Report

Friends of the Earth

Safety testing of chemicals and the new EU chemicals policy

May 2002

Friends of the Earth's Safer Chemicals Campaign: www.foe.co.uk/safer_chemicals

1. Summary and recommendations

There has been much speculation on the animal testing that would be required to create a precautionary system for regulating the production and use of chemicals in Europe. Scaremongering figures that do not stand up to close examination are not helpful (see Section 3). What is important is that the new policy produces a transparent system, based on the precautionary principle, including substantial investment and use of non-animal methods, as described in Section 4. A precautionary system would provide greater protection to consumers and wildlife, and if introduced using the new opportunities provided by the biomedical revolution, should also reduce animal testing.

As we outline in this briefing, Europe now has the opportunity to make a new start on chemicals regulation, creating an open and transparent system that takes a precautionary approach to threats such as endocrine disruption. Such a system would ensure that regulatory action is taken on chemicals that accumulate in our bodies or the environment, and on chemicals that have reasonable evidence of endocrine disrupting properties.

Friends of the Earth believes it is essential that there is also substantial investment in research and validation of alternative non-animal methods – and this research should include the development of tests using powerful new techniques such as expression profiling. These alternative tests will then be ready to provide the information required by the regulatory system.

The chemical industry makes a lot of noise claiming that more strictly regulated system will lead to an increase in animal testing, but in reality they are the biggest block to widespread adoption of non-animal methods. They are the ones calling for *in vivo* tests on chemicals marketed at below 10 tonnes per annum – Friends of the Earth opposes such tests. They are the ones who fight restrictions on chemicals by ever more animal tests, constantly trying to claim that the current evidence is insufficient for action. They are the ones who constantly oppose precautionary action on chemicals with endocrine disrupting properties. They are the ones who oppose precautionary action on chemicals that accumulate in our bodies or in the environment. They are the ones who want to keep animal testing data secret, resulting in duplication. Their claims to be concerned about animals are false, they are little more than crocodile tears.

An appalling example of the way in which the current regulatory system allows the chemical industry to use animal tests to delay action is the case of bisphenol A. This is a chemical present in most food can linings, from which it leaches into food [1]. It was shown to be oestrogenic *in vivo* in 1938 [2], but despite this industry is still using animal testing to try to claim that current exposure levels are 'safe' – whilst other scientists have found that bisphenol A is active at much lower levels than were previously thought. We know that bisphenol A acts as an oestrogen mimic *in vivo* – it should be phased out now.

The challenge for regulators is to introduce new regulations which protect consumers and wildlife as well as reduce the number of animal tests across Europe. The use of new technologies and ensuring that non-animal tests are not discriminated against are critical to achieving this objective.

Recommendations

The new chemicals policy must:

- Ensure total transparency of safety data;
- Include a sequenced approach to testing, where the first data required is existing data and data produced using non-animal methods, for example persistence and bioaccumulation;
- Ensure that regulatory decisions can be made based on existing information and non-animal tests, such as phasing out chemicals that are persistent and bioaccumulate;
- Ensure that the burden of evidence for regulation is placed so that 'reasonable doubt' over safety will lead to regulatory measures;
- Ensure that all new non-animal tests that have already undergone scientific validation but are awaiting regulatory acceptance are brought into use as a matter of priority and that regulatory acceptance procedures are reviewed so that they do not create delays or artificial barriers to the use of validated non-animal tests.

- Include substantial investment into research and validation of alternative, non-animal methods for assessing the safety of chemicals. This research should include the development of newer techniques such as expression profiling, which have massive potential to provide an effective way of testing for endocrine, immune and nervous system impacts, without using animals.

In addition, we consider that the UK Government has a particular responsibility for development of alternative, non-animal methods, given the UK's long tradition of concern for animal welfare. Therefore we also have specific recommendations for the UK Government. The UK Government must:

- Immediately put in place a substantial programme of research, development and validation of alternative testing methods. This programme should be designed to deliver usable outputs in the short, medium and long term;
- Sort out which department is responsible for this research – it is unacceptable for the UK to fail to take its responsibility in this area. The Government does not seem to be 'joined up' on this issue.

2. Introduction

We are exposed to industrial chemicals in our homes all the time, whether we like it or not. In recent years it has become clear that we know little about the safety of most of these chemicals. We continue to be exposed to chemicals that accumulate in and contaminate our bodies, and there are a range of health problems which may be associated with chemical exposures. The current regulatory system is a failure, and does not protect either our health or the health of the environment.

