | 10.15 |
| Agricultural and related trades | 511 | 103 | 10.15 |
|  | 511 |  |  |
| Farmers | 1 | 6 | 11.34 |
|  | 511 |  |  |
| Horticultural trades | 2 | x | 8.86 |
| Gardeners and landscape | 511 |  |  |
| gardeners | 3 | 40 | 10.31 |
|  | 511 |  |  |
| Groundsmen and greenkeepers | 4 | 42 | 9.94 |
| Agricultural and fishing trades | 511 |  |  |
| n.e.c. | 9 | 11 | 10.56 |
| Skilled metal, electrical and electronic trades | 52 | 999 | 14.37 |
| Metal forming, welding and related trades | 521 | 70 | 12.56 |
|  | 521 |  |  |
| Smiths and forge workers | 1 | X | X |
| Moulders, core makers and die | 521 |  |  |
| casters | 2 | x | 11.06 |
|  | 521 |  |  |
| Sheet metal workers | 3 | 10 | 12.49 |
|  | 521 |  |  |
| Metal plate workers, and riveters | 4 | X | 13.54 |




| Welding trades | 521 5 | 49 | 12.32 |
| :---: | :---: | :---: | :---: |
|  | 521 |  |  |
| Pipe fitters | 6 | X | 17.16 |
| Metal machining, fitting and instrument making trades | 522 | 393 | 14.31 |
| Metal machining setters and setter-operators | 522 1 | 53 | 13.02 |
| Tool makers, tool fitters and markers-out | 522 2 | 8 | 14.17 |
| Metal working production and maintenance fitters | 522 3 | 316 | 14.77 |
| Precision instrument makers and repairers | $\begin{array}{r} 522 \\ 4 \end{array}$ | 10 | 12.26 |
| Air-conditioning and refrigeration engineers | $\begin{array}{r} 522 \\ 5 \end{array}$ | 6 | 14.23 |
| Vehicle trades | 523 | 183 | 12.75 |
| Vehicle technicians, mechanics and electricians | $\begin{array}{r} 523 \\ 1 \end{array}$ | 136 | 12.50 |
| Vehicle body builders and repairers | 523 2 | 23 | 12.46 |
| Vehicle paint technicians | 523 4 | 9 | 12.39 |
| Aircraft maintenance and related trades | $\begin{array}{r} 523 \\ 5 \end{array}$ | 6 | 19.34 |
| Boat and ship builders and repairers | 523 6 | 6 | 13.80 |
| Rail and rolling stock builders and repairers | 523 7 | x | X |
| Electrical and electronic trades | 524 | 309 | 15.46 |
| Electricians and electrical fitters | 524 1 | 141 | 15.25 |
| Telecommunications engineers | 524 2 | 20 | 16.64 |
| TV, video and audio engineers | 524 4 | 5 | 15.52 |
| IT engineers | 524 5 | 16 | 15.26 |



| ${\underset{\sigma}{\sigma}}^{N}$ | $\underset{\sim}{\star}$ | ${\underset{\sim}{N}}^{\star}$ | $\begin{aligned} & \infty \quad \infty \\ & \stackrel{\oplus}{\Gamma} \end{aligned}$ | $\stackrel{ \pm}{\text { ¢ }}$ | $\begin{aligned} & \underset{\sim}{~} \sim \\ & \underset{\sim}{N} \end{aligned}$ |  |  |  |  | $\stackrel{0}{\circ}^{\circ}$ | ¢ | $\stackrel{\bullet}{\circ}$ | $\infty$ | $\stackrel{\sim}{\square}$ |  |  |  | $\stackrel{\oplus}{\square}$ |  |  | $\stackrel{\infty}{\sim}$ |  |  |  | $\stackrel{\square}{\circ}$ | $\stackrel{\text { 「 }}{\sim}^{\text {－}}$ | ${\underset{\sigma}{\infty}}_{\infty}^{\top}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\infty$ | 0 | م | $\infty$ | 0 | 今 |  | $\sigma$ |  | $\bigcirc$ | $\infty$ | $\bigcirc$ |  | N |  | $\bigcirc$ |  | $\bigcirc$ |  | F | $\bigcirc$ |  | م | N | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| ¢ | 0 | 0 | ヘ | $\stackrel{+}{+}$ | 0 |  | $\bullet$ |  | $\stackrel{\sim}{\sim}$ | ヘ | ¢ |  | ウ |  | N |  | ヘ |  | $\dot{+}$ | ヘ |  | N | $\bigcirc$ | 0 | 1 | ต | ${ }^{\circ}$ |


| Electrical and electronic trades n．e．c． | 524 9 | 127 | 15.53 |
| :---: | :---: | :---: | :---: |
| Skilled metal，electrical and electronic trades supervisors | 525 | 43 | 16.30 |
| Skilled metal，electrical and electronic trades supervisors | $\begin{array}{r} 525 \\ 0 \end{array}$ | 43 | 16.30 |
| Skilled construction and building trades | 53 | 304 | 13.29 |
| Construction and building trades | 531 | 225 | 13.15 |
| Steel erectors | 531 1 | X | 12.28 |
|  | 531 |  |  |
| Bricklayers and masons | 2 | 16 | 13.36 |
|  | 531 |  |  |
| Roofers，roof tilers and slaters | 3 | 14 | 11.86 |
| Plumbers and heating and | 531 |  |  |
| ventilating engineers | 4 | 59 | 14.82 |
|  | 531 |  |  |
| Carpenters and joiners | 5 | 79 | 13.14 |
| Glaziers，window fabricators and | 531 |  |  |
| fitters | 6 | 19 | 10.08 |
| Construction and building trades | 531 |  |  |
| n．e．c． | 9 | 33 | 12.30 |
| Building finishing trades | 532 | 40 | 11.76 |
|  | 532 |  |  |
| Plasterers | 1 | 7 | 13.39 |
|  | 532 |  |  |
| Floorers and wall tilers | 2 | 11 | 11.50 |
|  | 532 |  |  |
| Painters and decorators | 3 | 22 | 11.67 |
| Construction and building trades |  |  |  |
| supervisors | 533 | 39 | 16.15 |
| Construction and building trades | 533 |  |  |
| supervisors | 0 | 39 | 16.15 |
| Textiles，printing and other skilled trades | 54 | 511 | 9.88 |
| Textiles and garments trades | 541 | 22 | 10.43 |
|  | 541 |  |  |
| Weavers and knitters | 1 | X | 10.54 |




| Upholsterers | 541 2 | 8 | 11.69 |
| :---: | :---: | :---: | :---: |
| Footwear and leather working | 541 |  |  |
| trades | 3 541 | 6 | 10.17 |
| Tailors and dressmakers | 4 | X | X |
| Textiles, garments and related trades n.e.c. | $\begin{array}{r} 541 \\ 9 \end{array}$ | x | 9.56 |
| Printing trades | 542 | 32 | 11.65 |
|  | 542 |  |  |
| Pre-press technicians | 1 | X | x |
|  | 542 |  |  |
| Printers | 2 | 17 | 12.27 |
| Print finishing and binding | 542 |  |  |
| workers | 3 | 13 | 10.77 |
| Food preparation and hospitality trades | 543 | 423 | 9.66 |
|  | 543 |  |  |
| Butchers | 1 | 31 | 10.05 |
|  | 543 |  |  |
| Bakers and flour confectioners | 2 | 19 | 9.71 |
| Fishmongers and poultry | 543 |  |  |
| dressers | 3 | x | 9.03 |
|  | 543 |  |  |
| Chefs | 4 | 251 | 9.69 |
|  | 543 |  |  |
| Cooks | 5 | 62 | 8.91 |
|  | 543 |  |  |
| Catering and bar managers | 6 | 55 | 10.12 |
| Other skilled trades | 544 | 35 | 11.25 |
| Glass and ceramics makers, decorators and finishers | 544 | x | 11.64 |
| Furniture makers and other craft woodworkers | 544 2 | 11 | 10.51 |
|  | 544 |  |  |
| Florists | 3 | x | 8.52 |
|  | 544 |  |  |
| Other skilled trades n.e.c. | 9 | 16 | 12.94 |
| Caring, leisure and other service occupations | 6 | 2,523 | 9.81 |




