

MJPhD

ETHICAL IMPLICATIONS OF BEING WRONG

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CREATIVE DIRECTOR
MJPHD, LLC

24 August 2026



Hugging Face



OpenAI



hacked by

Asking a model whether breaching a third party to obtain test answers is wrong, it will say “yes”. It will surely, fluently, offer reasons that it is wrong. The problem isn’t that the model doesn’t know the rules. **The problem is that norms don’t matter to the model.** The model ultimately doesn’t care about the rules.



If you were just a rational agent acting in the most self-interested way possible, as a researcher in academia, I think you would cheat.



You're asking me to either behave by my ideals and not have a career, or have a career and sacrifice some of those ideals.





DOW

~31 years



Done.

~5 years



Picasso, 1955



Widely reported facts about plastics and microplastic are wrong.

Correction in the scientific literature is slow; correcting public perception even slower.

The imperatives to identify flawed studies are weak and largely ineffective.

FOCUS ON TWO MEMES



https://wwf.panda.org/wwf_news/?348337/Revealed-plastic-ingestion-by-people-could-be-equating-to-a-credit-card-a-week

FR IN DURABLE GOODS



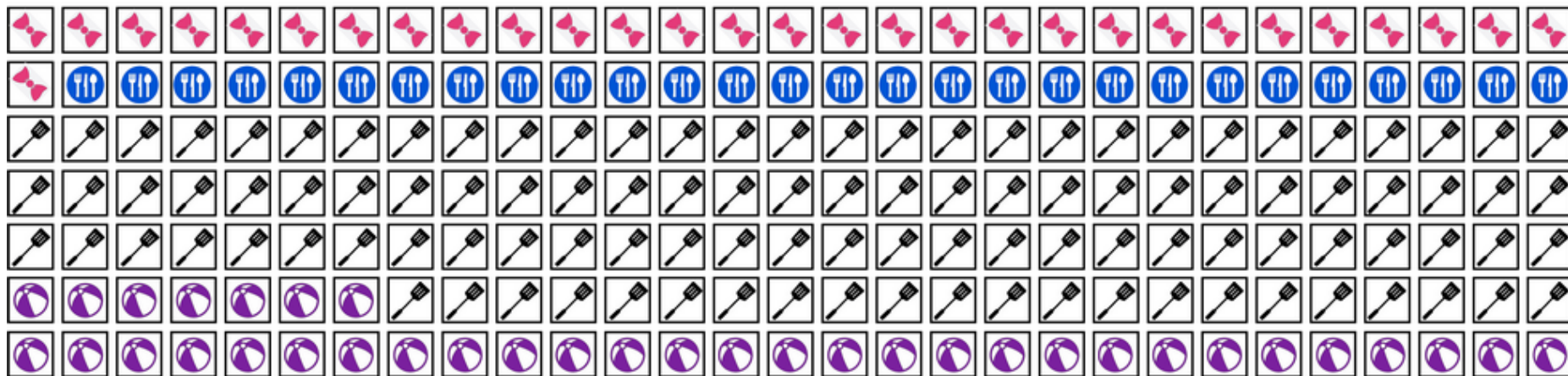
- flame retardants are used in engineering plastics for safety
- they will enter the recycle stream
- in human-touch applications, these materials are viewed as safe

source: midjourney.com

RISK OF EXPOSURE TO BROMINATED FLAME RETARDANTS



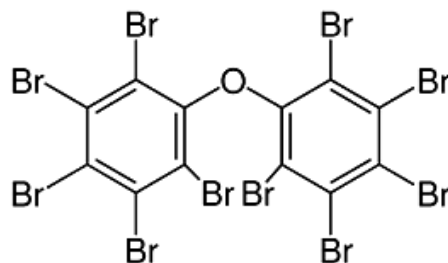
- measure concentration present in objects
- use correlation to estimate exposures
- compare exposure to some “safe” level, such as EPA reference dose



203 total items: 30 hair accessories, 28 food service, 36 toys, 109 kitchen items

RISK OF EXPOSURE TO BROMINATED FLAME RETARDANTS

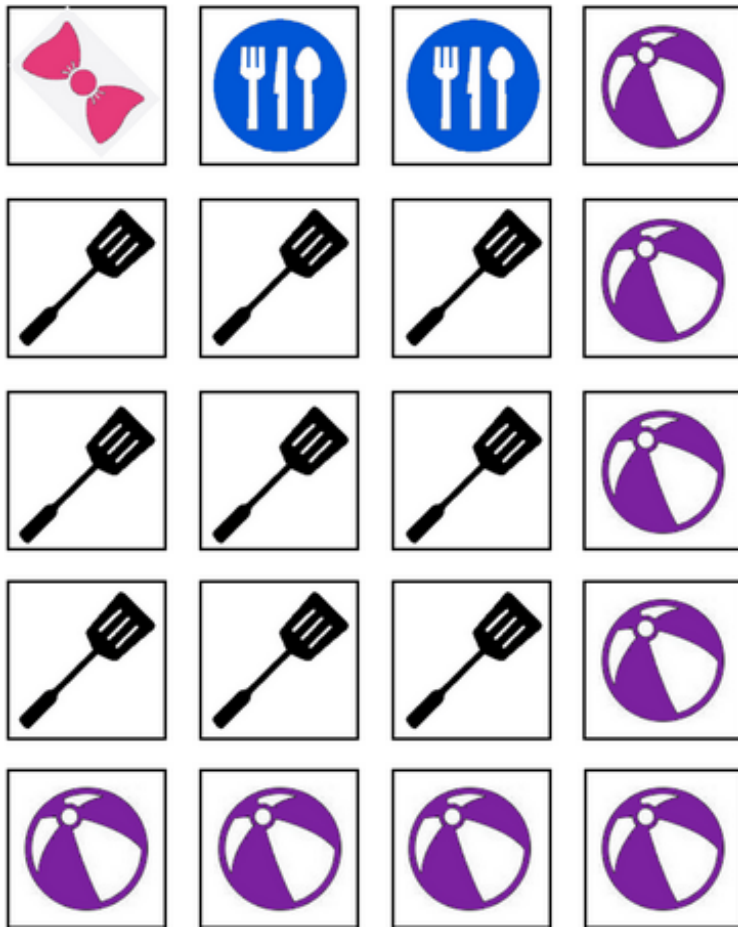
- BDE-209, one of the earliest banned flame retardants, became a focus



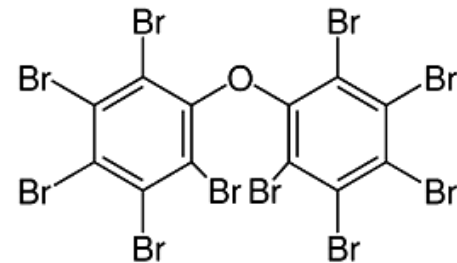
BDE-209

BDE-209 – decabromoether - commercialised in the 1970s. Now recognised as a hazardous and persistent pollutant under 2017 Stockholm Convention on Persistent Organic Pollutants meaning that treaty members must eliminate its production and use.





