Briefing

FRIENDS of the earth
for the planet for people

Poisoning our children: The dangers of exposure to untested and toxic chemicals

Introduction

We are exposed to industrial chemicals all the time, in our food, in household products and as general contaminants of our environment. One might think that the chemicals we are exposed to have been checked to ensure they are not toxic; unfortunately, in the majority of cases this has not been done. Due to the haphazard way in which chemicals have been brought into use, and the inadequacy of many of the regulations concerning the use of chemicals, we are exposed to a cocktail of poorly tested products.

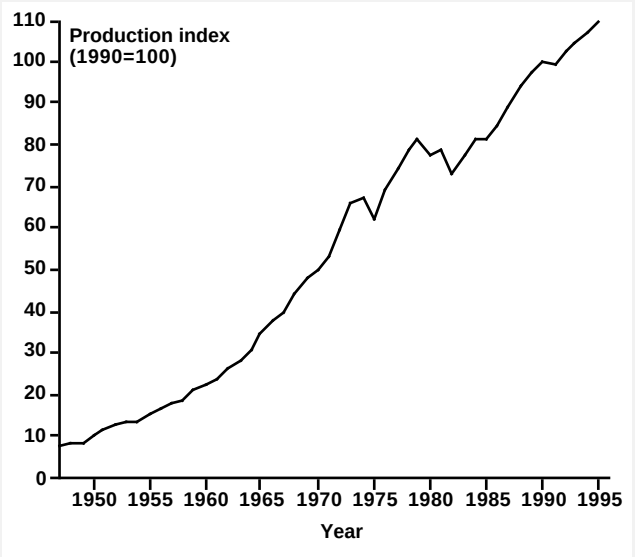
As this briefing demonstrates, there are serious concerns about what these chemicals may be doing to our health. Of particular concern are the effects that chemicals may be having during the development of our bodies, when we are in the womb and when we are children. This briefing outlines the rising incidence of several childhood and other cancers, the increasing incidence of asthma and the problem of declining sperm counts. It also describes some specific problem chemicals we are exposed to, and finally outlines what you can do to push Government and industry to clean up their act, to protect the health of children, adults and the broader environment.

The chemical revolution

In the twentieth century we have experienced a revolution in the production and use of chemicals. Figure 1 shows the vast increase in production of chemicals that has occurred since World War Two. This growth included the production of many new chemicals to which our bodies and the environment had never been exposed before. Around 100,000 different chemicals were in use in the European Union (EU) in 1981; the vast majority of these chemicals have not been adequately tested for toxicity. Several thousand other chemicals have gone on the market since 1981; these chemicals have had some level of toxicity testing before going on the market [4].

Toxicity testing is used to find out how dangerous a chemical is. It checks the effects of high doses and low doses, and what happens to the chemicals in the environment. A recent report by the European Environment Agency (EEA) demonstrates that very

Figure 1: Trends in chemical production in the USA since 1947 [1]



little toxicity testing has been done, even on those chemicals that are produced in the highest volumes (more than 1000 tonnes per year in the EU). Box 1 summarises the EEA's results.

A survey by the US Environmental Protection Agency (EPA) looked at every one of the 2,863 high volume (over 1 million pounds per year - about 450 tonnes) organic chemicals in use in the USA [2]. The EPA looked to see how much toxicity data was publicly available for these chemicals and concluded that:

"no basic toxicity information, i.e., neither human health nor environmental toxicity, is publicly available for 43 per cent of the high volume chemicals manufactured in the US and that a full set of basic toxicity information is available for only 7 per cent of these chemicals."

There is now substantial international co-operation on testing of chemicals, with the EU and the USA working together through the Organisation for Economic Co-operation and Development (OECD), who standardise the toxicity tests. In spite of this we still know very little about the toxicity of most high volume chemicals – and even less about the tens of thousands of chemicals produced in smaller amounts.

In the real world we are exposed to mixtures of chemicals, rather than just one chemical. It is much more difficult to investigate the toxic effects of mixtures, so we know very little about their toxicity. In some cases it has been shown that the toxic effects of chemicals will add together to give a much more toxic effect than each of the chemicals individually.

We are all exposed to industrial chemicals throughout our lives:

- in our food, from packaging, pesticides, additives and chemicals that contaminate the environment;
- in household products, like cleaners, air fresheners, TVs and textiles;
- in the workplace;
- from polluting factories, traffic and landfill sites.

Our bodies are contaminated too - hundreds of chemical contaminants have been found in human fat [3]. What could all these chemicals be doing to our own and our children's health?

