Planet Tracker

Toxic Additives

Analysing Product Portfolio Risk

November 2025

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Executive summary

Plastics are all around us and used across economic sectors. However, there is growing awareness of the potential negative impacts of our plastic addiction. Of particular note is the impact of the chemical additives used in plastics. Out of the 16,000 chemicals present in plastics, over 4,000 are known to be hazardous[a].

Research into the harmful effects of plastics and associated chemicals on human health has risen dramatically in recent years. Until recently, testing chemical toxicity would have been costly and given the number of chemicals involved, yielded a low informational return on the investment. Now there are proven models for how to systematically and cost effectively inventory and assess chemicals in product sectors, with costs as low as $6 per chemical reported *(see page 26 of linked report)*. The growing focus on the health and environmental impacts of plastics is a ticking timebomb for corporates using plastics and their investors. Although we are yet to see a significant amount of successful litigation around harm caused by plastic, the potential impact is huge. As an example, we point to Bayer (see our report - *Is-Bayer-a-litigation-leading-indicator?*). The life science company has paid out litigation costs of €13 billion in the last 5 years and the legal cases are continuing. Alternatively, litigation related to PFAS pollution has cost 3M $10.3bn (*link*) in the U.S. and the company continues to face legal challenges related to PFAS contamination in various jurisdictions, including Europe.

One challenge for investors in pricing in this risk is understanding how different corporates are exposed to potential risk from their product portfolios. Determining what each corporate makes can be challenging and then, when this data is available, it must be triangulated against known toxicity/hazard data to create a holistic view of risk from the overall product portfolio. This lack of transparency creates a blind spot for investors seeking to understand the risk to their portfolio companies.

In this report, we examined plastic additives and found that for 45% of the products analysed we could not determine their chemicals components. For a further 11% of products, we could determine the components, but there is currently no data on their potential harms. Where data on the component chemicals was available, 25% of the additives in our sample scored as in the most hazardous categories.

By pushing for corporates to provide more detail on their current product portfolios and to commit to undertake studies and publish more data on their products, investors can better estimate potential future risks. Over time, they can then engage with corporates on their portfolios and push for R&D to be focused on replacing those chemicals of highest concern, speeding the transition to more sustainable, healthy chemistry.

a *PlastChem – State-of-the-science of hazardous chemicals in plastic*

Investor call to action

Investors can be an important force for driving the transition to safer chemistry. This transition not only promises to benefit human and environmental health, but also can help reduce potential future financial risk for chemical companies, corporates using their products and their investors. Reducing this potential risk should be seen as the offset to the investment needed to make the transition to safer chemistry.

Push for more transparency - Investors should engage with investee companies so that they:

- Market products with clear chemical identifier information (e.g. reliable CAS number reporting). We note that calling only for provision of details of the chemicals in a product, but not necessarily their quantities, should reduce claims of breaching commercial confidentiality.
- Release safety data on their products if they have it.
- For untested chemicals, run or fund a chemical hazard assessment and commit to releasing the findings.

Push towards "safer" chemistry - Investors should engage with investee companies to:

- Push a transition to already known safer chemicals. As an example, corporates can utilise tools such as ChemFORWARD's *Plastic Additives Optimization Tool* to find "safer" alternatives to the additives they use.
- Invest in innovation to develop safer chemicals where alternatives are not currently available or current options would represent a significant operational or financial challenge to use.

We recommend that investors read the guide from Safer Chemistry Impact Fund - *Investor Guidance - Addressing the Portfolio Risks of Chemical Hazards*

The guide recommends investors integrate and expand chemical hazard disclosure into their portfolio management, including:

- using third-party verified reporting tools that assess chemicals of concern and track the transition to safer alternatives;
- integrating chemical hazard assessment into investment decisions;
- engaging with companies on chemical hazard reduction;
- supporting the development and adoption of better reporting tools;
- building a community of best practice among investors.
- requesting that credit rating agencies include chemical hazard reduction and disclosure in their ratings.

Investors can further show their support for a transition to sustainable chemistry via signing on to initiatives such as the *Chemicals and biodiversity investor statements 2025* and Chemsec's *Investor Initiative on Hazardous Chemicals (IIHC)*.

Introduction

In this report we focus on chemicals used as additives in plastics. These range from chemicals used to colour the plastic, to those providing enhanced functionality, such as flame retardants.

We assess the toxicity and implied risk of the plastic additives product portfolios of 100 major plastic additive producers. We use publicly available data to determine the hazard profile of their products. This allows us to consider the overall risk of their additives portfolio.

The plastic additive problem

New chemicals continue to be developed and marketed all the time. Since 2016 a new substance has been registered in the Chemical Abstracts Service (CAS) database every 1.4 minutes, and there are an estimated 40,000 to 60,000 industrial chemicals in commerce globally. This flood of new chemicals is contributing to the breaching of the planetary boundary for novel entities (for more details, please see our report - *Novel-Entities*).

Plastics and plastic additives are one part of this wave of new chemical entities. Although the plastic additives market in 2024 was worth around 55bn USD, which represents less than 1% of the global chemical industry (6.2tn USD in 2024), there are an estimated 16,000 chemicals present in plastics, which thus represents 25-40% of all industrial chemicals in commerce[b,c,d]. Over 4,000 of these products are known to be hazardous. However, many have yet to be fully tested for their impacts on human health and the environment.

