

3M Response to the Call for evidence supporting an analysis of restriction options for PFAS

For Other PFAS and PFAS Mixture Based Coatings

IV. Information on institute/organisation/person & Data protection rights

Data subject rights: Access, rectification, erasure, blocking, right of revocation

By participating in this survey, personal data may be processed in terms of the General Data Protection Regulation (GDPR) of the European Union. "Personal data" is any piece of information that allows a natural person to be identified directly or indirectly, for example a name or a personified e-mail address. "Processing" may mean, for example, the collection, recording and storing of these data.

PERMISSION FOR INFORMATION PURPOSES: I agree to the personal data I provide in the present survey, including my name and my e-mail address, to be collected, processed and stored for potential follow-up questions regarding this survey by the service provider of Bundesanstalt für Arbeitsschutz und Arbeitsmedizin (BAuA), namely Webropol Deutschland GmbH, and to these being subsequently stored in the database of the Federal Chemicals Office. *

☒ Yes ☐ No

The following information marked with * on institute/organisation/person are mandatory fields.

Information on institute/organisation/person

Name*	
Surname*	5.1.2e
Name of institute/organisation *	3M Company
E-Mail*	5.1.2e @mmm.com

Can we contact you with follow-up questions? *

☒ Yes ☐ No

Are you interested in attending a meeting on specific uses of PFAS, mixtures and articles containing PFAS?

☒ Yes ☐ No

Note on Confidentiality of information and data

I understand that it is my responsibility not to include confidential information in responses to general comments and in any responses to requests for specific information (e.g. company name, email addresses, phone numbers, signatures etc.). The competent authorities for REACH will not be held liable for any damages caused.

☒ Yes

I understand that it is my responsibility to mark confidential data and attachments as confidential. *

☒ Yes

1. Please choose one of the following options. Do you have information on **PFAS**, PFAS-containing mixtures and articles or alternatives being able to replace PFAS.

☒ PFAS, PFAS-containing mixtures and/or articles

☐ alternatives i.e. other substances, non-chemical or functional replacement

PART I – PFAS & PFAS Containing Mixtures and Articles

V. Questions - Section A -PFAS and PFAS-containing mixtures and articles

2. Please define your role(s) with regard to PFAS and/or PFAS-containing mixtures and articles (see above for definitions of different roles). Please choose according to your primary role but multiple roles can be indicated. (please see Supplementary document for further explanation) *

☒ Manufacturer of PFAS and/or PFAS-containing mixtures

☒ Manufacturer of PFAS-containing articles

☒ Importer of PFAS and/or PFAS-containing mixtures

☒ Importer of PFAS-containing articles

☐ Distributor of PFAS and/or PFAS-containing mixtures

☐ Distributor of PFAS-containing articles

☒ Downstream User of PFAS and/or PFAS-containing mixtures

☒ Downstream User of PFAS-containing articles

☐ Other (e.g. NGOs, Scientists)

V. Questions - Section A -PFAS and PFAS-containing mixtures and articles

Information on substance identity and quantities *

- ☒ I have information
☐ I have no information

3. Please fill in following information for PFAS and/or PFAS contained in mixtures and/or articles:

- chemical names, trade names, CAS and EC numbers:

5.1.1c

5.1.1c

V. Questions - Section A - PFAS and PFAS-containing mixtures and articles

Information on hazards *

- ☐ I have information
☒ I have no information

V. Questions - Section A - PFAS and PFAS-containing mixtures and articles

Information on uses *

- ☒ I have information
☐ I have no information

7. Which are the area(s) of use and application of your PFAS and/or PFAS containing mixtures and/or articles.

- ☐ Textiles, leather and apparel, and textile related products
☐ Cosmetic products
☐ Food contact materials and non-stick kitchenware
☐ Paper and packaging
☐ Firefighting foams
☐ Household articles/Consumer mixtures (e.g. non-sticking coating, impregnation agents, polishes etc.)
☐ Construction products (e.g. surface treatments (paints, coatings))

- ☐ Lubricants and greases
- ☐ Chrome plating (including mist suppressing agents)
- ☐ Semiconductors
- ☐ Ski waxes

☒ **Medical devices and applications**

☒ **Applications of PFAS within oil, gas and mining (apart from firefighting foam)**

☐ F-gases e.g. (PFC, HFC, HCFC, HFE, HFO) in air-conditioning, heat-pump equipment, aerosol cans, foams etc.

