

I India
Underweight *(no change)*
Highlighted Companies
Ami Organics
REDUCE, TP Rs714, Rs1228 close

While we all know about the risks of dolutegravir and darolutamide, the reliance on parabens is also a major problem for Ami Organics. Please note most of the chemicals of the erstwhile Gujarat Organics are parabens, which has zero terminal value. Please remember parabens are still not conclusively proven to be cancerous but cosmetics companies use paraben-free as a marketing tool to sell their brands.

Gujarat Fluorochemicals
REDUCE, TP Rs1946, Rs3218 close

Upcoming ECHA verdict and its potential ban in major end-use categories of PFAS can create major problems. PFAS are at a stage where parabens were a few years ago. Already data indicates that PFAS sales are falling in Europe, and it is a matter of time before companies themselves start using PFAS-free products as a marketing tool. Please note that there are various alternatives to PFAS and hence, its marketing to gain customer base is only a matter of time.

Summary Valuation Metrics

P/E (x)	Mar24-A	Mar25-F	Mar26-F
Ami Organics	56.13	53.79	50.98
Gujarat Fluorochemicals	64.8	59.87	47.54

P/BV (x)	Mar24-A	Mar25-F	Mar26-F
Ami Organics	6.88	6.32	5.8
Gujarat Fluorochemicals	5.83	5.31	4.78

Dividend Yield	Mar24-A	Mar25-F	Mar26-F
Ami Organics	0%	0%	0%
Gujarat Fluorochemicals	0%	0%	0%

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Chemicals - Overall

PFAS will meet the fate of parabens

- Cosmetics makers use paraben-free as a marketing tool. As the alternatives to PFAS become prevalent, sellers will magnify the health hazards of PFAS.
- While paraben-free cosmetics are widely prevalent, signs of consumer shunning PFAS are visible. European sales of PFAS fell 23% during 2015-20.
- Ami Organics' paraben sales are ~US\$10m & almost 100% of GFL's revenue comes from PFAS. Both parabens and PFAS have zero terminal value.

PFAS are going the parabens way

The US Food and Drug Administration (FDA) considers parabens safe for use in cosmetics at the currently permitted levels. The regulator acknowledges some safety concerns, but its current findings indicate minimal risk. However, this hasn't stopped companies from cutting down on the use of parabens in cosmetics as it gives them the marketing edge and because of increased awareness, they may charge a premium as well. PFAS is going in a similar direction. Please note that Teflon (PTFE, most widely used PFAS) coated cookware is becoming a thing of the past, and the way Nordic countries are up in arms against PFAS usage, public awareness about the dangers will rise exponentially. The Nordic group of ministers' project societal cost at US\$155tr if PFAS usage remains at the current levels till 2050F. The societal cost is 156x that of overall PFAS chemicals sales (fluoropolymers at US\$7bn and fluorochemicals at US\$28bn per year) for the next 27 years. The negative publicity that PFAS is getting means that even if ECHA does a gradual ban from 2027F, even then its costlier alternatives will start paving their way in consumer products.

What's the solution for PFAS manufacturers? The answer is innovate

In 2008-12, SRF showed one of the finest examples of using one-time cash flow (it got this from carbon credit sales) to build a fluorochemical business. Gujarat Fluorochemicals (GFL) has to do something similar for utilizing the cash flow it is getting from PFAS, as PFAS will die a slow death in the coming years. While the company is trying to go for LiPF6 manufacturing, it is also a dying product ([IN: Chemicals - Overall - Battery chemical firms are stuck in the past](#)). We have shown many companies are developing an alternative to PFAS ([IN: Chemicals - Others - Are PFAS replaceable? The answer is Yes](#)). However, sadly Indian companies are behaving like the proverbial ostrich. The danger is present and is real for business models and thus innovation is the only route left. SELL GFL and Ami Organics. While the market is assigning an 80x trailing P/E to GFL and 60x trailing P/E to Ami Organics, both their business models are at risk. Ami Organics is not a SELL only because of paraben but also because of increased competition in its core products and the vinylene carbonate expansion being EBITDA negative. For GFL, as we have said multiple times earlier, PFAS have zero terminal value and the near-term earnings are at risk (probabilistically speaking, consensus earnings for GFL are like getting 10 heads when there is a toss of 10 unbiased coins). **Upside risks:** For GFL, it's the sudden revival in HFC -125 prices and for Ami Organics it can be the supply chain crisis which can lift the prices of vinylene carbonate (VC).