Children's health at risk

There is increasing concern about the potential impact that exposure to some chemicals may be having on the health of children. Children are often more susceptible to the toxic effects of chemicals than adults, and there are some worrying trends in both childhood and adult illnesses. Advances in genetics are starting to find that some people are more susceptible to the effects of chemicals than others. However, it is still difficult to link exposure to a chemical with a particular health effect.

Box 1: Toxicity data available for 2,472 high production volume chemicals [4]

Test	Percent of chemicals for which data is available
Acute oral toxicity	70%
Acute dermal toxicity	45%
Acute inhalation toxicity	30%
Chronic toxicity	55%
Carcinogenicity	10%
Effects on fertility	20%
Biodegradation	30%

(NB: See the glossary for a detailed explanation of these terms)

Why children are more sensitive to toxic chemicals than adults

Children are different from adults in a number of ways which can lead to increased susceptibility to chemicals, for example:

- many parts of their bodies are developing, so are more susceptible to alterations, for example their brains and reproductive organs;
- they have a less developed ability to break down chemicals;
- they eat, drink and breathe more for their weight than adults, so take in more (relatively speaking) of many contaminants;
- they tend to be breathing air closer to the ground, which may contain more dust than that higher up;
- they are more likely to put things in their mouths and eat things they shouldn't [5].

The developing foetus is also extremely sensitive to toxic chemicals, as the development of the body depends on complex interactions of signalling chemicals, and disruption of these signals can permanently damage the body's development.

Worrying signals in children's health

There has been a general improvement in child health over the last century, due mainly to improvements in diet, hygiene and medical treatment. However, some health problems are getting worse:

- Cancer in children under 15 has risen by 10 per cent between 1974 and 1991 in the USA [6], while cases of the most common leukaemia, acute lymphoblastic leukaemia, rose by one per cent per year in the USA between 1973 and 1994. Brain tumour rates have gone up by two per cent per year [7]. Data from England and Wales suggests an increase in leukaemia incidence of around 15 per cent between 1971 and 1992 [8].

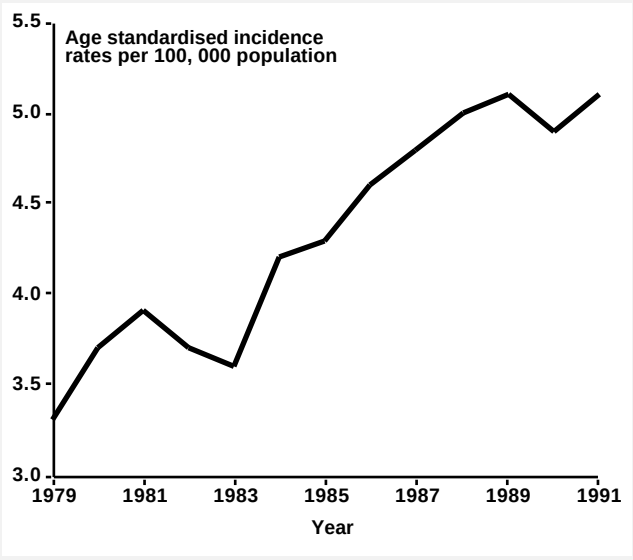
- A study which looked at the incidence of birth defects found that women living near hazardous waste landfill sites (hazardous waste dumps) were a third more likely to have babies with birth defects than those living further away [9].
- Research is suggesting that girls in the US are now entering puberty earlier than has been found by studies in the past [10]. The potential role of chemicals in this change is supported by a study which compared the onset of puberty in children with the levels of two persistent synthetic chemicals, PCBs and DDE (see next section for more information about these chemicals) in their mothers whilst they were pregnant. Girls whose mothers had the highest levels, and who were therefore exposed to the highest amounts of DDE and PCBs in the womb, entered puberty 11 months earlier than girls with lower exposures. The onset of puberty in boys was not affected. Other studies have shown that girls who enter puberty earlier are at increased risk of breast cancer [11].
- The ratio of male to female births has declined during the last 20-40 years in Denmark, the Netherlands, Sweden, Germany, Norway, Finland, Canada and the US, so fewer male babies are being born than would normally be expected. It is not clear why this is happening, though environmental pollution and hormone disrupting chemicals have been suggested as possible causes. This hypothesis is supported by data from Seveso, Italy, where an industrial accident released large amounts of dioxin (see below). In the eight years after the accident 12 daughters and no sons were born to nine couples with the highest dioxin exposure [12].
- Childhood (and adult) asthma has risen hugely in recent decades. In 1993 GPs recorded five times as many new cases of asthma in pre-school children as they had in 1979; the number of adults consulting their doctor about asthma trebled between 1971 and 1991. In England £438 million worth of asthma medicine was handed out in 1997, with the total cost of asthma being about two per cent of the health services net expenditure [13]. We know that air pollution can cause asthma attacks, but it is still not clear why so many more people are becoming asthmatic. Theories include changes in diet, increasing numbers of dust mites in poorly ventilated homes, and changes in chemical exposure, particularly in the home. One of the chemical theories is outlined below; see 'Phthalates'.