☐ Uses of C1 perfluorinated carboxylic and sulfonic acids (trifluoroacetic acid (TFA) or trifluoromethanesulfonic acid (triflic acid, TfOH))

☒ **Transportation (automotive, aviation etc.) other than listed above (e.g.greases)**

☐ Photographic surface layers

☒ **Other**

8. If possible, please assign or estimate annual quantities of your PFAS and/or PFAS containing mixture and/or article to the individual uses. If possible, list products in the relevant application area that contain your PFAS and provide information or an estimate on quantities (i.e. concentrations or applied amount per cm²).

Healthcare Applications

- Medical splints
- Orthodontic wires
- Orthodontic pads
- Various electronic medical devices
- Surgical Gowns

Industrial settings like Oil, Gas & Mining sectors, Manufacturing, Military, Aerospace, and Construction market:

- Protective Coverall
- Fall Protection
- Full Facepiece Reusable Respirators
- Respiratory and personal protective equipment
- Safety devices

9. You have ticked other(s), please specify the use(s) or area(s) of application respectively.

Renewable Energy Applications

- Wind blade Protective coating

Electrical Applications

- Advanced Cable and Fault Locator

Industrial applications in electrical and automotive markets

- 5.1.1c -film-based tapes

Military and Firefighter applications:

- Respiratory and personal protective equipment
- Safety devices

Note: more information on the Renewable Energy Applications, as well as the Industrial applications used in electrical and automotive markets and Electrical applications is provided in the attached document as 'Additional Information'.

V. Questions - Section A - PFAS and PFAS-containing mixtures and articles

Information on functionality and final mixtures/articles *

☒ I have information

☐ I have no information

27. Please describe the technical function of the PFAS, also with regard to the presence of PFAS in mixtures.

PFAS coatings are used in a variety of high-performance applications where durability is critical. Key industries are in healthcare, oil gas & mining sectors, manufacturing, military, aerospace, automotive, electrical, electronic and construction markets. Also, coatings are used in sustainability focused industries such as renewable energy. PFAS coatings provide a variety of functions and the usages are application specific. However, the commonality between them is that the coatings in many cases provide a significant level of durability and performance. This level of performance is a necessity in these applications which very often support essential healthcare and safety applications.

Applications discussed in the following specific usage sections are in Healthcare, Safety (in industrial settings like Oil, Gas & Mining sectors, Manufacturing, Military, Aerospace, and Construction markets), Renewable Energy, Construction, Electrical, Electronic and Automotive markets.

Healthcare Applications

PFAS is a critical component of medical splints, orthodontic wires, dental instrumentation, surgical gowns and hardgoods products. PFAS enables proper functionality and ensures the safe use of the product.

Safety Applications

PFAS is a key coating used in multiple safety applications including harnesses and Self Retracting Line products for users that are working at heights and need fall protection equipment. Reusable respirators as well as protective overalls are used in industrial settings in the Oil, Gas & Mining sectors, Manufacturing, Military, Aerospace, and others. The performance needed in these products cannot technically be achieved by other means at this time.

Renewable Energy Applications

PFAS materials are used in wind blade protection coatings. PFAS are used in the formulation to prevent moisture in the air from affecting the curing process during application. The performance needed in these products cannot technically be achieved by other means at this time.

Industrial applications in electrical and automotive markets

5.1.1c tapes are used in high performance applications in construction, electrical, electronic and automotive markets. Uses include pipe thread sealant and lubricant applications in the plumbing industry and are also used in high performance applications requiring chemical resistance and high temperature applications up to 260 deg. C, where few other materials could perform well. It is approved for high pressure oxygen lines and considered as an inert film.

They are also used in Electrical insulation applications in constructions, and chemical and temperature resistant applications such as coils, capacitors & wire harnesses for automotive applications. The stable and inert properties of 5.1.1c make it ideal for high temperature and chemical resistance applications.

Electrical Applications

PFAS and related substances are also found in the 3M Advanced Cable and Fault Locator, which consists of a Transmitter and a Receiver for locating buried cables or Active Duct Probes (sondes). It measures and pinpoints sheath faults in buried cables and conductor faults in aerial cables.