Figure 1: PFAS-free product advertisement (much like paraben-free cosmetic ad)


PFAS will meet the fate of parabens

An overview on the similarities between PFAS and parabens

What are PFAS? ➤

1. Per- and polyfluoroalkyl substances (PFAS) are a large, complex group of synthetic chemicals that have been used in consumer products around the world since the 1950s.
2. PFAS molecules have a chain of linked carbon and fluorine atoms. As the carbon-fluorine bond is one of the strongest, these chemicals do not degrade easily in the environment. They are often referred to as 'forever chemicals' due to their long-term resistance to degradation.

What are parabens? ➤

1. Parabens are a group of preservative ingredients used in cosmetics, personal hygiene products, food products and pharmaceuticals. They are highly effective in preventing the growth of fungi, bacteria and yeast that can cause products to spoil, thereby helping to extend their shelf life.
2. They are a series of para hydroxy benzoates or esters of para hydroxy benzoic acid.
3. Most of the commercially used parabens are synthetically produced.
4. Commonly used parabens include methylparaben, ethylparaben, butyl paraben, heptyl paraben, etc.

Uses of parabens and PFAS ➤

Figure 2: Following are the usage of Parabens and PFAS

PFAS	Parabens
<p>PFAS can be in a variety of products like:</p> <ol style="list-style-type: none">a. Clothing – carpet, textile, waterproof clothing, and leather productionb. Furniturec. Adhesivesd. Food packaginge. Heat-resistant non-stick cooking surfacesf. Insulation of electrical wiresg. Chromium platingh. Photographyi. Photolithographyj. Paper productsk. Semi-conductor manufacturingl. Coating additives and cleaning productsm. Cosmetics <p>An additional use of PFAS is in AFFF. AFFF is as a Class B fire-fighting foam used to combat flammable liquid fires.</p>	<p>Parabens have usage in many industries such as:</p> <ol style="list-style-type: none">a. Cosmetics – They are used in shampoos, conditioners, soaps, toothpastes, shaving products, make-up items, water-based serums and moisturizers. They are also sparsely used in deodorants and anti-perspirants. Parabens are used in cosmetics to protect against microbial (e.g., bacteria, fungus) growth.b. Food – They are used as preservatives and anti-microbial agents in the food industry. Parabens are used in confectioneries, cereal-based snacks, dried meats, and much more. <p>Pharmaceuticals - Parabens are found in pharmaceutical products such as topical treatments for wounds.</p>

SOURCE: INCRED RESEARCH, COMPANY REPORTS

Both paraben and PFAS are not banned (as of now) but increasingly being abhorred in consumer usage ➤

Parabens: They have a long history of safe use and some research has raised concerns about its potential health effects, particularly regarding breast cancer. However, more research is needed to confirm a definitive link. The US Food and Drug Administration (US FDA) considers parabens safe for use in cosmetics at authorized levels. The regulator continues to monitor the research on parabens.

However, due to consumer concerns, many brands now offer paraben-free alternatives. One can check the ingredient list on product labels to see if parabens are present. In fact, paraben-free is advertised as a virtue of the product.

PFAS: Perfluoroalkyl and polyfluoroalkyl substances (PFAS), also known as 'forever chemicals', raise several safety concerns due to their unique properties:

1. **Persistence:** PFAS don't break down easily in the environment and can accumulate in our bodies over time.
2. **Bioaccumulation:** They can build up in the food chain, with potentially harmful effects on wildlife and ultimately humans.
3. **Potential health risks:** Studies suggest links between PFAS exposure and various health problems, including certain cancers, thyroid issues, and immune system impacts.