Problems with the health of adults

Several diseases of adults are also on the increase, some of which are believed to derive from developmental problems that occurred in the womb or in childhood.

- Testicular cancer has increased in incidence by 55 per cent between 1979 and 1991 in England and Wales (see Figure 2); there were 1137 new cases of testicular cancer in 1991 [18]. Testicular cancer is believed to result mainly from problems occurring during the development of testes whilst the individual is developing in their mother's womb, and hormone disrupting chemicals (see Box 3) are hypothesised to be a cause of the increase [14].
- Sperm counts in Europe and the USA are declining [15].
- Breast cancer has been estimated to have increased in incidence by one per cent per year since the 1940s in the USA, and has increased by 50 per cent in Denmark between 1945 and 1980 [16]. It has also increased in incidence in the UK over the last few decades. Research has suggested a link between breast cancer and exposure to hormone disrupting chemicals (see Box 3) such as DDT, dioxin and PCBs; see below for more details about these chemicals [17].

Figure 2: Testicular cancer's increasing incidence (in England and Wales) [18]



- Prostate cancer has increased by 40 per cent between 1979 and 1991 in England and Wales, though some of this increase may be due to improved diagnosis [18].

Genetic susceptibility

One of the most worrying - and significant - developments in recent years has been the discovery that people have different susceptibilities to chemicals, depending on their genetic makeup [19]. Our bodies are able to break down many of the chemicals that they are exposed to, and can also, for example, repair some of the damage that chemicals can cause. However, those of us who can't break down chemicals so easily, or who have poor repair

systems, will be much more susceptible to the effects of chemicals.

A major US research project, the Environmental Genome Project, is investigating the genetic basis for this variability [20]. This project, and other research, will lead to genetic tests which will be able to indicate who is most susceptible to different sorts of chemical exposures. Such research will challenge current safety limits for chemicals, as these are generally set by considering a 'normal' member of the population, rather than the most sensitive people.

How are chemicals shown to be dangerous to humans?

A major problem with linking exposure to chemicals, or anything else, to illness is the multiplicity of other factors which could be affecting the incidence of the illness. Occasionally, making a link is easy, for example if the exposure leads to a unique illness, as for example with asbestos. However, even with links that should be easy to make, such as that between lung cancer and smoking, years of research (and exposure to the chemical) may be required. Even then the industry making money from the product may continue to fight against controls on it, arguing that the case hasn't been 'proven'.

More complex problems, like changes in IQ, behaviour or performance of the immune system, are much more difficult to link to exposure to specific chemicals.

If you are dealing with chemicals that a generation has been exposed to, who do you compare their levels of illness with? The previous generation? So many other things will have also changed in the same period, making a causal link with a particular chemical almost impossible to demonstrate. The only way such a link can be proven in humans is to expose a group, say pregnant mothers, to a known dose of a chemical, and compare their health and their children's development, with another, identical group. This observation would need to continue for many years, to pick up all possible effects. Such an experiment would not only be completely unethical; it would also require many years to generate a result. In order to *prove* human harm from a chemical you must harm sufficient humans, under controlled conditions, to demonstrate a causal link.

Other methods must therefore be used to determine if chemicals may harm human health. The use of animal-free experiments is becoming more common, examining the detailed biological mechanisms of toxicity by using cultured cells or bacteria. Chemicals are also frequently tested on animals, whose reactions to chemicals may be similar, though not identical, to those of humans.

