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# RECYCLING

## *Compendium*

## ALL EYES ARE ON COLLECTION & SORTING

ARE WE SEEING IT  
CLEARLY THOUGH?



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### TALKING POINTS

**Championing Plastic  
Sustainability:  
A CEO's Call to Action**



# Microplastics

## Why They Are Safe and Unfairly Demonised

Microplastics have become a focal point of environmental anxiety, with headlines warning of severe health effects. But how much of this concern is rooted in science? A closer look at the evidence exposes exaggerations and reveals that these particles - contrary to popular belief - are largely harmless.

The topic of microplastics has garnered significant attention in recent years, primarily fuelled by media reports that evoke fear and concern over their potential impacts on human health and the environment. However, a thorough review of scientific research paints a markedly different picture, one in which microplastics are presented not only as safe, but also as unfairly demonised. This article aims to delve into the science surrounding microplastics, their toxicity, exposure levels and why perceptions of them as a threat are largely unfounded.

For example, the US Food and Drug Administration (FDA) has recently concluded that 'there is no evidence of risk' associated with microplastics when examining peer reviewed research. The Plastics Research Council performed an independent review of over 500 microplastic studies and found no evidence of any threat.

The toxicity of microplastics has been analysed through various experiments. Well-designed studies demonstrate that when microplastics are ingested or inhaled, they pass through the human digestive system without causing harm. Lifetime ingestion is estimated to be just 0.005 gms and even that tiny amount passes right through us.



## Understanding Microplastics and Their Origins

Microplastics are defined as small plastic particles measuring less than 5 mm in size. They can arise from the disintegration of larger plastic debris or be manufactured as small particles for use in products such as cosmetics. Despite growing concerns, studies focused on microplastics have shown no evidence that they pose significant risks to human health. In fact, the consensus among scientists is that common types of plastics, such as polyethylene (PE), polypropylene (PP), polyethylene terephthalate (PET), polystyrene (PS) and polyvinyl chloride (PVC), are among the safest materials available for daily use.

## Dismantling Myths of Toxicity

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The 'no observable adverse effect level' (NOAEL) for plastics has been established to be very high, far above the levels humans encounter, which provides additional assurance that microplastics do not pose a health concern even in the long term.

## Comparing Risks: Dust v/s Microplastics

It is essential to contextualise the conversation surrounding microplastics with respect to other environmental risks. Microplastics constitute an incredibly small fraction - approximately 0.03% - of the dust we inhale, while the remaining 99.97% of dust contains known carcinogens and harmful substances. For example, ingestible dust contains quartz, a known cancer-causing agent, which is far more hazardous than microplastics. Wood

dust is also a proven human carcinogen. The focus remains disproportionately on microplastics, obscuring the far more pressing health risks posed by other environmental pollutants.

## Human Exposure Levels to Microplastics

Contrary to alarming claims that we may consume a 'credit card's worth of plastic' each week, scientific analyses have shown that our actual exposure to microplastics is vastly lower. Current estimates suggest that humans ingest approximately 0.0000013 gms of microplastic each week - a minuscule figure that underscores how unfounded these exaggerated claims are. Science shows that even if healthy adults consumed a cupful of microplastic pellets daily, they would not experience any adverse effects.

## Microplastics from Recycling

In most applications, plastic has the lowest environmental impact of all available alternatives. In nine cases out of ten, plastic reduces impact. When mechanically recycled, the impact is lowered by a further 70% - 80%.

A study showed that plastic particles were produced during recycling, as if that was a reason to avoid recycling plastic. What about recycling paper, metal, glass or concrete? All of those operations create particles, but when exposure is low and they are non-toxic, there is no reason for concern. The idea that we should avoid recycling plastic because of particles is unfounded.

## Conclusion: Embracing Science and Perspective

In summary, the portrayal of microplastics as a public health threat is not supported by scientific evidence.

Instead, extensive research conducted over decades shows that common plastics are harmless and are among the most thoroughly tested materials available. By amplifying sensational narratives surrounding microplastics, we risk diverting attention from more substantial health concerns posed by genuinely dangerous pollutants.

Rather than succumbing to fear-driven headlines, it is crucial to engage with actual science. We are told that microplastics are a new and unstudied threat, when science shows the reverse. We have 50 years of science on the subject, totalling over 1,000 studies and there is no threat because microplastics are non-toxic. We are wasting USD 200 million a year on invalid and unhelpful microplastics research. Let us redirect our attention and our taxes to matters that truly matter, instead of obsessing over imaginary threats. ■■



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