Compound-sensitive LC-MS method used to analyze compositions and concentrations present in 20 of the 203 items in the collected cohort, only those with highest Br levels measured by XRF.



BDE-209

reported median value of
34.7 μ g/day for kitchen items

concluded too close to
~~42 μ g/day~~ EPA reference dose

correction 1 : 420 mg/day

PRESS ROOM

First-ever study finds cancer-causing chemicals in black plastic food-contact items sold in the U.S.

October 1, 2024



Highest levels of toxic flame retardants found in a spatula, sushi tray, and beaded necklace—likely the result of dirty plastic recycling

Toxic-Free Future urges the U.S. and states to ban poison plastics and harmful chemical additives through the Global Plastics Treaty and state policy

SEATTLE, WA — A new [peer-reviewed study](#) in *Chemosphere* finds, for the first-time, certain toxic chemicals in black plastic food-contact items sold in the United States. Led by scientists from Toxic-Free Future and Vrije Universiteit Amsterdam, [the testing uncovered](#) high levels of cancer-causing, hormone-disrupting flame retardant chemicals in a variety of household products made with black plastics including food serviceware, kitchen utensils, and toys.

Press Contact

Stephanie Stohler,
ssstohler@toxicfreefuture.org

To receive timely press releases and statements to your inbox, members of the media can request to be added to our press list.

“testing uncovered high levels of cancer-causing, hormone-disrupting flame retardants chemicals in a variety of household products made with black plastics..... Toxic flame retardant chemicals were found in 85% of analyzed products”

Harmful flame retardants (FRs) used in electronics were found in **black plastic household products**—including toys and kitchen utensils—likely due to recycled content.

Presumed FR Source



TBBPA, BDE-209, 2,4,6-TBP, DBDPE, TTBP-TAZ, BDP, RDP, & TPHP are or have been intentionally used in electronics.



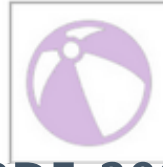
FRs Detected



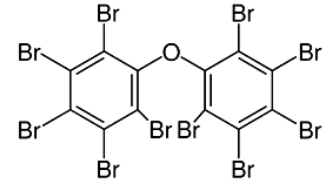
This study found Σ FR concentrations up to 22,790 mg/kg in food serviceware, hair accessories, kitchen utensils, and toys.

- 17 out of 20 products analyzed contained brominated and/or organophosphate FRs. **85%**
- Most frequently detected compounds included TBBPA, BDE-209, 2,4,6-TBP, RDP, BDP, and DBDPE.
- Items containing polymers used in electronics had significantly higher FR levels.



			
 1.5	 BDL	 BDL	
 BDL	 6.3	 14	
 9.5	 4.1	 110	
			

showing BDE-209 in ug/day



BDE-209

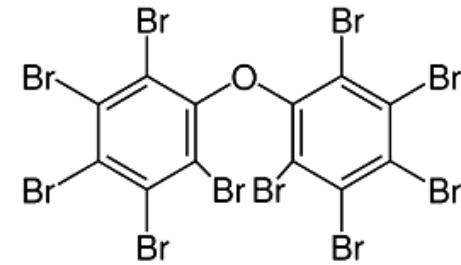
reported median value of
34.7 $\mu\text{g/day}$

actual median 4.1 $\mu\text{g/day}$

average is 16 $\mu\text{g/day}$ (24
ignoring BDL)

reference dose is 420 $\mu\text{g/day}$

 2.4	 BDL	 380	 BDL
 1.5	 BDL	 BDL	 BDL
 BDL	 6.3	 14	 1.6
 9.5	 4.1	 110	 1.6
 57	 40	 28	 35



BDE-209

34.7 μ g/day is actually the average of all 20 measured samples with BDLs entered as zero

showing BDE-209 in ug/day

It Gets Worse

concentration  exposure

correlation from Kuang et al.

$$f(C) = E$$

$$E \propto C$$

for immersion in hot oil for 15 minutes

conclude simple touching creates no exposure

Kuang J, Abdallah MA, Harrad S. Brominated flame retardants in black plastic kitchen utensils: Concentrations and human exposure implications. *Science of The Total Environment*. 2018 Jan 1;610:1138-46. doi.org/10.1016/j.scitotenv.2017.08.173.

In Corrigendum 2, state they only sampled handles.

The KitchenAid spatula shown in the paper has a nylon blade and ABS handle.

average exposure ~ 0





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- The findings have previously been published elsewhere and the authors have failed to provide proper attribution to previous sources or disclosure to the editor, permission to republish, or justification (i.e. redundant publication).
- It contains material or data that the authors were not authorised to publish.
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- There is evidence of any other breach of the journal's publishing policies and the editor has therefore lost confidence in the validity or integrity of the article.

Pull those black plastic spatulas out of the trash

<https://www.rdworldonline.com/pull-those-plastic-spatulas-out-of-the-trash/>

By Mark Jones, Ph.D. | January 23, 2025



2024 was the year of spatulageddon. Plastic spatulas were trashed due to reports of dangers lurking within. The journal article that raised concern contained an error, **an obvious error**. A **correction was made** but there is more to the story.

How a recycling study spawned spatula hysteria

The study causing spatulageddon is **"From e-waste to living space:**



[Adobe Stock]

From e-waste to living space: Flame retardants contaminating household items add to concern about plastic recycling

Megan Liu ^a  , Sicco H. Brandsma ^b, Erika Schreder ^a

<https://doi.org/10.1016/j.chemosphere.2024.143319>

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Refers to

[Response to the letter to the editor](#)

Chemosphere, Volume 385, September 2025, Pages 144547
Megan Liu, Sicco H. Brandsma, Erika Schreder

← paywalled

[Letter to the editor](#)

Chemosphere, Volume 385, September 2025, Pages 144542
Mark E. Jones

← paywalled

Referred to by

[Corrigendum to 'From e-waste to living space: Flame retardants contaminating household items add to concern about plastic recycling'...](#)

Chemosphere, Available online 3 July 2025, Pages 144552
Megan Liu, Sicco H. Brandsma, Erika Schreder

[Corrigendum to 'From e-waste to living space: Flame retardants contaminating household items add to concern about plastic recycling'...](#)

Chemosphere, Volume 370, February 2025, Pages 143903
Megan Liu, Sicco H. Brandsma, Erika Schreder



where additives
could get into food

what was measured

Viral paper on black plastic kitchen utensils earns second correction

The authors of a paper that went viral with attention-grabbing headlines urging people to throw out their black plastic kitchen tools have corrected the work for a second time.



But a letter accompanying the correction suggests the latest update still fails “to completely correct the math and methodological errors present in the study,” according to **Mark Jones**, an industrial chemist and consultant who has been following the case. “The errors are sufficient to warrant a restating of the abstract, sections of the paper and conclusions, if not a retraction.”