As it is so difficult to prove links between exposure to a chemical, or certainly a mixture of chemicals, and human harm (or harm to the environment), decisions must be made upon incomplete and uncertain information. In these circumstances, the precautionary principle should be used. There are, however, many different interpretations of what the precautionary principle is, and how it should be applied. A recent editorial in the prestigious medical journal *The Lancet* defined it thus:

"We must act on facts, and on the most accurate interpretation of them, using the best scientific information. That does not mean we must sit back until we have 100 per cent evidence about everything. Where the state of the health of the people is at stake, the risks can be so high and the cost of corrective action so great, that prevention is better than cure. We must analyse the possible benefits and costs of action and inaction. Where there are significant risks of damage to the public health, we should be prepared to take action to diminish those risks, even when the scientific knowledge is not conclusive, if the balance of likely costs and benefits justifies it" [21].

However, Friends of the Earth considers that the precautionary principle should not include a balance of costs and benefits [22]. In reality it is very difficult to assess either the costs or benefits of taking a particular action – what is the price of a life? Or of a child suffering cancer? How much profit could be made from a replacement chemical or technique? With so much uncertainty as to the exact toxicological impact of a chemical on humans, by itself or in a mixture, how can the cost of this damage be calculated?

Problem chemicals

As described above, many chemicals have had little or no toxicity testing, so we know next to nothing about their potential effects on human health or their effects on the environment. In spite of this lack of testing, research is constantly revealing new chemicals to be of concern. This section contains a snapshot of some of these chemicals, particularly focusing on chemicals which are persistent and bioaccumulative (see Box 2) and those which are able to disrupt hormone control (Box 3).

1) Old chemicals that stick around

Over its lifetime so far, the chemical industry has produced many chemicals that are persistent and that bioaccumulate (see Box 2). Such chemicals stick around, so that even when they are no longer being manufactured they remain in the environment and in our bodies. Their persistence means that there is nothing we can do to remove them from the global environment once they have been released. Here are a few examples.

PCBs

PCBs, or polychlorinated biphenyls, are a group of chemicals which were first produced by the chemical company Monsanto in 1929. They had a wide range of uses including in printing inks, paints, plasticisers,

Box 2: Persistent and bioaccumulative chemicals

Some chemicals do not break down well in the environment or in our bodies. These chemicals are known as persistent chemicals. Because they don't break down easily, they tend to accumulate in the environment, even if they are no longer being used.

Some persistent chemicals also concentrate in the bodies of animals, including humans. This is called bioaccumulation, and is particularly common if the chemical is very soluble in fat. The fat then becomes the most contaminated part of an animal, so fatty products from contaminated animals or fish tend to have higher levels of bioaccumulative and persistent compounds than less fatty foods. This is why fish oils such as cod liver oil are contaminated with PCBs and dioxins [26]. Such chemicals also contaminate milk, including human breast milk. This contamination is worrying; however, breast milk is a very important source of nutrition and health for babies, and so Friends of the Earth advises that mothers should continue to breast feed where possible.

Not all bioaccumulative or persistent chemicals are known to be toxic. However, if they are found to be toxic in the future they will already be contaminating our bodies and the environment, and there is nothing that can then be done to stop exposure to them. Friends of the Earth therefore believes that all bioaccumulative or persistent chemicals should be phased out as a precautionary measure.

capacitors and in electricity transformers. They are extremely persistent and bioaccumulative, and were found in 1966 to be major environmental contaminants [23]. PCBs have been found around the world, including in human fat and breast milk, with particularly high levels at the North and South Poles (a process called "global distillation"). PCBs are hormone disrupters, and have a range of other toxic effects, including suppression of the immune system. They are no longer produced in Europe, and a global treaty is now being negotiated (the Persistent Organic Pollutants treaty) to stop their production globally, and to attempt to destroy as much of the PCBs in use as possible before they enter the environment; many nations, including all EU members, have already signed a similar treaty [24]. The UK is already committed to destroying all identifiable PCBs by 1999 [25].

DDT

DDT is a pesticide that was once used extensively, but is now used only in the developing world, particularly for mosquito control but also in general agriculture [27]. DDT is metabolised in the body to DDE, and both these compounds persist in human fat and the environment. DDT and DDE are hormone disrupting chemicals; one structural form of DDE can block the action of the male hormone in mice [28].

PCTs

Researchers examining levels of PCB contamination in a German school unexpectedly found that another group of persistent chemicals, the polychlorinated terphenyls (PCTs), were also present [29]. PCTs started being used as plasticisers and flame retardants in the 1930s. Later they were used for a wide range of applications, including inks used to print on food packaging, from where they leached into food. Around 10,000 – 12,000 tonnes were produced globally before production ceased in the late 1970s. PCTs have also been found in human blood and fat. There is little information available on how dangerous PCTs are, though some seem to be endocrine disrupters and they may be cancer-causing.