| Caring personal service occupations | 61 | 2,101 | 9.85 |
| :---: | :---: | :---: | :---: |
| Childcare and related personal |  |  |  |
| services | 612 | 753 | 9.69 |
|  | 612 |  |  |
| Nursery nurses and assistants | 1 | 189 | 8.86 |
| Childminders and related | 612 |  |  |
| occupations | 2 | 25 | 10.00 |
|  | 612 |  |  |
| Playworkers | 3 | 40 | 9.03 |
|  | 612 |  |  |
| Teaching assistants | 5 | 333 | 9.94 |
|  | 612 |  |  |
| Educational support assistants | 6 | 166 | 9.96 |
| Animal care and control services | 613 | 42 | 9.74 |
|  | 613 |  |  |
| Veterinary nurses | 1 | 12 | 11.00 |
|  | 613 |  |  |
| Pest control officers | 2 | x | 12.30 |
| Animal care services | 613 |  |  |
| occupations n.e.c. | 9 | 27 | 8.99 |
| Caring personal services | 614 | 1,306 | 9.98 |
| Nursing auxiliaries and | 614 |  |  |
| assistants | 1 | 397 | 10.93 |
| Ambulance staff (excluding | 614 |  |  |
| paramedics) | 2 | 24 | 12.06 |
|  | 614 |  |  |
| Dental nurses | 3 | 42 | 10.14 |
| Houseparents and residential | 614 |  |  |
| wardens | 4 | 14 | 12.20 |
|  | 614 |  |  |
| Care workers and home carers | 5 | 723 | 9.49 |
|  | 614 |  |  |
| Senior care workers | 6 | 81 | 9.74 |
|  | 614 |  |  |
| Care escorts | 7 | 10 | 9.40 |
| Undertakers, mortuary and | 614 |  |  |
| crematorium assistants | 8 | 15 | 11.33 |
| Leisure, travel and related personal service occupations | 62 | 422 | 9.57 |




| $\begin{aligned} & \infty \\ & \stackrel{\infty}{\bullet} \end{aligned}$ | $\begin{aligned} & \infty \\ & \stackrel{\infty}{\bullet} \end{aligned}$ | ${\underset{\sim}{n}}_{\substack{n}}$ | $\begin{aligned} & \stackrel{\oplus}{\stackrel{\Gamma}{+}} \end{aligned}$ | $\times$ | $\times \times$ | $\times$ |  | $\times$ | $\times$ | $\times \times$ | $\times$ |  | $\times \underset{\sim}{x}$ | $\times$ |  | $\times$ | $\times$ | $\times$ | $\times$ | $\times$ | $\times \times$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\underset{\underset{\sim}{*}}{\underset{\sim}{*}}$ | $\underset{\underset{\sim}{\star}}{\underset{\sim}{r}}$ |  | ${\underset{\underset{\sim}{\mathrm{N}}}{ }}^{m}$ |  |  | $\dot{\sigma}^{\circ}$ |  | $\times$ |  | $\times \times$ | $\times$ | $\times$ | مn مn | $\begin{aligned} & \mathrm{O}_{\mathrm{m}}^{\mathrm{m}} \\ & \hline \end{aligned}$ |  |  | $\times$ | $\times$ | $\underset{\underset{\sim}{O}}{\substack{\text { n }}}$ |  | $\times \underset{\underset{\sim}{*}}{\underset{\sim}{*}}$ |
| $\stackrel{\oplus}{\dot{\sim}}^{m}$ | $\stackrel{\oplus}{\stackrel{\Gamma}{\sigma}}$ | $\stackrel{\llcorner }{\stackrel{\sim}{\mathrm{N}}}$ | $\underset{\sim}{\underset{\sim}{\leftarrow}}$ |  | $\times$ | $\begin{aligned} & \infty \quad \sigma \\ & {\underset{\sigma}{\infty}}^{\circ} \end{aligned}$ |  | $\begin{array}{r} \times \underset{\sim}{\mathrm{N}} \end{array}$ | $\stackrel{0}{N}^{\infty}$ |  |  |  | $\stackrel{\underset{\sim}{\mathrm{N}}}{\underset{\sim}{r}}$ | ${\underset{\sim}{\mathrm{N}}}^{\text {® }}$ |  | $\times$ | $\times$ | $\times$ | ${\underset{m}{m}}^{\sim}$ | $\begin{aligned} & \underset{\varrho}{m} \\ & \stackrel{\sigma}{0} \end{aligned}$ |  |
| ${\underset{\sim}{\underset{\sim}{i}}}^{n}$ | $\stackrel{\infty}{\sim}$ | $\stackrel{\infty}{\underset{\sim}{\infty}}$ | $\frac{0}{F^{\circ}}$ |  | < | $\hat{\hat{\sigma}}^{\wedge}$ |  | $\times \underset{\underset{\sim}{\mathrm{N}}}{ }$ | ${\underset{N}{N}}^{\text {No }}$ | $\stackrel{\underset{\sim}{\dot{\sim}}}{\infty}$ | $\underset{\sim}{\tau} 9$ | $\stackrel{\mathrm{M}}{\underset{\sim}{\mathrm{~N}}}$ | $\stackrel{\oplus}{\stackrel{\oplus}{-}}$ | $\stackrel{\infty}{\stackrel{\infty}{\square}}$ |  |  | $\times$ |  | ${\underset{\mathrm{N}}{\mathrm{~N}}}^{n}$ | $\begin{aligned} & 0 \\ & \dot{6} \end{aligned}$ | $\begin{aligned} & \underset{\sim}{\mathrm{N}} \\ & \hline \end{aligned}$ |
| $\stackrel{̣}{F}_{\square}^{\circ}$ | $\stackrel{N}{F}^{\circ}$ | $\begin{aligned} & \text { ọ } \\ & \stackrel{\circ}{-} \end{aligned}$ | $\stackrel{-}{\circ}^{-1}$ | $\begin{aligned} & \stackrel{1}{0} \mathrm{~N} \\ & \stackrel{0}{-} \end{aligned}$ | $\underset{\underset{\sim}{v}}{\underset{\sim}{*}}$ | $\stackrel{0}{\mathrm{i}}^{\mathrm{m}}$ | $\frac{\infty}{\leftarrow}$ |  | $\pm 0$ | $\begin{aligned} & m o \\ & \stackrel{m}{c} \end{aligned}$ | $\begin{aligned} & \text { Nor } \\ & \dot{O} \\ & \hline \end{aligned}$ | $\stackrel{+}{\square}$ | $\begin{aligned} & \underset{\sim}{N} \text { m } \\ & \text { N } \end{aligned}$ | $\stackrel{\infty}{\circ}_{+}^{\infty}$ |  |  | $\stackrel{\text { m }}{\stackrel{1}{\sim}}$ |  | $\stackrel{\infty}{\underset{\sim}{\infty}}$ |  | $\stackrel{\underset{\sim}{\tau}}{\underset{\sim}{*}}$ |
| $\stackrel{N}{O}_{\underline{-}}$ | $\begin{aligned} & 0.0 \\ & 0_{-} \end{aligned}$ | $\stackrel{N}{\omega}$ | $\stackrel{\varrho}{\circ}$ | $\stackrel{\infty}{\underset{\sim}{\infty}}$ | $\stackrel{8}{9}$ | $\begin{aligned} & \stackrel{\sim}{\mathrm{N}} \\ & \underset{\sim}{*} \end{aligned}$ |  | $\begin{gathered} \circ \\ \stackrel{0}{0} \\ \hline \end{gathered}$ | $\underset{\sim}{\infty}$ | $\underset{j}{\underset{\sim}{c}} \underset{\underset{F}{\infty}}{\infty}$ | No | $\begin{aligned} & \text { m. } \\ & \stackrel{0}{-} \end{aligned}$ | n ơ ~ | o் |  |  | $\stackrel{\star}{\circ}$ |  | $\begin{aligned} & \infty \\ & \infty \\ & \infty \\ & \hline \end{aligned}$ | $\stackrel{\infty}{\underset{\sim}{\sim}}$ | + $\stackrel{\infty}{\stackrel{1}{*}}$ |
| in | 0 | $\begin{aligned} & \text { ம } \\ & \infty \\ & \infty \end{aligned}$ | $\begin{aligned} & \bullet \\ & \infty \\ & \infty \end{aligned}$ | $\begin{aligned} & \mathbf{~} \\ & \infty \\ & \infty \end{aligned}$ |  | $\underset{\sim}{\tau}$ |  |  | $\stackrel{\odot}{\sigma}$ | ب <br> F | $\stackrel{గ}{n}$ | $\stackrel{\sim}{\sim}$ | N <br> $\stackrel{y}{n}$ | $\stackrel{\infty}{\infty}$ |  |  | ${\underset{O}{N}}_{\substack{\infty \\ \hline}}$ | $\stackrel{\mathcal{O}}{\underset{\sim}{V}}$ | กั | $\frac{\oplus}{\underset{T}{T}} \infty$ | $\cdots \stackrel{\infty}{\sigma}$ |
| 소 | 0 | $\begin{aligned} & \varrho \\ & \infty \\ & \infty \end{aligned}$ | $\underset{\sim}{*}$ | $\times$ |  | $\begin{aligned} & \text { @の } \\ & \stackrel{\circ}{-} \end{aligned}$ |  |  |  | $\stackrel{1}{\circ}$ | $\begin{aligned} & \text { O} \\ & \text { ò } \end{aligned}$ | $\begin{aligned} & \text { N } \\ & \text { ஸ̀ } \end{aligned}$ | مٌ | ò |  |  |  |  | $\stackrel{\rightharpoonup}{m}$ | $\stackrel{0}{\circ}$ | - 8 |
| $\begin{aligned} & \infty \\ & \infty \\ & \infty \end{aligned}$ | N $\sim$ | $\stackrel{\square}{\infty}$ | $\stackrel{\sim}{\infty}$ | $\times$ |  | $\begin{aligned} & \text { m m } \\ & \stackrel{0}{0} \end{aligned}$ |  |  | $\begin{aligned} & + \\ & \infty \\ & \infty \\ & \hline \end{aligned}$ |  |  | $\underset{\infty}{\underset{\infty}{O}}$ | $\frac{10}{\sigma}$ | $\stackrel{\infty}{\stackrel{\infty}{\infty}}$ |  |  |  |  | $\bar{\sigma}$ | $\begin{aligned} & \text { No } 0 \\ & \text { ó } \end{aligned}$ | - $\begin{aligned} & \circ \\ & \infty \\ & \infty\end{aligned}$ |
| $\stackrel{\infty}{\infty}$ | $\infty$ | $\stackrel{\sim}{\sim}$ | $\stackrel{\Gamma}{\sim}$ | $\times$ |  | O |  |  | $\underset{\infty}{\underset{\infty}{J}}$ | $\times$ | $\times$ |  | $\stackrel{+}{\infty}$ | $\underset{\infty}{\underset{\infty}{-}}$ |  | $\times$ | $\times$ | $\times$ | $\underset{\sim}{N}$ | $\stackrel{\sim}{\stackrel{\infty}{N}}$ | - |
| $\stackrel{\stackrel{\rightharpoonup}{\oplus}}{\stackrel{1}{2}}$ | $\stackrel{\sim}{2}$ | $\bar{m}$ | $\stackrel{\infty}{\infty}$ | $\bigcirc$ | $\stackrel{\infty}{\infty}$ | $\stackrel{F}{+}$ | $\stackrel{\infty}{\rho}$ | $\stackrel{\infty}{\stackrel{\infty}{p}}$ |  | $\overline{0}$ | $\stackrel{\oplus}{\Gamma}$ | $\stackrel{O}{\Gamma}$ | $\stackrel{\varphi}{\dot{\omega}}$ | $\stackrel{\bullet}{\bullet}$ |  |  | $\stackrel{\wedge}{\mathrm{N}}$ | $\stackrel{\stackrel{\rightharpoonup}{\mathrm{N}}}{\stackrel{-}{2}}$ | $\stackrel{N}{m}$ | $\sim$ | $\stackrel{\square}{\square}$ |



