FACTS Reports

Field Actions Science Reports
The journal of field actions

Special Issue 24 | 2022
The social and economic challenges of ecological transformation

Transitioning the chemical market

Anna Lennquist

OpenEdition Journals

Electronic version
URL: https://journals.openedition.org/factsreports/6949
ISSN: 1867-8521

Publisher
Institut Veolia

Printed version
Date of publication: 7 October 2022
Number of pages: 64-67
ISSN: 1867-139X

Electronic reference
Anna Lennquist, "Transitioning the chemical market", *Field Actions Science Reports* [Online], Special Issue 24 | 2022, Online since 07 October 2022, connection on 09 November 2022. URL: http://journals.openedition.org/factsreports/6949

Creative Commons - Attribution 4.0 International - CC BY 4.0
https://creativecommons.org/licenses/by/4.0/

TRANSITIONING THE CHEMICAL MARKET

Anna Lennquist
Senior Toxicologist, ChemSec



Anna Lennquist joined ChemSec in 2013 and is Senior Toxicologist and project manager for the SIN List and substitution. ChemSec is a non-profit organization committed to the development of sustainable chemicals use through dissemination of knowledge, collaboration and practical tools. It is a leading advocate of chemicals policy based on current scientific understanding. Anna works to convince policymakers, companies and financial investors of the urgent need to phase out hazardous chemicals. Anna graduated from the University of Gothenburg and has a PhD in zoophysiology.

Chemicals are everywhere in our everyday products. Many of them have proven to be hazardous and threaten our health as well as the environment. Scientists and chemical researchers have led many studies demonstrating the devastating effects from the widespread use of manmade hazardous chemicals (risks of cancers, diabetes, respiratory disorders, disruption of ecosystems, soil contamination, etc.). While awareness among society and consumers is slowly increasing, much remains to be done to set the chemical industry's transition in motion. This shift is not impossible, and is in fact achievable given that many toxic substances are replaceable with safer and more sustainable alternatives. Driving the switch to safer alternatives requires all stakeholders, from govemnments to businesses and investors, to adopt far more proactive policies in this area. Chemicals and their impacts should not be underestimated on our path toward a green transition.

INTRODUCTION

When thinking about chemicals, especially hazardous ones, we often picture pesticide spraying or factory chimneys. And yet, hazardous chemicals are found in many everyday products, from mobile phones, furniture and children' toys to the food we eat. As a result, every one of us is exposed to a cocktail of chemicals that can have harmful effects on us or the environment. And the industry is on an upward trend. The chemical industry is the second largest manufacturing industry in the world with global sales totaling USD 5.68 trillion in 2017. The value of the global chemical industry is projected to double by 2030.[1] At ChemSec, we are convinced that the green transition cannot be achieved without phasing out hazardous chemicals of our products and our daily lives.

1 UNEP, *Global Chemicals Outlook II: From Legacies to Innovative Solutions*, 2019. See also: OECD, *Saving Costs in Chemical Management*, 2019.



WHY SHIFTING AWAY FROM CHEMICALS MATTERS

The global chemical industry is gigantic. Millions of tons of chemicals are produced each year and most of them are hazardous. Indeed, 73% of all the chemicals in Europe are hazardous to human health and/or the environment, representing 220 million tons of chemicals.[2] Moreover, global chemical production almost doubled in the past 20 years: between 2000 and 2017, the global chemical industry's production capacity went from 1.2 to 2.3 billion tons. As the industry and its markets have grown, so has international trade in manmade chemicals. For instance, the value of China's exports of chemicals has increased by 15% since 2013. Chemicals are now found almost everywhere.

Many scientific studies have proven that these chemicals have harmful effects on people's health as well as on the environment.

As regards health, scientists have demonstrated in different studies that the presence of chemicals in the environment, food and consumer goods is directly linked to various illnesses and deaths. Chemical pollution is a major cause of human disease and premature deaths; the burden of disease from selected chemicals was estimated at 1.6 million lives in 2016.[3] Workers are often subject to disproportionally high exposure to hazardous chemicals. In 2015, almost one million workers died because of exposure to hazardous substances.[4] According to another UNEP report, Global Chemicals Outlook published in September 2012, poisoning from industrial and agricultural chemicals contribute to more than a million deaths every year worldwide. This figure is among the top five leading causes of death globally, after HIV/AIDS, tuberculosis, road traffic accidents and malaria. Potential adverse health effects of chemical exposure include acute poisoning, cancers, reproductive and neurodevelopmental disorders, and disruption of the endocrine system.

