



FDRA

**Footwear Products Safety Workshop
May 9, 2024**

**Kirsten Blackburn,
Director – KEEN Effect**



Detox Initiative

KEEN is committed to removing harmful chemicals from our entire range of footwear. We follow the guidance set by The Green Science Policy Institute for the Six Classes of Harmful Chemicals and annually track and report our progress for each chemical group.



^ The original hybrid sandal – Newport H2

CHEMICAL GROUP	STATUS
PFAS	FREE SINCE 2018
ANTIMICROBIALS	FREE SINCE 2018
FLAME RETARDANTS	FREE SINCE 2003
BISPHENOLS & PHTHALATES	95%+ FREE SINCE 2018*
SOLVENTS	10% FREE IN 2023, INTENTION TO BE 20% FREE BY 2025 & 30% FREE BY 2030
CERTAIN METALS	FREE SINCE 2015

*While we strive to be 100% free of bisphenols & phthalates, bisphenol A can be found in the source content of recycled polyester.



v KEEN Utility work boot – The Detroit XT



PRODUCT

PFAS FREE SINCE 2018

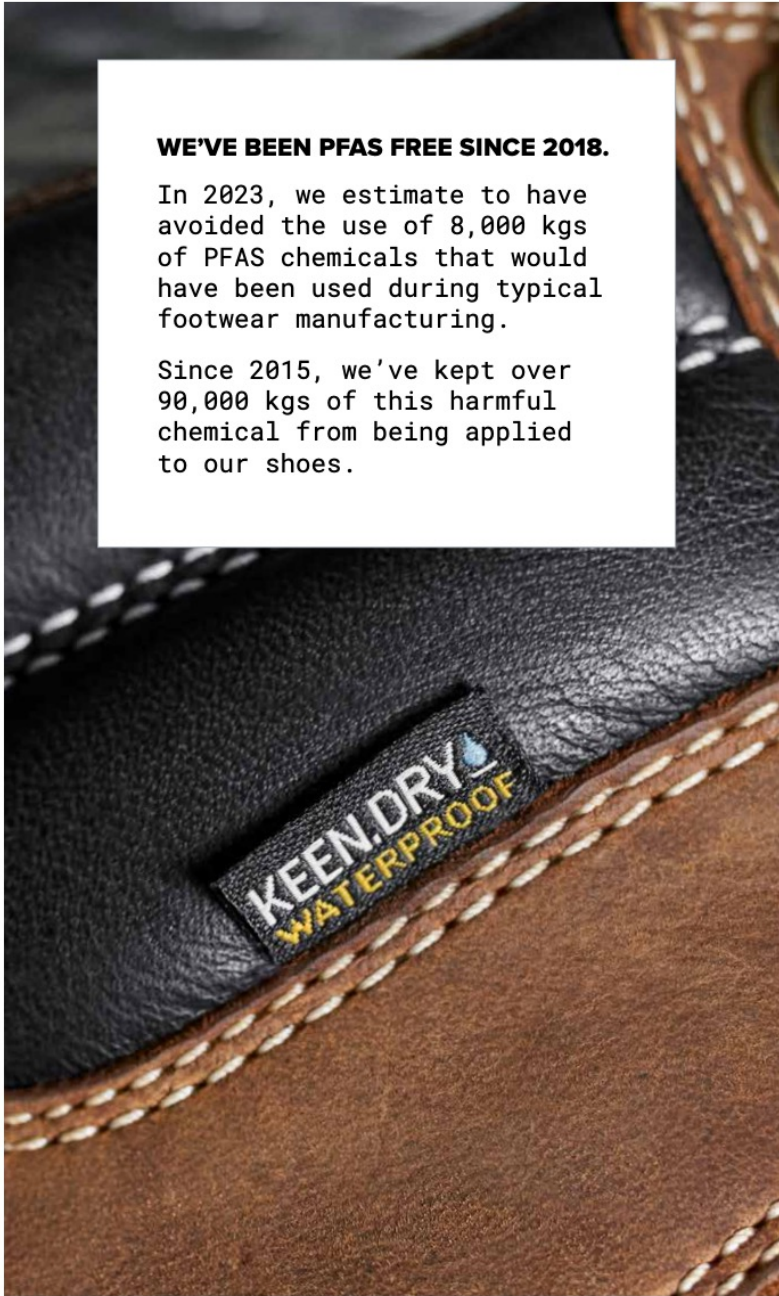
2023 was a landmark year for the PFAS Free Movement. Legislators across the country drafted and passed bills banning products containing PFAS; the EPA published a final rule requiring manufacturers and importers of PFAS and PFAS-containing articles in any year since 2011 to report information to the EPA; retailers implemented requirements for the brands they sell to remove PFAS from products; and brands themselves made commitments to replace and remove these harmful chemicals across product lines. For KEEN, 2023 marked our **6th year of being PFAS Free**. To commemorate our continued progress, we published an update to our PFAS Free Green Paper, our way of transparently sharing how we achieved PFAS Free status in 2018, what the changing landscape means for brands, and more. We've been years ahead of legislation and the industry because back in 2014 we learned of the detrimental impact of PFAS.