| Process, plant and machine operatives | 8 | 1,499 | 11.02 |
| :---: | :---: | :---: | :---: |
| Process, plant and machine operatives | 81 | 705 | 10.82 |
| Process operatives | 811 | 218 | 10.02 |
| Food, drink and tobacco process operatives | $\begin{array}{r} 811 \\ 1 \end{array}$ | 146 | 9.54 |
| Glass and ceramics process operatives | 811 2 | X | 10.00 |
| Textile process operatives | 811 | 10 | 10.38 |
| Chemical and related process operatives | $\begin{array}{r} 811 \\ 4 \end{array}$ | 22 | 13.41 |
| Rubber process operatives | 811 | X | 11.07 |
|  | 811 |  |  |
| Plastics process operatives | 6 | 12 | 10.62 |
| Metal making and treating process operatives | 811 7 | 9 | 12.41 |
|  | 811 |  |  |
| Electroplaters | 8 | 5 | 10.24 |
|  | 811 |  |  |
| Process operatives n.e.c. | 9 | 8 | 10.84 |
| Plant and machine operatives | 812 | 88 | 11.24 |
| Paper and wood machine operatives | $\begin{array}{r} 812 \\ 1 \end{array}$ | 16 | 10.27 |
|  | 812 |  |  |
| Coal mine operatives | 2 | x | x |
| Quarry workers and related | $812$ |  |  |
| operatives | 3 812 | x | 11.16 |
| Energy plant operatives | 4 | 6 | 16.66 |
| Metal working machine operatives | $\begin{array}{r} 812 \\ 5 \end{array}$ | 19 | 10.59 |
| Water and sewerage plant operatives | $\begin{array}{r} 812 \\ 6 \end{array}$ | 11 | 14.16 |
|  | 812 |  |  |
| Printing machine assistants | 7 | 18 | 10.29 |