Hazardous chemicals are also a global threat comparable to climate change according to many scientists. The UNEP[5] highlights the fact that chemical pollution threatens ecosystem functions by adversely affecting pollinators, contributing to ocean dead zones, contaminating soils, accelerating antimicrobial resistance, killing biodiversity, and increasing pressure on coral reefs. The global chemical industry is the world's largest industrial energy consumer. It is also the third largest industrial emitter of CO_2.[6] The industry accounts for approximately 10% of global energy demand, or 30% of total industrial energy demand, worldwide. The issue is that chemical production continues to rely on oil, natural gas, and coal. Fossil fuels are the feedstocks for basic petrochemicals and the source of the large amount of energy needed to manufacture most chemical products.

More and more scientists consider hazardous chemicals as a global threat comparable to climate change

2 Eurostat, *Production and consumption of chemicals by hazard class*, 2020.

3 UNEP, *Global Chemicals Outlook II: From Legacies to Innovative Solutions*, 2019.

4 UNEP, *Global Chemicals Outlook II: From Legacies to Innovative Solutions*, 2019.

5 UNEP, *Global Chemicals Outlook II: From Legacies to Innovative Solutions*, 2019.

6 Levi and Cullen, *Mapping Global Flows of Chemicals: From Fossil Fuel Feedstocks to Chemical Products*, 2018.

HOW CONCRETE CHANGE CAN BE ACHIEVED

To achieve a toxic-free future, we need to ban the most hazardous substances and develop and use sustainable alternatives. The good news is that a lot of the hazardous substances in widespread use are replaceable with safer alternatives. Governments, private sector, investors and consumers all have a role to play in the transitioning of the chemical industry.

The role of regulation: inform, ban and incentivize

Regulation has a key role to play in supporting the chemical industry and all businesses on their path toward sustainable chemicals by (1) banning the most hazardous chemicals on the market, (2) incentivizing business to change their practices and (3) increasing transparency and information on chemicals.

Concerning the ban, substances of high concern should not be used in consumer articles. Long lists of high concern chemicals do exist but unfortunately very few are in the process of being banned at EU/international level. The process needs to be speeded up. We have to acknowledge that countries are not all at the same level of maturity in terms of existing regulations, bans and chemical reduction objectives. It is currently very difficult to know where countries stand in terms of chemical policies. The European Union is the only region that is transparent about chemical production and probably has the strictest chemical regulation. Significant efforts have been made by the EU over the years. Considering this, we can assume that the chemical situation is probably worse in regions like the US or Asia.

While EU regulations are far from being sufficient, a number of legal frameworks are sources of inspiration for other countries and regions. REACH is a significant regulation in terms of chemicals that was enforced in 2006. It places responsibility on industry to manage the risks from chemicals and provide safety information on substances. The REACH Regulation aims to improve the protection of human health and the environment through better and earlier identification of the intrinsic properties of chemical substances. This is achieved with the four processes of REACH, namely the registration, evaluation, authorization and restriction of chemicals. REACH also aims to enhance innovation and competitiveness of the EU chemicals industry. The Regulation calls for the progressive substitution of the most dangerous chemicals (referred to as "substances of very high concern") when suitable alternatives have been identified. Revision of the REACH Regulation was announced by the Chemicals Strategy for Sustainability adopted on October 14, 2020. The objective of this revision is to ensure that the provisions of the REACH Regulation reflect the ambitions of the European Commission on innovation and a high level of protection of health and the environment, as provided for in the strategy. Other EU legislation, such as the 2020 Chemical Strategy, has put the circular economy specifically, and sustainability more broadly, on the agenda. It is part of the EU's zero-pollution ambition, which is a key commitment of the European Green Deal.

Regulation also has a role to play in encouraging businesses to be more proactive when it comes to sustainable chemical alternatives. Since private companies are often driven by financial targets, maintaining economic incentives to substitute hazardous chemicals within regulations and other policy measures is a powerful tool. A broad set of economic incentives for switching to safer alternatives is an intrinsic part of the REACH authorization system.

In order to improve transparency, regulation should help companies to understand which chemicals are in the products they sell. Companies themselves are asking for better legal requirements on supply chain communications concerning chemicals. The objective is to have full chemical disclosure. Many companies would like to do the right thing, but they do not have the necessary information since it is impossible to track it along the supply chain.

The biggest driver for companies to phase out hazardous chemicals is to future-proof their business

Beyond adopting regulations, one of the main challenges is to get policymakers to keep their promises. Regulators need to present clear targets for real change. The strategy put in place must include specific commitments as well as deadlines and concrete deliverables.

The role of the private sector: change practices and future-proof your business

The biggest driver for companies to phase out hazardous chemicals is to future-proof their business. It is crucial to be prepared for upcoming regulation and ensure that your business has an alternative before the ban comes into place or a scandal hits a business. There is also an opportunity for proactive companies to improve their brand image and reputation among their own consumers.