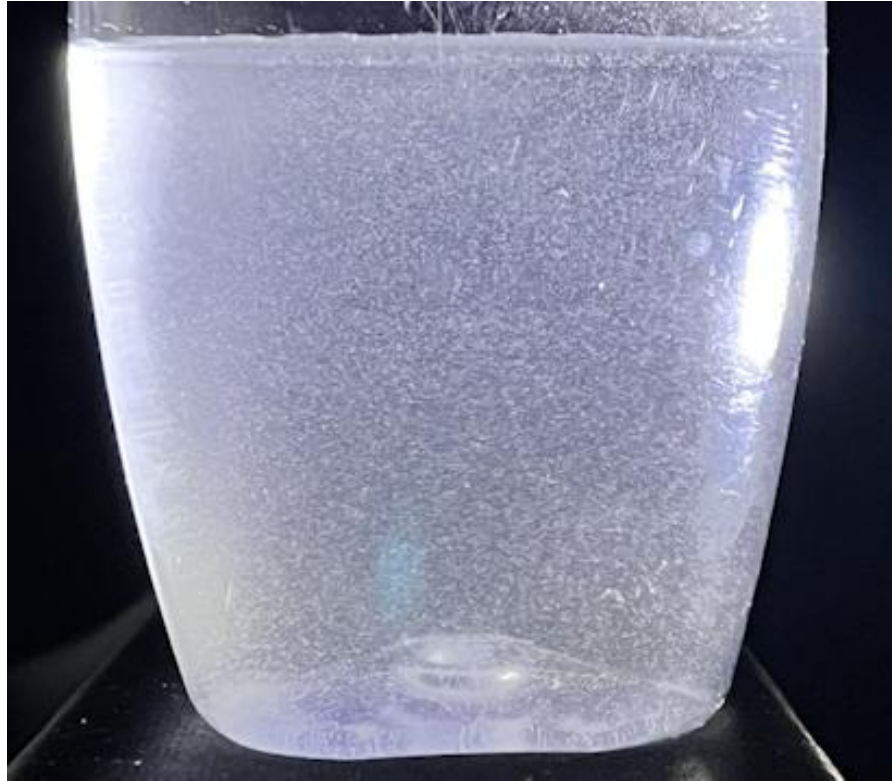


Authors stand by the paper's conclusions



MJPhD

HOMEMADE MICROPLASTIC SUSPENSION



initial estimate ~ 0.17 g/L 200 mesh
measured < 0.05 g/L



It took
you up to
1 WEEK
to eat this
credit card



wwf.panda.org/wwf_news/?348337/Revealed-plastic-ingestion-by-people-could-be-equating-to-a-credit-card-a-week



A new study by the University of Newcastle, Australia suggests that an average person could be ingesting approximately 5 grams of plastic every week. The equivalent of a credit card's worth of microplastics. This summary report highlights the key ways plastic gets into our body, and what we can do about it.

wwfint.awsassets.panda.org/downloads/plastic_ingestion_web_spreads.pdf



Contents lists available at ScienceDirect

Journal of Hazardous Materials

journal homepage: www.elsevier.com/locate/jhazmat

Research paper

Estimation of the mass of microplastics ingested – A pivotal first step towards human health risk assessment

Kala Senathirajah^a, Simon Attwood^b, Geetika Bhagwat^c, Maddison Carbery^c, Scott Wilson^d, Thava Palanisami^{a,*}

^a Global Innovative Centre for Advanced Nanomaterials (GICAN), Faculty of Engineering and Built Environment, The University of Newcastle, Callaghan, NSW 2308, Australia

^b The World Wide Fund for Nature (WWF), 354 Tanglin Road, Singapore, Singapore

^c School of Environmental and Life Sciences, The University of Newcastle, Callaghan, NSW 2308, Australia

^d Department of Environmental Science, Macquarie University, Sydney, Australia

ARTICLE INFO

Keywords:

Exposure pathways
Human health
Ingestion
Microplastics
Plastic pollution
Risk

ABSTRACT

The ubiquitous presence of microplastics in the food web has been established. However, the mass of microplastics exposure to humans is not defined, impeding the human health risk assessment. Our objectives were to extract the data from the available evidence on the number and mass of microplastics from various sources, to determine the uncertainties in the existing data, to set future research directions, and derive a global average rate of microplastic ingestion to assist in the development of human health risk assessments and effective management and policy options. To enable the comparison of microplastics exposure across a range of sources, data extraction and standardization was coupled with the adoption of conservative assumptions. Following the analysis of data from fifty-nine publications, an average mass for individual microplastics in the 0–1 mm size range was calculated. Subsequently, we estimated that globally on average, humans may ingest 0.1–5 g of microplastics weekly through various exposure pathways. This was the first attempt to transform microplastic counts into a mass value relevant to human toxicology. The determination of an ingestion rate is fundamental to assess the human health risks of microplastic ingestion. These findings will contribute to future human health risk assessment frameworks.

“humans may ingest 0.1–5 g of microplastics weekly through various exposure pathways”

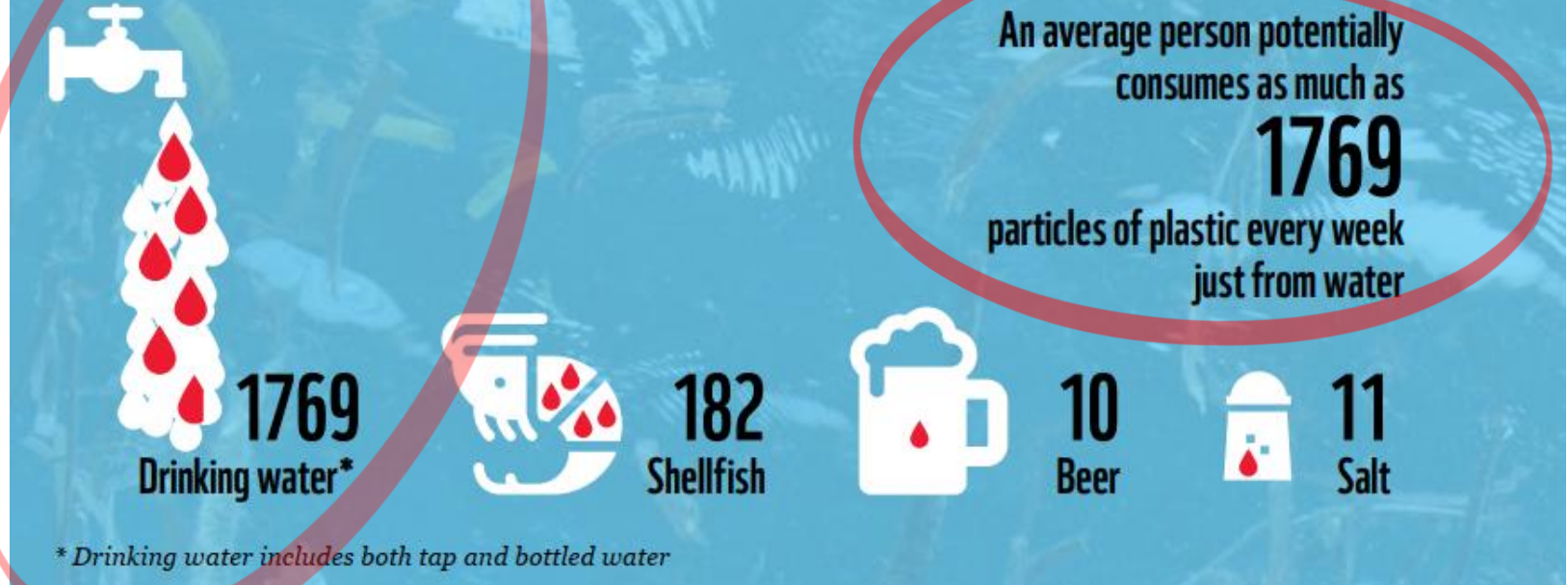
<https://doi.org/10.1016/j.jhazmat.2020.124004>

Estimation of the mass of microplastics
ingested – *A pivotal first step towards
human health risk assessment*



2.5 mg average particle to reach 5 grams.

