



15. Petroleum and mining

Fields marked with * are mandatory.

1 Respondent background information

Before responding to the survey, please read the following documents (see links in the sidebar):

1. **Guidance Document**
2. **Use Mapping**
3. **Privacy Statement**



- I have read and understood the information in the **Guidance Document** and **Use Mapping**.
- I agree to the privacy policy as set out in the **Privacy Statement**.

* 1.1 **[Q1.0]** Select the EU language in which you will respond to the questions (the questions themselves will be in English only).

English

* 1.2 **[Q1.1]** Which of the following best describes you or your affiliation?

Select Citizen/individual if you are responding in a personal capacity.

Select Organisation if you represent an organisation (e.g. company) or other official role.

- Citizen/Individual
- Organisation

* 1.3 **[Q1.2]** What type of organisation are you responding for?

- Government organisation
- Non-governmental organisation
- Academic institution
- Industry association
- Company

* 1.4 **[Q1.3]** What is the name of the organisation you are reporting for?

Text of 1 to 300 characters will be accepted

IOGP Europe

* 1.5 **[Q1.4]** Please name a point of contact ECHA can contact if needed.

Text of 1 to 100 characters will be accepted

A point of contact is needed for seeking clarification or justification for the consultation responses if considered necessary by SEAC.

For individual respondents, the contact's name is always kept confidential.

Jonathan Smith

* 1.6 **[Q1.5]** What is the email address for that contact point?

jsm@iogp.org

1.7 **[Q1.6]** If you submitted comments in the previous consultation on the Annex XV restriction proposal (Mar-Sep 2023), please list the comment numbers (e.g. #1234, #5678).

300 character(s) maximum

#9493

* 1.8 **[Q1.7]** Is your organisation national or international?

Organisations having activities in several countries (in EEA or globally) should choose "international".

- National
- International

* 1.9 **[Q1.8]** What country are you (or your organisation) based in?

Individuals should choose the country where they permanently reside.

Respondents representing organisations, such as companies, should select the country where the largest share of their PFAS related activities occur.

Respondents representing other organisations may choose the country where the organisation is based in.

Belgium (BE)

1.10 **[Q1.9]** How many members does your association have?

Provide the number of member organisations (e.g. for industry associations), or individuals (e.g. for trade unions).

- * 1.18 **[Q1.17]** Are you providing information from the perspective of a **single organisation**, or **more broadly** (e.g. on behalf of multiple organisations or other broader perspective, such as, sector-wide view)?

The survey allows to provide information from a single organisation or multiple organisation perspective.

Select the single organisation perspective if your responses reflect the impact on the entity you are reporting for, where applicable.

Select the multiple organisation perspective, if you are submitting information that represents several companies (e.g. separate subsidiaries under one parent company or separate companies within the same sector or industry – such as in the case of industry associations).

- I am reporting information for a **single organisation** – the responses provided reflect the impacts (e.g. losses) on the entity, which I am reporting for.
- I am reporting information **more broadly** e.g. for multiple organisations or a whole sector.

2 Information on use, sub-use, and application

Instructions

In the question below, select each SEAC evaluation level that you want to provide information on. For each selected evaluation level, specific questions open up.

When sharing information that is applicable to multiple evaluation levels assessed in the SEAC draft opinion, please consider each evaluation level individually and report the specific impacts and circumstances for that evaluation level.

If you have information on a use in this sector that is not considered under any of the SEAC evaluation levels, you can submit that information under 'other use'.

Please do only submit information under 'other use' if you are **certain** that your use does **not fall** under any of the SEAC evaluation levels listed below. Consult the use mapping document for a definition of each SEAC evaluation level.

If you are reporting as a parent company, please make sure that your responses are **not overlapping** with information submitted by a subsidiary of your company. If subsidiaries report separately, the information they provide should only reflect the impacts on that entity.

- * 2.1 **[Q1.18]** Which specific use or application do you want to comment on?

Select all specific uses or applications (i.e. SEAC evaluation level) that you wish to comment on.

If your use or application is not explicitly mentioned under an SEAC evaluation level described in the use mapping, but it would reasonably be included in that category based on the definition, you may submit information for that SEAC evaluation level.

If your use is not covered by any SEAC evaluation level in the sector but you still consider it is covered within that specific sector evaluation, select 'other use'. If you want to provide information on multiple 'other uses' that are not covered by any SEAC evaluation level, you will have to submit a new survey form.