| ${\underset{\sim}{N}}^{\circ}$ | $\times$ | $\times$ |  |  | ${\stackrel{\infty}{\underset{\sim}{e}}}^{\infty}$ |  |  |  |  | $\times$ |  |  | $\begin{aligned} & \text { O } \\ & \underset{\sim}{*} \end{aligned}$ | $\checkmark$ | $\underset{\sim}{\circ}$ | $\begin{aligned} & \circ \\ & \underset{\sim}{\sim} \end{aligned}$ | $\times$ | $\times$ | $\times$ | $\stackrel{10}{10}_{10}^{6}$ | $\frac{0}{10}$ | $\underset{\sim}{\circ}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\stackrel{N}{N}^{\circ}$ | $\times$ | $\stackrel{m}{m}$ | $\times$ | ${\underset{\sim}{n}}^{N} \cdot 0$ | +i | $\stackrel{\text { Mr }}{\substack{*}}$ | $\times$ |  | $\times$ | $\times$ |  | $\times$ |  |  | $\begin{aligned} & \text { ㅇo } \\ & \underset{\sim}{N} \end{aligned}$ | $\frac{O_{T}}{\Gamma}$ | $\stackrel{̣}{\div}$ | $\times$ | io | $\stackrel{\text { ® }}{ }^{\circ}$ | $\stackrel{\Gamma}{\Gamma}^{\circ}$ | $\begin{aligned} & \sigma \\ & \underset{\sigma}{\sigma} \end{aligned}$ |
| $\begin{aligned} & \stackrel{\circ}{+} \text { の } \end{aligned}$ |  | $\begin{aligned} & 0 \\ & \underset{\sim}{\sim} \end{aligned}$ |  | ${\underset{\sim}{r}}^{\sim}$ | ${\underset{\sim}{e}}^{( }$ | $\begin{aligned} & N_{N}^{\infty} \end{aligned}$ | $\times$ | $\begin{aligned} & \stackrel{0}{p} \\ & \stackrel{y}{n} \end{aligned}$ |  | $\stackrel{m}{N}_{N}$ |  |  | $\stackrel{+}{\circ}$ |  | $\underset{\sim}{\star}$ | $\begin{aligned} & 100 \\ & 0 \end{aligned}$ | $0$ | $\times$ | ${\underset{\sim}{0}}_{\infty}^{\infty}$ | $\begin{aligned} & \stackrel{1}{\mathrm{~N}} \mathrm{O} \end{aligned}$ | $\stackrel{\sim}{\mathrm{N}}_{\mathrm{N}}^{\circ}$ | ${\underset{\sim}{N}}^{\sim}$ |
| $\underset{\underset{T}{\circ}}{\circ}$ | $\stackrel{O}{0}^{\circ}$ | $\begin{aligned} & \underset{\sim}{\sim} \\ & \stackrel{\sim}{\sim} \end{aligned}$ | $\times$ | $\underset{\sim}{\underset{\sim}{\sim}} \underset{\sim}{*}$ | $\text { No }{ }^{\text {No }}$ | $\frac{\mathrm{N}}{\frac{1}{ल}}{ }^{+}$ | ${\underset{\sigma}{\oplus}}^{N}$ | $\underset{\sim}{m}$ |  | $\begin{aligned} & \text { の } 0 \\ & \text { ®is }^{2} \end{aligned}$ | $\begin{aligned} & \infty \\ & \cdots \\ & \square \end{aligned}$ |  | 웅 |  | or m | $\stackrel{\sim}{\sim}$ |  | $\times$ | $0_{0}^{0} 0$ | $\begin{aligned} & \mathrm{N} \\ & \underset{\sim}{\infty} \end{aligned}$ | $\begin{aligned} & \stackrel{\infty}{\tau} \\ & \underset{\sim}{\infty} \end{aligned}$ | $\hat{o}^{\wedge}$ |
| $\begin{aligned} & \infty \\ & \underset{\sim}{\infty} \end{aligned}$ | $\begin{aligned} & \infty \text { م } م \underset{\sim}{n} \end{aligned}$ | ${\underset{\sim}{\tau}}_{\sim}^{\sim}$ | $\begin{aligned} & N \\ & \underbrace{-} \end{aligned}$ |  | $\underset{\underset{\sim}{\underset{\sim}{~}}}{\infty}$ | $\begin{aligned} & \text { م } 0 \\ & 0 \\ & \hline \end{aligned}$ | $\underset{\sim}{\underset{\sim}{r}}$ | $\begin{aligned} & \underset{\sim}{\underset{\sim}{\sim}} \end{aligned}$ |  | ${ }_{\infty}^{\infty}$ | $\begin{aligned} & \mathrm{N} \\ & \stackrel{m}{\sim} \end{aligned}$ |  |  | $\begin{aligned} & \stackrel{1}{n} \\ & \text { مे } \end{aligned}$ | $\overleftarrow{\sigma}^{N}$ | $\begin{aligned} & \infty \\ & \sim \\ & \infty \end{aligned}$ | $\stackrel{N}{\infty}$ | $\times$ | $\stackrel{\Gamma}{\dot{\circ}}$ | 은 | ㅇNㄷ | $\ddot{O}^{\circ}$ |
| $\begin{aligned} & \frac{O}{\Gamma} \sim \end{aligned}$ | $\begin{aligned} & \underset{\sim}{\sim} \\ & \underset{\sim}{r} \end{aligned}$ | $\underset{\sim}{\circ}$ | అి | $\underset{\underset{\tau}{\sigma}}{\sim}$ | O0 | $\begin{aligned} & \infty \\ & \underset{\sim}{\infty} \\ & \text { N } \end{aligned}$ | $\begin{aligned} & \text { M } \\ & \stackrel{1}{\sim} \end{aligned}$ | $\begin{aligned} & \underset{\tau}{\tau} \\ & \underset{\tau}{\sigma} \end{aligned}$ | O | $\pm \odot$ | No. | － |  | N | 0 0 0 | － 0 | O－ | $\times$ | $\begin{aligned} & 9 \\ & \underset{\infty}{\infty} \end{aligned}$ | $\begin{aligned} & \infty \\ & 0 \\ & 0 \end{aligned}$ | － | $\cdots$ |
| $\begin{aligned} & {\underset{O}{0}}^{N} \end{aligned}$ | $\begin{aligned} & \stackrel{\infty}{\sim} \\ & \stackrel{N}{r}^{\infty} \end{aligned}$ | $\begin{aligned} & \stackrel{\sim}{N} \\ & \stackrel{y}{n} \end{aligned}$ | مٌ | $\stackrel{\leftrightarrow}{0}^{\infty}$ | $\stackrel{\omega}{\oplus}^{m}$ | $\stackrel{N}{\infty} \underset{\sim}{\infty}$ | $\begin{aligned} & 0 \times \infty \\ & \frac{\square}{下} \end{aligned}$ | $\begin{aligned} & \text { No } \\ & \underset{\sim}{\circ} \end{aligned}$ |  | $\underset{\sim}{\underset{\sim}{r}}$ | $0$ | M |  | $\begin{aligned} & \text { N } \\ & \infty \end{aligned}$ | $\bar{\infty}$ | $\stackrel{0}{\infty}$ | $\bar{\infty}$ | $\times$ | $\underset{\infty}{\infty}$ | ¢ | ¢ | $\stackrel{\Gamma}{\infty}$ |
| $\begin{aligned} & \infty \\ & \infty \\ & \infty \end{aligned}$ | ${\underset{\sim}{\underset{\sim}{w}}}^{+}$ | － | $\times$ | $\underset{\sim}{\text { m̈ }}$ | $\begin{aligned} & \text { on m } \\ & \underset{\sim}{2} \end{aligned}$ | $\underset{N}{\underset{N}{N}}$ | ọ m | $\underset{\sim}{\circ}$ |  | $\underset{\leftarrow}{\underset{\sim}{\tau}} \underset{ }{*}$ |  | ¢ |  | $\stackrel{\Gamma}{\infty}$ | $\underset{\sim}{\sim}$ | $\stackrel{\sim}{*}$ | ＋ | $\times$ | $\begin{aligned} & \underset{\sim}{\infty} \\ & \infty \end{aligned}$ | $\cdots$ | $\infty$ $\infty$ $\infty$ | $\stackrel{+}{+}$ |
| $\begin{aligned} & N \\ & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & \text { 운 } \\ & \stackrel{N}{\sim} \end{aligned}$ | $\begin{aligned} & \text { N } \\ & \text { م } \end{aligned}$ | $\times$ | $\begin{aligned} & \infty \\ & \infty \\ & \infty \end{aligned}$ | $\begin{aligned} & \stackrel{\circ}{\underset{\sim}{\sim}} \end{aligned}$ | $\begin{aligned} & \text { مٌ } \\ & \stackrel{n}{N} \end{aligned}$ |  |  |  |  |  | \％ |  | $\times$ | $\begin{aligned} & \text { O} \\ & \infty \\ & \infty \end{aligned}$ | $\begin{gathered} \underset{\sim}{\infty} \\ \infty \end{gathered}$ | $\begin{gathered} \infty \\ \underset{\infty}{\infty} \end{gathered}$ | $\times$ | $\underset{\sim}{\underset{\sim}{+}}$ | 0 0 0 | ¢ 0 | $\stackrel{\sim}{\sim}$ |
| $\begin{aligned} & 0 \\ & \infty \\ & \infty \end{aligned}$ | $\times$ | $\begin{aligned} & \infty \\ & 0 \\ & \infty \\ & \hline \end{aligned}$ | $\times$ | $\begin{aligned} & \infty \\ & \infty \\ & \infty \\ & \hline \end{aligned}$ | $\stackrel{O}{\circ}^{\circ}$ | $\underbrace{m}$ | $\times$ |  | $\times$ | $\times$ |  | $\times$ |  | $\stackrel{i}{N}$ | $\stackrel{\Gamma}{\sim}$ | $\stackrel{\text { N }}{\infty}$ | $\underset{\infty}{\underset{\infty}{N}}$ | $\times$ | $\begin{aligned} & \underset{\sim}{N} \\ & \infty \end{aligned}$ | $\stackrel{\Gamma}{\sim}$ | $\stackrel{\Gamma}{\sim}$ | $\stackrel{\Gamma}{\sim}$ |
| $\stackrel{\text { O}}{\sim}$ | $\stackrel{N}{\Gamma_{1}}$ | $\infty$ | $\begin{aligned} & \underset{\sim}{N} \end{aligned}$ | بی | ம | $\stackrel{\sim}{8}$ | $\frac{0}{7}$ |  | $0$ | $\stackrel{0}{\infty}$ |  | $\underset{\sim}{\star}$ |  | $\stackrel{\odot}{\odot}$ | $\stackrel{m}{\oplus}$ | $\begin{aligned} & \text { o } \\ & \text { N } \end{aligned}$ | $\stackrel{+}{\text { ウ }}$ | $\infty$ | N | $\bigcirc$ | No | $\stackrel{\square}{\text { ® }}$ |