2) Persistent chemicals that are still being produced

In spite of the problems that PCBs have caused, the chemical industry continues to produce other chemicals that persist or bioaccumulate. Some examples follow.

Dioxins

Dioxins are a group of chemicals which are produced as by-products in the production of some other chemicals (e.g. production of PVC and some other chlorine-containing chemicals), and by burning chlorine-containing materials in incinerators or other fires. Dioxins are persistent and bioaccumulative, and the most researched dioxin, TCDD, is proven to cause cancer in humans [30]. Dioxins are also endocrine (hormone) disrupters, and alter the immune system [31]. The World Health Organisation is about to cut its recommended safe limit for dioxins and furans (a group of chemicals similar to dioxins) by at least 50 per cent. Research by the UK Ministry of Agriculture has shown that adults are already taking in enough dioxin (including dioxin-like PCBs) in their food to breach this new limit, and children are taking in even more [32].

Brominated flame retardants

Brominated flame retardants (BFRs) are a group of chemicals added to many products, including carpets and computer equipment, in order to reduce fire risk. However, many BFRs are persistent and bioaccumulative, even contaminating the blubber of sperm whales in the remote deep waters of the Atlantic [33]. Some show similar toxicity and behaviour to PCBs (above), and when burnt, materials containing BFRs can emit dioxin-like chemicals. The BFR tetrabromobisphenol A (TBBP-A) has been shown to have the same hormone disrupting properties as bisphenol A (below), and has been found in the blood of office workers [34]. When low levels of the BFR polybrominated diphenyl ether (PBDE) are fed to pregnant rats, their offspring show permanent disturbances in behaviour, memory and learning. Levels of PBDE in human breast milk in

Box 3: Hormone disrupting chemicals

Hormones influence many aspects of the body, regulating its metabolism, and affecting sexual characteristics. Hormone Disrupting Chemicals (HDCs, also known as 'gender benders', xenoestrogens, or endocrine disrupting chemicals) are able to imitate, or disrupt the action of, natural hormones such as the female hormone oestrogen, the male hormone testosterone or the thyroid hormones. Oestrogens are the hormones that influence the development and maintenance of female sex characteristics, and the maturation and function of the sex organs, and testosterone serves a similar function for males. Thyroid hormones are involved in the growth and development of the body, including the brain [39].

HDCs covered by this briefing include bisphenol a, dioxins, PCBs, some polybrominated flame retardants and some phthalates. Some plants, for example soya, contain natural chemicals that disrupt hormones. However, because we have been exposed to plant hormones (phytoestrogens) throughout our evolution, we are usually able to break them down rapidly in our bodies. There are, however, concerns about the use of soya-based infant foods, as these are not a natural part of our diet, and could be having a negative effect [see note 40 for details].

Hormones are particularly crucial during development in the womb and early childhood, as their signals control developing reproductive organs, growth and the development of the brain. We know something, though not much, about the potential impact of HDCs on development of the reproductive organs. We know very little about potential impacts on intelligence and behaviour [41].

Sweden have increased by 50 times over the past 25 years [35].

Musk scents

Many products have scent chemicals added, including toilet cleaners, shaving foam, washing up liquid, cosmetics and, of course, perfumes. One group of perfumes found in some products are the 'artificial musks'. Artificial musks are persistent and bioaccumulative, accumulating in our bodies, contaminating human fat, blood and breast milk. They also contaminate the wider environment, including fish [36]. Unfortunately, ingredients lists on products usually just state "perfume" or "fragrance", so it is difficult to avoid the artificial musks. There are also safety concerns about other scents (see 'Air fresheners' below).

Fluorinated organics

Concerns are now being raised about the use of fluorinated organics (also known as fluorocarbons), which have a massive range of uses, including as pesticides, refrigerants, anaesthetics and industrial surfactants. Many of these compounds are persistent, and some are known to have biological effects - others are known to contribute to global warming. However, despite their industrial importance, only a little is know about their fate in the environment and their toxic effects. Some scientists have suggested that levels of the main breakdown product of some fluorinated organics, TFA, may be high enough to threaten wildlife within 30-50 years [37]. In spite of the lack of knowledge in this field, and concerns about possible environmental effects of these chemicals, the fluorocarbons industry has abandoned its research into TFA levels in the global environment [38].

