

**SAICM/UCT  
Chemicals in Products (CiP) Community of Practice  
Discussion Forum**

<b>Title</b>	<b>Managing PFAS as a Chemical Class in the Textiles Sector</b>
<b>Date</b>	<b>10<sup>th</sup> December 2020</b>
<b>Time</b>	<b>16:00 – 17:30 (GMT+2)</b>
<b>Facilitator</b>	<b>Andrea Rother, University of Cape Town</b>
<b>Presenter</b>	<b>Yiliqi, NRDC Anna Reade, NRDC</b>
<b>Chair</b>	<b>Maxine Brassell, MPH Student, Univ. of Cape Town</b>

**NOTE:**

- ✓ Since this is a discussion, we encourage you to **prepare** or at least think about the questions prior to joining.
- ✓ **This guide** lays out the background to the questions, presents the questions and provides resources if you should wish to read further on the issue.



- **Details for joining this discussion are below.** To participate in this discussion you will need to have signed up in advance at: [www.saicmknowledge.org/community](http://www.saicmknowledge.org/community)
- For **technical assistance** on the day of the discussion go to the CiP CoP WhatsApp group: <https://chat.whatsapp.com/DVwGix7x04d1Q9b5usaJcr>
- **Connect** with laptops/PCs rather than phones since the discussion is about typing.
- **Should you NOT be able to join the discussion but still wish to contribute please click the link below and fill out the Form with your contributions:**  
<https://forms.office.com/Pages/ResponsePage.aspx?id=NUNFkk5Wz0ywsCREW4wD994BtdKxhuxCk5AYimAs5NhUOUhYRk8ySzAzUjA0MVRWSk1MR043UTBWOSQIQCN0PWcu>

**PRESENTER BIOSKETCH**



**Yiliqi** leads a green supply chain initiative at NRDC, which calls on corporation to take responsibility for environmental impact of their supply chain, especially their manufacturers located abroad. Her current work focuses on addressing the environmental impacts of the apparel industry. She holds dual bachelor's degrees in Environmental Science and Public Relations from East China Normal University and a master's degree in Environmental Policy Design from Lehigh University. She is based in Washington, D.C.



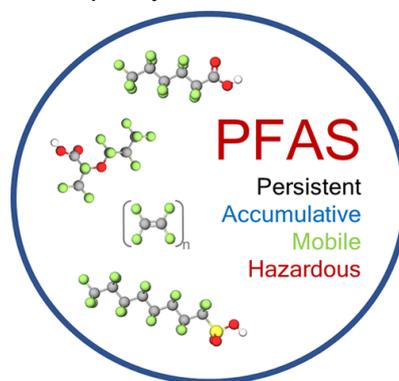
**Dr. Anna Reade** is a staff scientist of the Healthy People and Thriving Communities program at Natural Resources Defense Council (NRDC), who leads NRDC's efforts to reduce and eliminate harmful exposures to PFAS chemicals for the safety of people and the environment. Prior to joining NRDC, she worked in the California State Senate as a Policy Fellow with the California Council on Science and Technology. She holds a bachelor's degree in cell and developmental biology from the University of California, Santa Barbara, and a PhD in developmental biology from the University of California, San Francisco, where she was a National Science Foundation Graduate Research Fellow. Reade is based in San Francisco.

## DISCUSSION INTRODUCTION

Chemicals are important components in many of the products essential to modern society. However, chemicals of concern may be released at any stage of a product's life cycle. This means both humans and the environment could potentially be exposed to harmful chemicals-- including from both newly produced products and products already present in society. These chemicals of concern are found in consumer products all over the world, resulting in the potential exposure to many people--workers in manufacturing, recycling, and disposal of products and consumers during use, including vulnerable populations such as women and children, as well as contamination of the environment. Only a few of the most hazardous chemicals are currently regulated or banned under the Basel, Stockholm and Minamata Conventions.

