



AVOID RISKING YOUR PROFIT

– stay out of investing
in hazardous chemicals

Chemicals Criteria Catalogue

– a guide for investors evaluating the chemicals management
of chemical producers



CHEMICALS AFFECT EVERY DAY OF OUR LIVES

Since 1930, the production of industrial chemicals has increased enormously, from 1 million metric tonnes per year to more than 400 million metric tonnes today. The chemical industry is one of the world's largest industries, and their world sales were valued at €2,353 billion in 2010.¹

CHEMICALS PLAY A KEY ROLE in today's modern society, and bring substantial benefits, e.g. through their use in the healthcare sector. However, the scale on which chemicals are used today, in combination with the fact that many of them are hazardous, gives a situation where chemicals affect nature and our society in unsustainable ways. We know very little or nothing about the long-term effects that many of the chemicals used in products today have on humans, nature and wildlife. Only very few hazardous chemicals are legally restricted.

HOWEVER WE DO KNOW that many chemicals are hazardous and do not easily break down, instead they stay in nature for a long time and are transferred through the food chain, resulting in significant levels found in humans and other predators. The impact of hazardous substances is evident not only in industrial areas but also in tropical forests, marine systems, and the Arctic. Some 300 man-made chemicals have been found in humans.

HAZARDOUS CHEMICALS have been linked to illnesses and conditions such as cancer, diabetes, cardiovascular diseases, attention deficit and hyperactivity disorders, depression, Parkinson's and Alzheimer's diseases, infertility and obesity.

TODAY OUR AWARENESS OF THE EFFECTS of hazardous chemicals is rapidly increasing thanks to the adoption of a comprehensive legal framework in the EU, REACH. In other parts of the world, like US and China, discussions on more progressive chemicals regulation are ongoing. Consumers and workers around the world, as well as the media and politicians, are starting to pose questions about the downsides of our chemical society. Companies are responding to this increased pressure, and in their striving to sell less toxic products often move beyond legal requirements.

“The chemical industry is one of the world's largest industries”

BY 2018 APPROXIMATELY 30,000 SUBSTANCES are estimated to have been registered within REACH, and our knowledge about the properties of these substances, and how they affect our health, will be increased. In addition, European Commission officials have promised that all relevant Substances of Very High Concern (SVHCs) will be identified and included in the REACH Candidate list, which is the first step towards being banned in the EU, by 2020. This underpins the UN 2020 goal to minimise the adverse effects of chemicals on health and the environment.



REACH is the EU regulation for Registration, Evaluation, Authorisation and Restriction of Chemicals. It entered into force in 2007 to streamline and improve the former legislative framework on chemicals of the European Union. REACH places greater responsibility on industry to manage the risks that chemicals may pose to health and the environment. For the first time industry is obliged to produce data on tens of thousands of chemicals, and a systematic way has been established to identify and restrict the use of so-called Substances of Very High Concern (SVHCs). REACH is a big step forward in terms of stricter chemicals legislation and will have an impact on further legislative developments worldwide.

1. <http://www.cefic.org/Facts-and-Figures/Chemicals-Industry-Profile/>

WHY SHOULD FINANCIAL INVESTORS CARE ABOUT CHEMICALS?

Sustainability indicators in financial investment decisions are on the rise. There is a growing market for socially responsible investments (SRI) and indicators such as carbon emissions are shown at the Bloomberg monitors used by investment professionals. The 2008 financial crisis has contributed to the view that more than just pure short-term financial figures are needed to evaluate a company.

HOWEVER, CLIMATE CHANGE and energy consumption have so far been the main focus of this development towards more sustainability in investment analyses. Chemicals and other environmental issues still play a subordinate role. In 2010 ChemSec showed that only 21 out of 152 SRI companies used criteria covering chemicals.

THE USE OF HAZARDOUS CHEMICALS entails huge financial risks. These can take the form of production plant accidents, product recalls, or workers' and consumers' health being adversely affected. It is also important to take into consideration the increased costs associated with reformulating products and modifying processes due to increased regulatory control of hazardous chemicals. Increased public awareness and consumer demand also intensify the pressure on corporate brands not to be associated with chemicals that harm the environment and human health.

THERE IS TODAY AN INCREASING NUMBER of companies, not only well-known consumer brands, but also a few chemical producers, that are developing their product portfolio away from the risk of hazardous chemicals. Green chemistry, cradle-to-cradle and other forms of new design and production development thinking that take into account the whole life cycle of substances or products, are gaining market shares. Therefore there is now the possibility to invest in this development, and at the same time avoid the risk of investing in hazardous chemicals.

AS FINANCIAL INVESTORS HAVE A HUGE IMPACT on the strategic decisions of companies, they can, along with governments, companies, NGOs and the scientific community, play a crucial role in striving for a less toxic and contaminated world. The pressure on companies to substitute hazardous chemicals increases when, besides regulatory requirements and consumer demands, financial investors also require change towards safer alternatives.

“Financial markets in particular have great potential to accelerate the transition towards sustainable business practices and sustainable models of economic development.”

World Economic Forum, report 2011²

2. World Economic Forum, report 2011 “Accelerating the Transition towards Sustainable Investing” <http://www.weforum.org/reports/accelerating-transition-towards-sustainable-investing>



EXAMPLES OF FINANCIAL RISKS ASSOCIATED WITH HAZARDOUS CHEMICALS

LITIGATION FINES:

- In Italy in February 2012 the former owner and a manager of the asbestos conglomerate Eternit were found guilty of involuntary manslaughter, and they were sentenced to 16 years in jail and up to €120 million in compensation. The settlement of the trial has been finalised 26 years after Eternit went bankrupt in 1986 and seven years after the final asbestos ban was imposed in Europe in 2005. The verdict sets a potential precedent around the world for exposing workers to hazardous substances. The inhalation of asbestos fibres can cause lung inflammation and cancer, and symptoms can take decades to manifest after exposure.³
- In October 2010 almost two million cubic metres of a toxic by-product from the production of alumina burst from a storage reservoir near Ajka, Hungary. 10 people were killed and 120 injured by the toxic sludge spill. The residue has covered an area of 40 sq km and the contamination has spread into the region's waterways. MAL Hungarian Aluminium, the metal company responsible, received a €472 million fine.⁴
- DuPont, which manufactures the chemical PFOA, has been fined \$10.25 million for withholding substantial risk information from the US Environmental Protection Agency, plus a \$100 million private settlement for contamination charges in 2005. PFOA is used in consumer products such as carpets, textiles, and food packaging, also in the manufacture of 'Teflon'. Studies have linked PFOA with a wide range of health concerns, including liver damage, birth defects, and cancer.⁵

RECALLS:

- In 2007 toy-maker Mattel was forced into large-scale recalls following the discovery of lead in its products. Nearly two million toys were recalled. As a result Mattel's share price underperformed the sector by approximately 35 per cent in the second half of the year.