3) Some other problem chemicals

Safety concerns extend beyond persistent and bioaccumulative chemicals. Although other chemicals may not stick around in the same way as persistent chemicals, they can still cause toxic effects. They include:

Phthalates

Phthalates are a group of chemicals which are used as plasticisers (making plastic more flexible) in plastics, glues and inks. Several have been shown to be hormone disrupters, and their widespread use and poor degradability mean that they are common contaminants of the environment. Worrying research has indicated the possible importance of phthalate exposure on children's health:

- Many teethers and soft toys contain phthalate plasticisers, and research has shown that these plasticisers can leach out of the toys into the mouths of the children chewing them. The European Commission's Committee on Toxicity, Ecotoxicity and the Environment has concluded that there are "reasons for concern" about the most common phthalate used in PVC toys [42]. However, the toys have not been banned in the EU, mainly because there are currently no approved tests available to establish how much plasticiser is leaching out of the toys - even though such toys have been chewed by children for decades. However, Austria has banned the use of phthalates in toys for children under three, and both Denmark and Sweden have similar bans proposed [43].
- Tests by the UK Ministry of Agriculture, Fisheries and Food found phthalates in baby milk formula [44]. A survey of phthalate levels in UK fatty food in 1993 found phthalates to be present in every sample, including in meat, fish, eggs, milk and milk products [45].
- The phthalate diethylhexylphthalate (DEHP) is used in many PVC building materials, for example PVC floors. Researchers have found that DEHP, and other phthalates, are present on household dust, so will be inhaled by both children and adults. Infants breath twice as much air as adults (per kilo body weight), and spend most of their time indoors, so will be getting a

particularly large dose of phthalates from dust. Disturbingly, animal experiments indicate that DEHP can irritate lungs, and some evidence suggests that development of lung problems in the first two years of life is linked to exposure to plastic interior surfaces [46]. This research suggests that the increasing incidence of asthma could be partially due to the increasing household use of plastics containing phthalates over the last few decades.

Bisphenol a

Bisphenol a (BPA) is a chemical which is used to make protective coatings inside many, but not all, tin cans, and it is the main ingredient in making polycarbonate plastic bottles. It is also an endocrine disrupter, with a range of worrying toxic effects.

Researchers in the USA have found that BPA contaminates canned baby food concentrates [47], and Spanish research has found that other canned foods are also affected [48]. US research also found that some BPA could migrate from polycarbonate baby bottles [49].

BPA has been shown to imitate the female hormone oestradiol, and very low doses have been shown to enlarge the prostate in mice [50]. Research has also shown that BPA acts in the same way as female hormones in the area of the developing rat brain which regulates fertility and sexual behaviour [51].

Air fresheners

Air fresheners don't really freshen the air in your home - they just add more chemicals into the atmosphere, to mask the smell of what's already there. One study examined the effect of air freshener emissions on mice in the lab, and found that the emissions irritated their lungs, and affected their behaviour. Some of these effects were noticed at concentrations similar to those expected from normal domestic use. Several of the mice exposed to the highest amounts of air freshener actually died! Analysis of the gases released by the air freshener showed that chemicals with known irritant and neurotoxic (nervous system toxin) activities were being released [52]. The same researchers observed similar effects with four brands of cologne and a sample of toilet water [53].

Occupational exposures to chemicals

Workers in many occupations are exposed to chemicals. Occupational health standards exist to attempt to minimise risks to these workers, though given the numerous gaps in our knowledge about chemical risks, these standards are not perfect. However, in addition to risks to the workers themselves, there is worrying evidence that occupational exposure can lead to increased levels of cancer in their children. The strongest links have been found between childhood leukaemia and paternal exposure to solvents, paints and motor-vehicle related occupations, and between childhood nervous system cancers and paternal exposure to paints [54].

Pesticides

Pesticides are designed to kill things, so it's perhaps not surprising that many pesticides have been withdrawn from sale because of health worries. However, many concerns continue about pesticides that are still in use. For example:

- A study of pesticide-exposed children in Mexico found that they had less-developed mental skills than those not exposed [55].
- A range of studies suggest that exposure of parents to pesticides, use of pesticides in the home or residence on a farm are associated with increased childhood cancers [56].
- A study of domestic use of a household pesticide chlorpyrifos found that it concentrated on the surfaces of toys after spraying in a room. Children playing with these toys were estimated to be exposed to the pesticide at substantially above the safety limit. This extra exposure hadn't been predicted in the past - or taken into account when the pesticide was approved [57]. Clorpyrifos is authorised for use in the UK in products such as Bob Martin Microshield Household Flea Killing Spray, Raid Ant Bait and Dursban 4TC [58].
- A study of births in Iowa, USA found that mothers who drank water contaminated with herbicides such as atrazine were more likely to have babies which grew less in the womb [59].