Chemicals of concern have been found in plastics across a wide range of sectors and product value chains, including toys, packaging (including food contact materials), electrical equipment, vehicles, textiles, building materials, medical devices, personal care products, and agriculture.

These chemicals of concern can be released from plastic along its entire life-cycle, from the production of polymers and the manufacture of plastic products as finished goods to their use, and at the end of life. Poorly managed plastic waste is an important route for these chemicals to enter the air, water and soils.

Despite knowing that many chemicals used or produced by petrochemical facilities can be highly toxic, reporting requirements in many jurisdictions and loopholes in enforcement mean companies can often hide their toxic footprints. This leaves frontline communities in the dark on their exposure to potentially harmful chemicals (for more, see our reports - *Toxic Footprints U.S.* and *Toxic-Footprints-Europe*).

When significant health impacts from chemicals are identified and regulators move to prohibit use, banned chemicals are often replaced by those with similar toxicological attributes. The plastics industry is often able to stay one step ahead of regulation as pre-marketing requirements for testing are low, whilst evidence of harm may take years to emerge.

b *MARC Group - Plastic Additives Market Report*
c *UNEP, ICCA – Chemicals in Commerce*
d *PlastChem – State-of-the-science of hazardous chemicals in plastic*

However, the impacts of plastic production and use is a growing area of academic focus. Research into the harmful effects of plastics and associated chemicals on human health has risen dramatically in recent years.

The Minderoo Foundation, in collaboration with JBI at the University of Adelaide, undertook an umbrella review, systematically examining research data from thousands of scientific studies on exposure to plastic chemicals and the impacts on human health. The review specifically examined some of the most used plastic chemicals that we know humans are exposed to – BPA (bisphenol A), phthalates, PCBs (polychlorinated biphenyls) and PBDEs (Polybrominated Diphenyl Ethers) and PFAS (per- and polyfluoroalkyl substances). It found that there was consistent and "irrefutable" evidence that plastic additive chemicals in every class examined harm human health across the entire life cycle.

To gather an indication of the amount of research taking place on synthetic chemicals in Figure 1 we show the research studies undertaken, by year, for additives used in plastics (*link*). The rise in academic focus on plastic toxicity should be on investors' radars.

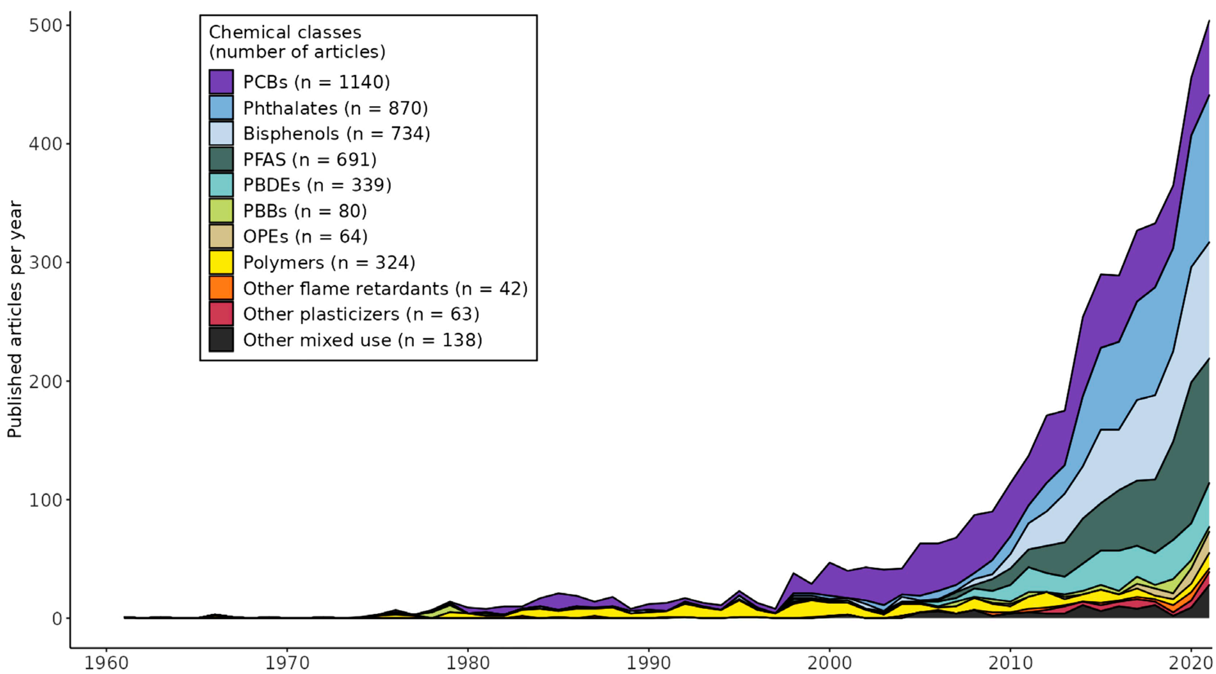

Figure 1: The number of academic articles on plastic impacts on human health has risen dramatically. Source: Minderoo Foundation.

A potential financial timebomb

The growing focus on the health and environmental impacts of plastics is a ticking timebomb for the plastics value chain and its investors. Although we are yet to see a significant amount of successful litigation around harm caused by plastic, the potential impact is huge.