— Mattel Stock Price
 - - - Dow Jones Toy Industry Index

Source: Bloomberg

- At the end of 2001, in the middle of Christmas sales, Dutch authorities halted the shipment of 1.3 million Sony PlayStation game machines because their cables contained illegally high cadmium levels. Sony lost sales and increased costs to rework their product totalled about \$150 million.⁶

COSTS OF REGULATION:

- Within the European chemicals regulation REACH, Substances of Very High Concern listed on an Authorisation list cannot be produced for or used in the European market after a 'sunset date', unless an authorisation has been granted for a specific use. The base fee for an authorisation of a Substance of Very High Concern in Europe costs €50,000 with no guarantee that an approval will be granted. The first sunset dates are set for 2014.

COSTS OF WASTE MANAGEMENT can minimize profits, whereby the treatment for hazardous waste is most expensive. Following example shows savings due to reduced waste:

- Interface implemented Mission Zero goals of having zero environmental impact and zero footprint by 2020. In November 2010 its founder Ray Anderson reported a reduction in landfill waste of 80 percent and savings of \$433 million in avoided waste costs since 1994.⁷

3. <http://asbestosinthedock.ning.com/>

4. http://articles.cnn.com/2010-10-06/world/hungary.sludge.chemical.spill_1_sludge-reservoir-alumina?_s=PM:WORLD and <http://www.bbc.co.uk/news/world-europe-14922301>

5. *Fiduciary guide to toxic chemical risk report*, Investor Environmental Health Network, IEHN; <http://www.iehn.org/publications.reports.php>

6. *Toxic stock syndrome*, IEHN; <http://www.iehn.org/publications.reports.php>

7. <http://www.greenbiz.com/news/2010/11/09/interface-conduct-life-cycle-analyses-all-products>

THE CHEMICAL INDUSTRY

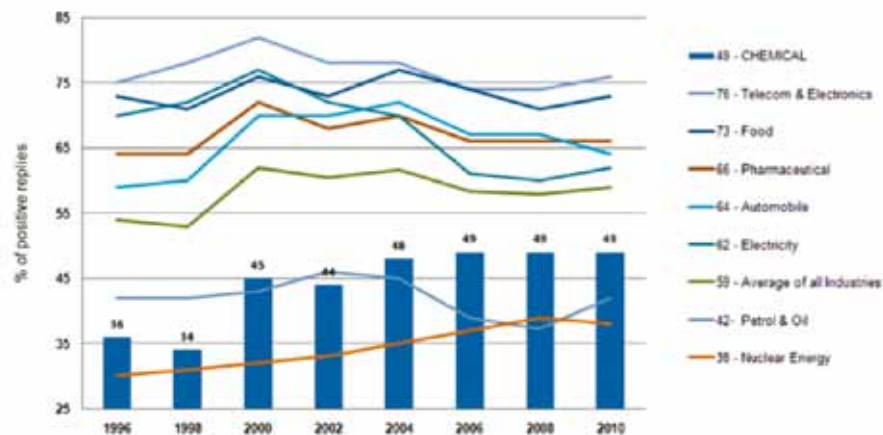
The chemical sector is still often seen as an unsustainable branch. The chemical disasters in Seveso in Italy (1976), Bhopal in India (1984) and the fire at Sandoz in Switzerland (1986) severely damaged the reputation of chemical producers worldwide. Then came the chemical industry's fierce lobby fights in Brussels between 2003 and 2006 to weaken the new EU chemicals regulation REACH. Still today, the chemical industry is highly intransparent, fighting stricter chemicals regulations and a swift implementation of REACH. The industry often focuses its environmental efforts in areas other than its core business, chemicals, such as energy or water usage.

ASIDE FROM THIS the sector has undergone a vast restructuring in the last 20 years and many production facilities have been moved from Europe to Asia. It is therefore important that companies apply strict health and safety standards globally so that sustainability in Europe is not paid for by pollution and diseases in other parts of the world.

THE REPUTATION OF THE CHEMICAL INDUSTRY is ranked clearly below the average of all sectors, as shown in figure 2, and has not improved in the past recent years. The only industries less popular are 'petrol and oil' and 'nuclear energy'.

However, chemical products can have many benefits, and are used in a wide range of everyday consumer products. This is why ChemSec believes that sustainable investors should not exclude the chemical sector as a whole, but analyse the companies differently than today. Besides safety and management strategies, the product portfolio of chemical manufacturers also needs to be evaluated. Some chemical producers are starting to take on the challenge of moving away from hazardous chemicals, so there are opportunities for investors to grasp.

European chemical industry's public image



Source: Cefic Pan European Survey on the image of the chemical industry 2010

WHY DOES CHEMSEC ENGAGE IN DIALOGUE WITH AND OFFER TOOLS TO INVESTORS?

At ChemSec we see the investor sector as a new and important stakeholder in promoting the production and use of safer chemicals. This is why for the last few years we have increasingly been in dialogue with the investment community. Many financial investors are asking for more information about the underlying future risks embedded in the chemicals sector. This information has often been found to be well hidden, scarce, and sporadic.

OUR EXPERIENCE IS that investment professionals have an interest in more information about which chemicals are regarded as hazardous and the outlook of future legislative regulations, as well as which companies produce the most hazardous substances, which companies restrict their use in their products, and who is producing safer alternatives.

The answers to some of these questions are not publically disclosed today, such as which chemicals are produced in which quantities by which companies. Here the investment community has an important role to play, having the power to require those answers in order to make investments, and hence encourage more transparency and better decision-making.

IN OUR DIALOGUE WITH THE INVESTMENT COMMUNITY, ChemSec started by offering the SIN List as a tool to investors. The SIN List is the most comprehensive list of substances likely to face future regulation in the EU. Today, several investment firms and rating agencies use the SIN List in their investment analysis. However, investors do not invest in substances, they invest in companies.

SO WE DEVELOPED THE SIN PRODUCERS LIST⁸, presenting the companies in Europe producing or importing SIN List chemicals, at least according to the latest publicly available information (in the European Commission ESIS database, latest updated in 2008). We have also initiated a legal process in order to make the European Chemicals Agency disclose the current figures regarding which companies are producing SIN List chemicals and in which quantities.

