TEXTILE RECYCLERS GROUP

Submission to the Senate Community Affairs References Committee

Inquiry into the Impact of Microplastics and Other Toxics on Human Health

Date: February 23rd, 2026
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T/as Textile Recyclers Group. (TRG)

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1. Introduction

Synthetic textiles—including polyester, nylon, elastane, acrylic and blends—are a major contributor to microplastic pollution in Australia. Microfibres are released during production, use, washing, and especially during disposal and uncontrolled processing such as shredding prior to landfill or export. Microplastics have been found in water, soil, air, food, and emerging evidence suggests possible presence in human tissue. Their potential health impacts, including inflammatory, endocrine and reproductive effects, remain under active scientific investigation.

This submission outlines TRG's practical insights, describes Australian innovations already capable of preventing microplastic leakage, and provides clear recommendations for national action.

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2. Textiles as a Major Source of Microplastic Pollution

Australia generates hundreds of thousands of tonnes of textile waste each year, the majority containing synthetic fibres. With no national system for textile collection and controlled processing, the prevailing pathways being landfill, uncontrolled shredding, export, and stockpiling lead to significant microfibre release.

Uncontrolled shredding is one of the most significant points of microplastic generation. Without filtration, engineering controls, or dedicated infrastructure, microfibres enter air and wastewater streams. Landfilling synthetic textiles results in slow fragmentation and long-term environmental dispersal.

To reduce microplastic generation, Australia must transition from uncontrolled end-of-life handling to controlled reforming technologies capable of preventing fibre release.

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3. Australian R&D Supporting Microplastic Reduction

TRG is committed to progressing Australian-based, commercially viable innovation.
Key research partnerships include:

3.1 UNSW SMaRT Centre – Activated Carbon from Textile Waste

TRG supports research that converts textile waste into Activated Carbon (AC) through thermal reforming. This eliminates mechanical shredding and thus prevents microfibre release at the source. Further, the resulting AC has strong adsorption properties suitable for filtration devices designed to capture microfibres from water systems.

3.2 Deakin IFM – Pigments from Textile Waste

TRG collaborates with Deakin University to convert textiles into stable pigments, providing a high-value output pathway and reducing the need for mechanical destruction.

3.3 TRG VestraForm

VestraForm is a TRG-developed composite panel made from recycled textiles. It demonstrates a scalable Australian manufacturing pathway for reformed textile materials with no uncontrolled fibre release.

These programs demonstrate that Australian innovation can meaningfully reduce microplastic emissions while creating domestic circular economy opportunities. Australia already has the scientific capability to mitigate textile-derived microplastic pollution. What is now required is coordinated support to implement these solutions at scale.

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4. Key Recommendations

4.1 Expand National Research and Monitoring

- Support interdisciplinary studies quantifying microfibre release.
- Invest in health impact research related to microplastic exposure.
- Fund Australian innovation in microplastic mitigation technologies.

4.2 Align Waste, Chemical and Health Policy

- Integrate microplastic reduction into waste and public health frameworks.
- Ensure the Recycling and Waste Reduction Act reflects microplastic risk pathways.

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4.3 Invest in Domestic Infrastructure

- Support commercialisation of technologies such as textile-derived AC and VestraForm.
- Develop regional textile recovery hubs with controlled processing and capture systems.
- Expand funding for pilot and demonstration-scale facilities.

4.4 Establish National Standards for Microplastic Reporting

- Standardise methodology for microplastic measurement and disclosure.
- Support labelling frameworks to help industry and consumers identify low-shedding products.
- Encourage transparent reporting of microplastic emissions across supply chains.

Executive Summary

Textile Recyclers Group (TRG) welcomes the opportunity to contribute to this inquiry examining the human health impacts of microplastics and related contaminants. Synthetic textiles are one of Australia's largest and most preventable sources of microplastic emissions. Microfibres shed throughout a garment's life cycle and especially during uncontrolled end-of-life processes, contributing significantly to environmental and potential human health risks.

TRG is actively investing in Australian R&D, supporting innovations through UNSW SMaRT Centre, Deakin University IFM, and in-house technologies such as VestraForm. Australian scientists now possess proven, practical methods to prevent textile-derived microplastics entering the environment, including the conversion of textiles into Activated Carbon (AC), which both prevents microfibre shedding and enables downstream microfibre capture in filtration systems.

Australia has the knowledge required. What is now needed is coordinated national support to scale these innovations.

TRG recommends expanding microplastic research and monitoring, aligning waste and health policy, supporting domestic textile reform infrastructure, and establishing national reporting standards.

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5. Conclusion

Textiles are one of Australia's most significant and preventable contributors to microplastic pollution. Without decisive national action, environmental and human exposures will increase. TRG's work with UNSW, Deakin and in-house technologies demonstrates that Australian innovation already provides credible solutions. What is required now is coordinated government support to scale, deploy and integrate these technologies into national waste policy settings.

TRG stands ready to assist the Commonwealth by contributing technical expertise, participating in working groups, and supporting the development of effective microplastic mitigation strategies.

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