How to help make things safer for you and your children

1) Change the regulatory system

The chemical industry considers that there is nothing wrong with the present system that can't be solved with some research and more testing of chemicals. As a result of growing public and government pressure, they have begun to collaborate internationally, spending a few tens of millions of dollars – a tiny fraction of their profits – on new research and testing. Some of this research may be legitimate, but much industry-backed research is designed only to defend their products, and to delay decision making.

Friends of the Earth believes that the current system of chemicals regulation is wholly inadequate. We must move to a system where we know that chemicals are safe, and we must deal with the legacy of ten of thousands of poorly tested chemicals. Box 5 outlines Friends of the Earth's proposals on how this could be achieved, in the form of our "Joint Statement on Chemicals and Health", which has already been endorsed by a wide range of organisations.

Take Action!

a) Sign and return our statement on chemicals and health - see the final page of this briefing.

b) Write to the Government

Write to Michael Meacher, the Environment Minister:

> Rt. Hon. Michael Meacher,
> Minister for the Environment,
> Department of the Environment, Transport and the Regions,
> Eland House, Bressenden Place,
> London SW1E 5DU

In your letter you may want to include the following elements:

- State that you are concerned about the state of chemicals licensing, and that you support Friends of the Earth's "Joint Statement on Chemicals and Health".
- Ask for the right to know what is in all products, and a comprehensive pollution inventory to give people information on local sources of pollution.
- Call for the Government to set up health studies to determine the effects of landfill sites, factories and other sources of pollution on our health.

If you are sending your letter before (or soon after) 27 October 1998, mention that it is your submission to the Government's consultation on chemicals policy (see below).

c) **Send a copy of your letter to your MP**, so they know your concerns, and ask them to write to the Minister. Most of the regulation of chemicals is controlled at an EU level, so you could also write to your MEP to outline your concerns, and ask them to raise them with the European Commission (the civil servants who administer EU legislation).

Box 4: Some chemicals to avoid - and how to try to find out what's in products

Try to avoid buying products containing the following chemicals:

- Cosmetics or heavy-duty cleaning products containing nonoxynol or nonylphenol ethoxylate (these are hormone disrupting chemicals).
- Products made of PVC, including toys and building materials.
- Products treated with brominated flame retardants, particularly electrical goods such as TVs and household textiles.
- Canned foods with linings that contain bisphenol a.

To find out what's in products:

Some products have good ingredients lists, but even these will not usually show everything, for example they won't say if a can contains bisphenol a. Try writing to the company making or selling the product:

- Ask them if they believe that a consumer has a right to know about everything that is in a product.
- Ask them if the chemical you are concerned about is present in their product, for example if their canned food contains bisphenol a.

The Government's review of chemicals policy

The Government is reviewing its strategy towards chemicals during the second half of 1998 and the first half of 1999. They published a consultation document, "The Sustainable Production and Use of Chemicals", on 27 July 1998; you can get a copy from the Government or on the web if you are interested – see Recommended Reading for details. The consultation period on this document officially ends on the 27 October 1998, but you should still send your letters about chemical policy to the Government after this.

2) Reduce your own and your children's exposure to poorly tested and suspect chemicals

You can't avoid all exposures to poorly tested chemicals, but here are a few simple steps you can take to reduce your exposure.

- Avoid using pesticides in the house or garden
- Buy organic food where possible
- Minimise your use of unnecessary chemicals - e.g. perfumes in household products, air fresheners.
- Avoid the chemicals listed in Box 4 where possible.
- Avoid doing DIY jobs using chemicals when your child is young, or keep them out of the area for a few days.
- Keep your home well ventilated to reduce any accumulation of chemicals in indoor air. Energy efficiency doesn't require you to completely seal your home.

Glossary

Acute toxicity - toxic effects after a short, normally high dose exposure.

Bioaccumulation - accumulation of a chemical in wildlife or humans (see Box 2).

Biodegradation - the natural breakdown of a chemical or other substance; the breakdown may only be partial. If a substance is fully biodegradable then it will break down into natural chemicals.

Carcinogenicity - ability to cause cancer.

Chronic toxicity - toxic effects after a long, usually low dose exposure.

Dermal toxicity - toxic effects when the chemical is applied to the skin.

Endocrine disrupting chemical - a chemical which disrupts the endocrine or hormonal system (see Box 3).

Hormone disrupting chemical - a chemical which disrupts the endocrine or hormonal system (see Box 3).