In the US the Environmental Defence Fund has screened through the Inventory Update Rule (IUR) using the SIN List to present an overview of which chemicals and companies in the US are likely to be affected by future EU regulations.⁹

THE SIN LIST HAS PROVEN to be a useful and appreciated tool for identifying industrial chemicals likely to face future restrictions through REACH. However the problem of hazardous chemicals is wider than that, e.g. pesticides used in food production are also a huge area of concern. Pesticides are not regulated under REACH and therefore not covered by the SIN List. Therefore we have now taken the next step in our attempt to provide tools that make it easier for the investment community to avoid investing in high-risk hazardous chemicals by publishing this criteria catalogue.

OUR VISION IS a society where the production and use of hazardous substances is restricted, companies have phased these substances out and developed new safer alternatives and changed processes and products, resulting in an exposure of man-made hazardous chemicals that is close to zero.



THE SIN (SUBSTITUTE IT NOW!) LIST puts pressure on legislators to move forward with speed and urgency and provides companies with a tool to identify and substitute hazardous chemicals and prepare for future regulations. The SIN List currently consists of 378 chemicals that ChemSec has identified as Substances of Very High Concern based on the criteria established by the EU chemical regulation, REACH. These are substances that can cause cancer, alter DNA or damage reproductive systems, substances that do not easily break down, instead building up in nature with a potential to cause serious and long-term irreversible effects, as well as substances of equivalent level of concern (e.g. endocrine-disrupting chemicals). The SIN List was built through the combined efforts of public interest groups, scientists, and technical experts. www.sinlist.org

8. Available online at <http://www.chemsec.org/sin-producer-list>

9. The Across the Pond report is available online at <http://www.edf.org/health/reports/across-the-pond>

WHY A CRITERIA CATALOGUE AND HOW CAN IT BE USED?

This criteria catalogue is the first of its kind aiming to cover all aspects of chemical risks and opportunities for chemical manufacturers. It presents a comprehensive set of powerful questions to enable investment professionals to judge all relevant aspects of the performance of a chemical-producing company. The criteria catalogue highlights how sound chemicals management avoiding environmental, health and financial risks includes more than the hazardousness of the chemicals used and produced.

SOME ASSET MANAGERS already exclude producers of certain chemical product groups. However these exclusion criteria, such as ozone-depleting substances, or agro- and chlorinated chemicals, reflect the debate of the 1980s. It is time to expand it, and the exclusion criteria presented in this criteria catalogue include the latest legislative developments, such as the amended global Stockholm Convention on persistent organic pollutants and the European chemicals legislation REACH.

“This criteria catalogue is the first of its kind aiming to cover all aspects of chemical risks and opportunities for chemical manufacturers”

RATING AGENCIES FOR SUSTAINABLE INVESTMENTS are already covering chemical safety issues in their analysis, and in more detail in their “positive criteria”, such as indicators of product safety, emissions, customer information and staff training. However, the analysis of a chemical company’s product portfolio and its sustainability has not been done in a comprehensive way, most likely due to lack of information. This criteria catalogue aims to fill this gap by including this analysis. We believe that more

information will be available in the future, through regulatory measures, public pressure for more transparency – and investors inquiries.

EXCLUSION CRITERIA – our recommendation is to exclude companies that are still producing substances, which are internationally regarded as hazardous, and listed in the regulations included in the exclusion criteria.

POSITIVE CRITERIA – this section presents all relevant questions about chemical risks and opportunities and the answers to them are intended to give a full picture of the financial risks of a company’s chemicals management. Possible data sources can also be found in the table.

ASSET MANAGERS HAVE DIFFERENT PRIORITIES for their investment strategies, and this is the reason why the criteria catalogue presents 38 indicators aiming at covering all aspects of chemical risks and opportunities for chemical manufacturers. Therefore we advise, when needed, to pick the most relevant questions. To make the criteria catalogue user friendly, we have highlighted the 5 most important chemical indicators (number 1, 2, 3, 6 and 37). For some of the questions it will currently be difficult to get sufficient answers, nevertheless the more investment professionals ask these questions, the more likely it will be that the chemical industry becomes more transparent and hence spurs on innovation and the development of safer products and processes.

THERE IS ALSO THE POSSIBILITY TO USE a single criterion in engagement strategies. Especially when publicly available information is missing, questions can be raised in discussions with company management, used in shareholder resolutions or in proxy voting at company annual general meetings.



THE INDICATORS ARE PRESENTED in a format and structure easily workable for sustainable investment professionals, based on the structure of the Global Reporting Initiative (GRI). The sections “chemicals” and “society” have been added to the GRI structure, since we see them as indispensable.

There is also the possibility for stakeholders other than financial investors to use this criteria catalogue, as it gives a full picture of the chemicals management of a chemical-producing company. It gives guidance to manufacturers of chemicals on what issues to look into in order to be prepared for future investment analysis. The Global Reporting Initiative (GRI) does not currently cover the issue of hazardous chemicals in its environmental section, and we believe this criteria catalogue can also be useful in the process of including the issue in the GRI guidelines.

EXAMPLE OF SHAREHOLDER RESOLUTIONS ON SINGLE CONTROVERSIAL SUBSTANCES

Domini Social Investment, As You Sow, and Trillium Asset Management filed a resolution on getting a report on the use of the controversial substance Bisphenol A (BPA) in the cans of Coca-Cola. BPA is an endocrine-disrupting chemical that can mimic oestrogen in the body. Even at low doses it has been linked to health effects such as cancer, obesity, and fertility problems. The investors network wanted to get a report on Coca-Cola’s strategy towards developing alternatives to BPA in can linings. The resolution gained 22 percent of the vote in 2010 and 25 percent when raised again in 2011.¹⁰

¹⁰ http://www.asyousow.org/health_safety/bpa_coke.shtml

OTHER INITIATIVES TO PUSH COMPANIES TO DISCLOSE INFORMATION ABOUT SUSTAINABILITY

In 2003 mandatory reporting requirements for large corporations were introduced in the EU. The accounting legislation¹¹ and the Federation of European Accountants state that “transparency on sustainability will no longer be a matter only for voluntary reporting by entities who recognise a responsibility to inform their stakeholders on their sustainability performance.”¹² But what needs to be reported in terms of sustainability performance? Dr. Axel Hesse has defined, in his work “Sustainable Development Key Performance Indicators (SD-KPIs) Standard 2010-2014”, the relevant three most

important sustainability indicators for the financial performance for each of the 68 industries, among them hazardous waste and toxic materials.¹³

The automotive sector has already been faced with a court case to make the CO₂ emissions of their cars publicly available. The question is when the first court case confronting the chemical industry to report on their reduction of hazardous substances will occur.