For certain evaluations, SEAC has considered an additional restriction option (RO3), for which there is a question.

[15.01.01] Oil and gas tracers

[15.01] Tracers

[15.01.02] Water tracers

[15.01] Tracers

[15.02] Anti-foaming agents

[15.03] Other use as part of this sector (use not considered under the SEAC evaluations listed above)

[15.01.01] Oil and gas tracers

[15.01] Tracers

* 2.2 **[Q1.19]** What is or are the process(es) or product(s) PFAS (or an alternative to PFAS) are used in? How and why are they used?

Text of 1 to 2000 characters will be accepted

Briefly describe how PFAS (or alternatives) are used in your uses or applications. This should include e.g. the function provided by PFAS and the type of part/article/product they are used in.

If your use is covered by the scientific research and development exemption from the restriction (Article 67(1) of REACH) please indicate so.

The Upstream Oil and Gas, and Carbon Capture and Storage (CCS) sectors use PFAS-containing products, equipment and components in a wide range of machinery, equipment and industrial processes to meet performance criteria for safety- and environment-critical equipment deployed in challenging conditions and within industrial processes.

In scope of the assessment of the 'petroleum and mining sector', the industry uses oil/gas tracers (typically fluoroalkanes), anti-foam agents (typically fluorosiloxanes). PFAS-based water tracers are also used infrequently.

Suitable oil and gas tracers must be stable (non-degradable over the period of the tracer test) in geological reservoir environments, behave in a manner similar to hydrocarbon that is being investigated (i.e., move in the same directions and at a speed similar to the oil or gas being investigated), and to be detectable at low concentrations.

Organic compounds that may be naturally present in oil/gas/water are therefore unsuitable as they cannot be differentiated from the reservoir fluids.

* 2.3 [Q1.20] Do suitable alternatives exist for this use/application?

Suitable alternatives are those that are technically and economically feasible, safer for human health and the environment, and available in sufficient quantities.

- Yes
- No
- I do not know

2.4 [Q1.21] What is the availability of alternatives for this use/application?

Select all options that apply in general for this use/application and provide an explanation of each point in the next question.

between 1 and 4 choices

Select the option that best describes the overall situation for application(s) you described above.

If your response concerns multiple applications, you can provide more detailed information for each application and its alternatives in the question below.

Option 6 is available for stakeholders who do not have information on the availability of alternatives.

- 1. Alternatives are not available due to insufficient quantities:** PFAS-free alternatives are not available in sufficient quantities for this use/application.
- 2. Alternatives are not available because of safety concerns:** PFAS-free alternatives are not safer for human health or the environment.
- 3. Alternatives are not available because of technical feasibility:** PFAS-free alternatives do not meet the functional requirements for this use/application.
- 4. Alternatives are not available because of economic feasibility:** It is not possible to operate profitably using the alternatives.

5. None of the above - Alternatives are available: There are suitable alternatives for this use/application. They exist in sufficient quantities, they are safer than PFAS, and they are technically and economically feasible.

6. No information on alternatives

2.5 **[Q1.22]** Please give a justification for your responses above by providing an explanation for each of the four points. Make sure to name which specific application and alternative you are referring to:

1. **Sufficiency:** Are the alternatives available in a sufficient quantity for this use/application?

2. **Safety:** Are there concerns for risks on human health or the environment that could limit the substitution potential of alternatives?

3. **Technical feasibility:** Are there technical requirements for this use/application? How do potential alternatives perform against the requirements?

4. **Economic feasibility:** What is the impact of using the alternative on profitability? How much would switching to the alternative cost?

Text of 1 to 3000 characters will be accepted

We note a difference between oil and gas tracers.

Oil tracers: As previously indicated in our Annex XV consultation response (#9493), IOGP Europe considers that PFAS-free alternatives are available for most oil tracer requirements, however we note SEAC's Opinion that that substitution from PFAS-based hydrocarbon tracers to the commercially available alternatives may not reduce overall health and environmental risk. Whilst we are aware of PFAS free alternatives in the market for oil tracers, we note SEAC's conclusion that those alternatives are of comparable concern to the PFAS-based products.

We do not consider that sufficiency, technical feasibility or costs are material issues for substitution of PFAS-based oil tracers, but note that there is lack of evidence for safety improvements associated with current alternatives.