The Minderoo Foundation has estimated that the social costs arising from all forms of plastic-related pollution to be hundreds of billions of dollars each year.

Where litigation about toxic chemical exposure has occurred, it has the potential to lead to significant pay outs and potentially hamstring corporates as they deal with the fall out. As an example, we point to Bayer (see our report - *Is-Bayer-a-litigation-leading-indicator?*). The life science company has paid out litigation costs of €13 billion in the last 5 years and the legal cases are continuing. Alternatively, litigation related to PFAS pollution has cost 3M $10.3bn (*link*) in the U.S. and the companies continue to face legal challenges related to PFAS contamination in various jurisdictions, including Europe.

Planet Tracker believes the market has not adequately registered the potential financial risks posed by synthetic chemicals.

For more on the risk register of plastic companies, see our report - *Plastic-Risk*

Data challenge

Investors concerned by potential plastic risks impacting their investee companies face the challenge of understanding what chemicals are being made and used by different players. Understandably, corporates are often careful on providing detail on their product portfolios. The contribution of different products to overall sales is also often hard to ascertain. When data is available, it must then be triangulated against known toxicity data to create a holistic view of risk from the overall product portfolio.

In this report we address this data challenge. We assess the hazard and implied risk of the plastic additives product portfolio of 100 major plastic additive producers. We use publicly available data to determine the scientifically tested toxicity of their products. This allows us to consider the overall risk of their additives portfolio.

By showing that the data challenge is tractable, we emphasise that investors should be including such analysis in their assessment of the risk profile of plastic producers and users.

Methodology

Planet Tracker collected information on 18,020 plastic additive products advertised on SpecialChem website, with their suppliers, description and, where available, their industrial applications. We then utilised a Large Language Model (LLM) to map each product to one or more chemicals and CAS number (A CAS number is a unique identifier for chemical substances, assigned by the Chemical Abstracts Service (CAS)). We constructed the prompt by including all the aforementioned information and requesting to list all identifiable chemical components in each product. Since the usage of an LLM implies probabilistic outputs, with known issues in terms of hallucinations and replicability, we took a number of steps to reduce the number of false mappings as much as possible:

- Two leading LLMs API (Claude 3.7 and ChatGPT 4.1, which were the most advanced models available in February 2025 when this work was conducted) were tested and the outputs were compared. The results presented are from ChatGPT 4.1 since the output from this model had broader coverage and a comparable number of false positives in testing.
- The LLM prompt was carefully formulated to minimise the number of hallucinations, for example by requiring the LLM to provide answers only for the chemicals and products it had high confidence in (>90%). Products were submitted in batches of 50 to the LLM API to optimise LLM focus. It was found that with higher batch size, the quality of the LLM response declined.
- We required the LLM to provide a brief explanation for a subset of the product-chemical mappings it provided, and these results were tested against a sample of products for which the CAS number of the main chemicals were known. This was used to both choose the LLM and to refine the prompt.
- As part of our quality checks, the LLM outputs were also checked against the Common Chemistry API and by ChemFORWARD. This allowed us to identify 15 CAS numbers that were assigned to the wrong chemical, and 111 CAS numbers that were non-existent, which were excluded from further analysis.

Although each plastic additive product may contain many chemicals, in most of the cases the LLM was only able to identify one (likely the most important) chemical per product, although in some cases it identified up to 8 different chemicals for one product.

Given the above, we are confident that the outputs are reliable and of high quality, although we cannot exclude that a small number of products listed in SpecialChem were mapped to a wrong chemical. We are transparent with regards to the LLM errors we found and corrected.