These factors have led to rising public health concerns regarding PFAS in consumer products. While the research is ongoing, many governments and regulatory bodies are taking steps to minimize PFAS exposure:

1. **Restrictions on use:** Some PFAS are being phased out of production due to safety concerns.
2. **Consumer product scrutiny:** Regulatory bodies are investigating the presence of PFAS in consumer goods.

However, there is plenty of literature available on the health risks of both paraben and PFAS usage ➤

PFAS

1. New Zealand is banning PFAS, aka forever chemicals, in cosmetics from 2026. It is the first country to do so.
2. The European Commission (EC) is proposing that all per- and polyfluoroalkyl substances be banned because it says they are persistent, can be toxic, and can bioaccumulate in organisms—including in people.
3. The future of PFAS will depend on the verdict of the ban in the EU as many countries will follow them.
4. Companies argue that some PFAS are irreplaceable and there has been concern among environmentalists that the EU will not ban them, despite the promises made for economic gains.
5. Two-thirds of the current membrane filtration market for portable water uses PFAS. Many other PFAS have similar uses in many end-user industries. Until all alternatives are found, it cannot be fully banned.
6. Exposure to PFAS may have:
 - a. Reproductive effects such as decreased fertility or increased high blood pressure in pregnant women.
 - b. Developmental effects or delays in children, including low birth weight, accelerated puberty, bone variations, or behavioral changes.
 - c. Increased risk of some cancers, including prostate, kidney, and testicular cancers.
 - d. Reduced ability of the body's immune system to fight infections, including reduced vaccine response.
 - e. Interference with the body's natural hormones.
 - f. Increased cholesterol levels and/or risk of obesity.