| Mobile machine drivers and operatives | 822 | 82 | 11.76 |
| :---: | :---: | :---: | :---: |
|  | 822 |  |  |
| Crane drivers | 1 | 6 | 15.24 |
|  | 822 |  |  |
| Fork－lift truck drivers | 2 | 30 | 10.97 |
|  | 822 |  |  |
| Agricultural machinery drivers | 3 | X | 9.96 |
| Mobile machine drivers and | 822 |  |  |
| Other drivers and transport |  | 42 | 12.70 |
|  |  |  |  |
| operatives | 823 | 58 | 18.95 |
|  | 823 |  |  |
| Train and tram drivers | 1 | 28 | 30.13 |
| Marine and waterways transport | 823 |  |  |
| operatives | 2 | 5 | 12.98 |
|  | 823 |  |  |
| Air transport operatives | 3 | 9 | 11.82 |
|  | 823 |  |  |
| Rail transport operatives | 4 | 10 | 17.46 |
| Other drivers and transport | 823 |  |  |
| operatives n．e．c． | 9 | 7 | 12.68 |
| Elementary occupations | 9 | 2，926 | 8.95 |
| Elementary trades and related |  |  |  |
| occupations | 91 | 353 | 9.54 |
| Elementary agricultural |  |  |  |
| occupations | 911 | 55 | 9.37 |
|  | 911 |  |  |
| Farm workers | 1 | 36 | 9.44 |
|  | 911 |  |  |
| Forestry workers | 2 | X | 11.66 |
| Fishing and other elementary | 911 |  |  |
|  | 9 | 18 | 9.17 |
| Elementary construction |  |  |  |
| occupations | 912 | 74 | 10.25 |
| Elementary construction | 912 |  |  |
| occupations | 0 | 74 | 10.25 |
| Elementary process plantoccupations |  |  |  |
|  | 913 | 223 | 9.37 |