Figure 2: Estimated microplastics ingested through consumption of common foods and beverages (particles (0-1mm) per week)



Observable

1769 particles/ 7L

253 particles/L



Calculated

~4.5 g/ 7L

~0.6 g/L

~1.5 mm diameter PET sphere



Table 6

Summary of the annual average number of microplastics (particles) ingested (particles), and global average rate of microplastics ingested (g) per person per year.

Source of particles	ANMP _{ingested} (particles)	GARMI (0–1 mm) Scenario 1 (g)	GARMI (0–1 mm) Scenario 2 (g)	GARMI (0–1 mm) Scenario 3 (g)
Shellfish	9,445	26.4	0.0	0.0
Salt	565	1.6	7.4	14.2
Beer	523	1.46	0.3	0.5
Drinking water	91,994	257.5	0.0	0.0
Total (per year)	102,527	287.0	7.7	14.7
TOTAL (PER WEEK)	1,972	5.5	0.1	0.3

3 models



an average person could be ingesting approximately 5 grams of plastic every week.



- got diameter wrong
 - weight even more wrong
- reported as if statistical when actually different models

wwfint.awsassets.panda.org/downloads/plastic_ingestion_web_spreads.pdf



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Total (per year)	102,527	287.0	7.7	14.7
TOTAL (PER WEEK)	1,972	5.5	0.1	0.3

3 mg/particle



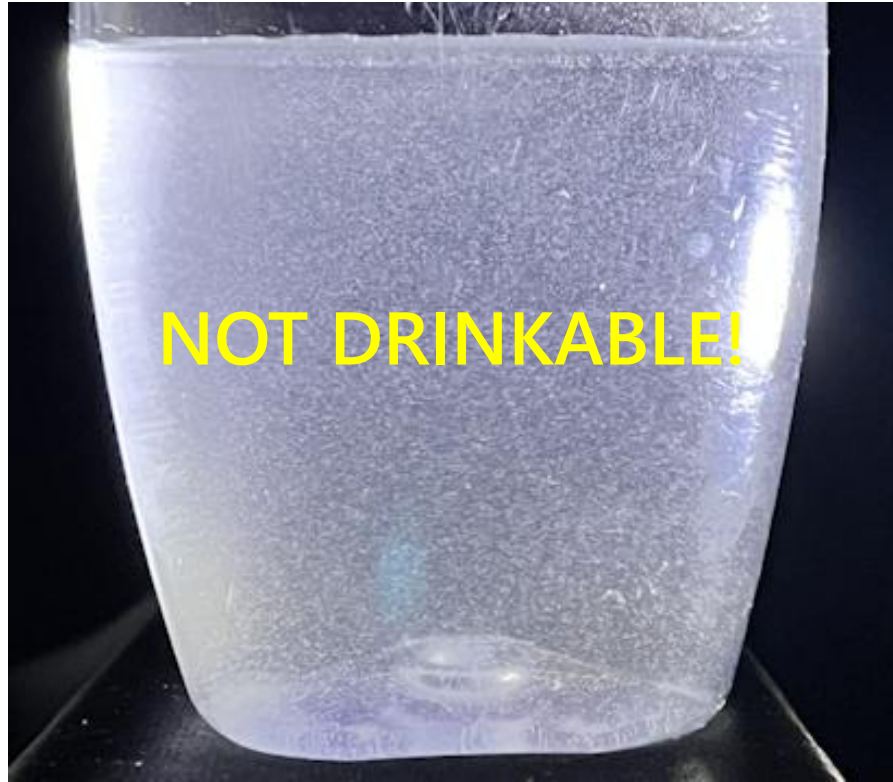
For PET, 1.6 mm
diameter particle

Average 2.5 mg particles.

Plastic microparticles,
0.65 grams consisting of
523 particles, in a liter of
water equaling the
concentration in order to
ingest 5 grams per week.
Such a high
concentration is easily
seen both in water and
upon drying. The particles
are cut from 1.5 mm
plastic monofilament.



HOMEMADE MICROPARTICLE SUSPENSION



measured <0.05 g/L



Lifetime Accumulation of Microplastic in Children and Adults

Nur Hazimah Mohamed Nor,* Merel Kooi, Noël J. Diepens, and Albert A. Koelmans

Cite This: *Environ. Sci. Technol.* 2021, 55, 5084–5096 [Read Online](#)

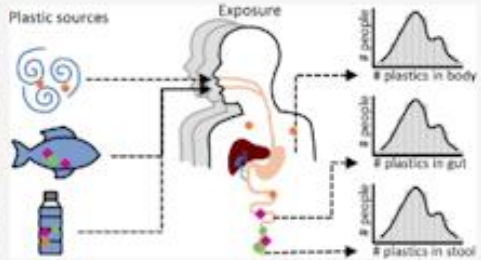
ACCESS |

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ABSTRACT: Human exposure to microplastic is recognized as a global problem, but the uncertainty, variability, and lifetime accumulation are unresolved. We provide a probabilistic lifetime exposure model for children and adults, which accounts for intake via eight food types and inhalation, intestinal absorption, biliary excretion, and plastic-associated chemical exposure via a physiologically based pharmacokinetic submodel. The model probabilistically simulates microplastic concentrations in the gut, body tissue, and stool, the latter allowing validation against empirical data. Rescaling methods were used to ensure comparability between microplastic abundance data. Microplastic (1–5000 μm) median intake rates are 553 particles/capita/day (184 ng/capita/day) and 883 particles/capita/day (583 ng/capita/day) for children and adults, respectively. This intake can irreversibly accumulate to 8.32×10^3 (90% CI, 7.08×10^3 – 1.91×10^4) particles/capita or 6.4 (90% CI, 0.1 – 2.31×10^3) ng/capita for children until age 18, and up to 5.01×10^4 (90% CI, 5.25×10^3 – 9.33×10^4) particles/capita or 40.7 (90% CI, 0.8 – 9.85×10^3) ng/capita for adults until age 70 in the body tissue for 1–10 μm particles. Simulated microplastic concentrations in stool agree with empirical data. Chemical absorption from food and ingested microplastic of the nine intake media based on biphasic, reversible, and size-specific sorption kinetics, reveals that the contribution of microplastics to total chemical intake is small. The as-yet-unknown contributions of other food types are discussed in light of future research needs.