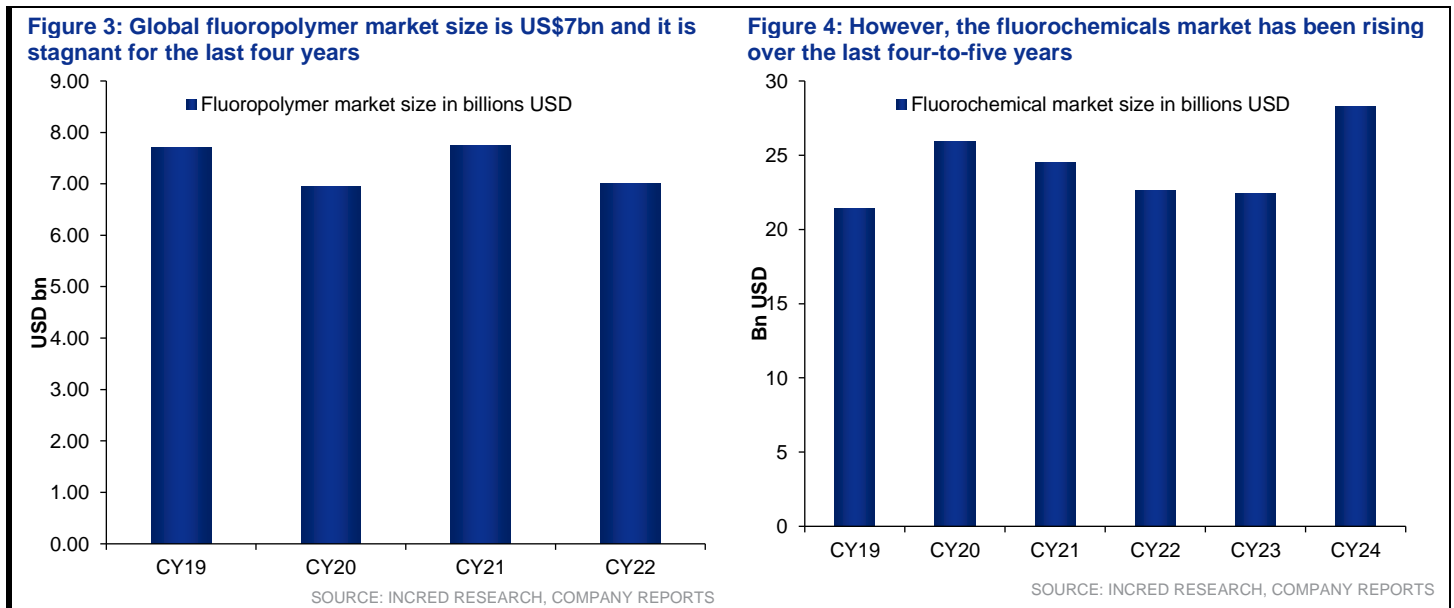
Parabens

1. They are toxic to rats. In rats, it might act like the hormone estrogen, which is linked to breast cancer. It is suspected to cause breast cancer in humans too. However, there is no conclusive evidence of the same in humans.
2. They are a type of endocrine disruptor that may cause serious health harm, especially in the developing body.
3. According to the classification provided by companies to the European Chemicals Agency or ECHA in REACH registrations, some parabens (like methyl paraben) are toxic to aquatic life (including corals) with long-lasting effects.

4. They are described as ‘emerging contaminants’ by Science Direct, in a study recently.
5. Exposure to parabens may cause:
 - a. Problems in reproductive cycle such as shorter menstrual cycles and scaling down sperm count. They are also harmful to lactating mothers. They cause early puberty in girls because parabens imitate estrogen in endocrine disruption.
 - b. Skin allergies and irritation – They cause rashes, hives, and reddish tinges on the skin. This includes causing inflammation in pre-existing conditions such as eczema, psoriasis, etc.
 - c. Breast cancer
 - d. Increased risk of contracting diseases like diabetes and obesity when they are used in food items as preservatives.
 - e. They increase high-density lipoprotein levels in women. This raises the risk of disease in women leading up to or after menopause.

Global parabens market is miniscule compared to PFAS ➤

1. Parabens are at a later stage in this cycle and hence, there is a huge market for paraben-free products. The global market for parabens has reduced to US\$91.1m. Going by the current trend, this market will reduce further in the coming years.
2. On the contrary, the PFAS (basically fluoropolymer) market is huge and has been growing for the last few years.



The social costs of PFAS are much higher compared to its global sales ➤

Figure 5: Global social cost of PFAS usage is US\$16.4tr against the overall fluoropolymers sales of US\$7bn and fluorochemicals sales of US\$28bn (assuming there is restriction on the PFAS usage post 2023)

Area	Million Euros	Source	Description
Health	68,000	Nordic Council of Ministers	Range 52-84bn, midpoint used as estimation; Includes: worker health (kidney cancer), all-cause mortality (communities close to production sites), hypertension (public).
Soil	21,00,000	Nordic Council of Ministers	Annual cost with 75,000t of emissions per year and 10% ending up in soil (ChemSec estimation) - cost for remediation is 280, 000 Euros per kg.
Water	2,38,000	Hans-Peter Arp	Removal of PFAS from 238bn m3, which is total consumption of water in the EU per year (industrial + private), cost is 1 Euro per m3.
Biomonitoring	300	Nordic Council of Ministers	Costs for monitoring PFAS concentration in water and soil.
Total cost in EU (billion Euro)	2,406.3		Total annual cost for the EU, including the three categories above.
Market share of chemical industry in EU	14.7%		
Global cost (billion Euro)	16,369.4		