WHAT ARE PFAS?

PFAS stands for per- and polyfluoroalkyl substances, a class of more than 5,000 man-made, fluorinated compounds. They are also known as “forever chemicals” because they don’t break down naturally in the environment due to the strong carbon-fluorine bonds. Since the 1950s, PFAS have been used across many consumer goods products for waterproofing and grease resistance.

WHY ARE PFAS SO HARMFUL?

PFAS have been found in most of our natural environment. They’ve made their way into water systems, snowpacks, the animals we eat, and human bloodstreams. They are pervasive and persistent, so once they are in our systems, they stay there and cause harm. Studies have shown that PFAS exposure in humans can cause hormone disruption, increased risk of cancer, infertility issues, and more.



WE'VE BEEN PFAS FREE SINCE 2018.

In 2023, we estimate to have avoided the use of 8,000 kgs of PFAS chemicals that would have been used during typical footwear manufacturing.

Since 2015, we've kept over 90,000 kgs of this harmful chemical from being applied to our shoes.



^ WK400 waterproof walking shoe, featuring PFAS-free durable water repellency (DWR)

Green Paper Series

We believe in the power of radical transparency, collaboration, and open-source innovation to drive change. By openly discussing our process, challenges, and successes, we hope to inspire other companies to join us in our mission to consciously create and contribute to a healthier planet.



THE ROAD TO PFAS FREE

It took us four years to phase out PFAS from our footwear manufacturing process, and we continue to work to keep them out. We learned a lot along the way, and in an effort toward radical transparency, shared our journey through our first Green Paper, “The Road to PFAS Free Footwear,” published in 2020. Version 2.0 was updated to include a forward by Arlene Blum, founder of the Green Science Policy Institute, American mountaineer, author, scientist, and many times a guide for KEEN on our PFAS Free journey. The updated paper also examines how the PFAS landscape has changed in three years, how industry and government policy is responding, and includes updates to our Step-By-Step Guide to PFAS Free.

HOW WE’RE FIGHTING FOOT FUNK WITH ANTIMICROBIAL-FREE INSOLES

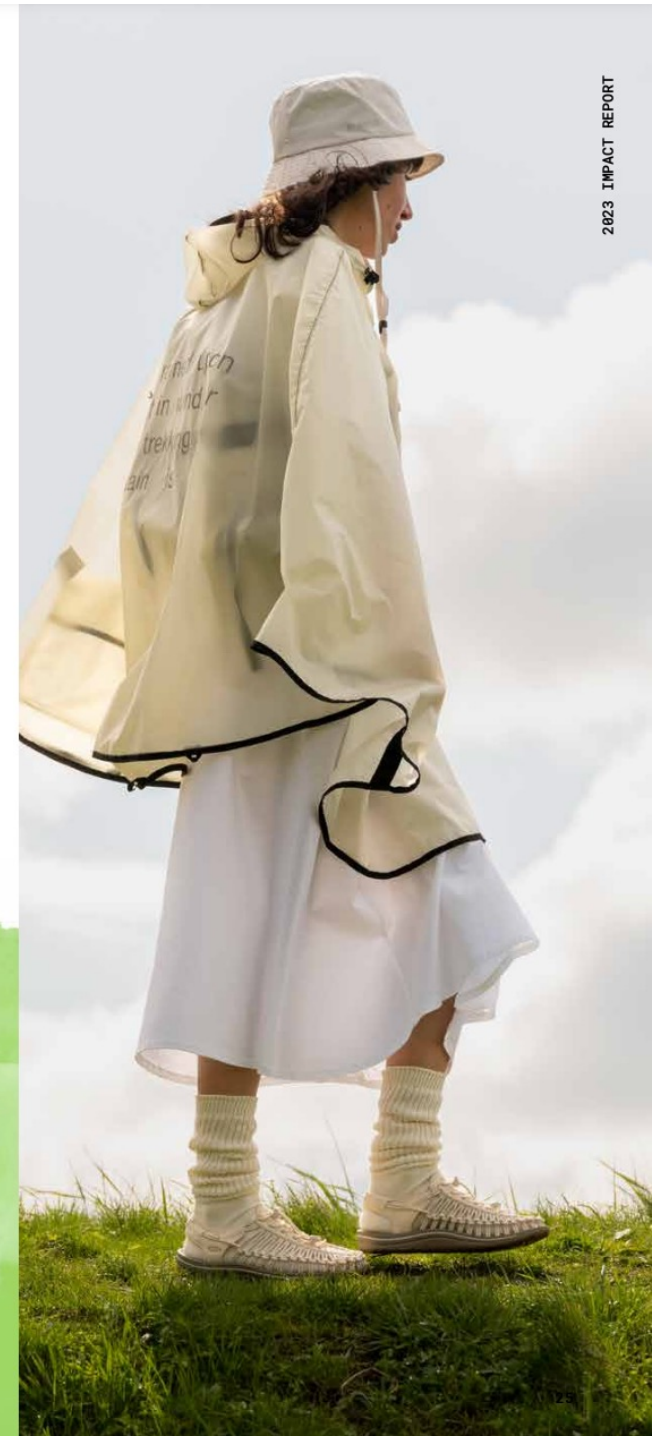
As part of KEEN’s open-source initiative, we published our 2nd Green Paper, “How We’re Fighting Foot Funk with Antimicrobial-Free Insoles.” Like our PFAS Free Green Paper, this was written as an educational tool for other brands working to eliminate antimicrobials from their products. Antimicrobials are frequently used in footwear to manage that “foot funk” smell that comes from wearing shoes, especially while sweating. Although they manage odor, they are also one of the Six Classes of Harmful Chemicals that cause outsized harm for their limited benefits.