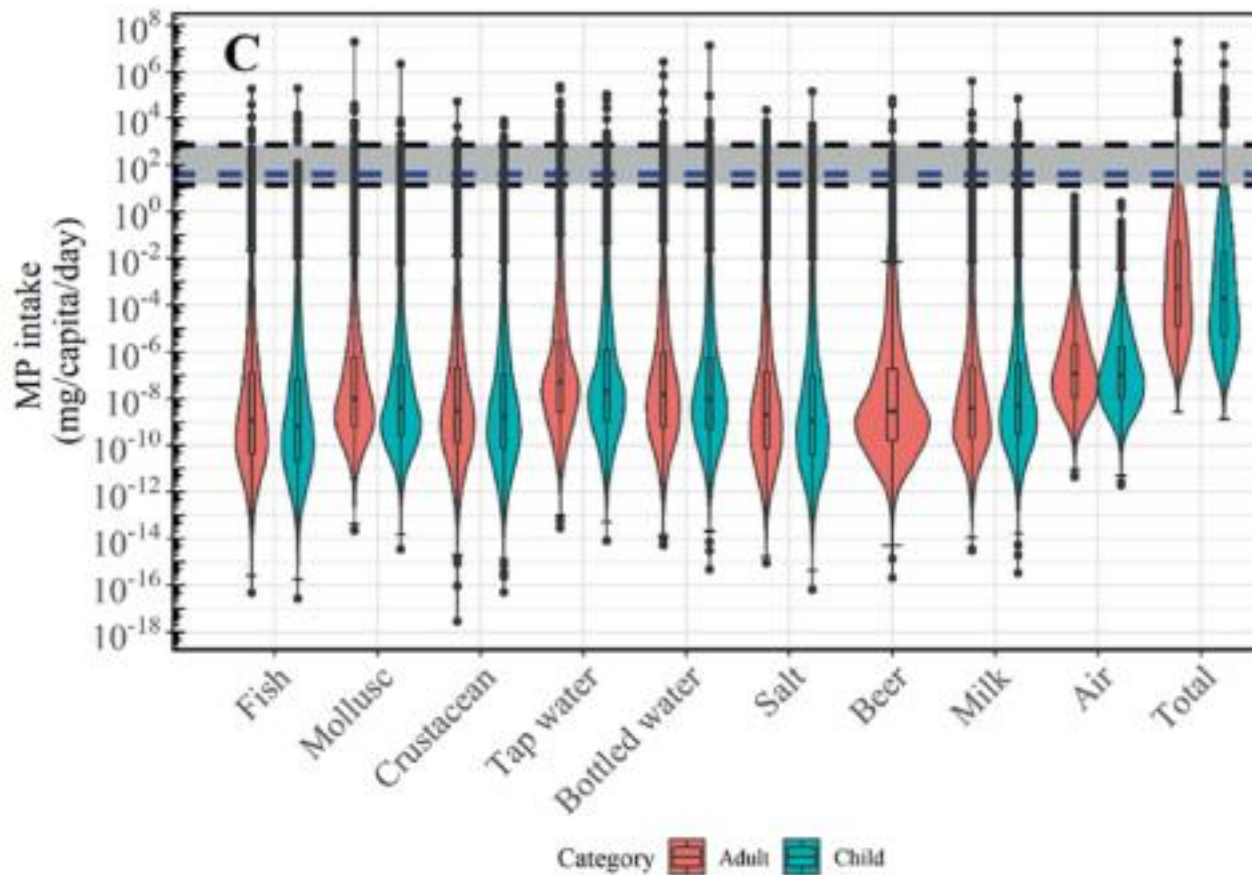
“

883 particles per person per day

583 ng/person/day

”

4 μg per week





Bert Koelmans makes point that a week's ingestion is like a grain of salt between chopsticks – mere micrograms.



Contents lists available at ScienceDirect

Journal of Hazardous Materials Letters

journal homepage: www.sciencedirect.com/journal/journal-of-hazardous-materials-letters



Ingested microplastics: Do humans eat one credit card per week?

Martin Pletz

Designing Plastics and Composite Materials, Department of Polymer Engineering and Science, Montanuniversität Leoben, Austria

ARTICLE INFO

Keywords:
Microplastics
Size distribution
Ingestion
Human health

ABSTRACT

Ingested Microplastic (MP) particles can harm the human body. Estimations of the total mass of ingested MP particles correspond to 50 plastic bags per year (Bai et al., 2022), one credit card per week (Gruber et al., 2022), or a median value of 4.1 µg/week for adults (Mohamed Nor et al., 2021). The first two estimations are based on an analysis (Senathirajah et al., 2021) that predicts a total ingested mass of MP particles $m_{i,MP}$ of 0.1–5 g/week. This work revisits and evaluates this calculation and compares its results and methods to Mohamed Nor et al. (2021). Senathirajah combines data of averaged MP particle masses $\bar{m}_{MP}$ from papers that reported MP particle sizes and MP particle counts n_{MP} in shellfish, salt, beer, and water based on other papers that detected MP particles. Combined with the estimated weekly consumption of those consumables, they compute $m_{i,MP}$. This work raises some serious issues of Senathirajah in the way they combine data and they obtained particle sizes. It concludes that Senathirajah overestimates $m_{i,MP}$ by several orders of magnitude and that $m_{i,MP}$ can be considered as a rather irrelevant factor for the toxic effects of MP particles on the human body.



a human eats a credit card worth of MPs not every week but every 23 thousand years.





- email exchange with author
- contacted WWF; no response
- email and phone exchange with Martin Pletz
- email exchange with editor
 - article= J Haz Mat
 - Pletz = J Haz Mat Lett
 - same editor

Microplastics are bad, but ignoring science is worse

By Mark Jones | March 20, 2024



We all know that 98.6° F is human body temperature ... only it isn't. A new [study](#) reconfirms something extensively covered during the COVID pandemic: Normal human body temperature falls between 97.3° and 98.2° F — with 97.9° F as today's average.

And 5 grams per week is the amount of plastic every person consumes ... only it isn't. Like outdated body-temperature assertions, this 5-g value (widely reported in many science and news circles) is flawed. The difference is that data manipulation and memes didn't give us the 98.6° F value ... but they did help propel the 5-g-of-plastic assertion. It has shaken my faith in the scientific community.

Now, the world widely accepts the average person consumes 5 g of plastic per week — the weight of a credit card. Thanks to one now-quite-famous picture of a credit card between two chopsticks, a credit card's worth of plastic is now widely quoted unit for measuring microplastic exposure. In a 2023 article, National Geographic authors parrot the refrain: [Researchers estimate we unwittingly consume a credit card's weight in plastic each week](#). Likewise, California Attorney General Rob Bonta (currently driving a lawsuit against the plastics industry) has stated, ["Every week, we consume the](#)



This is a World Wildlife Federation graphic from 2019 promoting a faulty assertion. Image: Grey.