SOURCE: INCRED RESEARCH, [HTTPS://NORDEN.DIVA-PORTAL.ORG/SMASH/GET/DIVA2:1295959/FULLTEXT01.PDF](https://norden.diva-portal.org/smash/get/diva2:1295959/fulltext01.pdf), [HTTPS://ECHA.EUROPA.EU/SV/REGISTRY-OF-RESTRICTION-INTENTIONS/-/DISLIST/DETAILS/0B0236E18663449B](https://echa.europa.eu/sv/registry-of-restriction-intentions/-/dislist/details/0b0236e18663449b), [HTTPS://FLUOROPOLYMERS.PLASTICSEUROPE.ORG/APPLICATION/FILES/1216/5485/3500/FLUOROPOLYMERS_MARKET_DATA_UPDATE_-_FINAL_REPORT_-_MAY_2022.PDF](https://fluoropolymers.plasticseurope.org/application/files/1216/5485/3500/fluoropolymers_market_data_update_-_final_report_-_may_2022.pdf)

European PFAS demand is already declining ➤

Figure 6: To some extent, consumers are already rejecting PFAS in Europe

Table 3.6 Downstream applications of fluoropolymers in Europe (tonnes and value) - First sector breakdown (as in 2016-2017 Fluoropolymer SEA study)

Sector	Total quantity sold (tonnes)			Total value (€ million)		
	In 2020	In 2015	% change 2015-2020	In 2020	In 2015	% change 2015-2020
Chemical and Power	11,000	16,500	-33%	200	220	-9%
Food and pharmaceutical industry (F&P)	2,000	3,000	-33%	30	40	-25%
Electronics	3,500	3,500	+/- 0%	70	50	+40%
Transport	15,500	18,500	-16%	280	300	-7%
Renewable energy	500	500	+/- 0%	20	<5	+300%
Cookware	2,000	3,500	-43%	30	60	-50%
Medical applications	500	1,500	-67%	20	20	+/- 0%
Textiles and architecture	1,500	3,000	-50%	40	40	+/- 0%
Other sectors, not included above	3,000	2,000	+50%	60	30	+100%
Total	40,000	52,000	-23%	740	780	-5%

Source: Wood / Amec Foster Wheeler Surveys with Members of the FPG, 2016 and 2021. Note all sales values are rounded to the nearest €10m all tonnage data are rounded to the nearest 500 tonnes. Note the following important caveat when comparing 2015 and 2020 data: 2015 data had been extrapolated from original survey data, whereas 2020 data has not been extrapolated as the underlying survey covered a larger number of companies than in 2015 (see also further explanation of this caveat in the text above this table).

SOURCE: INCRED RESEARCH, [HTTPS://FLUOROPOLYMERS.PLASTICSEUROPE.ORG/APPLICATION/FILES/1216/5485/3500/FLUOROPOLYMERS_MARKET_DATA_UPDATE_-_FINAL_REPORT_-_MAY_2022.PDF](https://fluoropolymers.plasticseurope.org/application/files/1216/5485/3500/fluoropolymers_market_data_update_-_final_report_-_may_2022.pdf)

Assuming the usage is unrestricted post 2023, then overall global costs will exceed Euro 141tr or US\$155tr ➤

Figure 7: If usage is unrestricted post 2023 then overall global cost will exceed Euro 141 trillion or US\$155 trillion

Total future cost - without restriction

		Source
Total amount until 2050F	44,00,000	tonne PFAS restriction dossier
Amount in soil (assumed 10%)	44,00,00,000	kg
Remediation cost per kg PFAS in soil	2,80,000	Euro Nordic Council
Cost for soil remediation	123	tr Euro
Water remediation	14	tr Euro
TOTAL COST REMEDIATION	137	tr Euro
TOTAL COST HEALTH	4	tr Euro
TOTAL COST	141	tr Euro

SOURCE: INCRED RESEARCH, COMPANY REPORTS

The position of 12 leading manufacturers of PFAS in the world is given below >

Figure 8: Out of the 12 leading companies who make PFAS, only 3M has completely stopped manufacturing PFAS; some others are banning fluoro surfactants so that the discharge of PFAS comes down but others are lobbying hard to extend the life of PFAS