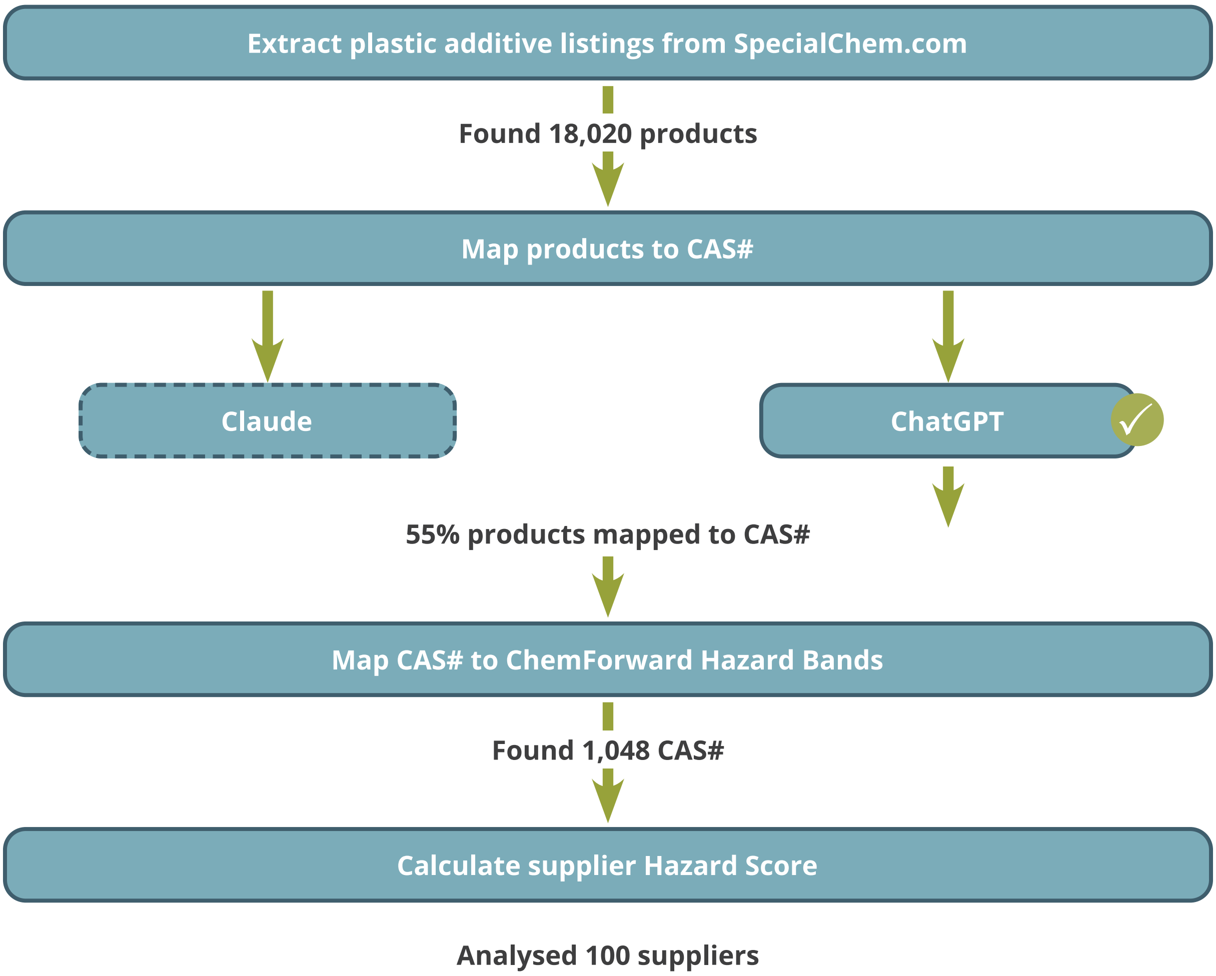

Figure 2: Methodology Flowchart. Source: Planet Tracker.

Figure 2 shows the main steps of our methodology. Of the 18,020 plastic additives products as listed on SpecialChem, 55% were mapped to at least one chemical through this process, which produced 1,048 chemicals and CAS numbers. These were in turn mapped to hazard bands in collaboration with ChemFORWARD. The resulting dataset of plastic additives CAS numbers was also matched to Wiesinger et al (2021)[e] dataset of 10,000 plastic additive products and to the Chemsec Substitute It Now (SIN) list.

e Wiesinger et al. (2021) - Deep Dive into Plastic Monomers, Additives, and Processing Aids. See *here*.

The results from this analysis should be interpreted at the aggregate level. They provide a big-picture view of how transparent the plastic additives industry is, since the LLM output is based on the product description and industrial applications, the knowledge publicly available in its training set, and on the known chemical processes utilised to create common chemical products. Since corporates rarely report on the chemical composition of their plastic additives products, **this analysis establishes a new baseline for understanding industry transparency in plastic additives**, providing actionable insights despite inherent limitations in corporate chemical disclosure.

In the Appendix to this report, we list the 100 suppliers included in the analysis, the number of plastic additive products we found for them on SpecialChem and their hazard scores. For many of the companies, our analysis found hundreds of additives being marketed, which means our results are based on a sizeable dataset. However we acknowledge that this dataset is not exhaustive and corporates may market many more products which are not listed on SpecialChem.

Results

ChemFORWARD assessment of hazard

Having collected plastic additive product portfolio data, we proceeded to assess the hazard rating of these products. To do this, we cross referenced the products against a number of databases.

Primarily, we used data from ChemFORWARD (*https://www.ChemFORWARD.org/*). ChemFORWARD is a non-profit, science-based organization with a mission to create broad access to chemical hazard data and illuminate safer alternatives in the pursuit of ending toxic chemical exposure. They populate, manage, and maintain the Chemical Hazard Data Trust, a shared repository of comprehensive chemical hazard assessments that are conducted by leading toxicology firms, peer reviewed by independent toxicologists and reviewed for validity bi-annually.

ChemFORWARD assigns chemicals to one of eight different Hazard Bands that offers a summary of the overall hazard profile, ranging from "A" (lowest hazard) to "F" (highest hazard). Chemicals for which characterisation is in progress are rated "IP", those that have not been characterized are rated "?", and those where characterisation was not possible are rated "U"- Table 1.

Table 1: ChemFORWARD Hazard Band ratings. Source: ChemFORWARD.

ChemFORWARD Hazard Band	Implications
A	Low hazard and low risk
B	Some moderate hazards but low risk
C	Moderate hazard, moderate risk or uncertainty that could result in moderate risk
D	Moderate to high hazard; emerging regulatory risk (classification may be based on a chemical class/grouping approach)
F	High hazards and high risk in most scenarios
U	CHA completed with excessive data gaps, rating is not possible
?	Request a CHA inform a decision
IP	CHA in progress

Of all product listings collected from SpecialChem, 45% of the products could not be mapped to any specific chemical by the LLM - Figure 3. The remaining Hazard Band analysis therefore excludes almost half of the product listings, since we could not map them to a CAS number. The lack of a clear CAS number underlines the need for more transparency on the chemicals being marketed and used. We believe investors should be concerned about this lack of transparency. This presents a potentially significant future material risk.