The European Union is now reviewing its chemicals regulation, with the intention of creating a system that will provide a high level of protection for human health and the environment. One focus of this review is how to deal with the problem of little safety data being publicly available for most of the chemicals on the market. In fact, only 14% of the highest production volume chemicals – those marketed at >1000 tonnes per year in Europe - have got a basic set of safety data publicly available [3], and a Swedish official has stated: *"most substances on the market are in reality not covered by the current legislation."* [4]. Whilst it is highly likely that further data exists, only effective legislative action will ensure that such data is brought forward.

The safety assessment of chemicals has traditionally been heavily dependant on animal testing and much of the debate about the European Commission's proposals in their White Paper [5] on this new chemical policy has focused on the animal testing implications. Whilst the continued use of chemicals that have had little or no safety testing is a threat to humans and to wildlife, a precautionary approach to chemical regulation need not rely solely on animal testing.

We already know that brominated flame retardants (widely used in electronic equipment and textiles) contaminate the blubber of sperm whales in the remote deep waters of the Atlantic [6], whilst fluorinated organic compounds (used as pesticides and refrigerants) break down to produce a highly persistent acid which accumulates in lakes and wetlands and threatens wildlife [7]. Numerous organisms have been shown to be affected by endocrine disrupting chemicals, from breeding problems in alligators to eggshell thinning in birds. The most extreme example so far is the massive impact of the marine anti-fouling chemical tributyltin, which has reduced populations of dog-whelk and other molluscs across the world, from the UK to Malaysia [8].

Friends of the Earth believes that human health and animal protection can be ensured, through an approach based on total openness, precautionary regulation and substantial investment in alternative, non-animal methods of establishing the hazards posed by chemicals.

This background briefing examines the issues. Section 3 looks at the accuracy of some of the estimates that have been made of the animal testing implications of the chemicals policy, and injects some realism into this part of the debate. However, Friends of the Earth believes that a precautionary regulatory system would avoid thousands of animal tests, yet ensure a high level of protection for human health and the environment – this is outlined in section 4.

3. A non-precautionary implementation of the White Paper

The debate on the animal testing implications of the White Paper has been dominated by figures that the Institute of Environment and Health (IEH) produced in a report for the UK Government in the first half of 2001 [9]. It claimed that 12 million animal tests would have to be carried out in order to implement the White Paper. However, the report is fundamentally flawed, for example it ignores the White Paper's call for testing of chemicals produced at below 10 tonnes per annum to be *in vitro*. The many flaws were pointed out by NGOs, including Friends of the Earth, in August 2001 [10]. However, in spite of this, the figures from it have continued to be widely quoted by the chemical industry and others.

Following pressure from Friends of the Earth within the UK Government's stakeholder forum on chemicals, The IEH were commissioned to update their report with more realistic scenarios. A draft of this new report was presented to the stakeholder forum on the 12th March 2002, and the calculations in this section are based on this new report [11].

The scenario examined below, '*Scenario 2*' in the new The IEH report [11] is the closest to that described in the White Paper, and has the following assumptions:

- Chemicals produced or imported at below 10 tonnes per annum are tested using *in vitro* methods (as specified in the White Paper). This leaves 10,457 chemicals at>10t, according to ECB figures.
- The rarely-performed reproduction/developmental toxicity screening test (OECD 421; 80 animals per chemical) is excluded, but that all other testing is performed as specified in the 'Base Set' in the system for Notification of New Substances.
- One third of the required safety data is already available within the chemical industry, as suggested by the RSPCA.

The IEH calculate that this scenario would require the equivalent of testing on 6,902 chemicals, with 88 mammals and 42 fish per chemical, giving a total of 607,000 mammals and 290,000 fish. However, '*Scenario 2*' does not include any replacement of *in vivo* tests.

The IEH have suggested a number of *in vivo* tests that can be easily replaced – in '*Scenario 3*' they use these figures (though do not follow the White Paper recommendations of *in vitro* <10t), which create a reduction of 11 mammals per chemicals. If the '*Scenario 2*' calculation is recalculated with these figures then 6,902 chemicals would require 531,454 mammals and 289,884 fish.