Company	Action on PFAS
AGC Inc.	AGC also talks about reduction of emissions during PFAS production but not ceasing production.
Arkema	Arkema says that it's a global subject that concerns a very large number of industries and applications. The question of PFAS is global and extends far beyond the chemical sector as these substances are used by many companies, in many sectors, for many applications. What is at stake is the thousands of substances, each with different properties. They can be found in frying pans, textiles, packaging, carpets, soft furnishing, sportswear, etc.
Chemours	Chemours is in the camp which believes that a blanket ban on PFAS is unnecessary.
Daikin	Beyond achieving this significant emission reduction goal, Daikin is committed to continuously improving its manufacturing and enhancing its environmental stewardship. This commitment includes considering new technologies and practices to help ensure the safe manufacture and use of our products.
3M	3M has stopped making PFAS after paying a fine of US\$10.3bn in the US.
Solvay	Solvay is only talking about the phaseout of fluor surfactants, something which GFL also talks about. However, please remember that ECHA is talking about banning the end-products and is least bothered about the process.
Dongyue	The Chinese company is the biggest PTFE manufacturer in the world and appears to have no plan for production reduction as such,
Archroma	It is innovating the alternatives to PFAS. Please click the link to one such innovation announcement https://packagingeurope.com/news/archroma-launches-pfas-free-barrier-coating-for-oil-and-grease-applications/11187.article
Merck	Merck is also looking for PFAS-free materials. https://www.digitimes.com/news/a20240130PD225/merck-pfas-etching-materials-taiwan-supply-chain-localization.html
Bayer	Bayer has not announced any big plan to cut PFAS usage.
BASF	BASF says that it is committed to safe and sustainable products and uses its TripleS methodology to steer its portfolio towards more sustainable solutions. BASF supports balanced regulatory measures for PFAS. In a safe industrial context, it is important that the availability of suitable alternatives for critical applications is established before restrictions or bans enter into force. There are currently no drop-in alternatives for most industrial uses of PFAS as a part of the production infrastructure. The proposed PFAS restriction should consider potential interruptions of value chains and their potential impact on the environment and on health.
Honeywell	No plan to cut production as such.

SOURCES: INCRED RESEARCH, COMPANY REPORTS

In contrast, the action on parabens has been swift and manufacturers reduced production voluntarily >

Parabens are a category of chemical preservatives that have been used in beauty products since the 1920s. The beauty industry has long relied on parabens to increase the shelf life of products such as:

1. shampoos
2. conditioners
3. skin care products
4. soaps.

But over the past decade, the side effects of long-term exposure to parabens have become a cause for concern. While nearly all beauty products use some kind of preservatives to make their products last longer, paraben-free cosmetics may be safer to use.

The term 'paraben-free' is meant to let consumers know that these harmful chemicals aren't a part of the product formula.

Paraben-free products

These brands have committed to paraben-free formulas for all of their make-up products:

1. Real Purity
2. Mineralogie
3. Afterglow Cosmetics
4. Most bare minerals products are paraben-free,
5. Clinique products haven't always been paraben-free, but a recent update to their formulas removed all parabens from their cosmetics.

These companies have committed to paraben-free formulas for all of their skin care products:

1. Burt's Bees
2. Weleda
3. Naturopathica

Lots of shampoo brands offer paraben-free products. The following brands claim to be paraben-free "whenever possible":

1. SheaMoisture shampoos and conditioners.

2. Trader Joe's shampoos and conditioners.
3. Morrocco Method hair care products.
4. Real Purity hair care.

The bottom line

Parabens may have a negative impact on your health, especially if you're in contact with them on a regular basis through your daily beauty routine. There's currently no FDA regulation that limits the number of parabens that are present in beauty products and cosmetics.

If you're concerned about the impact of parabens, there's a wide array of paraben-free beauty brands and paraben-free cosmetic formulas that can reduce your paraben exposure.