Figure 3: ChemFORWARD Hazard Band distribution for chemicals with or without an identified CAS number. Source: ChemFORWARD and Planet Tracker analysis based on data from Specialchem.com

Of the chemicals where a CAS number could be determined, 20% had no hazard information available. Similarly to additives for which no CAS number could be determined, these chemicals represent a black hole of potential toxicity risk. Investors should commit to push companies to fund chemical hazard assessments of these unknowns and commit to releasing the findings.

In Figure 4, we collate A, B, and C Hazard Bands as low-concern (represented in green) whereas D's and F's are considered chemicals of high-concern (represented in red). Where a CAS number was available, some 25% of the additives analysed were found to be moderate to high risk (14% of all the chemicals analysed). Positively, around half of the chemicals with an identified CAS number fell into the low-concern category. This suggests that safer chemicals are available for many uses. At the time the data was processed, 2% of products had Hazard Assessments "In Progress" (IP).

Figure 4: ChemFORWARD Hazard Band distribution for chemicals with an identified CAS number. Source: ChemFORWARD and Planet Tracker analysis based on data from Specialchem.com

If we zoom into the chemicals for which a CAS number was identified, we note that the majority, or 77%, are characterized for hazards - Figure 4. We can also delve into the split between ChemFORWARD Hazard Bands: A (<1% of products), B (18%), and C (34%) Hazard Bands are considered low-concern (represented in green). D (5%) and F (20%) are considered chemicals of concern (represented in red).

Corporate average hazard rating

Having considered the overall data set, we can dig deeper by looking at the individual corporate level. As noted above, we do not claim that our analysis captures the entire product portfolio of the examined corporates. They may market additives which are not captured by SpecialChem. They may provide more data on the chemical composition of their products via other channels. However, we believe that showing how we can approach comparing the risk of different corporate product portfolios is valuable.

We converted the ChemFORWARD Hazard Bands into numerical values and took the average score for each supplier. To convert the bands into numerical values, we used the factors shown in Table 1.

Table 2: Numerical conversion factors for ChemFORWARD Hazard Bands.

ChemFORWARD Hazard Band	Numerical Score
A	1
B	2
C	3
D	4
F U ?	5
IP	Null

Figure 6 breaks down the share of each of the top 30 suppliers' product portfolios by Hazard Band, showing also the percentage share of the largest hazard band, and their average numerical score. The average score for the universe of 100 suppliers was 4.4, which sits between "D" and "F" on the ChemFORWARD Hazard Band conversion scale (Table 1). This is significantly influenced by the large volume of products for which we could not determine the composition and thus are scored "5".

Figure 6 clearly shows that for some suppliers (Kolortek, Imerys and CQV), we were able to identify the chemicals in most products, and therefore their average numerical score is much lower than the average across the 100 suppliers. On the other hand, we note that for many suppliers we could not identify the component chemicals for more than half of the products listed (including Evonik, Nouryon, Baerlocher, Dow, LyondellBasell).

It is important to note that in this dataset each product marketed on SpecialChem is counted once, and therefore popular products have the same weight as less popular products. The conclusions we present here might look very different if analysed by account sales per product, or volume sold by product.