In 2023, KEEN avoided the use of 6,000 kgs of antimicrobials thanks to the use of our innovative, probiotic-based alternative. Since launching the program in 2015, we estimate to have avoided 67,000 kgs of these harmful chemicals.

“After four years of research, experimentation, and investment, KEEN succeeded in eliminating PFAS from their entire product line. And then, commendably, they decided to share what they learned so other outdoor brands could stop using these chemicals as quickly and economically as possible.”

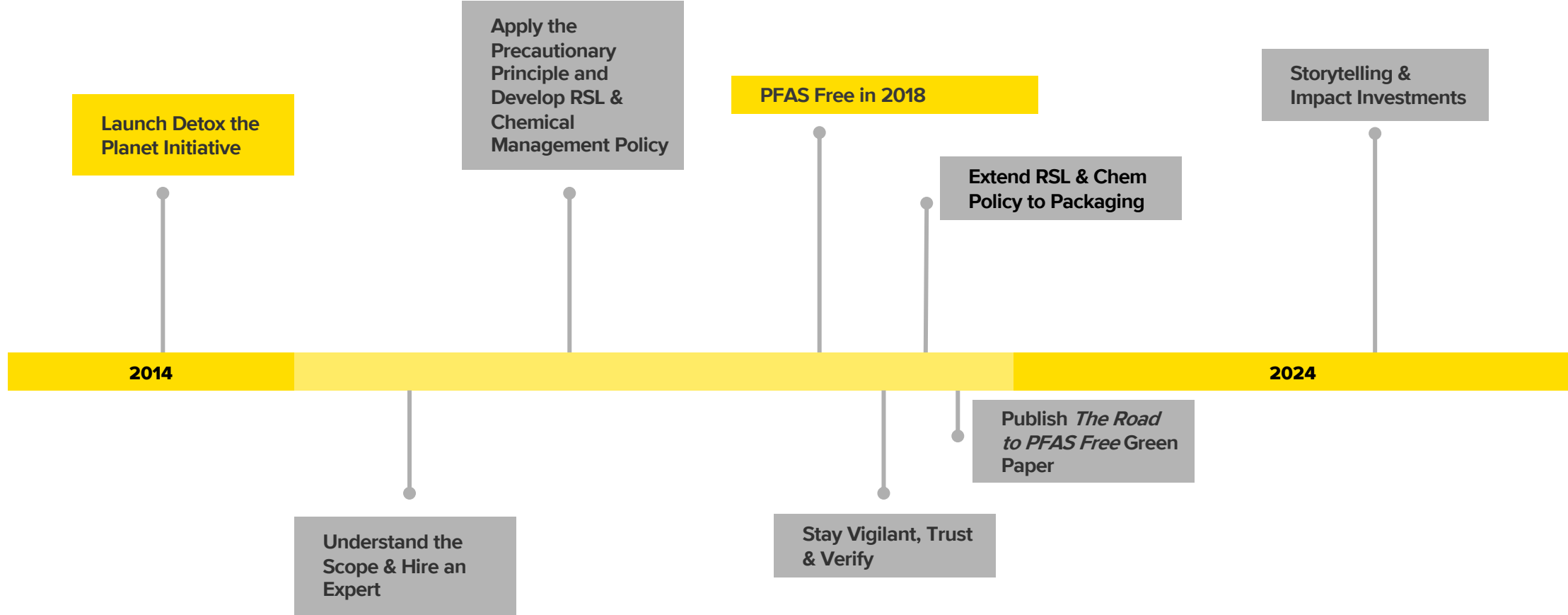
- ARLENE BLUM PHD.