However, there are a number of important factors that the IEH has not considered in its assessments, in particular:

- **The withdrawal without testing of some chemicals**. Whenever a regulatory system requiring data by deadlines is created, many substances end up being withdrawn from the market, often because the producer makes little money from them, or knows they are likely to be heavily regulated. In the case of pesticides for example, the Commission predicts that up to 500 of the 834 active ingredients (60%) will be withdrawn from the market [12]. For the purposes of this calculation we will make a conservative assumption that 25% of chemicals will not be supported. There are no other estimates that we are aware of – hopefully the data gathered by the Commission's business impact assessment will give a better idea of what this figure may be.
- **Grouping of chemicals**. It is clear that grouping has huge potential to reduce the number of individual chemical tests required. Many chemicals have similar properties, and it is easy to envisage some groups being made up of 5 or more chemicals, and many of fewer. For this calculation we have assumed that grouping will reduce the number of tests by 50%, a fairly conservative figure.
- **Non animal tests**. The IEH's interpretation of what alternative, non-animal, methods are available is very conservative. For example, BUAV have argued that many more non-animal methods are available now or could soon be available [13]. ***We have not, however, included another estimate in this calculation.***
- **Data set**. The IEH have assumed that testing is performed as specified in the 'Base Set' in the system for Notification of New Substances. However, it is not yet clear that this will be the set of safety data required for registration under the new system. It's quite possible that a smaller set of information could be required. ***We have not incorporated this factor in the calculation below.***

Cutting 25% due to withdrawals from the above figure of 6,902 chemicals, followed by a 50% cut due to grouping, the resulting number of chemical test packages is 2,589, leading, in a 'non-precautionary' scenario, to tests on 199,353 mammals and 108,738 fish, a total of 308,091 animals. If we assume that this information is being created for a deadline of the end of 2008, and that testing starts at the end of 2004 (when the legislation is expected to enter into force), then testing per year can be calculated over these four years. This can then be compared with EU figures on total animal testing per year in Europe (figures from 1996 [14]):

Table 1: Animal tests per year required for a non-precautionary implementation of the chemicals White Paper, assuming testing spread over four years.

	Animal tests per year with a non-precautionary implementation of the White Paper	Total number of animal tests per year in the EU, including eg quality control of medical devices	Percentage increase due to a non-precautionary implementation of the new chemicals legislation
Mammals	49,839	7,481,300	**0.67%**
Fish	27,185	1,112,719	**2.44%**
Total	77,024	8,594,019	**0.90%**

Surprisingly, the chemical industry is actually opposing the use of *in vitro* tests for chemicals produced at under 10 tonnes per year. In CEFIC's '*Thought starter on REACH*' [15] they call for an *in vivo* acute toxicity test to be done on these chemicals. The White Paper, in contrast, calls for these chemicals to be tested *in vitro*.

Even though the estimate of animal tests calculated in this section is substantially below the scaremongering figures that have been widely publicised, Friends of the Earth strongly believes that more can – and must – be done.

More needs to be done to reduce all animal testing within the EU. Whilst all possible steps must be taken to reduce animal testing as a result of the new EU chemicals policies, it is clear that much bigger gains could be made by thoroughly reviewing testing requirements in other EU Regulations. For example, the EU animal testing report estimates that more than half of all experimental animals used in Europe are used for "Research and development and quality control of products and apparatus for human and veterinary medicine and dentistry" – a category which is separate from "Biological studies of a fundamental nature" and "Toxicological and other safety evaluation".

Ultimately we must aim to eliminate the need for animal tests in safety assessment of chemicals – and the next section describes some key policy elements required as part of this process.

4. A new, precautionary, system for the regulation of chemicals

Friends of the Earth is disappointed with several key aspects of the White Paper's proposals, and considers that additional elements must be incorporated to ensure a high level of protection for human health and the environment – these measures will also avoid the use of thousands of animals for chemical safety testing.

This section is divided into five parts, and the proposals are based on the Copenhagen Charter (Appendix 1). It is also vital that these measures are introduced into the assessment procedures for new chemicals – thus adding to the number of animal tests avoided.

Transparency

It is vital that the new regulatory system is transparent. All safety testing data must be publicised and made available, with no allowance for industry to claim commercial confidentiality. This is necessary to ensure that there is no duplication of animal testing, and so that the maximum use can be made of all existing data. This is a position shared by environment groups and animal rights groups [16].

The chemical industry is concerned about retaining property rights to its data, and avoiding free riders – Friends of the Earth has no problem with a system that ensures costs are shared, as long as all data is open.