PFAS are not intentionally added to this product line. We are aware of two fluorinated materials 5.1.1c in these products, contained within commercially available purchased electronic components used on the printed circuit boards of the locators. 5.1.1c has been chosen by the manufacturers of the components, with the specific purpose of the 5.1.1c not disclosed to 3M. It is not known at this time if there are similar components with the same performance characteristics available on the market that do not contain 5.1.1c

28. Please specify the final mixtures/articles (with industrial, professional and consumer relevance) resulting from the use(s) of your PFAS. Please indicate whether your substance(s) is/are a component(s) of mixtures and/or articles. List the nature of these articles/mixtures as precisely as possible.

Final products in all cases are articles treated with a PFAS based coating. All applications are designed for professional and industrial users in demanding applications. Some tapes are available for professional and consumer use in plumbing applications.

29. Please give information for every mixture/article you are producing/using on the tonnage of PFAS you are producing/using per year.

We would need more time to reproduce this data for all our products in response to this call for evidence.

30. To whom do you supply the PFAS and mixtures/articles containing PFAS you manufacture/import?

Healthcare Applications

3M supplies these health care products to health care providers, health care distributors, consumers/patients, and other health care/medical device companies.

Safety Applications

- The harnesses and Self Retracting Line products are used in general industrial markets where end users are working at heights and need fall protection equipment.
- Reusable respirators are used in industrial settings
- The protective coveralls are used in general industrial markets (aerospace, automotive, construction, etc.) to provide protection to the end user from various environmental factors.
- Scott Fire & Safety respiratory and personal protective equipment and safety devices are used by firefighters, industrial workers and militaries.

Renewable Energy

3M supplies its Wind Blade Protection Coatings to Wind blade manufacturers and Operations & Maintenance environments (Repair of wind blades).

Industrial applications in electrical and automotive markets

The 5.1.1c based article tapes are supplied to electrical distributors and automotive OEM customers.

Electrical Applications

Advanced Cable and Fault Locator is sold through distribution to utility companies, including gas, power and telecommunications, to locate their underground assets such as pipes and cables.

31. If possible, indicate the concentration (or concentration range) of PFAS or application levels (i.e. in mg per m²) for the PFAS and/or PFAS in your articles/mixtures, including polymers, and uses. Are they impurities, residues or intended additives?

We would need more time to reproduce this data for all our products in response to this call for evidence.

32. Which minimum concentration of PFAS alone or in your mixtures including polymers is feasible using the best available technique?

We would need more time to reproduce this data for all our products in response to this call for evidence.

33. Is the concentration mentioned in question 32 necessary for the performance of your substance, mixture, polymer? What is the minimum concentration of PFAS, mixtures including polymers that is necessary to maintain its function?

We would need more time to reproduce this data for all our products in response to this call for evidence.

40. Would it be possible for the use referred to in Question 7, listing the applicable use areas), to substitute this use with a different technical solution without environmental emissions?

There is no substitution in the applicable use areas as marked in Question 7 with equally high performing, technically and economically feasible products without environmental emissions from an overall life cycle assessment point of view. The strong C-F bond in the substance is key to get the required high performance and durability of the products in the various use areas. Any non C-F substance is expected to perform less and a detailed and comprehensive life cycle assessment would still need to evaluate the potential impact on the environment. Many of these high performing and highly durable products, used in a critical environment from a health and safety point of view, have to be externally certified, which means that any different product developed, if at all possible for the reasons mentioned above, would need to go through a lengthy certification process.

Questions 41-48

Please see the answer to question #40.

PART II – SPECIFIC USES

V. Questions - Section A - Specific Uses: Medical devices

10. What specific function do PFAS fulfil?

PFAS coatings are used in a variety of high-performance applications where durability is critical. A key usage is in healthcare. PFAS coatings provide a variety of functions and the usages are application specific. However, the commonality between them is that the coatings in many cases provide a significant level of durability and performance. This level of performance is necessary in these applications which very often support essential healthcare applications.

3M produces medical splints which are critical medical devices to ensure the proper healing of fractured bones. PFAS is important for functionality of the medical splints.

In oral care, 3M produces orthodontic wires which are critical to aligning teeth in the promotion of overall oral health. 3M also produces dental instrumentation, specifically orthodontic pads, which minimize the potential for enamel damage during removal of orthodontic bands.

Surgical gowns are outsourced by 3M. PFAS is important for the functionality of the surgical gowns to prevent liquid strikethrough which may potentially increase the risk of contamination.

Lastly, 3M produces various medical devices, and the performance of these devices depend on internal hardware and wiring. In this application PFAS is used as a coating to protect that internal

hardware.