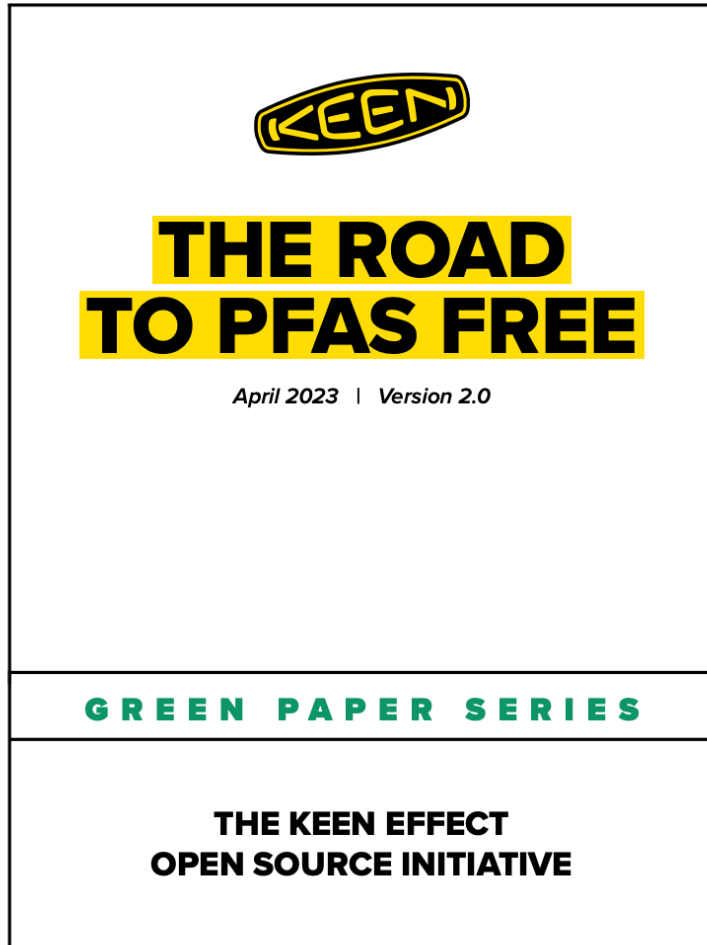
BIOPHYSICAL CHEMIST, AUTHOR, AND MOUNTAINEER
EXECUTIVE DIRECTOR OF THE GREEN SCIENCE POLICY INSTITUTE
AND RESEARCH ASSOCIATE IN BIOLOGY AT UC BERKELEY





KEEN's PFAS Free Journey





1. Apply the Precautionary Principle

KEEN eliminated 65% of PFAS DWR treatments by simply not using it where we didn't need it

2. Create a Strong Chemical Management Policy and RSL

...and update and distribute it annually.

Resources:

- AFIRM RSL Policy
- ZDHC Manufacturing Restricted Substances List

3. Only Buy RSL-Tested Materials and Components & Create a Budget for Testing

Verify through third-party testing labs such as:

- Intertek
- Bureau Veritas
- SGS Testing Services

4. Use Safe / Effective / Affordable PFAS Alternatives

Different materials require different DWR treatments. KEEN's found success with the following PFAS Free Alternatives:

- Bluesign® APPROVED Rudolph Chemie "EcoPlus"
- Bluesign® APPROVED 3M PM-3705

5. Stay Vigilant & Consult with Experts

[illegible]

19

KEEN eliminated 65% of PFAS DWR treatments by simply not using it where we didn't need it

...and update and distribute it annually.