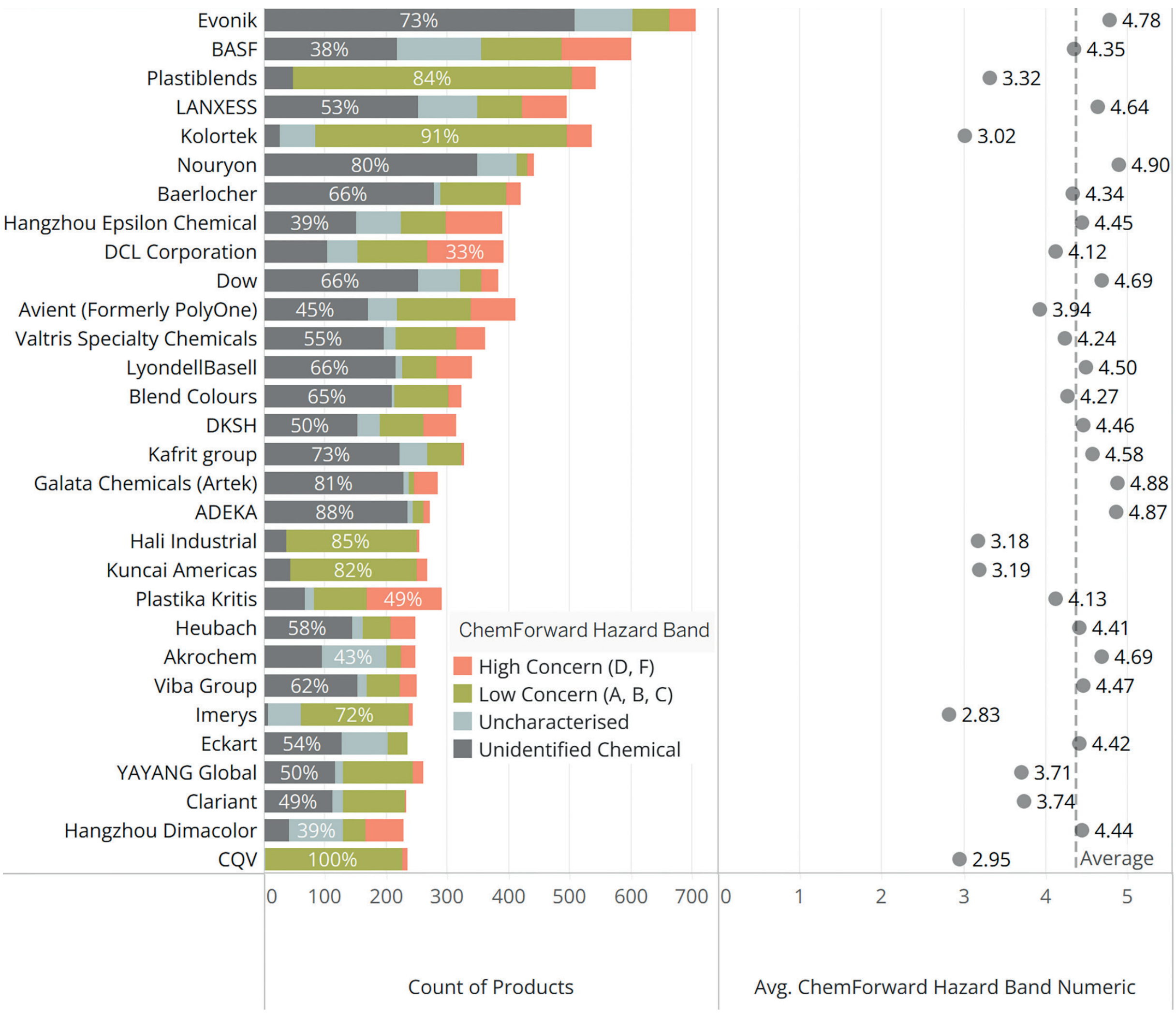

Figure 5: Top 30 suppliers by count of products, with ChemFORWARD Hazard Bands and their average numerical score. Source: ChemFORWARD and Planet Tracker analysis based on data from Specialchem.com

Matches in other datasets

By matching our CAS number dataset to other datasets publicly available online, we can sense check the findings of our initial analysis and gain further insights:

Wiesinger et al (2021)ii conducted a review of industrial, scientific, and regulatory data sources for data on plastic related chemicals and determined the level of research conducted on them, rating from low to high. Using their findings, we can see in Figure 7 that 893, or 44% of the products that contain a chemical with a "F" hazard rating by ChemFORWARD are also given a "low" level of research by Wiesinger, meaning that they are not well researched and should be prioritised by corporates for hazard testing and potentially for substitution.

Another data source on potential hazard is the Chemsec Substitute It Now (SIN) list (*https://sinlist.chemsec.org/*). We found 530 products in our dataset that contain a chemical in the SIN list. This includes 20 products with PFAS, and 7 with Bisphenols.

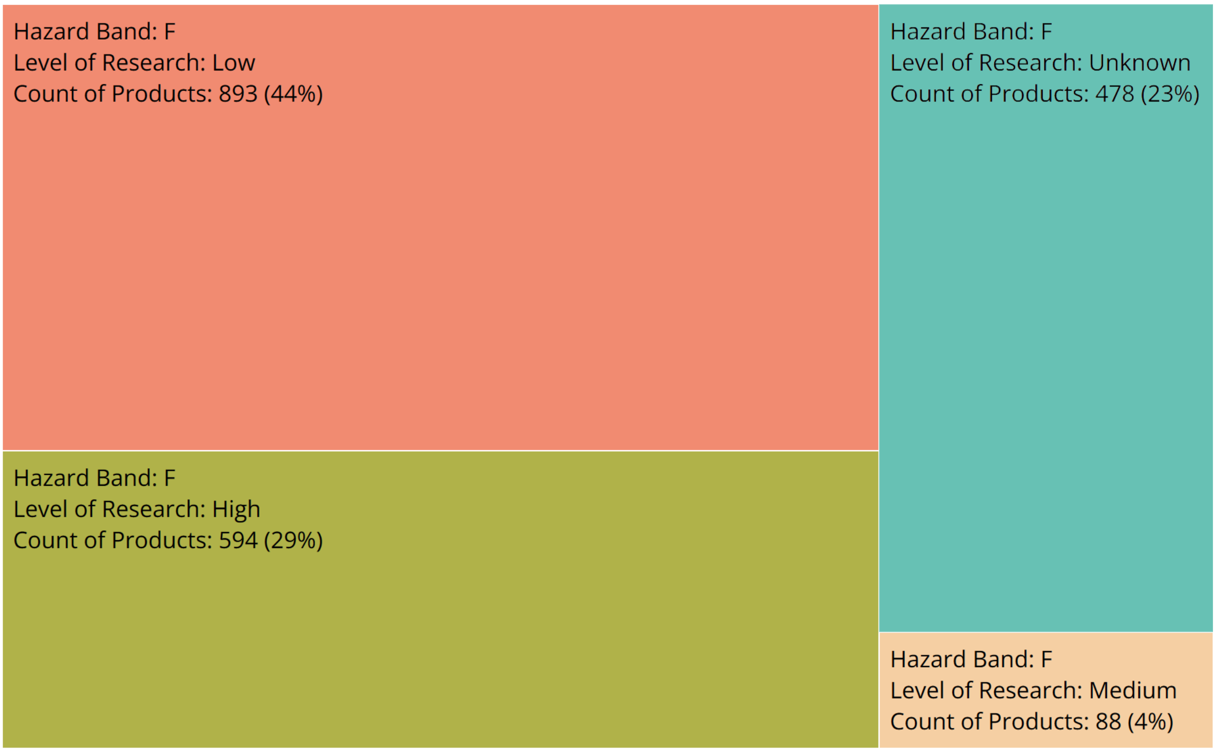

Figure 6: Share of products in ChemFORWARD hazard band "F" by Level of Research as classified by Wiesinger et al. (2021). Source: ChemFORWARD and Planet Tracker analysis based on data from Specialchem.com and Wiesinger et al. (2021).