*“What you measure,
you can manage and subsequently change”*

11. Europe directives 78/660/EC und 83/349/EC

12. http://www.fee.be/publications/default.asp?library_ref=4&content_ref=931, Discussion paper Sustainability Information in Annual Reports - Building on Implementation of the Modernisation Directive

13. http://www.sd-m.de/index.php?Itemid=285&id=138&option=com_content&task=view&lang=en



THE CHALLENGE OF DEFINING HAZARDOUS SUBSTANCES AND SAFER ALTERNATIVES

There is no global definition of what is a hazardous substance. In the process leading up to this criteria catalogue we have screened various sources and attempts to define this. The SIN List, being well-established, scientifically based and strictly using REACH criteria for Substances of Very High Concern, is a highly useful tool. Nevertheless the SIN List only covers REACH relevant substances and excludes other substance groups like pesticides and pharmaceuticals, since they are not included in REACH. Also REACH does not cover all hazardous properties, like sensitising or neurotoxic properties.

For pesticides we recommend the use of the Pesticides Action Network (PAN) "International List of Highly Hazardous Pesticides".

The spreading of pharmaceuticals into the environment is also a major concern. Pharmaceuticals are

produced to improve health, and it is very difficult to weigh positive against negative effects. Besides human health there are environmental aspects, e.g. the painkiller Diclofenac is currently being considered for inclusion in the Water Framework Directive as a priority substance as it is persistent and therefore hardly biodegradable. We have chosen to exclude the substance group of pharmaceuticals from this set of criteria but we recognise that their negative impact on the environment should be taken into consideration whenever data is available.

Defining hazardous substances is the first step, the next is to define safer alternatives. When is a substitute better? This criteria catalogue highlights two tools to be used in aiming to answer this question – SUBSPORT and GreenScreen.



SUBSPORT

The SUBSPORT web portal, developed by ChemSec and three other European partners, is an online resource for substitution support. One part of SUBSPORT is an alternatives database with substitution case stories from companies and organisations. The alternatives presented in the database are going through a brief assessment before publication. This assessment is to screen if the alternative is present on the “database of hazardous substances according to SUBSPORT screening criteria (SDSC)”. This database consists of a set of priority substance lists representing substance properties that SUBSPORT regard as undesirable. These properties are CMR, PBT, endocrine-disrupting, sensitising and neurotoxic. The user of SUBSPORT, however, is recommended to perform a more thorough assessment of alternatives before full implementation of an alternative, using some of the methods for alternatives assessment presented on SUBSPORT. One of these methods is the Green Screen, presented below.

www.subsport.eu

GREENSCREEN

A comprehensive approach to assessing chemical alternatives is the GreenScreen for Safer Chemicals, developed by the US-based NGO Clean Production Action. A full GreenScreen assessment involves a literature search for 18 specific hazardous properties as well as known and predicted transformation products of the chemical. It also compensates for lack of data, so that less-studied chemicals are not scored higher than well-studied chemicals. When all specific hazardous properties have been studied the results are translated into a “benchmark” of 1-4 where 4 represents a safe chemical. In this way alternatives can be easily compared.

www.cleanproduction.org/greenscreen

THE PAN INTERNATIONAL LIST OF HIGHLY HAZARDOUS PESTICIDES

The Pesticide Action Network’s (PAN) “International List of Highly Hazardous Pesticides” is based on internationally recognised classifications of pesticides by hazard. It lists highly hazardous pesticides according to their acute toxicity, long-term effects, and environmental toxicity. Additionally it lists pesticides that are regulated by the Rotterdam Convention, Stockholm Convention and Montreal Protocol.¹³ The PAN list is based on classifications of internationally recognised institutions, e.g. the World Health Organisation (WHO), the US Environmental Protection Agency, the European Commission and the International Agency for Research on Cancer (IARC). The WHO classification mainly addresses the acute toxicity, but only partly long-term effects and no environmental toxicity. Therefore PAN does not just use the WHO classification (all pesticides which are in WHO class 1a and 1b are on the PAN List) but also other internationally well recognised classifications which cover acute inhalative toxicity (not covered by WHO) and specific long-term effects comprehensively (e.g. cancer or reproductive toxicity).

http://www.pan-germany.org/gbr/project_work/highly_hazardous_pesticides.html

1. EXCLUSION CRITERIA

The identification of the most hazardous chemicals is discussed at international and regional levels. The following international treaties and conventions have been agreed by a majority of countries worldwide. They list some of the most hazardous chemicals identified and agreed so far. This is an on-going process and new substances are added on a regular basis. We recommend that companies producing or using those substances should be excluded from sustainable investments.



INTERNATIONAL AGREEMENTS

A. Persistent Organic Pollutants, POPs (Stockholm Convention)

The Stockholm Convention is a global treaty to protect human health and the environment from chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of humans and wildlife, and have adverse effects on human health or the environment. The Stockholm Convention was adopted in 2001, entered into force in 2004 and was amended in 2009. 173 countries have ratified the Convention. It currently lists 21 POPs.¹⁴

B. Annex III Chemicals of the Rotterdam Convention

The “Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade” is a multilateral treaty. It enables countries to get informed about the import of hazardous substances listed in Annex III. It covers pesticides and industrial chemicals that have been banned or severely restricted for health or environmental reasons by Parties to the Convention. The Convention was adopted in 1998, entered into force in 2004, has 128 parties and currently covers 43 substances.¹⁵

C. Substances that deplete the ozone layer (Montreal Protocol)

The Montreal Protocol is an international treaty that reduces “the production and consumption of ozone-depleting substances in order to reduce their abundance in the atmosphere, and thereby protect the earth’s fragile ozone layer”. The treaty entered into force in 1989 and has been ratified by 196 states and the European Union. It currently covers 96 substances.¹⁶

14. <http://chm.pops.int/Convention/ThePOPs/ListingofPOPs/tabid/2509/Default.aspx>

15. <http://www.pic.int/Default.aspx?tabid=1132>

16. http://ozone.unep.org/new_site/en/Treaties/treaty_text.php?treatyID=2&secID=60

D. Pesticides classified as Extremely Hazardous and Highly Hazardous by the World Health Organisation (WHO Red-List, Class 1a, 1b)