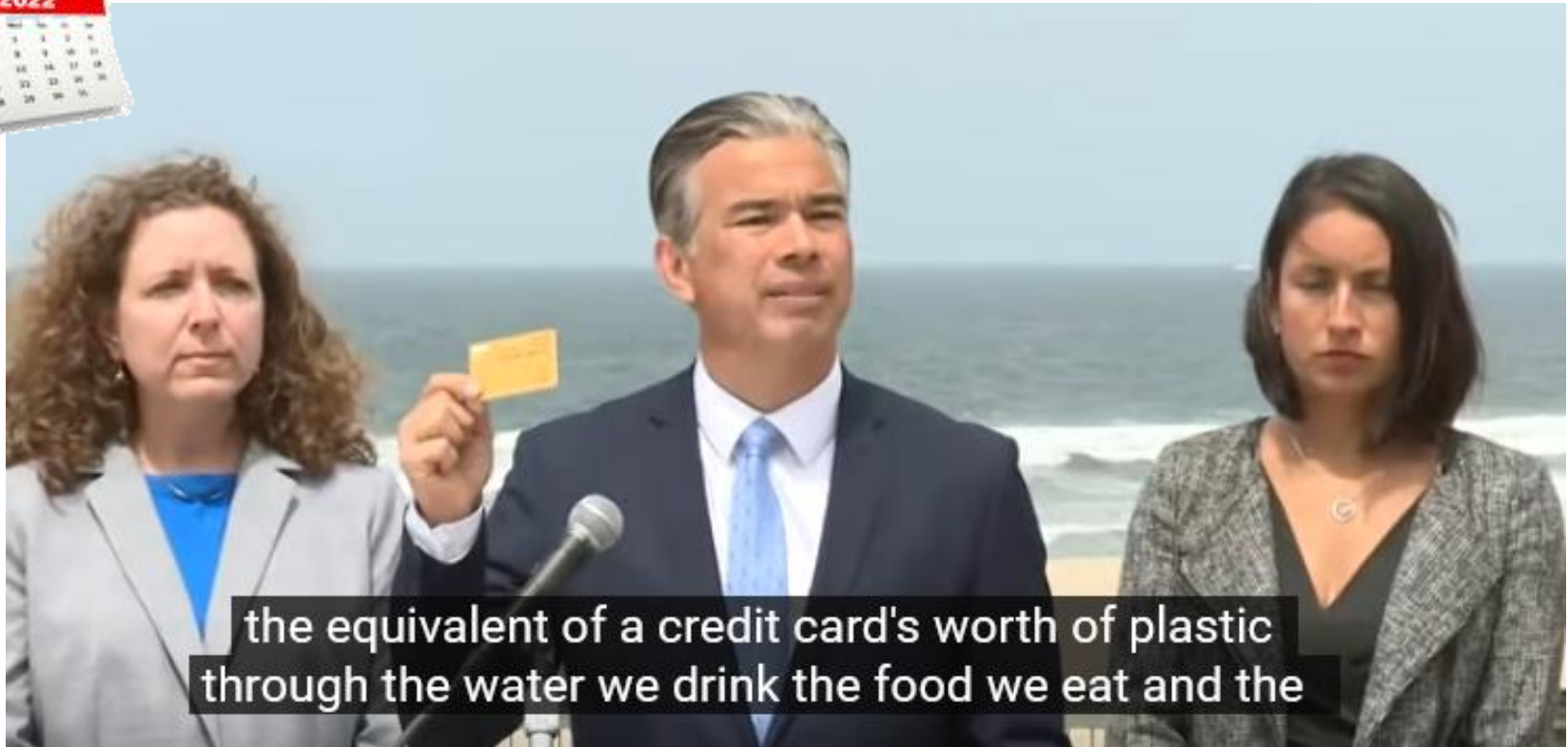


Models need to be tested to see if the results match the inputs. Checking the model results against the inputs shows the model giving 5 g per week is impossible.





UN Global Plastics Treaty



Streamed live on Apr 28, 2022

California Attorney General Rob Bonta makes a major announcement on the California Department of Justice's efforts to protect the environment from plastic pollution.

<https://www.youtube.com/watch?v=fhaURS9U04s>

[nature](#) > [nature medicine](#) > [brief communications](#) > [article](#)

Brief Communication | [Open access](#) | Published: 03 February 2025

Bioaccumulation of microplastics in decedent human brains

[Alexander J. Nihart](#), [Marcus A. Garcia](#), [Eliane El Hayek](#), [Rui Liu](#), [Marian Olewine](#), [Josiah D. Kingston](#), [Eliseo F. Castillo](#), [Rama R. Gullapalli](#), [Tamara Howard](#), [Barry Bleske](#), [Justin Scott](#), [Jorge Gonzalez-Estrella](#), [Jessica M. Gross](#), [Michael Spilde](#), [Natalie L. Adolph](#), [Daniel F. Gallego](#), [Heather S. Jarrell](#), [Gabrielle Dvorscak](#), [Maria E. Zuluaga-Ruiz](#), [Andrew B. West](#) & [Matthew J. Campen](#) 

[Nature Medicine](#) **31**, 1114–1119 (2025) | [Cite this article](#)

590k Accesses | **282** Citations | **6064** Altmetric | [Metrics](#)

 An [Author Correction](#) to this article was published on 31 March 2025

 This article has been [updated](#)

average 2024 brain
with 4.763 mg plastic
per gram of brain
tissue

~ 7 g of plastic per
brain

August 2026

Journal of Hazardous Materials 404 (2021) 124004

Contents lists available at ScienceDirect

Journal of Hazardous Materials

journal homepage: www.elsevier.com/locate/jhazmat

ELSEVIER



Research paper

Estimation of the mass of microplastics ingested – A pivotal first step towards human health risk assessment

Kala Senathirajah^a, Simon Attwood^b, Geetika Bhagwat^c, Maddison Carbery^c, Scott Wi Thava Palanisami^{d,*}

^a Global Innovative Centre for Advanced Nanomaterials(GICAN), Faculty of Engineering and Built Environment, The University of Newcastle, Callaghan, Australia

^b The World Wide Fund for Nature (WWF), 354 Tanglin Road, Singapore, Singapore

^c School of Environmental and Life Sciences, The University of Newcastle, Callaghan, NSW 2308, Australia

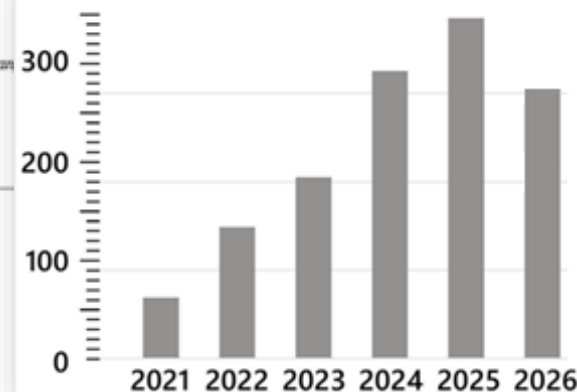
^d Department of Environmental Science, Macquarie University, Sydney, Australia



Pletz 105 total citations

<https://doi.org/10.1016/j.jhazmat.2020.124004>

Total Citations: 1278





<https://yourplasticdiet.org/>

A credit card a week?

On average people could be ingesting around 5 grams of plastic every week, which is the equivalent weight of a credit card. Our study suggests people could be consuming on average over 100,000 microplastics every year. That's approximately 21 grams a month, just over 250 grams a year.

TAKE ACTION!