For all the applications mentioned above, different PFAS mixtures are critical for product performance and to ensure the safe and effective clinical use of the product.

11. In what types of medical devices are they used?

Medical Splints
Orthodontic Wires
Dental Instrumentation
Surgical Gowns
Hardgoods Products

12. What PFAS-substances or PFAS-groups are used?

As mentioned above, 3M uses PFAS and similarly related fluorocarbons in the production of medical splints, orthodontic wires, dental instrumentation, surgical gowns and hardgoods products. Most of the PFAS coating used in these products are based on the 5.1.1c

13. Please give information for every medical device you are producing/using on the tonnage of PFAS you are producing/using per year.

We would need more time to reproduce this data for all our products in response to this call for evidence.

14. Please indicate the concentration (or concentration range) of PFAS(s) in your medical devices and applications.

We would need more time to reproduce this data for all our products in response to this call for evidence.

15. Please indicate the technical function of the PFAS(s) in the products.

3M produces medical splints which are critical medical devices to ensure the proper healing of fractured bones. PFAS is important for functionality of the medical splints.

In oral care, 3M produces orthodontic wires which are critical to aligning teeth in the promotion of overall oral health. 3M also produces dental instrumentation, specifically orthodontic pads, which minimize the potential for enamel damage during removal of orthodontic bands.

Surgical gowns are outsourced by 3M. PFAS is important for the functionality of the surgical gowns to prevent liquid strikethrough which may potentially increase the risk of contamination.

Lastly, 3M produces various medical devices, and the performance of these devices depend on internal hardware and wiring. In this application PFAS is used as a coating to protect that internal hardware.

For all the applications mentioned above, different PFAS mixtures are critical for product

performance and to ensure the safe and effective clinical use of the product.

16. Please also specify potential PFAS-impurities, residues or intended additives and indicate their possible concentrations or concentration ranges.

Not applicable.

17. Would you be able to phase out PFAS or pledged to phase out PFAS soon from all your products?

PFAS is a critical component of medical splints, orthodontic wires, dental instrumentation, surgical gowns and hardgoods products. PFAS enables proper functionality and ensuring the safe use of the product. Removal or phasing out PFAS from these applications would most likely have significant implications on functionality and potential safe use of the product, requiring clinical practice change and increasing risk of complications.

18. If you use alternative substances, do you have any information on their risk profiles?

No alternative substances are being used. See answer to Question 17.

19. Please specify any information you have on reformulation costs.

Generally, costs associated with reformulation of health care products and medical devices is high due to re-registration requirements and activities needed to qualify the alternative formulation. As substitution would require feasibility studies, R&D efforts, processability and validation in production, plus clinical studies followed by (re)registration of the medical device according to medical device legislation, it could take several years to implement potential alternatives.

20. Please specify any information you have on impact on exports.

No specific information.

V. Questions - Section A - Specific Uses: Applications within oil, gas and mining industry

10. Which PFAS-substances or PFAS-groups are used in mixtures in oil, gas and mining industry?

5.1.1c

11. What specific functions do PFASs fulfil for these applications?

PFAS coatings are used in a variety of high-performance applications in where durability is critical. A key usage is for critical safety products that keep workers safe in industries such as oil gas & mining sectors, manufacturing, military, aerospace, and construction markets. The PFAS coatings provide a variety of functions and the usages are application specific. However, the commonality between them is the coatings in many cases provide a significant level a durability and performance. This level of performance is necessary in these applications which very often support essential safety applications.

The 3M Protective Coverall products use fabric manufactured and treated outside of EU by a Tier 2 vendor. During the manufacturing process, the vendor applies a topical liquid repellency treatment based on 5.1.1c to the fabric. The treatment is used to enable the fabric to achieve limited repellency of water-, alcohol-, and solvent-based liquids. The protective coveralls are used in general industrial markets (aerospace, automotive, construction, etc.) to provide protection to the end user from various environmental factors. This performance cannot technically be achieved by other means at this time.

3M Fall Protection products are using 5.1.1c based coatings to provide water and oil resistance to webbing. These webbings are mostly used for harnesses, and one webbing may also be used for the webbing on a Self-Retracting Lifeline (SRL). The harnesses and SRL are used in general industrial markets where end users are working at heights and need fall protection equipment.