Gas tracers: Unlike oil tracers, we note that gas tracers are dominantly PFAS-based, and we are not aware of widely used PFAS-free alternatives in the market.

For gas tracers we do not see technically feasible alternatives in the market.

2.6 **[Q1.23]** How many years would it take to develop alternatives to a stage where they can be implemented for the use/application?

Only values of at most 20 are allowed

If you cover several applications in your response, provide an estimate that allows PFAS to be substituted in all of them.

If you cannot provide an estimate, do respond to the question.

12

years

2.7 **[Q1.24]** What is the total annual volume (tonnes) of PFAS used (or imported) for this specific use /application in the EEA?

Provide the annual volume (tonnes) for each type of PFAS used (or imported) in the EEA by your organisation, or by the organisations included in your response if reporting for a group. Do not include tonnages used outside the EEA.

	Annual volume of PFAS used	
Non-polymeric PFAS	<input type="text"/>	tonnes/year
Polymeric PFAS	<input type="text"/>	tonnes/year
Fluorinated gases	<input type="text"/>	tonnes/year

2.8 **[Q1.25]** If PFAS could not be used in this use/application, what would be the most likely impact on organisation(s) covered by your response?

Maximum 1 selection(s)

Consider a situation where PFAS could not be used in this use/application by you or your competitors (including articles imported from outside the EEA).

Select the option that best describes the situation for applications you described above. When responding on behalf of a group of organisations, choose the option that is most representative of the covered companies.

- Permanent closure of business or parts of it (including relocation outside EU)
- Temporary closure of business or parts of it (including relocation outside EU)
- Continued operations with increased costs or lower quality
- Positive impact (e.g. business opportunity)
- No impact or minor impact

2.9 **[Q1.26]** What is the average annual gross profit in euros, based on the past three years, from business operations that depend on this PFAS use/application in the EEA?

The figure should include only profits for the organisation you are reporting for i.e. the reported profits should not include profits of any clients or other parties in the supply chain, as those are considered separately.

Report a value covering all applications you described in the response above. When responding on behalf of multiple companies, report a total value for all concerned companies.

Profits generated by companies outside the EEA should not be included.

€ / year

2.10 **[Q1.27]** If PFAS could not be used in this use/application, how many full-time equivalent (FTE) jobs would be lost in your organisation or the companies covered by your response within the EEA?

Consider a situation where PFAS could not be used in this use/application by you or your competitors (including articles imported from outside the EEA).

Report a value covering all applications you described in the response above. When responding on behalf of a group of companies, report a total value for all covered companies.

2.11 **[Q1.28]** Please clarify how you have calculated your responses in the two previous questions above on profits and employment losses.

Text of 1 to 2000 characters will be accepted

Clarify your calculations and name any sources you may have used.

IOGP and Concawe jointly commissioned an independent Social and Economic Analysis of the proposed PFAS Restriction on the upstream and downstream Oil and Gas, and CCS sectors. The analysis focused on fluoropolymers and fluoroelastomers. It did not cover tracers or anti-foam. It is available on IOGP Europe and Concawe websites, titled:

Ricardo, 2026. Socio-Economic Analysis for a REACH Restriction Proposal on PFAS in the Upstream Oil & Gas, Oil Refining and Fuel Distribution sectors, and in Carbon Capture and Storage.

Ricardo's analysis of the upstream oil and gas sector includes use of Eurostat data for the financial year 2024 that the sector in the EEA had a turnover between €196 and €204 Billion, with Gross Value Add (GVA) ranging €133 – 139B, with a central estimate of €136B.

GVA is not profit, which IOGP does not have access to for the whole sector, but reflects the total value add generated by the sector.

PFAS-free oil tracers are already used in many applications, and we do not foresee significant job losses within the oil and gas operators from a Restriction.

PFAS-free gas tracers are not known or widely used. We anticipate a restriction would result in reduced geological certainty and greater business risk, rather than directly to job losses.

2.12 **[Q1.29]** If PFAS could not be used in this use/application, what is the magnitude of potential negative impacts on society, e.g. from lack of access or worse quality of products (in addition to impacts on employment and profit losses)?

Consider other societal impacts than profits or employment and indicate their expected magnitude.