The WHO Red list sets out a classification system to distinguish between the more and the less hazardous forms of selected pesticides based on acute risk to human health. Category 1a currently lists 28 pesticides as being extremely hazardous and in category 1 b, there are 58 substances named as highly hazardous.¹⁷

E. OSPAR list of priority action

OSPAR is the mechanism by which fifteen governments together with the European Community cooperate to protect the marine environment of the North-East Atlantic. This collaboration was initiated in 1972 with the Oslo Convention against dumping from ships and aircrafts. The Paris Convention of 1974 broadened it to cover land-based sources and the offshore industry. These two conventions were unified, updated and extended into the 1992 OSPAR Convention. OSPAR currently lists 50 substance groups.¹⁸



REGIONAL AGREEMENTS

In addition, many regional legislative measures define hazardous chemicals and aim to restrict or ban them, at least for some uses. Chemical companies with a sincere sustainability strategy are already able to avoid the production of those chemicals. Nevertheless if all companies producing these were excluded from sustainable investments, there would be very few companies left. Therefore we do not list them here with, except one exemption:

F. The Candidate list of the EU chemicals legislation REACH

REACH, the European chemicals legislation, deserves attention, as it is the most far-reaching legal instrument at the moment. Substances that have been placed on the so-called “Candidate list” are considered by the EU as Substances of Very High Concern. From there, the EU derives chemicals to be placed on a so-called Authorisation List, in which substances will eventually be banned when not authorised. This Candidate list gets extended every half year, currently listing 73 substances, and the aim is to list all relevant ones by 2020. To invest in companies producing or using these Substances of Very High Concern implies huge financial risks: reformulation of products and processes, customers buying safer alternatives from different suppliers, reputation and profit losses. Therefore Candidate list substances should be phased out as soon as possible and investors should make sure that companies do not produce or use them.¹⁹

All substances and substance groups included in these treaties and conventions are listed in the Substance Annex.

17. http://www.who.int/ipcs/publications/pesticides_hazard/en/

18. http://www.ospar.org/content/content.asp?menu=00940304440000_000000_000000

19. <http://echa.europa.eu/web/guest/candidate-list-table>

2. POSITIVE CRITERIA

– Top 5 highlighted

No	Category	Subcategory	Criteria	Indicator	References and possible data sources	Explanatory note	Evaluation
1	Environment	Chemicals	Production of hazardous chemicals	If the above-listed exclusion criteria is not used: Number and percentage of revenue + quantities produced for all substances listed within the international legislation, see above-mentioned exclusion criteria, as well as Substance Annex, A, B, C, D, and E.	Company	The exclusion criteria name substances that have been agreed on at an international level to be the most hazardous. Those substances should be phased out as soon as possible. At the moment information about production of hazardous substances is not publicly available in a sufficiently transparent manner, but is essential to evaluate the core business of chemical companies.	Should be 0
2	Environment	Chemicals	Production of hazardous chemicals	Number and percentage of revenue + quantities produced of all Substances of Very High Concern (SVHC) listed on the REACH candidate list, see Substances Annex, F.	Company	Substances of Very High Concern will eventually be banned when not authorised in the EU in the coming years.	The smaller the percentage the better
3	Environment	Chemicals	Production of hazardous chemicals	Number and percentage of revenue + quantities produced of all substances listed on the SIN List and pesticides listed on PAN's "International List of Highly Hazardous Pesticides".	Company	The SIN List contains substances identified by ChemSec as "Substances of Very High Concern" according to REACH criteria. These are substances that are likely to be restricted or banned within the EU in the coming 10 years. ²⁰ The PAN list provides a basis for action to implement a progressive ban of highly hazardous pesticides. It uses international existing criteria and also includes indicators such as endocrine-disrupting properties, ecotoxicological properties, or inhalative toxicity. ²¹	The smaller the percentage the better
4	Environment	Chemicals	Chemical management programs	Systematic and continuous assessment of hazard profile of chemicals – including management strategies to reflect the precautionary principle in Article 15 of the Rio Principles in the production and use of chemicals.	Company GR13:7-4.11	The 1998 Wingspread Statement summarises the principle: "When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically." How is the precautionary principle reflected in the chemicals management? The answer should show a systematic chemicals management, e.g. quantitative targets to eliminate hazardous chemicals with timeline, systematic screening for hazards during R&D phase etc.	Qualitative indicator
5	Environment	Chemicals	Chemical management programs	Removal/substitution of hazardous substances (defined in 1,2 and 3): number of substitution activities, substances, quantifiable targets and timeline.	Company	If the company produces/uses hazardous substances, it is essential to see their willingness and progress to phase them out overtime.	Has to be seen in relation to 1,2 and 3

No	Category	Subcategory	Criteria	Indicator	References and possible data sources	Explanatory note	Evaluation
6	Environment	Chemicals	Alternatives	Number and percentage of revenue of chemicals considered as Green Chemistry or environmentally benign.	Company SUBSPORT ²² Green Screen ²³	There is a need for safer chemicals to replace hazardous substances. The production of safer alternatives is essential to improve human health and protect the environment. The definition of what is a safe alternative is still under development, projects such as SUBSPORT and GreenScreen can be used for evaluation. Substances passing GreenScreen criteria for benchmark 4 or equivalent (if evaluation system is shown).	The higher the percentage the better
7	Environment	Chemicals	Strategy towards safer chemicals	Dedicated programme to increase Green Chemistry, number of persons trained, existence of Green Chemistry department.	Company	Does the company sincerely work on greening their chemicals management? How are greener concepts applied? Are there concrete targets/programmes?	Qualitative indicator
8	Environment	Chemicals	Strategy towards safer chemicals	Reporting on key chemical topics and concerns that have been raised through stakeholder engagement, number of requests from consumers and stakeholders, percentage of requests acted on.	Company	Concerns on chemical topics raised by customers, consumers and public interest groups are an indicator for the need of substitution. A company can gain credibility when naming them publically and reporting on the implementation and progress towards taking them into account.	Qualitative indicator
9	Environment	Chemicals	Safety	Percentage of inherently safe reactions.	Company	Inherently safe reactions avoid hazards, particularly by reducing the use of hazardous materials. They also use alternative reaction routes or process conditions in order to eliminate the risk of runaway exothermic reactions, fires, explosions, and/or the generation or release of toxic materials.	Should be 100 percent
10	Environment	Chemicals	Controversial science and methods	Number of nanomaterials produced and percentage of revenue from nanomaterials.	Company	Materials in nanoscale can show different properties compared to their bulk form. As long as risks are not assessed independently of the corresponding bulk material - production, downstream use, and disposal have to be followed closely as they imply incalculable risks.	Percentage should be small compared to overall revenue as long as risks are not properly assessed
11	Environment	Chemicals	Controversial science and methods	Percentage and methodology of health and safety assessments of nanomaterials prior to marketing.	Company	Sufficient assessments and measures need to be conducted prior to commercialisation not only for the bulk form of substances, but also for the nano form. The uncertainties regarding the applicability of standard risk assessment methods for nanomaterials, including downstream use and disposal, need to be taken into serious consideration. A precautionary approach should be taken for the evaluation of test results. At least a preliminary risk assessment should be conducted, such as described by the German Nanodialogue ²⁴ or the Swiss Vorsorgeraster ²⁵ . Which methods have been used also needs to be explained.	The higher the percentage the better / Qualitative indicator