The textile industry, as one of SAICM's priority sectors, uses a large amount of chemicals across the production stages to achieve various appearances, quality, and functions in products. PFAS--a large chemical class characterized by toxicity, persistence, mobility, and the ability to bioaccumulate-- are widely used in this sector. With growing global attention and efforts on eliminating PFAS, a class-based approach is considered efficient and effective.

The intention of this discussion is to identify the best approach to reducing PFAS exposure and pollution associated with the textile sector, with the focus on why and how PFAS should be managed as a chemical class in the textile sector.



## QUESTION 1 – Yiliqi (14:05 GMT+2)

### **Background:**

Per- and polyfluoroalkyl substances (PFAS) are a large family of thousands of synthetic chemicals that are widely used throughout society and found in the environment.

PFAS have been linked with many serious health effects such as cancer, hormone disruption, liver and kidney damage, developmental and reproductive harm, changes in serum lipid levels, and immune system toxicity, with some of them occurring at extremely low levels of exposure.

PFAS are extremely persistent “forever chemicals.” They do not break down easily and can accumulate in the food that we eat, in our bodies, as well as in our surrounding environment.

PFAS are also highly mobile. Once PFAS are released from local production discharge or during use of consumer products, they spread quickly throughout the environment and cause environmental and health issues globally.

Scientists believe that treating and regulating all PFAS chemicals as a group is a more efficient and effective approach to reduce the chemicals’ harm to human health and the environment because they (1) are extremely persistent; (2) tend to be highly mobile in the environment; (3) can bioaccumulate; (4) can be toxic in small concentrations; (5) are used in hundreds of different industrial and commercial processes and found in a wide variety of consumer products; and (6) there are thousands of different kinds of these dangerous chemicals that once released are difficult to remove from the environment. .

### **Question 1:**

- **How are PFAS actively monitored and managed in your country, regions, or sector? What have been the accomplishments and challenges in your related work?**

### **Resources/Information for the Discussion:**

- Perfluoroalkyl chemicals (PFAS)  
<https://echa.europa.eu/hot-topics/perfluoroalkyl-chemicals-pfas>
- Green Deal: Commission adopts new Chemicals Strategy towards a toxic-free environment  
[https://ec.europa.eu/commission/presscorner/detail/en/ip\\_20\\_1839](https://ec.europa.eu/commission/presscorner/detail/en/ip_20_1839)
- The Scientific Basis for Managing PFAS as a Class  
<https://pubs.acs.org/doi/10.1021/acs.estlett.0c00255>

## QUESTION 2 – Yiliqi (14:30 GMT+2)

### Background:

People are exposed to PFAS from using consumer products, including some textile products like apparel, footwear, carpet, rugs, curtains, table clothes, furniture, etc. However, consumer products may not be the biggest source of their exposure to PFAS. PFAS are emitted into the environment throughout a product's life cycle- contaminating our food, water, air, and soil.

For example, local communities around production facilities are highly impacted by polluted air, drinking water, soil and food. Workers are directly impacted from handling the chemicals. The use of products containing PFAS can lead to exposure from direct contact and indirectly when PFAS are released into the environment through pathways such as indoor dust, cleaning, etc. Further, landfills or incinerators that dispose of PFAS containing products are well-known sources of PFAS contamination.

In the textile sector specifically, the key lifecycle stages that cause PFAS emission and exposure are:

- Producing PFAS chemicals that are applied to textile products in a later stage
- Product manufacturing, especially the dyeing and finishing process, where fabrics are treated with PFAS to achieve water-, oil- and stain- repellent properties
- Product use
- End of life, including disposal and recycling

### Question 2:

- **Who are the stakeholders involved in managing PFAS emissions and exposure either from applying PFAS in the manufacturing process or from using a product containing PFAS?**
- **What actions have these stakeholders undertaken to deal with this issue?**

### Resources/Information for the Discussion:

- California Safer Consumer Product Program: Product – Chemical Profile for Carpets and Rugs Containing Perfluoroalkyl or Polyfluoroalkyl Substances  
[https://dtsc.ca.gov/wp-content/uploads/sites/31/2020/02/Final\\_Product-Chemical\\_Profile\\_Carpets\\_Rugs\\_PFASs\\_a.pdf](https://dtsc.ca.gov/wp-content/uploads/sites/31/2020/02/Final_Product-Chemical_Profile_Carpets_Rugs_PFASs_a.pdf)
- Are fluoropolymers really of low concern for human and environmental health and separate from other PFAS?  
<https://pubs.acs.org/doi/10.1021/acs.est.0c03244>