Impacts are considered greater, for example, when they affect large populations or significantly reduce quality of life. There is no exact and objective definition of what constitutes each category -please provide your best estimate. This question is used to gauge the responses and SEAC will assess the impacts based on the information in the following question.

Do not include information on health and environmental impacts of PFAS itself.

- Very low or none
- Low
- Moderate
- High
- Very high
- I do not know

2.13 **[Q1.30]** Please explain your response to question above, e.g. by describing the elements leading to your judgement on the magnitude of additional impacts. If possible, provide quantified or monetised estimates of the impacts.

2000 character(s) maximum

Describe additional negative impacts, such as changes in quality of life resulting from reduced availability or lower quality of products. It is sufficient to describe the impacts, but quantified or monetised estimated can also be provided.

Do not include information on health and environmental impacts of PFAS itself here, but in the general survey.

A Multi-Criteria Analysis (MCA) approach, based on Tool #62 of the latest Better Regulation Toolbox and ECHA's guidelines and studies has been used to perform a qualitative assessment. The work is reported in Ricardo (2026), available from IOGP website.

The Oil and Gas sector is likely affected very differently from a Restriction of those uses of PFAS listed under 'petroleum and mining', from uses of fluoropolymers/elastomers in sealing devices and other industrial components and materials.

IOGP considers the impact associated with the SEAC-assessed uses (tracers and anti-foam) to be relatively small and manageable. There are potential capital costs for changing anti-foaming agents, but tracers are unlikely to have similar constraints. Hence, overall, Low 2.

Our primary concern is access to fluoropolymers/elastomers (which we would rank '5 Very High'), since a Restriction would likely devastate the industry and accelerate early closure of assets, redirect investment to other regions outside of Europe, and challenge the growth of a CCS industry, due to a lack of access to technical-performance related materials that are critical for the safe and responsible operation of hydrocarbon production, transport, storage and processing and CCS assets.

[15.01.02] Water tracers

[15.01] Tracers

* 2.14 **[Q1.19]** What is or are the process(es) or product(s) PFAS (or an alternative to PFAS) are used in? How and why are they used?

Text of 1 to 2000 characters will be accepted

Briefly describe how PFAS (or alternatives) are used in your uses or applications. This should include e.g. the function provided by PFAS and the type of part/article/product they are used in.

If your use is covered by the scientific research and development exemption from the restriction (Article 67(1) of REACH) please indicate so.

The Upstream Oil and Gas, and Carbon Capture and Storage (CCS) sectors use PFAS-containing products, equipment and components in a wide range of machinery, equipment and industrial processes to meet performance criteria for safety- and environment-critical equipment deployed in challenging conditions and within industrial processes.

In scope of the assessment of the 'petroleum and mining sector', PFAS-based water tracers are used infrequently.

Suitable water tracers must be stable (non-degradable over the period of the tracer test) in geological reservoir environments, behave in a manner similar to water that is being investigated (i.e., move in the same directions and at a speed similar to the water being investigated), and to be detectable at low concentrations.

Organic compounds that may be naturally present in oil/gas/water reservoirs are therefore unsuitable as they cannot be differentiated from the reservoir fluids.

* 2.15 [Q1.20] Do suitable alternatives exist for this use/application?

Suitable alternatives are those that are technically and economically feasible, safer for human health and the environment, and available in sufficient quantities.

- Yes
 No
 I do not know

2.16 [Q1.21] What is the availability of alternatives for this use/application?

Select all options that apply in general for this use/application and provide an explanation of each point in the next question.

between 1 and 4 choices

Select the option that best describes the overall situation for application(s) you described above.

If your response concerns multiple applications, you can provide more detailed information for each application and its alternatives in the question below.

Option 6 is available for stakeholders who do not have information on the availability of alternatives.

- 1. Alternatives are not available due to insufficient quantities:** PFAS-free alternatives are not available in sufficient quantities for this use/application.
- 2. Alternatives are not available because of safety concerns:** PFAS-free alternatives are not safer for human health or the environment.
- 3. Alternatives are not available because of technical feasibility:** PFAS-free alternatives do not meet the functional requirements for this use/application.
- 4. Alternatives are not available because of economic feasibility:** It is not possible to operate profitably using the alternatives.
- 5. None of the above - Alternatives are available:** There are suitable alternatives for this use/application. They exist in sufficient quantities, they are safer than PFAS, and they are technically and economically feasible.
- 6. No information on alternatives**

2.17 **[Q1.22]** Please give a justification for your responses above by providing an explanation for each of the four points. Make sure to name which specific application and alternative you are referring to:

1. **Sufficiency:** Are the alternatives available in a sufficient quantity for this use/application?
2. **Safety:** Are there concerns for risks on human health or the environment that could limit the substitution potential of alternatives?
3. **Technical feasibility:** Are there technical requirements for this use/application? How do potential alternatives perform against the requirements?
4. **Economic feasibility:** What is the impact of using the alternative on profitability? How much would switching to the alternative cost?