22. www.subsport.eu23. www.cleanproduction.org/Greenscreen.php24. http://www.bmu.de/files/pdfs/allgemein/application/pdf/nanotechnologien_fachdialog1_bericht_en.pdf25. <http://www.bag.admin.ch/nanotechnologie/12171/12174/index.html?lang=de>

No	Category	Subcategory	Criteria	Indicator	References and possible data sources	Explanatory note	Evaluation
12	Environment	Chemicals	Controversial science and methods	Number and percentage of revenue of genetically modified organisms (GMOs) and synthetic biology.	Company	A genetically modified organism (GMO) has been altered using procedures for isolating and recombining parts of the genetic material and then transferring these constructs into other organisms. The alleged benefits of reduced need for pesticides and improved yield, claimed by the industry are accompanied by risks like the development of resistance to herbicides used and the dependence of farmers on seed and genetic-engineering companies. In particular, the risk of uncontrollable transfer of genes and the fact there are no ways of recalling GMOs imply incalculable risks for society, but also for the company due to legal restriction, litigation and reputation loss.	Percentage should be small compared to overall revenue
13	Environment	Emissions, Effluent, Waste	Waste	Kg of hazardous waste produced per Mio USD revenue and disposal method.	GR13.1- EN22 Company European Pollutant Release and Transfer Register ²⁶	Information on waste generation figures indicates the use of hazardous substances and how much of these have been left over. Disposal methods can be landfills and incineration. More environmental friendly options like reuse and recycling are difficult when waste contains hazardous substances.	The less hazardous waste the better
14	Environment	Emissions, Effluent, Waste	Waste	Trend of hazardous waste produced within the last 5 years: Reduction of 5% p.a. or more – weighted against revenue.	GR13.1- EN22 Company: multiple annual reports	Data on waste generation figures over several years can indicate the level of progress the organisation has made toward waste reduction efforts or phasing out hazardous substances. It can also indicate potential improvements in process efficiency and productivity. Significant costs for waste treatment can be saved.	The higher the percentage of reduction the better
15	Environment	Emissions, Effluent, Waste	Waste	Kg of transported, imported, exported or treated hazardous waste under the terms of Basel Convention Annex I, II, III and IV per Mio USD revenue.	GR13.1- EN24, Company	The Basel Convention aims to reduce the transportation of hazardous waste between nations, and specifically to prevent transfer of hazardous waste from developed to less developed countries, which lack capacities and regulations to treat the waste in a sufficient manner to minimise negative effects for health and the environment. Companies in the EU are obliged to notify local authorities about transfers of hazardous waste.	The less the better
16	Environment	Emissions, Effluent, Waste	Emission to the air	Emission of ozone depleting substances in kg per Mio USD revenue.	GR13.1- EN19 Company	Due to the Montreal Protocol the production of chlorofluorocarbon (CFCs), used as refrigerants, propellants and solvents has been phased out. The subclass hydrochlorofluorocarbons (HCFCs) are still produced and UNEP reports a dramatic increase in production in China and India. This group and other ozone-depleting substances should be phased out.	Should be 0 kg

26. <http://prtr.ec.europa.eu/WasteTransfer.aspx> / Select "hazardous waste" and "facility"

No	Category	Subcategory	Criteria	Indicator	References and possible data sources	Explanatory note	Evaluation
17	Environment	Emissions, Effluent, Waste	Emissions to the air	Kg of emissions of NOx and SO2 and PM into the air per Mio USD revenue.	GRI3-1- EN20, European Pollutant Release and Transfer Register, Company	The air pollutants nitrogen oxides (NOx), sulphur dioxide (SO2) and particulate matter PM10 or PM2.5 are emitted primarily from combustion sources such as power plants, heating plants and motor vehicles. All these pollutants cause health damage, SO2 and NOx contribute to acidification and NOx also contributes to eutrophication and the formation of ground-level ozone.	The less the better
18	Environment	Emissions, Effluent, Waste	Emissions to the air	Kg of VOCs into the air per Mio USD revenue	European Pollutant Release and Transfer Register	Volatile organic compounds (VOCs) are air pollutants emitted from solvents, solvent-containing products, motor vehicles and industrial processes. Many VOCs can have direct health impacts and also contribute to the formation of ground-level ozone that causes damage to health and the environment.	The less the better
19	Environment	Emissions, Effluent, Waste	Emissions to the air	Other relevant emissions into the air, specified, in kg per Mio USD revenue.	National and European Pollutant Release and Transfer Register	Includes emissions of heavy metals (e.g. mercury, cadmium and lead) and persistent organic pollutants (POPs) such as dioxins, furans and brominated flame retardants. These pollutants can cause damage to health and the natural environment.	The less the better
20	Environment	Emissions, Effluent, Waste	Emissions to surface water	Kg of emission of heavy metals (specified) into surface water per Mio USD revenue.	GRI, European Pollutant Release and Transfer Register	Existing as natural components of the Earth's crust, heavy metals refer to chemical components with low densities, yet highly toxic when concentrated, such as cadmium, lead and mercury. Soil and water systems are the most common entry points for heavy metals, whose tendency to bio-accumulate, or build up in animal and human organisms, makes them dangerous from a public health standpoint.	The less the better
21	Environment	Emissions, Effluent, Waste	Emissions to surface water	Kg of emission of TOC (total organic carbon) into surface water per Mio USD revenue.	European Pollutant Release and Transfer Register	When biodegradable waste enters a water supply it provides organic carbon for aerobic bacteria. They multiply quickly, consume all available oxygen and therefore kill aquatic life. In Europe the challenge is met by public waste water treatment plants, but still cause problems at company owned waste water treatment facilities.	
22	Environment	Emissions, Effluent, Waste	Emissions to surface water	Kg of emission of Priority Substances and Priority Hazardous Substances (PS and PHS) defined by the European Water Framework Directive.		The Water Framework Directive establishes a legal framework to protect and restore clean water across Europe and ensure its long-term, sustainable use. It covers inland surface waters, groundwater, transitional waters and coastal waters. The list of Priority Substances and Priority Hazardous Substances contains pollutants, which could threaten human health or ecosystems. The aim is to reduce the emissions to all European waters to be below certain Environmental Quality Standards (EQS). For the Priority Hazardous Substances the goal is also to cease or phase-out their discharges, emissions and losses in a 20-year timeline. The Water Framework Directive currently lists 33 Priority Substances, another 15 are being discussed to be included. ²⁷	Should be 0 for priority hazardous substances and the less the better for priority substances