The comparison to these two other databases suggests that the ChemForward database is a comprehensive source for hazard information. We note that it covers many more chemicals than the ones in our analysis and also provides data on potential safer alternatives, so is a benchmark for use by both investors and corporates seeking to map their risk exposure.

Conclusions

The release of new chemicals continues at pace with the scientific community and regulators struggling to understand all their full impacts. However, scientists are ramping up their analyses and many of the results are concerning. In light of growing scientific focus on the harms associated with plastics and plastic additives, Planet Tracker recommends revisiting risk models for companies associated with these novel entities - producers and users of synthetic chemicals. By pushing for corporates to undertake studies and publish more data on their products, they can better estimate potential future risks.

In this report we analysed plastic additives as an example of one way to approach how product portfolio risk can be assessed. Growing scientific data allows us to identify chemicals of significant concern and those thought to be more benign.

Our analysis underlines the significant data gaps on many chemicals. For 45% of the products analysed we could not determine their chemicals components. For a further 11% of products, we could determine the components but there is currently no data on their potential harms. We believe investors should be concerned about this lack of transparency for over half of the products we analysed. This presents a significant future financially material risk.

Where data was available, 25% of the additives in our sample scored in the most hazardous categories. Investors should worry about potential future litigation risk from these chemicals and engage with investee companies on using safer alternatives or developing new products to reduce this future risk.

Until recently, testing chemical toxicity would have been costly and given the number of chemicals involved, yielded a low informational return on the investment. Now there are proven models for how to systematically and cost effectively inventory and assess chemicals in product sectors. To cite one example, by conducting assessments of just 25 commonly used chemicals in beauty and personal care products, corporates in that sector were able to close 20,000 data gaps utilising the ChemFORWARD platform at a cost of just $6 per data gap on an investment of just $125,000, and this cost is dropping.

Corporates can utilise tools such as ChemFORWARD's *Plastic Additives Optimization Tool* to find "safer" alternatives to the additives they use. ChemSec also offers its "marketplace" platform to find more sustainable alternatives *The Marketplace | ChemSec Marketplace*.

Clearly, the potential health and environmental risks of plastic additives are particularly important for the companies manufacturing those additives. However, we believe that these potential risks should also be a focus for companies using plastic products which may contain those additives, for instance, Fast Moving Consumer Goods players including Nestle or Unilever. As an end-user of plastics, do they know what is actually in the plastic bottle or wrap they use for their product? Are they certain they are not, unintentionally, using plastic with additives already known to be hazardous or for which there is currently no data. Although they might not hold direct responsibility for these additives, we see a significant risk to their brands if it turns out their packaging was toxic.

Appendix – suppliers products hazard bands

Table 3: Suppliers products hazard bands.
Source: ChemFORWARD and Planet Tracker analysis based on data from Specialchem.com

Supplier	Products with no CAS#	A	B	C	D	F	IP	Uncharacterised	Total products
ADEKA	88%		1%	6%		5%		3%	266
ADEKA Polymer Additives Europe	94%		1%	2%	1%		1%	1%	104
AKPA Kimya	23%		3%	4%	1%	23%	1%	49%	97
Akrochem	39%		6%	4%	0%	9%	13%	30%	246
allnex	80%							20%	10
Arkema	63%			5%	2%	6%		26%	155
Astra Polymers	34%		40%	28%		18%		4%	85
aurorium	62%		3%	21%		11%		11%	117
Avient (Formerly PolyOne)	45%		23%	12%	8%	12%	1%	13%	373
Axel	91%	4%	8%	1%		5%		2%	126
Baerlocher	66%		16%	10%		6%		3%	419
BASF	38%		11%	12%	8%	12%	2%	21%	564
Birla Carbon	1%					99%			134
Blend Colours	65%		18%	10%		6%		1%	322
Bomar	91%		9%						11
Brenntag Specialties (EMEA)			55%	45%					128
Brüggemann	78%		2%	6%		15%		1%	82
BYK	84%		7%	2%		2%		6%	212
Cabot	1%		21%	1%		98%	1%	4%	191
Cargill	68%		5%	4%		1%		24%	140
Clariant	49%		39%	5%		0%		8%	229
Colloids	71%		12%	9%	1%	16%		9%	102
Covestro	85%			2%		4%		9%	46
CQV			23%	100%	1%	2%	0%	1%	223
DCL Corporation	27%		12%	18%	17%	16%	1%	12%	382
DKSH	49%		8%	15%	0%	17%	1%	11%	309
Double Bond Chemical	49%		1%	8%		12%	1%	28%	85
Dover Chemical (ICC Industries)	74%			9%		8%		15%	93
Dow	66%		5%	4%	6%	2%	2%	17%	379
Eckart	54%		14%	9%			17%	15%	234
Emery Oleochemicals	85%		8%	3%		1%		3%	115
Eternal Materials	100%								2
Euchemy Industry	44%		9%	32%	7%			8%	85