Designing the testing programme to be tiered and sequenced

It is crucial that safety testing is not considered as an end in itself, but is coupled with a precautionary regulatory system, and tiered and sequenced to fit into this regulatory system, rather than being 'tick box'. Initial data collection should focus on non-animal tests, specifically persistence and bioaccumulation, existing data, computer based (QSAR and *in vitro* techniques). If it is possible to regulate with this data – eg in the case of persistence or bioaccumulation – then this should be done, rather than seeking out more data.

Action on chemicals that accumulate in the body or the environment

Chemicals that bioaccumulate in our bodies or persist in the environment expose us to continuing risks. The lesson of PCBs, CFCs and many others is that even if we don't know they are toxic or dangerous to the environment at the moment, we may find they are in the future. If we do later find them dangerous, there is no way of removing them from the environment, wildlife and ourselves.

Friends of the Earth wants a phase-out of all persistent or bioaccumulative chemicals. Persistence can be established without animal experiments; bioaccumulation can be determined by simple chemical tests combined with QSAR or *in vitro* methods to check on degradability. Such chemicals will then not have to go through toxicity testing on animals. It is therefore vital that the Authorisation procedure includes very Persistent and very Bioaccumulative chemicals (vPvB), as was agreed by Environment Council [17]. In our view it should include very persistent *or* very bioaccumulative chemicals – chemicals such as CFCs and the industrial greenhouse gases threaten the earth's environment, but are only very persistent – they aren't very bioaccumulative.

Action on endocrine disrupters – with a sensible burden of evidence

The Copenhagen Charter calls for the use of chemicals to be shown to be 'safe beyond reasonable doubt', which means that rather than having to prove that a chemical is dangerous before action is taken, action should be taken when there is reasonable doubt of safety. This is particularly important in areas of great uncertainty, such as the impacts of endocrine disruption on humans and the environment, and is an important element of a move to use of non-animal tests.

The current proposals from the Commission will only force an endocrine disrupting chemical into authorisation if it has been proved to be a category 1 or 2 human reproductive toxin. This proposal ignores the reality that many endocrine disrupters work through other mechanisms, such as the thyroid system. In addition, this system will not protect most wildlife at all – in spite of the well characterised examples of wildlife damage from endocrine disruption.

However, there is another crucial problem with the current proposal – the burden of evidence required to prove that a chemical is a category 1 or 2 human reproductive toxin. Not only is this a totally non-precautionary approach to regulating endocrine disrupters, requiring proof of harm before taking action, it will also force increasing numbers of animal experiments.

Friends of the Earth believes that there is another way which will provide proper protection for humans and the environment, without increasing numbers of animal experiments: chemicals should enter the authorisation system if they show endocrine disrupting properties. Environment Council has already called for the Commission to "envisage the addition of known endocrine disrupters to the authorisation system when agreed scientifically valid test methods and criteria are established" – the key issue is what criteria are used.

A good example of the current ridiculous situation is the debate around bisphenol A, a chemical present in most food can linings, from which it leaches into food [1]. Bisphenol A was shown to be oestrogenic *in vivo* in 1938 [2] – a perfect example of the importance of using existing data. Despite this clear result from nearly 65 years ago, there is still a debate on what to do about bisphenol A, with the chemical industry fighting hard against controls. Hundreds – probably thousands – of animals have been used by industry in their fight to claim that current exposure levels are 'safe' – whilst other scientists have found that bisphenol A is active at much lower levels than were previously thought. We know that bisphenol A acts as an oestrogen mimic *in vivo* – what more evidence do we need?

If it is possible to regulate on the evidence that a substance is a endocrine disrupter – eg binds the oestrogen receptor – then we can protect public health and the environment properly without complex animal tests. If, however, the new system requires substantial evidence from animals before any restrictions happen – the preferred approach of the chemical industry – then, in order to control the risk from endocrine disruption to human and wildlife, then the system will force animal tests. However, in our view the regulatory system should be acting on evidence of endocrine disrupting properties – and not enter into debates over supposed 'safe' levels, as has happened with bisphenol A. This approach will avoid animal testing, particularly if efforts are made to develop new *in vitro* tests based on expression profiling.

Development and adoption of new non-animal tests

There is a huge potential to develop non-animal safety tests for chemicals, and it is essential that there is a substantial increase in funding of both research and validation of alternative methods. This is not just the responsibility of European-level research bodies, but should be urgently pursued by Member States – particularly the UK, with its long tradition of concern for animal welfare. The current resourcing of such work is grossly inadequate.