- AFIRM RSL Policy
- ZDHC Manufacturing Restricted Substances List
- KEEN's PFAS standard is higher than AFIRM RSL and combines Greenpeace Detox

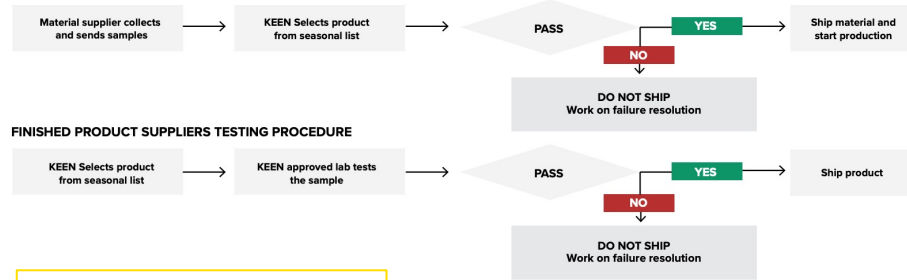
Verify through third-party testing labs such as:

- Different materials require different DWR treatments. KEEN's found success with the following PFAS Free Alternatives:

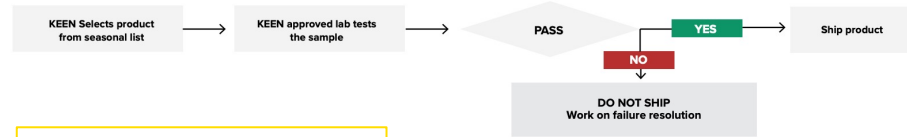
- ## 5. Stay Vigilant & Consult with Experts



MATERIAL SUPPLIERS TESTING PROCEDURE



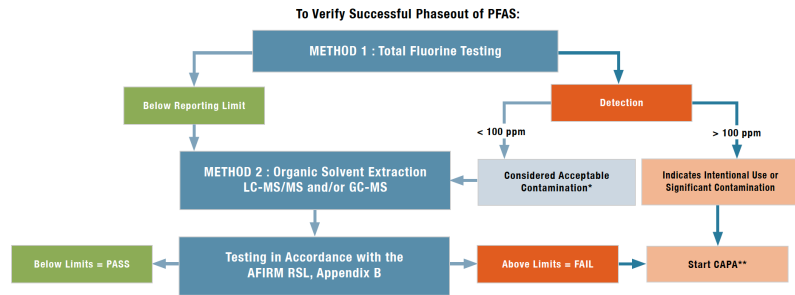
FINISHED PRODUCT SUPPLIERS TESTING PROCEDURE



KEEN Green Paper

Figure 1. Test Methods for PFAS

Test method 1 is conducted to ascertain compliance with legislation setting limits on total organic Fluorine (e.g. California AB 1817). Test method 2 is conducted to ascertain compliance with restrictions on specific PFAS compounds and subclasses in the EU under REACH and the Persistent Organic Pollutants (POPs) Regulation. See Appendix B of the AFIRM RSL for a list of specific analytes for which to test and report results.



* Check with your brand customers for their specific requirements regarding PFAS contamination as determined by Total Fluorine analysis. By 2027, this limit will drop to 50 ppm in accordance with California AB 1817.

** Corrective and Preventative Actions

AFIRM RSL



1. Apply the Precautionary Principle

KEEN eliminated 65% of PFAS DWR treatments by simply not using it where we didn't need it

2. Create a Strong Chemical Management Policy and RSL

...and update and distribute it annually.

Resources:

- AFIRM RSL Policy
- ZDHC Manufacturing Restricted Substances List
- KEEN's PFAS standard is higher than AFIRM RSL and combines Greenpeace Detox

3. Only Buy RSL-Tested Materials and Components & Create a Budget for Testing

Verify through third-party testing labs such as:

- Intertek
- Bureau Veritas
- SGS Testing Services

4. Use Safe / Effective / Affordable PFAS Alternatives

Different materials require different DWR treatments. KEEN's found success with the following PFAS Free Alternatives:

- Bluesign® APPROVED Rudolph Chemie "EcoPlus"
- Bluesign® APPROVED 3M PM-3705

5. Stay Vigilant & Consult with Experts



1. Apply the Precautionary Principle

KEEN eliminated 65% of PFAS DWR treatments by simply not using it where we didn't need it

2. Create a Strong Chemical Management Policy and RSL

...and update and distribute it annually.

Resources:

- AFIRM RSL Policy
- ZDHC Manufacturing Restricted Substances List
- KEEN's PFAS standard is higher than AFIRM RSL and combines Greenpeace Detox

3. Only Buy RSL-Tested Materials and Components & Create a Budget for Testing

Verify through third-party testing labs such as:

- Intertek
- Bureau Veritas
- SGS Testing Services

4. Use Safe / Effective / Affordable PFAS Alternatives

Different materials require different DWR treatments. KEEN's found success with the following PFAS Free Alternatives:

- Bluesign® APPROVED Rudolph Chemie "EcoPlus"
- Bluesign® APPROVED 3M PM3705

5. Stay Vigilant & Consult with Experts



**Thank
you**