Text of 1 to 3000 characters will be accepted

PFAS-free water tracers are commonly used; PFAS-based water tracers are infrequently used.

Water tracers: PFAS-based water tracers are rarely used, and non-PFAS alternatives are available in the market. A ban (RO1) on PFAS-based water tracers is reported to be considered manageable by IOGP Europe members.

We do not consider that sufficiency, safety, technical feasibility or costs are material issues for substitution of PFAS-based water tracers.

2.18 **[Q1.23]** How many years would it take to develop alternatives to a stage where they can be implemented for the use/application?

Only values of at most 20 are allowed

If you cover several applications in your response, provide an estimate that allows PFAS to be substituted in all of them.

If you cannot provide an estimate, do respond to the question.

years

2.19 **[Q1.24]** What is the total annual volume (tonnes) of PFAS used (or imported) for this specific use /application in the EEA?

Provide the annual volume (tonnes) for each type of PFAS used (or imported) in the EEA by your organisation, or by the organisations included in your response if reporting for a group. Do not include tonnages used outside the EEA.

	Annual volume of PFAS used	
Non-polymeric PFAS	<input style="width: 95%; height: 20px;" type="text"/>	tonnes/year
Polymeric PFAS	<input style="width: 95%; height: 20px;" type="text"/>	tonnes/year
Fluorinated gases	<input style="width: 95%; height: 20px;" type="text"/>	tonnes/year

2.20 **[Q1.25]** If PFAS could not be used in this use/application, what would be the most likely impact on organisation(s) covered by your response?

Maximum 1 selection(s)

Consider a situation where PFAS could not be used in this use/application by you or your competitors (including articles imported from outside the EEA).

Select the option that best describes the situation for applications you described above. When responding on behalf of a group of organisations, choose the option that is most representative of the covered companies.

- Permanent closure of business or parts of it (including relocation outside EU)
- Temporary closure of business or parts of it (including relocation outside EU)
- Continued operations with increased costs or lower quality
- Positive impact (e.g. business opportunity)
- No impact or minor impact

2.21 **[Q1.26]** What is the average annual gross profit in euros, based on the past three years, from business operations that depend on this PFAS use/application in the EEA?

The figure should include only profits for the organisation you are reporting for i.e. the reported profits should not include profits of any clients or other parties in the supply chain, as those are considered separately.

Report a value covering all applications you described in the response above. When responding on behalf of multiple companies, report a total value for all concerned companies.

Profits generated by companies outside the EEA should not be included.

€ / year

2.22 **[Q1.27]** If PFAS could not be used in this use/application, how many full-time equivalent (FTE) jobs would be lost in your organisation or the companies covered by your response within the EEA?

Consider a situation where PFAS could not be used in this use/application by you or your competitors (including articles imported from outside the EEA).

Report a value covering all applications you described in the response above. When responding on behalf of a group of companies, report a total value for all covered companies.

FTEs

2.23 **[Q1.28]** Please clarify how you have calculated your responses in the two previous questions above on profits and employment losses.

Text of 1 to 2000 characters will be accepted

Clarify your calculations and name any sources you may have used.

IOGP and Concawe jointly commissioned an independent Social and Economic Analysis of the proposed PFAS Restriction on the upstream and downstream Oil and Gas and CCS sectors. The analysis focused on fluoropolymers and fluoroelastomers. It did not cover tracers or anti-foam. It is available on IOGP Europe and Concawe websites, titled:

Ricardo, 2026. Socio-Economic Analysis for a REACH Restriction Proposal on PFAS in the Upstream Oil & Gas, Oil Refining and Fuel Distribution sectors, and in Carbon Capture and Storage.

Ricardo's analysis of the upstream oil and gas sector includes use of Eurostat data for the financial year 2024 that the sector in the EEA had a turnover between €196 and €204 Billion, with Gross Value Add (GVA) ranging €133 – 139B, with a central estimate of €136B.