Friends of the Earth is also concerned that insufficient priority is being given to the new techniques that are becoming available as a result of the 'biomedical revolution', in particular expression profiling. These techniques are discussed in more depth in Friends of the Earth's '*Crisis in Chemicals*' report [18], published in May 2000, and in the *'Crisis in Chemicals Update'* report published in March 2002 [19]. As these reports point out, the biomedical revolution offers a huge opportunity to develop non animal tests, through the development of much more powerful techniques using isolated cells, eg liver or cancer cells, and the use of more primitive model organisms eg yeasts or nematode worms. There is already work being done to develop tests for endocrine disruption, and it is important that the development of such non-animal tests is given the priority it deserves. These techniques provide a potential method of dealing with complex toxicological problems, such as disturbance to immune, endocrine and nervous system, without animal testing.

In addition, measures must be taken to speed up the acceptance procedure for alternative methods and the international harmonisation of chemical testing guidelines. An advantage of non-animal tests is that, though they take time to research and validate, they are usually faster and cheaper than animal testing. It's also worth pointing out that most animal tests have not been validated in terms of their effectiveness in predicting health effects in humans and indeed that a number of common animals tests developed many years ago have failed retrospective validation. According to BUAV [20], new animal tests are accepted without validation, in contrast to new non-animal tests, creating an uneven playing field in favour of animal tests.

There are particular problems with the development of alternative tests in the UK, due to a complex distribution of responsibilities. The lead department on the EU review of chemicals policy is the Department of the Environment, Food and Rural Affairs (DEFRA), the Home Office is responsible for animal experiments, the Department for Trade and Industry is responsible for the main research budgets – though the assignment of these budgets is devolved to individual research councils – whilst DEFRA is responsible for general animal welfare. The UK should be launching a major, integrated research programme into the development of alternative methods for the safety assessment of chemicals, including an examination of how the regulatory process can be designed to get the best value out of these tests. The UK has not yet launched such a programme.