27: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:2000L060:20090625:EN:HTML>

No	Category	Subcategory	Criteria	Indicator	References and possible data sources	Explanatory note	Evaluation
23	Environment	Emissions, Effluent, Waste	Trend of emissions	Trend of emissions to water and air within the last 5 years: Reduction of 5% p.a. or more, per revenue.	GRI 3.1 - EN20, 21, 22, National and European Pollutant Release and Transfer Register	Data on emissions over several years can indicate the level of progress the company has made towards emission reduction efforts or phasing out hazardous substances. It can also indicate potential improvements in process efficiency and productivity.	The higher the percentage of reduction the better
24	Environment	Emissions, Effluent, Waste	Spills/Accidents: Water, Air, Soil	Total number and scope of environmental damages occurred, per Mio USD revenue.	GRI3.1- EN23, EU: Country statistics due to Seveso Directive	Environmental damage is a measurable adverse change or impairment in a natural resource such as protected species and natural habitats or water- and land contamination as defined in the European Environmental Liability Directive. ²⁸ Such damage can have significant negative impacts on the surrounding environment, potentially affecting soil, water, air, biodiversity, and human health and therefore entails financial risks for litigation and remediation costs, as well as loss of reputation. The EU Seveso Directive aims at improving the safety of sites containing large quantities of dangerous substances. For EU Member States it is compulsory to report on chemical accidents and near misses. ²⁹	Should be 0
25	Labour Practice	Safety	Exposure	Number and percentage of workers exposed to hazardous substances and in which quantities.	The number of exposed workers is usually calculated as an estimate from available data: studies of specific substances, sectorial studies, etc. The estimates are usually presented in the form of an exposure matrix or similar, such as JINJEM or CAREX ³⁰ databases.	The number and percentage of exposed workers together with exposure levels are the best indicators of exposure, this makes it possible to estimate the importance of the problem and to follow its evolution in time. The latter can also show whether improvements or preventive measures are effective or not.	Should be 0

28. EU Directive 2004/35/CE

29. Please see <https://emars.jrc.ec.europa.eu/>

30. CAREX (CARcinogen EXposure) is an international information system on occupational exposure to known and suspected carcinogens. The CAREX database provides selected exposure data and documented estimates of the number of exposed by workers by country, carcinogen, and industry.

No	Category	Subcategory	Criteria	Indicator	References and possible data sources	Explanatory note	Evaluation
26	Labour Practice	Safety	Exposure	Exposed workers by level of exposure: <50% MAK, 50% - 100% MAK, > MAK	Estimates may be available from national or sectorial exposure matrices. There is also data available from specific studies, usually at the sectorial level.	MAK, the occupational exposure limit, is an upper limit on the acceptable concentration of hazardous substances in workplace air and is set by national competent authorities. In many countries there are two types of limit values. In the EU there are Binding Occupational Exposure Limit Values BOELVs, established by the regulations and the Indicative Occupational Exposure Limit Values (IOELVs), which are not binding. In some cases, such as Spain, the latter are in practice mandatory limit values for businesses.	Exposure should be as low as possible, zero exposure is best option
27	Labour Practice	Safety	Impact	Number of accidents to be registered after EU6/82 related to exposure to chemicals and severity	GR13-1-LA7, EU: Country statistics due to Seveso Directive	The EU Seveso Directive aims at improving the safety of sites containing large quantities of dangerous substances. For EU member states it is compulsory to report on chemical accidents and near misses. ³¹	The less the better
28	Labour Practice	Safety	Impact	Among workers, number of chronic diseases diagnosed or rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities by region and by gender.	GR13-1-LA7 National statistics of occupational accidents and occupational diseases	These are effect estimates, as well as exposure indicators, that allow estimates of the importance of the problem, monitor trends over time and assess the effectiveness of preventive measures.	The less the better
29	Labour Practice	Safety	Management	Information and training of workers regarding hazardous chemicals: type of information / percentage trained workers and how often.	GR13-1-LA10, in some countries and at EU level, working conditions surveys may include this data. Data available at company level, as well as in the prevention services of the company or the external services.	These are indicators of prevention efforts being made to protect the health of workers.	Qualitative indicator
30	Society	Compliance	Compliance	Monetary value of significant fines and total number of non-monetary sanctions for noncompliance with chemical laws and regulations.	GR13-1-So8, DJ Sustainability		Should be 0

31. Please see <https://emars.jrc.ec.europa.eu/>

No	Category	Subcategory	Criteria	Indicator	References and possible data sources	Explanatory note	Evaluation
31	Product Responsibility	Product	Product stewardship	Usage of LCA including chemical properties, percentage.	Company	LCA, Life Cycle Analysis, is a method to assess environmental impacts associated with all the stages of a product's life, from cradle to grave, and is the basis for improving product development. LCA methods can vary and sometimes the evaluation of chemical properties is not sufficiently covered.	The more the better
32	Product Responsibility	Product	Transparency	Public availability of REACH safety data sheets or equivalent information.	Random requests to the company	The REACH Safety Data Sheets (SDS) are intended to provide workers and emergency personnel with procedures for handling a substance in a safe manner. Hazard identification, ingredients and physical and chemical properties are included as well as eco- and toxicological information, handling, transport, storage, and disposal and measures in the case of fire, accident or need for first-aid. The REACH SDS also takes the rules from the Global Harmonised System (GHS) into account and is followed by an Annex on exposure scenarios. Public availability allows workers to take preventive measures and consumers to take informed decisions.	The more the better
33	Product Responsibility	Product	Transparency	Percentage of nanomaterials produced are specified as such within REACH dossiers.	Company	During the first registration phase of REACH only 3 out of 23,000 dossiers included the nanoform of substances. It is unlikely that this reflects the reality.	The higher the percentage the better
34	Governance, Commitments and Engagement	Society	Lobbying	Actively supporting stronger chemicals regulation in order to better protect human health and the environment.	Company	Actively working for stronger chemicals legislation with the intention of reducing the production and use of substances presenting a health or environmental hazard within the meaning of Directive 67/548/EEC (Dangerous substance directive).	Qualitative indicator / Detailed description of issues and regulatory proposals supported.
35	Governance, Commitments and Engagement	Society	Transparency	Registration in the EU Transparency Register.	European Transparency Register ³²	The European Transparency Register shows who is engaged in activities aiming at influencing the EU decision-making process and is publicly accessible.	Yes /No
36	Governance, Commitments and Engagement	Society	Lawsuits against opponents	Legal action in the last 5 years against civil society interest groups, authorities or individuals with regard to chemical production and emissions that carry human health or environmental impacts; number of legal cases regarding defamation, libel, slander, criminal charges.	Company, NGO reports	In developing countries in particular the legal system is being used to intimidate or silence opponents to proposed or ongoing chemical activities that pose health or environmental risks. NGO activists face lawsuits and need financial resources and time to defend themselves. This hinders them from speaking up on health and environmental concerns.	Should be o / Qualitative indicator