Environmental concerns and regulations on PFAS >

The sectors and elements that will be discussed in the next three committee meetings for REACH regarding PFAS are:

1. Mar 2024 meetings agenda was on following:
 - a. Consumer mixtures, cosmetics and ski wax.
 - b. Hazards of PFAS (only by Risk Assessment Committee).
 - c. General approach (only by Socio Economic Assessment Committee).
2. Jun 2024 meetings:
 - a. Metal plating and manufacture of metal products.
 - b. Additional discussion on hazards (only by RAC).
 - c. *Note: RAC – Risk Assessment Committee*
3. Sep 2024 meetings:
 - a. Textiles, upholstery, leather, apparel, carpets (TULAC).
 - b. Food contact materials and packaging.
 - c. Petroleum and mining.

Textile and food packaging are among the major end-user industries of PFAS. So, the fact that there could be a ban as early as Sep 2024F in those categories is a big warning sign.

Environmental concerns and regulations on parabens >

1. In numerous cosmetic products, the approved percentage usage of parabens ranges from 0.01% to 0.3%.
2. The European Union (EU) has banned the use of isopropyl paraben, isobutyl paraben, phenyl paraben, benzyl paraben, and pentyl paraben in cosmetic products.
3. Whole Foods Market has banned all four parabens as part of its premium body care standard in the US since 2019.
4. Iso-propyl and iso-butyl parabens are also banned in personal care products in 10 Southeast Asian countries, as determined by the intergovernmental Association of Southeast Asian Nations (ASEAN).
5. The use of propyl- and butylparaben is restricted in the EU, ASEAN and Japan.

Figure 9: The skin-deep score of various parabens is given below - any score between 7-10 indicates a hazardous substance

Paraben Names	Skin Deep Score
Propylparaben	7
Isopropylparaben	8
Butylparaben	7
Isobutylparaben	8

SOURCE: INCRED RESEARCH, COMPANY REPORTS

There are various alternatives to parabens ►

1. Both parabens and PFAS have diverse uses in various industries and there has been research on alternatives for both.
2. Parabens are at a later stage than PFAS in this process and many alternatives have been found for parabens when compared to PFAS.
3. Parabens have following alternatives available as of now:
 - a. Organic acids
 - b. Phenoxyethanol
 - c. Essential oils
 - d. Plant extracts
 - e. Salicylic acid
 - f. Sodium benzoate.
4. Except essential oils and plant extracts, all the other alternatives could have similar, if not adverse effects on the skin.
5. Replacing parabens with organic preservatives is the most common strategy used in most products in the market currently.
6. These are a few of the brands using parabens alternatives in most of their products. Most brands still use parabens but there has been a surge in global awareness of paraben-free products.

Alternatives to PFAS are even more prevalent ►

There are many alternatives developed for PFAS as well, such as:

1. **Bio-derived and biodegradable polymers:** A range of biodegradable and bioderived polymers such as protein derivatives, polysaccharides, virus derivatives and polymers such as polylactic acid and cellulose show properties like fluoroplastics (piezoelectric properties) They also have potential for implantable electronics.
2. **Polyethylene (PE):** Certain grades of polyethylene can offer chemical resistance and good electrical properties, making them suitable alternatives for specific applications where PVDF is used.
3. **Polypropylene (PP):** It shares some characteristics with PVDF, such as good chemical resistance and the ability to withstand high temperatures. PP is often used in applications where these properties are essential.
4. **Polyamide (nylon):** Certain nylon grades can exhibit good chemical resistance, high strength, and excellent mechanical properties, making them suitable for replacing PVDF in certain applications.
5. **Polycarbonate (PC):** It is known for high-impact resistance, clarity, and good electrical properties. While PC may not match PVDF in chemical resistance, it can serve in applications where other properties are more critical.

6. **Polyoxymethylene (POM)**: Also known as acetal, POM offers good mechanical properties, wear resistance, and dimensional stability. It may not match PVDF's chemical resistance entirely, but it serves well in certain engineering applications.
7. **Polyether ether ketone (PEEK)**: It is a high-performance thermoplastic with excellent mechanical properties, chemical resistance, and high-temperature stability. While not identical to PVDF, it can serve as an alternative in certain applications.

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