A growing number of companies are working actively to reduce the use of hazardous substances in their products and processes. More and more companies have even developed a Restricted Substance List, which go beyond regulation.

A number of them are part of the ChemSec Business Group, made up of companies working together to inspire concrete progress on toxic use reduction. The market-leading companies from a diversity of sectors discuss how to develop effective corporate practices in the substitution of hazardous substances. The initiative also raises public awareness of companies' efforts. For example, Coop is Denmark's largest retail enterprise owned by its members. Coop has always worked to secure the highest level of responsibility for consumers, society and the environment. Coop implements requirements on top of legislation. It has committed to a strong policy to educate consumers about chemicals. When it cannot find an alternative to a product containing chemicals, it stops selling the product.

ChemSec also works with H&M and Ikea to learn more about hazardous chemicals in recycled textiles. Both companies want to use recycled textiles but need to ensure that they are compliant with their own standards on chemicals. Testing and gathering information requires a lot of work, so they decided to share costs and knowledge. This alliance illustrates the fact that companies can and do agree to work together and collaborate when it comes to this topic, and are prepared to ask their suppliers to make changes concerning chemicals. Consequently, supply chain pressure is also a driver.

CHEMSEC TOOLS TO DRIVE THE SHIFT TO SUSTAINABLE CHEMICALS

ChemSec has developed various tools to support companies and show policymakers that change can happen.

- **ChemScore:** it ranks the world's 50 largest chemical producers on their work to reduce their chemical footprint. It was developed to provide investors with better information to assess which companies have strong chemicals management strategies, and which do not.
- **Marketplace:** this business-to-business website is a place where buyers and sellers of alternatives to hazardous chemicals can interact. Not only does it provide a unique market opportunity for producers of safer alternatives, but also a one-stop shop for downstream user companies looking to substitute hazardous chemicals in their products. Companies can advertise their alternatives, providing and sharing their own solutions.
- **SIN List:** it consists of hazardous chemicals that are used in a wide variety of products and manufacturing processes around the globe. The SIN abbreviation – Substitute It Now – implies that these chemicals should be removed as soon as possible as they pose a threat to human health and the environment. It is a good way to learn which chemicals every company should avoid.

ChemSec is currently developing a PFASs guide to help companies that want to substitute these so called "forever chemicals". One main challenge for companies is to understand which of their products contain PFASs.

Investors: disinvest from toxic chemicals

Financial investors have a big impact on the strategic decisions taken by companies. From their perspective, the production and use of hazardous chemicals implies financial risks. However, these risks can be avoided by including the chemical perspective in investment analysis, and there are opportunities to grasp in investing in companies producing safer alternatives.

The implementation of the European REACH chemicals' legislation and the Toxic Substances Control Act in the US are seriously affecting chemical manufacturers, as well as downstream companies and retailers. To avoid risks and underperformance, hazardous chemicals must become a rising issue on the investment horizon.

The use of hazardous chemicals implies financial risks. Producers and users of hazardous chemicals facing possible future restrictions, such as the ones listed on the SIN List (which are identified by ChemSec as Substances of Very High Concern according to REACH criteria) face the risk of increased costs associated with reformulating products and modifying processes, which can have significant implications for company performance. This points to vast risks for companies with long production cycles. A product that is made today but put on the market in ten years' time could require the use of a substance which by then will have become restricted by REACH.

Consumers: be aware of toxicity and ask for change

The more consumers know about chemicals and the more questions they ask, the better. Consumers have a crucial role to play. According to a survey by the EU Commission,[7] 85% of European citizens are worried about how chemicals affect their health and 90% are worried about chemicals and the environment. Even though people are increasingly aware of the dangers of chemicals, there is still a lot to do.

ChemSec does not work in the consumer sphere, but there are several good initiatives with apps for scanning products on the shelf and finding out more about their chemical content. They provide a powerful game-changing tool to bring about a shift and empower customers. Consumers should have the right to know what is inside the product they buy.

CONCLUSION

The harmful effects of hazardous chemicals on both health and the environment are a scientific fact. Small changes and progress have been made over the past few years. The European Union has adopted some proactive policies, even though a lot remains to be done, while a number of businesses are taking the lead in shifting their current practices and finding safer alternatives. Nevertheless, this is only the beginning of a long journey toward the transition of the chemical industry. It is key that businesses, States and regulators, investors and consumers themselves understand the risks of hazardous chemicals and push for better practices. The green transition and the emergence of a new sustainable model for people and the planet cannot happen without taking into consideration the chemical perspective.

7 European Union Barometer, *Attitudes of Europeans towards the Environment*, 2019.