Norms for conduct that distinguish between acceptable and unacceptable behavior.

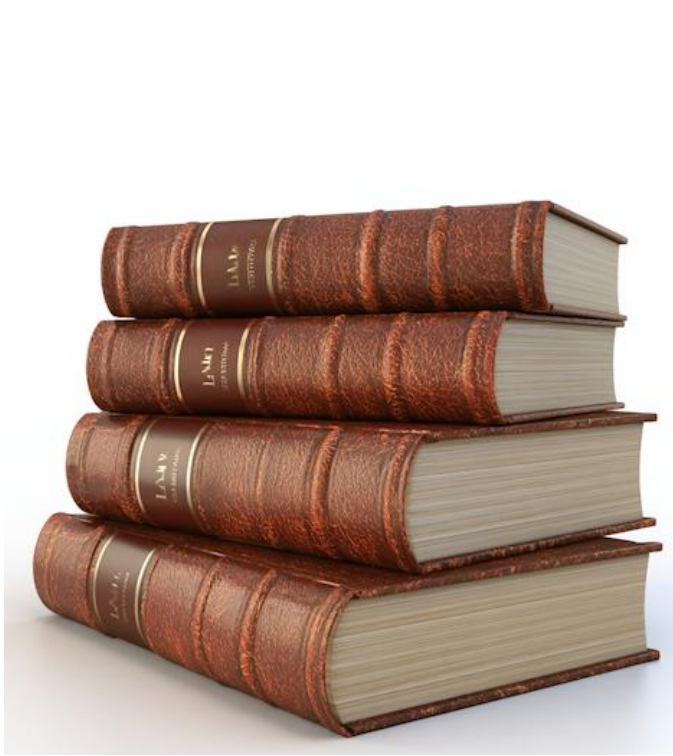
Resnik, D.B., "What Is Ethics in Research and Why Is It Important?"



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source: midjourney.com



source: [midjourney.com](https://www.midjourney.com)



source: [midjourney.com](https://www.midjourney.com)

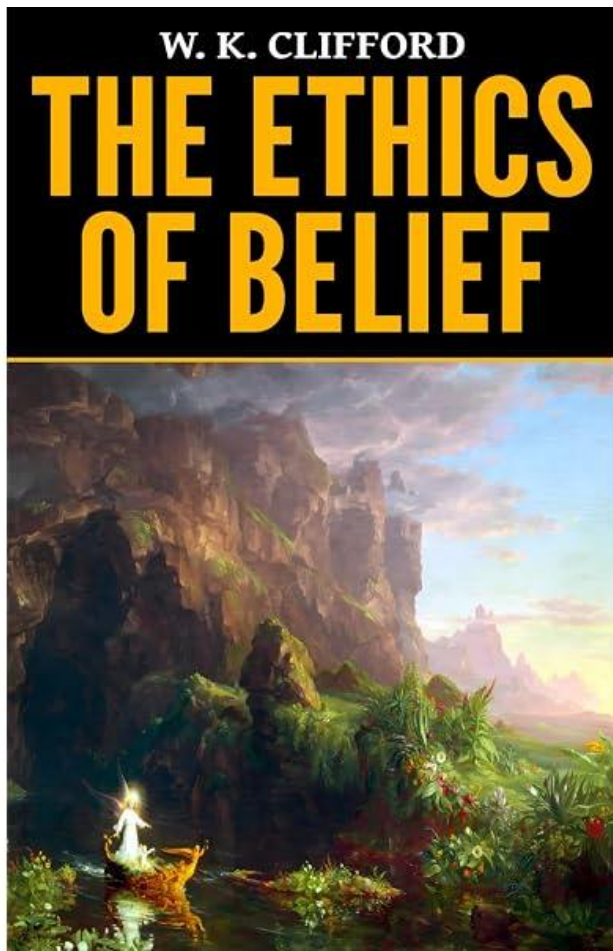


The Sceptical Chymist (1661)

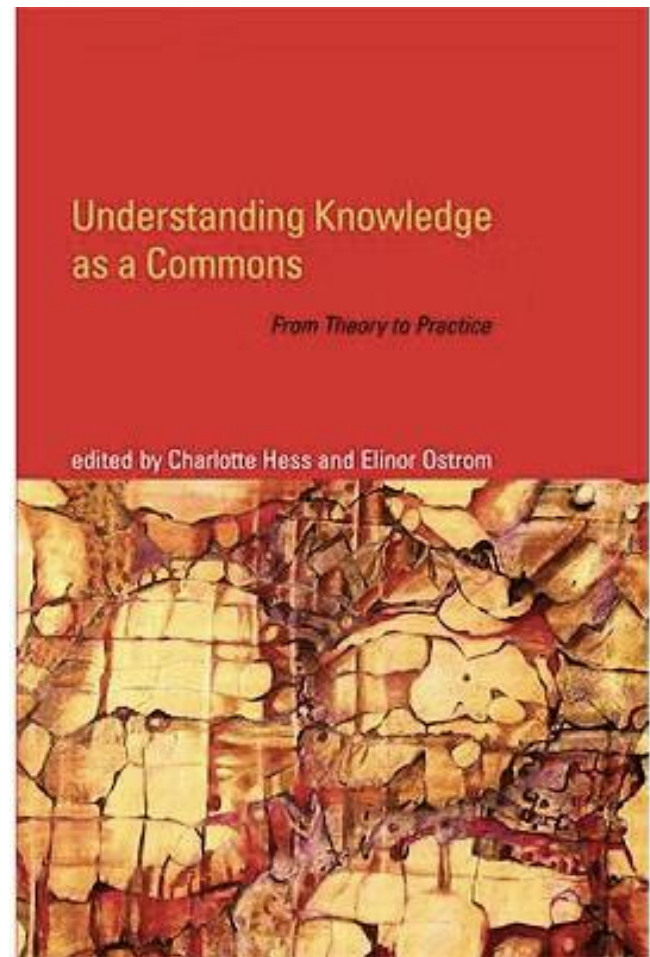
- 1. Fabricated experiments.
- 2. Uncredited or falsely credited claims.
- 3. Willful obscurity of language.
- 4. Suppressing inconvenient results.