32. <http://ec.europa.eu/transparencyregister/public/consultation/listlobbyists.do?locale=en&reset=>

No	Category	Subcategory	Criteria	Indicator	References and possible data sources	Explanatory note	Evaluation
37	Governance, Commitments and Engagement	Society	Double Standards	Application of strictest chemicals legislation, safety, production and transparency standards in the whole area of operation for all plants/units worldwide, and certified by third party.	Company	Different standards in developed and developing countries must be avoided as chemicals are global commodities and their effects may be seen far away from production sites. The most stringent legislation and standards should be implemented worldwide. There is no distinction between a Chinese and a European worker.	No double standard
38	Governance, Commitments and Engagement	Society	Social Accountability / Certification	Publication of key performance indicator (KPI) "hazardous waste and toxic materials".	Company annual report	To support investors the EU introduced mandatory reporting requirements for large corporations as early as 2003. The Accounting Directives 78/660/EC and 83/349/EC dictate: "To the extent necessary for an understanding of the company's development, performance or position, the analysis shall include both financial and, where appropriate, non-financial key performance indicators relevant to the particular business, including information relating to environmental and employee matters." "Hazardous Waste and Toxic Materials" is one of the top sustainable development key performance indicators for the chemical sector defined by investors ³³ .	

33: http://www.sd-m.de/index.php?option=com_content&task=view&id=138&Itemid=285&lang=en

EXPERTS AND STAKEHOLDERS INVOLVED IN DEVELOPING THE CRITERIA CATALOGUE

This criteria catalogue has been developed in collaboration with consultancy firm EcoAid, and in dialogue with an engaged group of experts and key stakeholders with diverse backgrounds and expertise.

EXPERT GROUP PARTICIPANTS

FREDRIK ARONSSON holds an MSc in mechanical engineering and an MSc in applied environmental measurement techniques from Chalmers University of Technology, Sweden. After a number of years in the engineering sector, Fredrik moved into SRI research with the Caring Company (later GES Investment Services) and Ecobalance Investment Management. Today he works as an energy underwriter with Trygg Hansa, an insurance company that is a part of the global insurance group RSA.

DR. PETER DONATH retired in 2004 from Ciba Specialty Chemicals Holding, after a long career with the company. Peter took a PhD in chemistry at the University of the Saarland in 1970, and commenced work with Ciba the following year, in the areas of process development and environmental affairs. Following several placements and international responsibilities within the company through various mergers and restructures, Peter retired as head of environmental health and safety at Ciba.

DR. SONJA ESER is a biologist and a trainer. In 2010, she founded the EPEA Academy Munich together with Ingrid Stehle. The Academy is an associate of EPEA International and a Cradle to Cradle® training institute, and works with international companies to promote and implement the Cradle-to-Cradle ap-

proach to create meaningful change. Until a change of heart in 2003, Sonja worked as an academic and researcher at various universities, and holds a PhD in ecotoxicology.

MANFRED KRAUTTER is general manager of the consultancy EcoAid by Manfred Krautter, which he founded in 2009. Previously, Manfred was a long-time leader of Greenpeace campaigns, including a period as campaigns and issues director at Greenpeace Germany. At EcoAid, he uses his strong interdisciplinary skills and network to work with prominent businesses, media, NGOs and governmental institutions. Manfred holds a graduate degree as a chemical engineer.

DR. RICHARD LIROFF serves as executive director of the Investor Environmental Health Network, a group of investment organisations working to reduce the production and use of toxic chemicals by business. Richard developed IEHN after more than two decades' work at World Wildlife Fund, where as a Senior Program Officer he directed projects on toxic chemicals and other subjects. He is a prominent author on environmental issues and policy, and holds a PhD in political science from Northwestern University and a BA in politics from Brandeis University.

OLIVER RÜTER'S background is in biology and ecology, with a master's degree from the University of Innsbruck and an MBA in sustainability management from the University of Lüneburg. Between 2001 and 2003, he worked with Eco-Project Ltd in Trinidad & Tobago and at the Institute for Energy and Environmental Research in Heidelberg. Since 2003, he has worked as an analyst with oekom research AG, focusing on the chemical industry and country ratings. He has been research director at oekom since 2007.

The indicators in the criteria catalogue have also been revised by other stakeholders representing a broad range of specific competence and experience on chemicals management. We would like to especially thank the following persons for their input to this process:

- **TATIANA SANTOS**
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- **FERNANDO BEJARANO**
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- **ANDERS FINNISON**
Svenskt vatten
- (CEFIC – the European Chemical Association
has been asked to comment and input, but has
not responded)

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SUMMARY OF CRITERIA CATALOGUE

Sustainability indicators in financial investment decisions are on the rise. An increasing number of investors are realising the huge financial risks associated with the production and use of hazardous chemicals. Today there is the possibility to avoid this risk, and the opportunity to invest in the future of safer products and processes. As financial investors have a huge impact on the strategic decisions of companies, this can also have profound impact on human health and the environment.

This criteria catalogue is the first of its kind aiming to cover all aspects of chemical risks and opportunities for chemical manufacturers. It presents a comprehensive set of powerful indicators to enable investment professionals to evaluate the chemicals management and performance of a chemical-producing company. It also includes an overview of the most important and far-reaching chemicals regulations globally.