5. References

1. FSA, *Food Surveillance Information Sheet 13/01: Survey of Bisphenols in Canned Food*, 2001, Food Standards Agency, London, UK. http://www.foodstandards.gov.uk/fsainfsheet/2001/no13/13bisp.htm
2. Dodds, E.C. and W. Lawson, 'Molecular structure in relation to oestrogenic activity. Compounds without a phenanthrene nucleus', *Proc. Royal Soc. Lon. B.*, 1938, 125: p. 222-232.
3. Allanou, R., B.G. Hansen, and Y. van der Bilt, *Public availability of data on EU High Production Volume chemicals*, 1999, European Chemicals Bureau, Ispra, Italy. http://ecb.ei.jrc.it/Data-Availability-Documents/datavail.pdf
4. EU Chemicals Regulators, *Future European Chemicals Policy: Report Brainstorming session 16-17 December 1999*, 1999, Ministry of Housing, Spatial Planning and the Environment, The Netherlands. http://www.vhcp.nl/actualiteiten/reportbrainstorm.pdf
5. European Commission, *White Paper: Strategy for a future Chemicals Policy*, 2001, Commission of the European Communities, Brussels, Belgium. http://www.europa.eu.int/comm/environment/chemicals/whitepaper.htm
6. de Boer, J., P.G. Wester, H.J.C. Klamer, W.E. Lewis, and J.P. Bonn, 'Do flame retardants threaten ocean life?', *Nature*, 1998, 394: p. 28-29.
7. Key, B.D., R.D. Howell, and C.S. Criddle, 'Fluorinated organics in the biosphere', *Environmental Science and Technology*, 1997, 31: p. 2445-2544.
8. Crisp, T.M., E.D. Clegg, R.L. Cooper, W.P. Wood, D.G. Anderson, K.P. Baetcke, J.L. Hoffmann, M.S. Morrow, D.J. Rodier, J.E. Schaeffer, L.W. Touart, M.G. Zeeman, and Y.M. Patel, 'Environmental endocrine disruption: An effects assessment and analysis', *Environmental Health Perspectives*, 1998, 106 Suppl. 1: p. 11-56.
9. IEH, *Testing requirements for proposals under the EC White Paper 'Strategy for a future chemicals policy'*, 2001, Institute for Environment and Health, Leicester, UK. http://www.le.ac.uk/ieh/pdf/w6.pdf
10. WWF, FOE, EEB, and Eurogroup, *A new EU chemicals policy: some key arguments*, 2001, Friends of the Earth, WWF, European Environment Bureau, Eurogroup for Animal Welfare. http://www.foe.co.uk/resource/consultation_responses/new_eu_chemicals_policy.pdf
11. IEH, *Testing requirements under the EC White Paper 'Strategy for a future chemicals policy'-an update (Draft)*, 2002, Institute for Environment and Health, Leicester, UK. http://www.defra.gov.uk/environment/chemistrat/stakehol/12032002/pdf/csf-02-30.pdf
12. European Commission, *Report from the Commission to the European Parliament and the Council: Evaluation of the active substances of plant protection products*, 2001, Commission of the European Communities, Brussels, Belgium. http://europa.eu.int/comm/food/fs/ph_ps/pro/ppp01_en.pdf
13. Langley, G., *The Way Forward: Action to end animal toxicity testing*, 2001, British Union for the Abolition of Vivisection. http://www.stopeuchemicaltests.com/TheWayForward.pdf
14. European Commission, *Second report from the Commission to the Council and the European Parliament on the statistics on the number of animals used for experimental and other scientific purposes in the Member States of the European Union (COM99(191))*, 1999, Commission of the European Community, Brussels, Belgium. http://europa.eu.int/comm/environment/docum/99191_en.htm
15. CEFIC, *Thought Starter on REACH. An initial proposal for translating the REACH system into practice*, 2001, CEFIC, Brussels, Belgium.
16. European Environment Bureau, Friends of the Earth, WWF, and European Coalition to End Animal Experiments, *Animal protection and environmental groups call for a transparent new EU chemicals policy*, 2002, Brussels. http://www.eeb.org/press/Joint%20PR%20Transparency%20Chemical%20Policy%20-%2015-4-02.pdf
17. Environment Council, *Strategy for a future chemicals policy: COUNCIL CONCLUSIONS*, 2001, Environment Council, Brussels, Belgium. http://europa.eu.int/comm/enterprise/chemicals/chempol/whitepaper/councconcl.htm
18. Warhurst, A.M., *Crisis in Chemicals: The threat posed by the 'Biomedical Revolution' to the profits, liabilities, and regulation of industries making and using chemicals*, 2000, Friends of the Earth, London, UK. http://www.foe.co.uk/resource/reports/crisis_chemicals.pdf
19. Warhurst, A.M., *Crisis in Chemicals Update*, 2002, Friends of the Earth, London, UK. http://www.foe.co.uk/resource/reports/crisis_chemicals_update.pdf
20. BUAV, *BUAV Briefing: Further information on validation of alternative non-animal tests*, 2002, British Union for the Aboilition of Vivisection, London.
21. 'Copenhagen Conference on Chemicals', 2000, Copenhagen. http://www.chemical-awareness.com/activities

6. Appendix 1 – The Copenhagen Charter

In 1999 Friends of the Earth and WWF began a discussion with environment and consumer groups across Europe to formulate a common set of policies for this review. The agreed policies, now known as the '**Copenhagen Charter**', are also supported by the EEB (an umbrella group for European environmental groups) and the European Consumers Organisation BEUC (the umbrella group for consumer groups across Europe):

1) A full right to know, including what chemicals are present in products.

2) A deadline by which all chemicals on the market must have had their safety independently assessed. All uses of a chemical should be approved and should be demonstrated to be safe beyond reasonable doubt.

3) A phase out of persistent or bioaccumulative chemicals.

4) A requirement to substitute less safe chemicals with safer alternatives.

5) A commitment to stop all releases to the environment of hazardous substances by 2020.

The Charter has been welcomed by EU Environment Commissioner Margot Wallström, and was supported by the then Danish Environment Minister Svend Auken [21]. These five policies, taken together, would create workable, precautionary, regulation of chemicals:

- A right to know would ensure that all decisions are transparent, and that consumers are allowed to make their own choices.
- A deadline for assessment of safety will get rid of the scandal of unassessed chemicals. We want safety assessment to use non-animal methods to the maximum extent possible; see [10].
- A phase out of persistent or bioaccumulative chemicals will stop the contamination of our bodies and environment, with chemicals having to rapidly break down into natural substances - with an exemption when these properties were an essential function in a specific application.
- Substitution will ensure that the safest possible chemicals - or techniques - are used.
- An end to releases of hazardous substances into the environment by 2020 will ensure that EU chemicals policy contributes towards the objectives of the OSPAR Convention, which aims to clean up marine pollution.

The intention of these proposals is to create a forward looking, sustainable chemical industry - not an industry fighting to retain outdated, unsafe chemicals.

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