Supplier	Products with no CAS#	A	B	C	D	F	IP	Uncharacterised	Total products
Everkem	2%		7%	6%	21%	23%	1%	40%	148
Evonik	73%		4%	4%	0%	6%	3%	10%	695
Ferro	3%		8%	17%	8%	43%		19%	109
Ferro-Plast	48%		16%	3%	2%	18%		13%	87
Galata Chemicals (Artek)	81%		2%	1%	4%	10%		2%	284
Geotech	10%		15%	77%			4%	3%	157
GreenChemicals	50%		6%	14%	2%	15%		15%	142
Guangxi Chesir Pearl Material	11%		16%	89%		3%	1%		159
Hali Industrial	15%			85%		2%			250
Hallstar	65%		10%	9%		4%	5%	7%	174
Hangzhou Dimachema	76%		9%	5%	2%	6%		2%	128
Hangzhou Dimacolor	18%		6%	10%	18%	10%	0%	39%	228
Hangzhou Epsilon Chemical	39%		5%	14%	12%	12%	1%	18%	389
Heubach	58%		13%	5%	10%	6%		7%	248
HEXPOL COMPOUNDING	43%		17%	16%	6%	9%	1%	9%	162
Honeywell	49%		38%	20%		1%	8%	3%	127
Huber Engineered Materials	1%			95%			2%	6%	120
Huntsman	37%		3%	29%	2%	11%	2%	19%	119
IGM Resins	59%		2%	21%		5%	3%	8%	61
Imerys	2%		31%	47%		3%	20%	2%	243
Kafrit group	72%		9%	10%		2%		14%	304
KLK OLEO	54%		9%	16%	3%			19%	122
Kolortek	6%		36%	87%	1%	8%	8%	4%	452
KRATON	50%		4%	3%				43%	124
Kuncai Americas	18%		3%	82%		6%			250
LANXESS	53%		3%	12%	2%	13%	1%	20%	476
Lehmann & Voss	62%		13%	3%	8%	5%	4%	7%	196
Liwang Chemical (Nantong)	84%		8%		5%		1%	2%	113
LyondellBasell	66%		13%	5%		18%	0%	3%	325
Merck KGaA, Darmstadt Germany	86%		4%	6%		2%		4%	49
Milliken	87%					3%		10%	111
Mitsui Chemicals	75%		18%			1%		5%	77
Miwon Specialty Chemical	67%							33%	3
Momentive Performance Materials	61%		6%	21%		1%		11%	123

Supplier	Products with no CAS#	A	B	C	D	F	IP	Uncharacterised	Total products
Nagase Specialty Materials	64%			18%		5%		14%	22
Ningbo Precise New Material Technology	35%		6%	5%	16%	3%	2%	34%	205
Nouryon	80%		1%	3%	2%	1%		15%	435
Novis	33%		6%	7%	22%	4%	1%	27%	100
Omya			100%			3%			78
Orion						100%			145
Otsuka Chemical	74%		4%		18%			4%	112
Oxen chemicals	1%			99%		47%			122
Pau Tai Industrial	80%		2%		4%	10%		2%	108
Pergan	7%		2%	8%	2%	22%		62%	169
Plastiblends	9%			84%		7%			543
Plastika Kritis	27%		28%	10%	1%	48%	0%	6%	249
PMC Group	69%		3%	4%		5%		19%	117
Sanyo Chemical Industries	62%		36%				2%		42
Sasol	81%		11%	2%		5%		6%	161
Silma	92%			1%	2%	2%	2%	3%	112
Sino-Japan Chemical	42%		24%	7%		20%		7%	180
Songwon	77%		1%	6%		4%		13%	205
Sovereign Chemical	44%		5%	2%		12%	3%	34%	59
Specific Polymers	71%		7%					21%	14
Stepan Company	100%								21
Struktol	69%		6%	11%		1%	3%	11%	218
Sun Chemical (DIC)	18%		14%	13%	11%	7%	23%	19%	160
Syensqo	58%		3%	12%		22%	1%	5%	171
Synchemer	25%	1%	3%	8%	5%	26%	1%	32%	110
Synthomer	96%		1%			1%		4%	81
Teknor Apex	25%		1%	4%		70%		1%	113
United Initiators	43%		1%	5%	1%	7%		44%	189
Valtris Specialty Chemicals	55%		11%	20%	8%	8%		6%	358
Vanderbilt Chemicals	64%			3%		7%	1%	26%	105
Viba Group	62%		10%	12%		11%		6%	245
Wanhua Chemical	42%					47%		11%	19
YAYANG Global	50%		3%	50%		8%		5%	231

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ABOUT PLANET TRACKER

Planet Tracker is an award-winning non-profit financial think tank aligning capital markets with planetary boundaries. Created with the vision of a financial system that is fully aligned with a net-zero, resilient, nature positive and just economy well before 2050, Planet Tracker generates break-through analytics that reveal both the role of capital markets in the degradation of our ecosystem and show the opportunities of transitioning to a zero-carbon, nature positive economy

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