3M Facepiece Reusable Respirators contain two article components with PFAS, the face shield and the speaking diaphragm. 3M Full Facepiece Reusable Respirator contains one article component with PFAS – the speaking diaphragm. (1) A PFAS additive is used in the clear plastic hard coat applied as a treatment to the respirator face shield. This treatment makes it possible to easily wipe paints, stains, and other liquids off the face shield. The application was reviewed internally and considered an acceptable use of fluorochemicals. (2) 5.1.1c film is used within the speaking diaphragm of the respirator which facilitates communications. The 5.1.1c film restricts contaminants from entering into the breathing zone of the respirator user through the passive speaking diaphragm. 5.1.1c enhances sound transmission better than any other material tested to date. Full-face reusable respirators are used in industrial settings to help provide protection against certain airborne contaminants while keeping vision clear. The respirator can help reduce exposure to many contaminants (particulates, gases, and vapors) which can be harmful to health.

3M Scott Fire & Safety, respiratory and personal protective equipment and safety devices for firefighters, industrial workers and militaries, use 5.1.1c in some components. 5.1.1c 5.1.1c The 5.1.1c provides a coating that improves fit and is essential to a breathing apparatus used in firefighting. 3M Scott Fire & Safety products protect firefighters in the line of duty facing many hazards including burning buildings and release of toxic substances.

12. Please give information on the tonnage of PFAS you are producing/using per year for applications within oil, gas and mining industry.

We would need more time to reproduce this data for all our products in response to this call for

evidence.

13. Please indicate the concentration (or concentration range) of the PFAS(s) in the relevant use areas.

We would need more time to reproduce this data for all our products in response to this call for evidence.

14. Please also specify potential PFAS-impurities, residues or intended additives and indicate their possible concentrations or concentration ranges.

We would need more time to reproduce this data for all our products in response to this call for evidence.

15. What are the volumes manufactured, imported or used of PFAS-containing mixtures in the oil, gas and mining industry? Can you provide any time trends?

We would need more time to reproduce this data for all our products in response to this call for evidence.

16. If you use alternative substances to PFAS in the oil, gas and mining industry, do you have any information on their chemical identity and risk profiles? Please provide CAS numbers for the alternative substances, if possible.

No alternate chemistry has been identified.

17. Please specify any information you have on reformulation costs.

No information.

PART III – ADDITIONAL INFORMATION

Renewable Energy Information

PFAS coatings are used in a variety of high-performance applications where durability is critical. Some of coatings are used in sustainability focused industries such as renewable energy. PFAS coatings provide a variety of functions and the usages are application specific. However, the commonality between them is the coatings in many cases provide a significant level a durability and performance.

3M Wind Blade Protection Coatings are two-component polyurethane coatings that provide erosion protection in a single layer or multiple layers, to help protect wind turbine blade leading edges from damage caused by sand and rain erosion and minor impact. Damage to wind turbine blades can reduce efficiency by as much as 20%. PFAS [REDACTED] 5.1.1c [REDACTED] are used in the formulation to prevent moisture in the air from affecting the curing process during application of Wind Blade Protection Coatings.

Information on Industrial applications used in electrical and automotive markets, and Electrical applications

PFAS-enabled coatings are used in many industrial tapes for high performance applications in construction, electrical, electronic and automotive markets. Uses include pipe thread sealant and lubricant applications in the plumbing industry and are also used in high performance applications requiring chemical resistance and high temperature applications up to 260 deg. C, where few other materials could perform well. It is approved for high pressure oxygen lines and considered as an inert film.

They are also used in Electrical insulation applications in constructions, and chemical and temperature resistant applications such as coils, capacitors & wire harnesses for automotive applications. The stable and inert properties of [REDACTED] 5.1.1c [REDACTED] make it ideal for high temperature and chemical resistance applications.

Furthermore, they are found in the Electrical applications like Locating & Marking Products, which measure and pinpoint sheath faults in buried cables and conductor faults in aerial cables. PFAS are not intentionally added to the 3M Advanced Cable and Fault Locator product line, which consists of a Transmitter and a Receiver for locating buried cables or Active Duct Probes (sondes). We are aware of two fluorinated materials [REDACTED] 5.1.1c [REDACTED] in these products, contained within commercially available purchased electronic components used on the printed circuit boards of the locators. [REDACTED] 5.1.1c [REDACTED] has been chosen by the manufacturers of the components, with the specific purpose of the [REDACTED] 5.1.1c [REDACTED] not disclosed to 3M. It is not known at this time if there are similar components with the same performance characteristics available on the market that do not contain [REDACTED] 5.1.1c [REDACTED]