## QUESTION 3 – Yiliqi (15:00 GMT+2)

### Background:

PFAS are widely applied to textile products to achieve water-, oil-, and stain-repellent properties. Some of the textile products that may contain PFAS include

fashion apparel, uniforms, sportswear, outdoor gear, footwear, carpet and rugs, bed and bath products, backpacks, swimwear, upholstery, etc.

To reduce the use and emission of PFAS in the textile industry, determining the “essentiality” of the PFAS application is key. The easiest first step for the stakeholders to take is to eliminate PFAS use where they are deemed not essential. For example, KEEN – a footwear brand – achieved a 67% of PFAS reduction just by stopping the unnecessary use of PFAS.

If the use is determined as essential, then the next step is to ask whether a safe alternative exists. In the textile industry for instance, while safe alternatives exist for achieving water-repellent function, it is still challenging to substitute PFAS for its use as an oil-repellent. In this case, stakeholders should eliminate PFAS when safe alternatives exist. It is important to point out that the safe alternative can either be a chemical substitution or a functional alternative, which means to achieve the same functional properties using a different material or technology. Some carpet manufacturers, for instance, have switched to a different material and weave to achieve stain repellency instead of applying a PFAS layer.

For essential uses, like occupational protective clothing that are necessary for health and safety, which do not yet have a safe alternative, it can be temporally listed as a critical exemption, while continuing the research and development needed to identify safe alternatives.

**Question 3:**

- **Which product functions that PFAS provide are essential in your country?**
- **List which safer alternatives are available in your country. What are the barriers to eliminating the use of PFAS in textile products?**

**Resources/Information for the Discussion:**

- The concept of essential use for determining when uses of PFASs can be phased out

<https://pubs.rsc.org/en/content/articlelanding/2019/em/c9em00163h#!divAbstract>

## **Instructions for joining this discussion on the set date:**

This discussion will be held in **Microsoft (MS) Teams**.

- After joining the CoP, a link to this discussion will be circulated to you via email and sent out as an Outlook calendar invite.
- If your organisation already has MS Teams, you will need to switch from your organisations MS Teams to your University of Cape Town Guest Teams account in the following manner:
  - a. You can do this by going into your MS Teams and navigating to the top right corner of the page to where your profile picture is
  - b. Here you should see the name of your organisation and small arrow indicating a drop-down menu
  - c. Click on this arrow and choose "University of Cape Town"
- Find the email sent to you with the MS Teams link to this discussion.
- Click the link that says, "Join Microsoft Teams Meeting" and you should be taken into the discussion.

If you have not received an email with the link, make sure you are signed up for the Chemicals in Products Community of Practice or send an email to: [uctcops@outlook.com](mailto:uctcops@outlook.com)

## **Format of how the discussion will operate:**

- To participate in this discussion, sign up at: [www.saicmknowledge.org/community](http://www.saicmknowledge.org/community)
- Should you require assistance or have questions, contact: [uctcops@outlook.com](mailto:uctcops@outlook.com)
- ✓ This live discussion will be run in Microsoft Teams in the chat section on the set day. . Members will introduce themselves upon arrival into the chat room.
- ✓ The discussion presenter will briefly present a verbal introduction.
- ✓ Two questions will be posted during the 1 ½ hour discussion for 40 minutes discussion. The presenter/s will address comments in the chat section of Teams and all are encouraged to engage.
- ✓ All are welcome to join the discussion which will be held in English. Feel free to write in another language if you are struggling with English and members will assist where possible.

This activity is supported by the Global Environment Facility (GEF) project ID: 9771 on *Global Best Practices on Emerging Chemical Policy Issues of Concern under the Strategic Approach to International Chemicals Management (SAICM)*.