\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|}
\hline \& $$
\begin{aligned}
& \text { N } \\
& \underset{\sim}{n}
\end{aligned}
$$ \& $$
\downarrow
$$ \& Nin \& $$
{\underset{\sim}{N}}^{\circ}
$$ \& $$
\stackrel{\omega}{N}^{\circ}
$$ \& $$
\stackrel{\infty}{n}_{\infty}^{\infty}
$$ \& \& $$
\begin{aligned}
& \stackrel{\sim}{\tau} \\
& \stackrel{7}{\tau}
\end{aligned}
$$ \& \& \& مَ \& $\times$ \& $\times$ \& $\times$ \& \& $\stackrel{\sim}{\sim}$ \& $$
\begin{aligned}
& 0 \\
& \stackrel{0}{n} 0
\end{aligned}
$$ \& \& $$
\frac{0}{\square}
$$ \& $\times$ <br>
\hline $$
\overleftarrow{i}_{i}^{*}
$$ \& $$
\stackrel{N}{\tau}
$$ \& $\infty$ \& $\stackrel{N}{N}_{\stackrel{-}{+}}$ \& $\stackrel{\square}{O}$ \& $\underset{\sim}{ \pm}$ \& $$
\underset{\sim}{\underset{\sim}{\tau}}
$$ \& $$
\underbrace{N}
$$ \& $$
{\underset{\sigma}{\circ}}^{\circ}
$$ \& $\times$ \& $\times$ \& $$
\underset{\sim}{\circ}
$$ \& ¢ \& $\stackrel{\square}{\sim}$ \& $\frac{\square}{\square}$ \& $\times$ \& $$
\begin{aligned}
& \underset{\sim}{*} \sim \\
& \underset{\sim}{n}
\end{aligned}
$$ \& $$
\stackrel{\circ}{\Gamma}
$$ \& $$
\begin{aligned}
& \text { の ๓ } \\
& \stackrel{\tau}{\top}
\end{aligned}
$$ \& $$
\underset{O}{+}
$$ \& $$
\begin{aligned}
& \sigma \\
& \frac{\sigma}{\Gamma}
\end{aligned}
$$ <br>
\hline $$
\begin{aligned}
& \text { N } \\
& \text { N }
\end{aligned}
$$ \& $$
\stackrel{\bullet}{\circ}
$$ \& \& $$
{\underset{\sim}{\mathrm{N}}}^{\infty}
$$ \& $$
\begin{aligned}
& \text { m } \\
& \mathrm{o}^{\circ}
\end{aligned}
$$ \& $$
\begin{aligned}
& \underset{\sim}{m}
\end{aligned}
$$ \& $$
\underset{\sim}{\underset{\sim}{*}}
$$ \& $$
\stackrel{O}{0}^{\circ}
$$ \& $$
\begin{gathered}
\text { م } \\
\stackrel{N}{2}
\end{gathered}
$$ \& \& $$
{\underset{\tau}{\tau}}^{\circ}
$$ \& $$
\begin{aligned}
& 8 \\
& 0 \\
& \hline
\end{aligned}
$$ \& $\infty$
$\infty$
$\infty$ \&  \& $\stackrel{\top}{\circ}$ \& $\times$ \& $$
\begin{aligned}
& 0 \times N \\
& \stackrel{0}{r}
\end{aligned}
$$ \& $$
\begin{aligned}
& \circ \\
& \stackrel{\sim}{\sim}
\end{aligned}
$$ \& $$
\begin{aligned}
& \text { مִ の } \\
& \stackrel{\Gamma}{\tau}
\end{aligned}
$$ \& $$
\stackrel{\sigma}{\circ}_{-}^{\circ}
$$ \& $$
\underset{\underset{\tau}{\tau}}{\underset{\tau}{\infty}}
$$ <br>
\hline $$
\begin{aligned}
& \text { N0 } \\
& \text { م̀ }
\end{aligned}
$$ \& No \& \& $$
\frac{\sim}{\tau}
$$ \& $$
\begin{aligned}
& \text { M } \\
& \dot{\infty}
\end{aligned}
$$ \& $$
\stackrel{\sim}{\sim}^{\infty}
$$ \& $$
\stackrel{\infty}{\infty}^{\infty}
$$ \& Ọ \& O－ \& \& $$
\stackrel{0}{0}^{0}
$$ \& $$
\begin{aligned}
& \text { O} \\
& \text { N゙ }
\end{aligned}
$$ \& \& $$
{\underset{\sim}{N}}^{\circ}
$$ \& －80 \& \&  \& $$
\underset{\sim}{\underset{F}{*}}
$$ \& $$
\frac{O}{\Gamma}
$$ \& $$
\stackrel{\tau}{N}
$$ \& $$
\frac{0}{\frac{0}{2}^{0}}
$$ <br>
\hline $$
\infty
$$ \& \& $$
\begin{aligned}
& 10 \\
& 0 \\
& 0
\end{aligned}
$$ \& $$
\underset{O}{\bullet}
$$ \& $$
\begin{gathered}
\text { Ǹ } \\
\text { O }
\end{gathered}
$$ \& $$
\begin{aligned}
& \bullet \\
& \underset{\sim}{\sim}
\end{aligned}
$$ \& $$
\stackrel{\circ}{\stackrel{\circ}{\Gamma}}
$$ \& $$
\stackrel{\Gamma}{\sigma}
$$ \& O. \& $$
\begin{aligned}
& 8 \\
& 0 \\
& 0
\end{aligned}
$$ \& $$
\begin{aligned}
& \overbrace{0}^{\infty} \infty \\
& \overbrace{0}
\end{aligned}
$$ \& $$
\begin{aligned}
& \mathrm{O} \\
& \text { o }
\end{aligned}
$$ \& 0
0
0 \& No \& $$
\begin{aligned}
& N \\
& \underset{\infty}{2}
\end{aligned}
$$ \& $\times$ \& $$
\begin{aligned}
& \text { প্ } \\
& \dot{\sigma}
\end{aligned}
$$ \&  \& O- \& $$
\begin{aligned}
& \stackrel{m}{+} \\
& \hline
\end{aligned}
$$ \& $$
\begin{aligned}
& \dot{\circ} \\
& \stackrel{-}{\circ}
\end{aligned}
$$ <br>
\hline $$
\begin{aligned}
& \text { O} \\
&
\end{aligned}
$$ \& \& $$
\stackrel{\infty}{N}
$$ \& $$
\begin{aligned}
& \text { N゙ } \\
& \text { O゙ }
\end{aligned}
$$ \& $$
\begin{aligned}
& 0 \\
& 0 \\
& \infty \\
& \hline
\end{aligned}
$$ \& $$
{\underset{N}{N}}^{\sim}
$$ \& $$
\begin{aligned}
& \text { M } \\
& \underset{\sim}{\top}
\end{aligned}
$$ \& $$
\begin{aligned}
& 0 \\
& 0 \\
& \infty \\
& \hline
\end{aligned}
$$ \& $$
\begin{aligned}
& \stackrel{\rightharpoonup}{+} \\
& \infty
\end{aligned}
$$ \& $\times$ \& ¢ \& $$
\stackrel{\infty}{\infty}
$$ \& $\stackrel{-}{\sim}$ \& $$
\stackrel{\star}{\star}
$$ \& $$
\underset{\substack{ \pm \\ \hline}}{ }
$$ \& $\times$ \& $$
\stackrel{\infty}{\Gamma}
$$ \& $$
\begin{gathered}
\stackrel{\rightharpoonup}{N} \\
\text { Ò }
\end{gathered}
$$ \& $$
\begin{aligned}
& \text { ô } \\
& 0
\end{aligned}
$$ \& No \& $\cdots$ <br>
\hline $$
\underset{\infty}{\underset{\sim}{N}}
$$ \& \& $\stackrel{\infty}{+}$ \& 10
$\infty$
$\infty$ \& $$
\begin{gathered}
\underset{\sim}{\underset{N}{2}}
\end{gathered}
$$ \& $$
\begin{aligned}
& \text { N } \\
& \underset{\sim}{\sim}
\end{aligned}
$$ \&  \& $\stackrel{10}{\sim}$ \& N
$\infty$ \& $\times$ \& ＋ \& － \& $\times$ \& テ－ \& $\stackrel{\Gamma}{\sim}$ \& $\times$ \& 0
0
$\infty$ \& $$
\begin{aligned}
& \infty \\
& \infty \\
& \infty
\end{aligned}
$$ \& － \& $\cdots$ \& $\stackrel{\ominus}{+}$ <br>
\hline $$
\frac{\Gamma}{\infty}
$$ \& \& $$
\begin{aligned}
& \text { ก̀ } \\
& \infty
\end{aligned}
$$ \& $$
\begin{aligned}
& 10 \\
& 0 \\
& \hline 1
\end{aligned}
$$ \& $$
\underset{\infty}{\underset{\sim}{N}}
$$ \&  \& $$
{\underset{N}{N}}^{\top}
$$ \& $\stackrel{\text { N }}{\infty}$ \& $$
\begin{gathered}
\underset{\infty}{N}
\end{gathered}
$$ \& $\times$ \& 「 \& $$
\begin{aligned}
& \underset{\sim}{N} \\
& \infty
\end{aligned}
$$ \& $\times$ \& $$
\begin{aligned}
& \text { N. } \\
& 0 \\
& 0
\end{aligned}
$$ \& $\times$ \& $\times$ \& $$
\begin{gathered}
N \\
\infty \\
\infty
\end{gathered}
$$ \& $$
\begin{aligned}
& \hat{0} \\
& \infty
\end{aligned}
$$ \& $$
\begin{aligned}
& 0 \\
& \infty \\
& \infty
\end{aligned}
$$ \& $\stackrel{\bigcirc}{+}$ \& $\circ$
¢
ف <br>
\hline $$
\begin{aligned}
& \infty \\
& \infty \\
& \hline
\end{aligned}
$$ \& \& N
$\infty$ \& $\stackrel{\sim}{\sim}$ \& $\times$ \& $$
\begin{aligned}
& \pm \\
& \infty \\
& \hline
\end{aligned}
$$ \& $$
\stackrel{\Phi}{\sigma}_{\sim}^{\sim}
$$ \& $\times$ \& $\times$ \& $\times$ \& $$
\begin{aligned}
& \text { N } \\
& \text { Ò }
\end{aligned}
$$ \& $\times$ \& $\times$ \& $\pm$
$\infty$
$\infty$ \& $\stackrel{\text { N }}{\infty}$ \& $\times$ \& $\stackrel{10}{10}$ \& $\stackrel{\infty}{\infty}$ \& $\stackrel{\bigcirc}{\sim}$ \& 10 \& O－ <br>
\hline $$
\begin{aligned}
& \infty \\
& \hline
\end{aligned}
$$ \& \& $\stackrel{\Gamma}{\sim}$ \& $$
\begin{aligned}
& \underset{\sim}{N} \\
& \infty
\end{aligned}
$$ \& $$
\stackrel{O}{N}
$$ \& $$
\begin{aligned}
& 0 \\
& 0 \\
& \infty
\end{aligned}
$$ \& $$
\begin{gathered}
\text { م } \\
\stackrel{N}{n}
\end{gathered}
$$ \& $$
\stackrel{m}{\sim}
$$ \& $$
\frac{m}{\infty}
$$ \& $\times$ \& $\times$ \& $$
\stackrel{N}{\sim}
$$ \& $$
\frac{m}{\infty}
$$ \& $$
\begin{gathered}
N \\
\infty \\
\infty
\end{gathered}
$$ \& N