Refinement by Charles Babbage, *Reflections on the Decline of Science in England*, 1830,

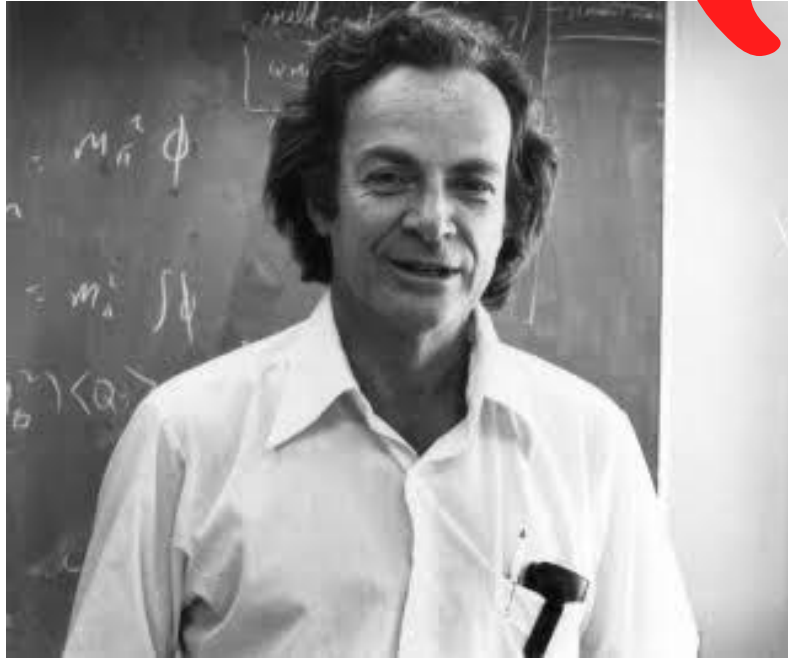
- Hoaxing
- Forging
- Trimming
- Cooking



*knowledge
as a
commons*



FEYNMAN WEIGHS IN



Caltech commencement address, 14 June 1974



It's a kind of scientific integrity, a principle of scientific thought that corresponds to a kind of utter honesty — a kind of leaning over backwards. For example, if you're doing an experiment, you should report everything that you think might make it invalid — not only what you think is right about it



Making an error is not unethical.

Letting it stand once known?

Depends on who you ask

integrity failure versus competence failure

SOCIETY RULES



*Clause 9: Fellows and Foreign Members shall be fair and objective peer reviewers, maintain confidentiality when requested, **promptly move to correct the literature when errors in their own work are detected**, include all deserving authors on publications, and give appropriate credit to prior work in citations.*



Chemical professionals should seek to advance chemical science while striving for the highest standards of scientific integrity. This includes sharing ideas and information, keeping accurate and complete records, and giving due credit to the contributions of others. Undisclosed conflicts of interest and scientific misconduct, including fabrication, falsification, and plagiarism, are incompatible with this code.

no mention of errors

ORGANIZATION RULES

C O P E

Committee on Publication Ethics is a nonprofit organization whose stated mission is to define best practice in the ethics of scholarly publishing and to assist editors and publishers to achieve this.

*Professional Conduct Guidelines #7: Take action on suspected or reported misconduct **or errors, before or after publication**, by investigating concerns, engaging with relevant parties (including journals, institutions, organisations, and individuals), correcting the literature as needed, and preserving the integrity of the version of record, ensuring any changes to it are made transparently.*



ALLEA serves as the European Federation of Academies of Sciences and Humanities

*The European Code of Conduct for Research Integrity: Authors and publishers promptly issue corrections or retract publications, if necessary, the retraction processes are clear and the reasons stated, and **authors are given credit for issuing corrections post-publication.***

Misconduct does not extend to making mistakes and failing to correct them.

WHO IS RESPONSIBLE FOR CORRECTION

Actor	Duty defined?	Duty triggers on?	Body to enforce it?
Original author	Sometimes yes, mostly no.	Self-detection only	No
Journal	Yes (for FFP but not for error)	Complaint or self-report	Only within its own narrow categories
Field/community	No	N/A	N/A
Society	No	Individual discretion	N/A

FFP: fabrication, falsification, and plagiarism

SAD CONCLUSION

- Gatekeeping power, exercised at the point of submission, is wielded. Curatorial power, exercised on the existing record, is not done (or expected).
- Peer review, editorial rejection, funding review are all forward-facing.
- Retraction and corrections, the backward-facing options, are rare for mistakes and nearly impossible without agreement from the original author(s).
- **We don't recognize knowledge as a commons.**

MORE SAD CONCLUSIONS

- No one likes retractions
 - they don't make money for publishers
 - they are viewed as a black eye for the journal
 - they are viewed negatively so authors don't want them
 - they are unlikely to sway public opinion of meme science
- The number of articles written about the errors pales by comparison to the reporting on the original more sensationalized press release from Toxic-Free Future or WWF/Newcastle.
- Few take action to correct the errors when they are found post-publication.
- Journals paywall corrections and don't link to critical work



Widely reported facts about plastics and microplastic are wrong.

- exposure is frequently over-reported
- reality checks are omitted

Correction in the scientific literature is slow; correcting public perception even slower.

- retractions don't benefit those directly involved
- zombie facts persist and persist

The imperatives to identify flawed studies are weak and largely ineffective

- it is rare for flawed studies to be corrected/retracted



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LANGMUIR AND THE ALLISON EFFECT



Pathological Science, 1953

3796

FRED ALLISON AND EDGAR J. MURPHY

Vol. 52

250 and 315°. A comparison of the reaction rates in packed and unpacked vessels shows not only that the reaction is homogeneous but that it is of the chain type.

The change in composition of the condensable reaction products with time of contact shows that the oxidation proceeds through the stages glyoxal-formaldehyde-formic acid. The gaseous products consist mainly of carbon monoxide, together with carbon dioxide and hydrogen. A study of the change in gas composition with contact time indicates that carbon monoxide originates mainly from the direct decomposition of glyoxal, and that carbon dioxide is due to oxidation or decomposition of formic acid, whereas the origin of the traces of hydrogen is at present uncertain.

The velocity of reaction is proportional to the square of the acetylene concentration and is independent of the oxygen concentration.

In packed vessels the homogeneous oxidation is almost entirely suppressed, and a heterogeneous oxidation of acetylene on the glass surface directly to carbon dioxide and water takes place. The rate is roughly proportional to the first power of the acetylene and oxygen concentrations. The mechanism of the reaction has been discussed.

WILMINGTON, DELAWARE

[CONTRIBUTION FROM THE PHYSICS DEPARTMENT, ALABAMA POLYTECHNIC INSTITUTE]

A MAGNETO-OPTIC METHOD OF CHEMICAL ANALYSIS

By FRED ALLISON AND EDGAR J. MURPHY

RECEIVED MAY 13, 1930

PUBLISHED OCTOBER 6, 1930

This paper reports some results of a method which promises to be of value as a new means of chemical analysis. It also suggests a new angle of approach to certain aspects of the problem of ionization in liquids. The method is a refinement of one previously described by Allison¹ in the investigations of the time lag differences of the Faraday effect behind the magnetic field in certain liquids as a function of the wave length of the light used.

In a study of solutions it was subsequently found that each chemical compound, regardless of the presence of other substances, produces its characteristic minimum (or minima) of light intensity, which persists until the concentration is reduced to about 1 part in 10^{11} .² This fact suggested that the method might have application in some cases of chemical analysis.

The authors³ have extended these findings of Allison to include a rather comprehensive series of solutions of chlorides, nitrates, sulfates and hydroxides.

¹ Allison, *Phys. Rev.*, **30**, 66 (1927).

² Allison, *ibid.*, **31**, 313 (1928).

³ Allison and Murphy, *ibid.*, **35**, 124 (1930).





• Psychology
the id, and the
effect of defense mechanisms

integrity |in'tegritē|noun

1 the quality of being honest and having strong moral
integrity.
2 the state of being undivided : upholding
integrity.



ROBERT BOYLE
Richard Boyle, 3rd Earl of Cork.