GVA is not profit, which IOGP does not have access to for the whole sector, but reflects the total value add generated by the sector.

PFAS-free water tracers are already used in many applications, and we do not foresee significant job losses within the oil and gas operators from a Restriction.

2.24 **[Q1.29]** If PFAS could not be used in this use/application, what is the magnitude of potential negative impacts on society, e.g. from lack of access or worse quality of products (in addition to impacts on employment and profit losses)?

Consider other societal impacts than profits or employment and indicate their expected magnitude.

Impacts are considered greater, for example, when they affect large populations or significantly reduce quality of life. There is no exact and objective definition of what constitutes each category -please provide your best estimate. This question is used to gauge the responses and SEAC will assess the impacts based on the information in the following question.

Do not include information on health and environmental impacts of PFAS itself.

- Very low or none
- Low
- Moderate
- High
- Very high
- I do not know

2.25 **[Q1.30]** Please explain your response to question above, e.g. by describing the elements leading to your judgement on the magnitude of additional impacts. If possible, provide quantified or monetised estimates of the impacts.

2000 character(s) maximum

Describe additional negative impacts, such as changes in quality of life resulting from reduced availability or lower quality of products. It is sufficient to describe the impacts, but quantified or monetised estimated can also be provided.

Do not include information on health and environmental impacts of PFAS itself here, but in the general survey.

A Multi-Criteria Analysis (MCA) approach, based on Tool #62 of the latest Better Regulation Toolbox and ECHA's guidelines and studies has been used to perform a qualitative assessment. The work is reported in Ricardo (2026), available from IOGP website.

The Oil and Gas sector is likely affected very differently from a Restriction of those uses of PFAS listed under 'petroleum and mining', from uses of fluoropolymers/elastomers in sealing devices and other industrial components and materials.

IOGP considers the impact associated with water tracers to be small and manageable. Hence, overall, Low 2.

[15.02] Anti-foaming agents

- * 2.26 [Q1.19] What is or are the process(es) or product(s) PFAS (or an alternative to PFAS) are used in? How and why are they used?

Text of 1 to 2000 characters will be accepted

Briefly describe how PFAS (or alternatives) are used in your uses or applications. This should include e.g. the function provided by PFAS and the type of part/article/product they are used in.

If your use is covered by the scientific research and development exemption from the restriction (Article 67(1) of REACH) please indicate so.

The Upstream Oil and Gas, and Carbon Capture and Storage (CCS) sectors use PFAS-containing products, equipment and components in a wide range of machinery, equipment and industrial processes to meet performance criteria for safety- and environment-critical equipment deployed in challenging conditions and within industrial processes.

In scope of the assessment of the 'petroleum and mining sector', the industry uses anti-foam agents (typically fluorosiloxanes) to control fluids (oil, gas, water, condensate) separation into foam as it exits an oil reservoir and pressure and temperature reduce. Foams are difficult to handle and impact operational efficiency.

PFAS-free anti-foam are already widely used, but do not perform as well as fluoro-siloxanes based products from certain challenging crude oils.

- * 2.27 [Q1.20] Do suitable alternatives exist for this use/application?

Suitable alternatives are those that are technically and economically feasible, safer for human health and the environment, and available in sufficient quantities.

- Yes
 No
 I do not know

2.28 [Q1.21] What is the availability of alternatives for this use/application?

Select all options that apply in general for this use/application and provide an explanation of each point in the next question.

between 1 and 4 choices

Select the option that best describes the overall situation for application(s) you described above.

If your response concerns multiple applications, you can provide more detailed information for each application and its alternatives in the question below.

Option 6 is available for stakeholders who do not have information on the availability of alternatives.