$N$ \& $\times$ \& \[
$$
\begin{aligned}
& \underset{\sim}{\sim} \\
& \infty
\end{aligned}
$$

\] \& \[

\underset{\infty}{\underset{\sim}{\sim}}

\] \& \[

\stackrel{\infty}{\underset{\infty}{N}}
\] \& $\stackrel{+}{+}$ \& － <br>

\hline $$
\stackrel{?}{7}
$$ \& \& مْ \& $\stackrel{\square}{+}$ \& \[

\stackrel{\sim}{\sim}

\] \& \[

{ }^{\infty}

\] \& \[

\stackrel{+}{+}

\] \& $\stackrel{\infty}{N}$ \&  \& O \& \[

\stackrel{\Gamma}{\tau}

\] \& $\stackrel{\square}{6}$ \& $\stackrel{\sim}{\square}$ \& \[

\stackrel{m}{\mathrm{o}}

\] \& مٌ \& \[

$$
\begin{aligned}
& \underset{1}{n} \\
& \underset{1}{2}
\end{aligned}
$$

\] \& \[

\stackrel{+}{\dot{~}}

\] \& \[

\stackrel{N}{\mathrm{~N}}
\] \& M \& $\stackrel{\square}{\bigcirc}$ \& $\stackrel{0}{0}$ <br>

\hline
\end{tabular}

| $\begin{aligned} & 0 \\ & \text { oे } \\ & \hline \end{aligned}$ | $\stackrel{\ominus}{\bullet}$ | $\underset{\sim}{\circ}$ | $\stackrel{0}{0}^{\text {® }}$ | $\stackrel{\mathrm{N}}{\sim}^{N}$ | $\stackrel{\Gamma}{\Gamma}^{\bullet}$ | $\begin{aligned} & N \\ & \underset{\sim}{\circ} \end{aligned}$ | $\stackrel{\underset{\sigma}{*}}{\stackrel{\rightharpoonup}{2}}$ |  |  | $\stackrel{+}{+}$ | $\cdots$ |  | $\stackrel{9}{\infty}$ |  |  | $\underset{\sim}{\circ}$ | $\begin{aligned} & 0 \\ & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & 0 \\ & 0 \\ & \hline \end{aligned}$ | $\stackrel{m}{\sigma}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\bigcirc$ | の | $\bigcirc$ | 10 | N | $N$ | N | 0 | の | N | の | $\cdots$ | $\pm$ | $\sim$ | $\bullet$ | の | $\cdots$ | N | $\bigcirc$ | $\bigcirc$ |
| $\cdots$ | ¢ | 10 | 10 | ＋ | ウ | 0 | $\bullet$ | ヘ | $\odot$ | 0 | ナ | ¢ | $\infty$ | $\bigcirc$ | 0 | 10 | $\odot$ | $\infty$ | 0 |


| Industrial cleaning process occupations | $\begin{array}{r} 913 \\ 2 \end{array}$ | 24 | 8.57 |
| :---: | :---: | :---: | :---: |
| fillers <br> Packers，bottlers，canners and | 913 4 | 91 | 9.14 |
| Elementary process plant | 913 |  |  |
| occupations n．e．c． | 9 | 108 | 10.00 |
| Elementary administration and |  |  |  |
| service occupations | 92 | 2，573 | 8.86 |
| Elementary administration |  |  |  |
| occupations | 921 | 165 | 12.30 |
| Postal workers，mail sorters， | 921 |  |  |
| messengers and couriers | 1 | 140 | 12.45 |
| Elementary administration | 921 |  |  |
| occupations n．e．c． | 9 | 25 | 8.78 |
| Elementary cleaning occupations | 923 | 643 | 8.71 |
|  | 923 |  |  |
| Window cleaners | 1 | X | 9.27 |
|  | 923 |  |  |
| Street cleaners | 2 | 7 | 10.09 |
|  | 923 |  |  |
| Cleaners and domestics | 3 | 582 | 8.68 |
| Launderers，dry cleaners and | 923 |  |  |
| pressers | 4 | 18 | 8.27 |
|  | 923 |  |  |
| Refuse and salvage occupations | 5 | 19 | 9.94 |
|  | 923 |  |  |
| Vehicle valeters and cleaners | 6 | 14 | 8.52 |
| Elementary cleaning occupations | 923 |  |  |
| n．e．c． | 9 | X | 9.25 |
| Elementary security occupations | 924 | 229 | 9.47 |
| Security guards and related | 924 |  |  |
| occupations | 1 | 107 | 9.87 |
| Parking and civil enforcement | 924 |  |  |
| occupations | 2 | 11 | 10.15 |
| School midday and crossing | 924 |  |  |
| patrol occupations | 4 | 97 | 9.24 |
| Elementary security occupations | 924 |  |  |
| n．e．c． | 9 | 15 | 10.00 |


Port Health Authorities:

| Country | Port Health Authority |
| :--- | :--- |
| England | Boston \& Fosdyke (PHA) |
| England | Brighton \& Hove (PHA) |
| England | Bristol (PHA) |
| England | Cornwall Port Health Authority |
| England | Crawley (PHA) |
| England | Dover (PHA) |
| England | Grimsby \& Immingham (PHA) |
| England | Harwich (PHA) |
| England | Hillingdon (PHA) |
| England | Hull \& Goole (PHA) |
| England | Ipswich (PHA) |
| England | King's Lynn (PHA) |
| England | Lancaster (PHA) |
| England | Manchester (PHA) |
| England | Manchester (Ship Canal) (PHA) |
| England | Mersey (PHA) |
| England | Middlesborough (PHA) |
| England | North East Lincolnshire (PHA) |
| England | North West Leicestershire (PHA) |
| England | Plymouth (PHA) |
| England | Port Health Authority (City of London) |
| England | Portsmouth (PHA) |
| England | River Tees (PHA) |
| England | Solihull (PHA) |
| England | Southampton (PHA) |
| England | Suffolk Coastal (PHA) |
| England | Tendring (PHA) |
| England | Thanet (PHA) |
| England | Trafford (PHA) |
| England | Tyne (PHA) |
|  |  |


| England | Uttlesford (PHA) |
| :--- | :--- |
| NI | Belfast (PHA) |
| NI | Newry and Mourne (PHA) |
| Scotland | Angus (PHA) |
| Scotland | Perth and Kinross (PHA) |
| Scotland | Shetland Islands (PHA) |
| Wales | Cardiff City (PHA) |
| Wales | Milford (Pembrokeshire) (PHA) |

GDP DEFLATORS AT MARKET PRICES, AND MONEY GDP
Outturn data are the latest National Accounts figures from ONS - last updated 30 June 2017.