- 1. Alternatives are not available due to insufficient quantities:** PFAS-free alternatives are not available in sufficient quantities for this use/application.
- 2. Alternatives are not available because of safety concerns:** PFAS-free alternatives are not safer for human health or the environment.
- 3. Alternatives are not available because of technical feasibility:** PFAS-free alternatives do not meet the functional requirements for this use/application.
- 4. Alternatives are not available because of economic feasibility:** It is not possible to operate profitably using the alternatives.
- 5. None of the above - Alternatives are available:** There are suitable alternatives for this use/application. They exist in sufficient quantities, they are safer than PFAS, and they are technically and economically feasible.
- 6. No information on alternatives**

2.29 [Q1.22] Please give a justification for your responses above by providing an explanation for each of the four points. Make sure to name which specific application and alternative you are referring to:

1. **Sufficiency:** Are the alternatives available in a sufficient quantity for this use/application?
2. **Safety:** Are there concerns for risks on human health or the environment that could limit the substitution potential of alternatives?
3. **Technical feasibility:** Are there technical requirements for this use/application? How do potential alternatives perform against the requirements?
4. **Economic feasibility:** What is the impact of using the alternative on profitability? How much would switching to the alternative cost?

Text of 1 to 3000 characters will be accepted

Anti-foam agents: IOGP Europe considers that PFAS-free anti-foam agents are available for most applications and are already used in the majority of situations. PFAS-based products are only used in a small number of applications, however these are in specific hydrocarbon fields where technical performance of PFAS-based anti-foaming agents is superior and necessary to meet technical objectives.

We note that International Standards and guidance will need to be updated, and that swap out to PFAS-free alternatives in those operations where PFAS-based products are currently used will need to be planned as part

of a Management of Change (MoC) process, which may include replacement of other infrastructure that is used to maintain control over fluid separation and foaming. IOGP Europe notes that anticipated costs will likely include capital cost for fluid control systems, in addition to anti-foam agent procurement and waste disposal. We propose an extended derogation (RO2) to facilitate development of Standards, guidance and hardware replacement to support use of PFAS-free anti-foam agents.

We do not consider that sufficiency, safety, or technical feasibility are material issues for substitution of PFAS-based anti-foaming agents. Capital costs for the hardware changes required is potentially significant (estimate €5 - 20M per installation, depending on asset design and location), and the practical limitations on making changes require greater than an 18-month transition period. A swap may not be a simple product drop-in and may require installation modification (including at off-shore platforms) and coordination with asset turnaround planning and execution.

2.30 [Q1.23] How many years would it take to develop alternatives to a stage where they can be implemented for the use/application?

Only values of at most 20 are allowed

If you cover several applications in your response, provide an estimate that allows PFAS to be substituted in all of them.

If you cannot provide an estimate, do respond to the question.

5 years

2.31 [Q1.24] What is the total annual volume (tonnes) of PFAS used (or imported) for this specific use /application in the EEA?

Provide the annual volume (tonnes) for each type of PFAS used (or imported) in the EEA by your organisation, or by the organisations included in your response if reporting for a group. Do not include tonnages used outside the EEA.

	Annual volume of PFAS used	
Non-polymeric PFAS		tonnes/year
Polymeric PFAS		tonnes/year
Fluorinated gases		tonnes/year

2.32 [Q1.25] If PFAS could not be used in this use/application, what would be the most likely impact on organisation(s) covered by your response?

Maximum 1 selection(s)

Consider a situation where PFAS could not be used in this use/application by you or your competitors (including articles imported from outside the EEA).

Select the option that best describes the situation for applications you described above. When responding on behalf of a group of organisations, choose the option that is most representative of the covered companies.

- Permanent closure of business or parts of it (including relocation outside EU)
- Temporary closure of business or parts of it (including relocation outside EU)
- Continued operations with increased costs or lower quality
- Positive impact (e.g. business opportunity)
- No impact or minor impact

2.33 **[Q1.26]** What is the average annual gross profit in euros, based on the past three years, from business operations that depend on this PFAS use/application in the EEA?

The figure should include only profits for the organisation you are reporting for i.e. the reported profits should not include profits of any clients or other parties in the supply chain, as those are considered separately.

Report a value covering all applications you described in the response above. When responding on behalf of multiple companies, report a total value for all concerned companies.

Profits generated by companies outside the EEA should not be included.

€ / year

2.34 **[Q1.27]** If PFAS could not be used in this use/application, how many full-time equivalent (FTE) jobs would be lost in your organisation or the companies covered by your response within the EEA?

Consider a situation where PFAS could not be used in this use/application by you or your competitors (including articles imported from outside the EEA).

Report a value covering all applications you described in the response above. When responding on behalf of a group of companies, report a total value for all covered companies.

FTEs

2.35 **[Q1.28]** Please clarify how you have calculated your responses in the two previous questions above on profits and employment losses.

Text of 1 to 2000 characters will be accepted

Clarify your calculations and name any sources you may have used.

IOGP and Concawe jointly commissioned an independent Social and Economic Analysis of the proposed PFAS Restriction on the upstream and downstream Oil and Gas, and CCS sectors. The analysis focused on fluoropolymers and fluoroelastomers. It did not cover tracers or anti-foam. It is available on IOGP Europe and Concawe websites, titled:

Ricardo, 2026. Socio-Economic Analysis for a REACH Restriction Proposal on PFAS in the Upstream Oil & Gas, Oil Refining and Fuel Distribution sectors, and in Carbon Capture and Storage.

Ricardo's analysis of the upstream oil and gas sector includes use of Eurostat data for the financial year 2024 that the sector in the EEA had a turnover between €196 and €204 Billion, with Gross Value Add (GVA) ranging €133 – 139B, with a central estimate of €136B.

GVA is not profit, which IOGP does not have access to for the whole sector, but reflects the total value add generated by the sector.

PFAS-free anti-foam agents are already used in many applications, and we do not foresee significant job losses within the oil and gas operators from a Restriction, but the industry does see a need for more time than RO1 allows for hardware modification.

2.36 **[Q1.29]** If PFAS could not be used in this use/application, what is the magnitude of potential negative impacts on society, e.g. from lack of access or worse quality of products (in addition to impacts on employment and profit losses)?

Consider other societal impacts than profits or employment and indicate their expected magnitude.

Impacts are considered greater, for example, when they affect large populations or significantly reduce quality of life. There is no exact and objective definition of what constitutes each category -please provide your best estimate. This question is used to gauge the responses and SEAC will assess the impacts based on the information in the following question.

Do not include information on health and environmental impacts of PFAS itself.

- Very low or none
- Low
- Moderate
- High
- Very high
- I do not know

2.37 **[Q1.30]** Please explain your response to question above, e.g. by describing the elements leading to your judgement on the magnitude of additional impacts. If possible, provide quantified or monetised estimates of the impacts.

2000 character(s) maximum

Describe additional negative impacts, such as changes in quality of life resulting from reduced availability or lower quality of products. It is sufficient to describe the impacts, but quantified or monetised estimated can also be provided.

Do not include information on health and environmental impacts of PFAS itself here, but in the general survey.

A Multi-Criteria Analysis (MCA) approach, based on Tool #62 of the latest Better Regulation Toolbox and ECHA's guidelines and studies has been used to perform a qualitative assessment. The work is reported in Ricardo (2026), available from IOGP website.

The Oil and Gas sector is likely affected very differently from a Restriction of those uses of PFAS listed under 'petroleum and mining', from uses of fluoropolymers/elastomers in sealing devices and other industrial components and materials.

IOGP considers the impact of a Restriction on anti-foam agents to be relatively small and manageable. However, there are potential capital costs and timing implications (to align with normal multi-year 'asset turnaround' schedules) for changing fluid management hardware installations as well as the anti-foaming products. Hence, overall, Moderate 3.

3 Confidentiality and submission

3.1 **[Q1.32]** Indicate each section for which your response contains confidential information.

Select all the questions for which you consider your responses confidential.

The options below include all questions in the survey. Please note that some questions may be only visible depending on the response to another question.

- Respondent background information
- Information on use, sub-use, and application

Useful links

[Guidance Document \(https://echa.europa.eu/documents/10162/17091/upfas-seac-do_consultation_guidance-for-respondents_en.pdf/68d5b13b-d7d6-f14b-2c3e-9b3c07c98113?t=1765956675386 \)](https://echa.europa.eu/documents/10162/17091/upfas-seac-do_consultation_guidance-for-respondents_en.pdf/68d5b13b-d7d6-f14b-2c3e-9b3c07c98113?t=1765956675386)

[Use Mapping \(https://echa.europa.eu/documents/10162/17091/pfas_use-mapping_annex_to_guidance_for_respondents_en.pdf/e242dcf0-0aab-2619-234e-09445bb181c5?t=1765893415372 \)](https://echa.europa.eu/documents/10162/17091/pfas_use-mapping_annex_to_guidance_for_respondents_en.pdf/e242dcf0-0aab-2619-234e-09445bb181c5?t=1765893415372)

Background Documents

[Privacy Statement](#)

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https://comments.echa.europa.eu/comments_cms/Contact_REACH.aspx