| Financial year |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Financial year | GDP deflator at market prices 2016-17 = $100 \quad$ per cent change on previous year |  | Money GDP ${ }^{(3), ~(4)}$ |  |
|  |  |  | Cash $£$ million <br> Non-Season-ally <br> Adjusted | Cash $£$ million Seasonally Adjusted |
| 1955-56 | 4.340 |  | 19,788 | 19,802 |
| 1956-57 | 4.612 | 6.27 | 21,374 | 21,349 |
| 1957-58 | 4.827 | 4.66 | 22,727 | 22,743 |
| 1958-59 | 4.948 | 2.50 | 23,571 | 23,543 |
| 1959-60 | 4.970 | 0.46 | 25,074 | 25,127 |
| 1960-61 | 5.072 | 2.05 | 26,856 | 26,875 |
| 1961-62 | 5.239 | 3.30 | 28,269 | 28,297 |
| 1962-63 | 5.402 | 3.10 | 29,594 | 29,611 |
| 1963-64 | 5.487 | 1.58 | 32,040 | 31,998 |
| 1964-65 | 5.745 | 4.69 | 34,931 | 34,998 |
| 1965-66 | 6.049 | 5.30 | 37,529 | 37,484 |
| 1966-67 | 6.350 | 4.98 | 39,983 | 39,977 |
| 1967-68 | 6.527 | 2.78 | 42,561 | 42,672 |
| 1968-69 | 6.856 | 5.05 | 46,752 | 46,770 |
| 1969-70 | 7.317 | 6.72 | 50,737 | 50,794 |
| 1970-71 | 8.039 | 9.87 | 57,586 | 57,672 |
| 1971-72 | 8.644 | 7.53 | 64,335 | 64,237 |
| 1972-73 | 9.380 | 8.52 | 73,635 | 73,740 |
| 1973-74 | 10.205 | 8.80 | 82,516 | 82,539 |
| 1974-75 | 12.261 | 20.15 | 97,700 | 97,869 |
| 1975-76 | 15.263 | 24.48 | 120,237 | 120,126 |
| 1976-77 | 17.381 | 13.88 | 141,190 | 141,689 |
| 1977-78 | 19.772 | 13.75 | 165,041 | 164,845 |
| 1978-79 | 21.985 | 11.19 | 191,058 | 191,177 |
| 1979-80 | 25.699 | 16.89 | 231,150 | 231,173 |
| 1980-81 | 30.617 | 19.14 | 265,818 | 266,127 |
| 1981-82 | 33.793 | 10.38 | 295,767 | 295,207 |
| 1982-83 | 36.233 | 7.22 | 324,512 | 324,778 |





| （Z）＇（I） LIO | ¢zs‘6z0＾Z | SIL＇8Z0＇て |
| :---: | :---: | :---: |
| 9102 | 98E＇096＇I | でt＊sc6 ${ }^{\text {I }}$ |
| ¢10Z | ¢60＇988＇I | 9t8＇¢88＇I |
| †10て | 89C＇8E8＇I |  |
| £10Z | 6Iて＇LSL＇I | 09¢＇6SL＇I |
| て102 | ELE＇I69｀I | てち0＇069＇I |
| Loz | $800 \times$ ¢9｀I | ¢て0＇t¢9＇I |
| 0102 | IS8،16S‘I | LS0＇Z6S ${ }^{\text {¢ }}$ |
| 6002 | 9LE＇8ZS＇I | 0عE＇IES「I |
| 8002 | ¢z0＇8ts＇I |  |
| L00Z | t00＇0¢S＇I |  |
| 9002 | L9でELt＊I |  |
| ¢00\％ | 69でて0ガI | ILt＇z0t「I |
| †00 | It8＊6IどI | 60で02ど1 |
| E00 | Its ${ }^{\text {c }}$ Sz＇I | 99で6¢でI |
| z00z | E6E＇68I＇I | 6I8｀06I＇I |
| L002 | ¢96＇てEI‘！ | 09E＇IEI＇I |
| 000 Z | 0ZL＇680＇I | 68t＇I60＇I |
| 666 I | て66＇EE0＇I | LIL＇seno＇I |
| 866I | LtS＇z66 | LIL＇I66 |
| L66I | LSE＇0¢6 | IZ8＇6t6 |
| 966 I | 0¢6＇E06 | ItS ${ }^{\text {¢ }}$ ¢06 |
| ¢66I | S99＇0¢8 | 808＇6t8 |
| ャ66I | Eย8＇¢08 | てIE＇908 |
| E66I | S0でL9L | ES9＊69L |
| Z66I | LSE＇6ZL | 0ES＇LLL |
| I66I | LSS＇¢0L | 916「90L |
| 066I | IZL＇EL9 | 8てI＇てL9 |
| 686I | L96＇zて9 | て60＇\＆z9 |
| 886I | E6L＇99¢ | Lt6＇s9s |
| L86I | OSC＇LOS | てIt゙LOS |
| 986 I | カIE＇とSt | 06S「てSt |
| S86I | 6とL＇Iてt | SIでIZt |
| t86I | E6I＇28ะ | 9t8 ${ }^{\text {¢ }}$ 88 |
| E86I | 69I＇t¢ะ | 096＇t¢ร |





[^0]:    I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.

[^1]:    ${ }^{1}$ OJ Ref L86, 28.03.2008, pg. 9-18 Available to download from the Eur-Lex website.
    ${ }^{2}$ OJ Ref L12, 15.01.2011, pg. 1-89 Available to download from the Eur-Lex website.
    ${ }^{3}$ OJ Ref L 230, 25.08.2016, pg. 22-42 Available to download from the Eur-Lex website.
    ${ }^{4}$ OJ Ref L41, 14.02.2018, pg. 6 Available to download from the Eur-Lex website.

[^2]:    ${ }^{5}$ Declaration of Compliance (DoC) requirements are applicable for food contact materials made from plastic, ceramic, regenerated cellulose film and active, intelligent materials and articles and recycled plastics and for materials containing the substance BADGE and its derivatives.

[^3]:    ${ }^{8}$ OJ Ref L384, 29.12.2006, pg. 75-78 Available to download from the Eur-Lex website.
    ${ }^{9}$ Developing the FSA's new approach to regulating food businesses https://www.food.gov.uk/sites/default/files/fsa160506.pdf 8

[^4]:    ${ }^{10}$ A tolerable intake is the amount of a substance that can be consumed over a lifetime without presenting an appreciable risk to health.

[^5]:    ${ }^{11} \mathrm{https}: / / \mathrm{www} . o n s . g o v . u k / e m p l o y m e n t a n d l a b o u r m a r k e t / p e o p l e i n w o r k / e a r n i n g s a n d w o r k i n g h o u r s / d a t a s e t s / o c c u p a t i o n 4 d i g i t s o c 2010 a s h e t a b l e 14 ~$ Includes an overhead of 20\% (22.45*1.2=26.94)
    14

[^6]:    12 Note that TSOs or EEOs may be responsible for enforcing this legislation depending on resource in each local authority
    ${ }^{13}$ https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/datasets/occupation4digitsoc2010ashetable14 Includes an overhead of 20\% (15.84*1.2=19.01)
    14 https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/datasets/occupation4digitsoc2010ashetable14 Includes an overhead of $20 \%\left(19.41^{* 1} 1.2=23.29\right)$
    17

[^7]:    ${ }^{15}$ Mintel, March 2003

[^8]:    Assumptions
    The proportion of micro, small, medium \& large firms taken from the UK is the same at a country specific
    level An ove

    Firm size is defined by staff headcount: micro: 0-9, small: 10-49, medium: 50-250, large: 250+
    4 All recycling firms assumed large
    $580 \%$ of plastic manufacturing firms assumed to be involved in food

[^9]:    Lower bound familiarisation cost
    Cost England Wales

    | Cost | England | Wales | Northern Ireland |
    | :--- | ---: | ---: | ---: |
    | LA | $£ 13,191.55$ | $£ 836.35$ | $£ 456.19$ |
    | PHA | $£ 570.24$ | $£ 0.00$ | $£ 0.00$ |
    | OCL | $£ 360.86$ | $£ 206.21$ | $£ 51.55$ |
    | Total | $£ 14,122.66$ | $£ 1,042.56$ | $£ 507.74$ |


    | Total | $£ 14,122.66$ | $£ 1,042.56$ | $£ 507.74$ |  |
    | :--- | ---: | ---: | ---: | ---: |
    |  |  |  |  |  |