Inhalation toxicity - toxic effects when the chemical is inhaled into the lungs.

Oral toxicity - toxic effects when the chemical is given through the mouth in food or drink.

Organic chemical - a chemical which is based on carbon (see a chemistry text book for a comprehensive definition).

Persistent chemical- a chemical that doesn't break down well in the environment, so sticks around (see Box 2).

Persistent organic pollutant (POP) - an organic chemical which is persistent and pollutes the environment.

Recommended reading

1) Friends of the Earth's Sustainable Chemicals Use web site:

http://www.foe.co.uk/camps/indpoll/suschem.htm

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http://www.environment.detr.gov.uk/sustainable/chemicals/consult/index.htm

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Written by Dr A. Michael Warhurst
September 1998

Friends of the Earth exists to protect and improve the conditions for life on Earth, now and for the future.

Friends of the Earth is:

- one of the largest international environmental networks in the world, with over 50 groups across five continents;
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Box 5: Joint statement on chemicals and health

September 1998

We welcome the UK Government's review of the 'Sustainable Production and Use of Chemicals' and the review of chemical legislation within the European Union. The following statement has been agreed by the signatories named below:

We are concerned that:

(i) the majority of chemicals in current use have not had adequate toxicity testing. The European Environment Agency has stated that about 75% of the approximately 2500 chemicals in large scale use (whose production in the EU exceeds 1,000 tonnes) have not got sufficient toxicity data publicly available for even a preliminary toxicity assessment;

(ii) chemicals which bioaccumulate and persist in the human body and the environment are still in routine use;

(iii) increasing numbers of chemicals are being shown to disrupt the function of the endocrine, immune and nervous systems of both humans and animals;

(iv) most exposures to chemicals occur as mixtures, rather than individual chemicals, but little consideration is given to this in the regulation of chemicals;

(v) some parts of the human population are far more susceptible to chemical exposures, including developing foetuses, babies, children and those with certain genetic variants. Animals show similar variation in susceptibility;

(vi) the incidences of breast cancer, testicular cancer and asthma have increased dramatically over the past few decades and there is concern that these increases may be linked to exposure to chemicals.

We believe that a more sustainable chemicals policy is both necessary and possible. It should include policies which will more adequately protect both the public's health and the health of the environment.

A sustainable chemical strategy should focus on reducing the risks posed by chemicals, and it should be guided by the precautionary principle. The complexities described above mean that uncertainty is pervasive when evaluating the effects of chemicals, even if considerable resources are spent on research. We propose that a new strategy should include the following elements:

(i) A positive licensing system

Chemicals regulation should move towards being a positive licensing system, where chemicals are licensed for different uses, in the same way as already occurs for pesticides and pharmaceuticals. Industry should have to demonstrate that these licensed applications of chemicals are safe beyond reasonable doubt, and that society has a need for them. The potential impacts on the environment of discharges of a chemical should be fully evaluated prior to licensing.

(ii) The elimination of persistent or bioaccumulative chemicals

All synthetic chemicals in use should break down rapidly into harmless, natural substances. There should be no accumulation in the human body, wildlife or the environment, unless this is an essential function in a specific application. Phasing out persistent and/or bioaccumulative chemicals will reduce exposures.

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iii) The phase out of dangerous chemicals

Those existing chemicals that do not fulfil the above requirements should be phased out as soon as possible, and at least by 2010. The Government should ensure that all Persistent Organic Pollutants (POPs) covered by the United Nations Economic Commission for Europe protocol on POPs are phased out well before this deadline.

(iv) Substitution of toxic chemicals

Where a less toxic chemical is available for an application, it should be substituted for the more toxic chemical. This is the 'substitution principle'.

(v) Minimising the quantity of chemicals used

The minimum necessary quantity of chemicals should be used for any application.

(vi) Producer liability

Liability for the effects of chemicals should rest with the producer of the chemicals concerned, not with the general public.

(vii) The right to know

The public should have a right to know what chemicals are present in any product they use, including in the packaging of the product. The public should also have access to information on the safety of all chemicals. This information will help individuals to make informed choices.

(viii) The elimination of marine pollution

The Government must adhere to its commitment to cease all discharges of hazardous chemicals to the marine environment by 2020, as agreed in the Sintra Statement arising from the Ministerial Meeting of the Oslo and Paris Commission in July 1998.

The strategy outlined above will improve protection of both human health and the environment. It will also reduce the burden of dealing with the poorly-characterised existing chemicals, as many chemicals will be withdrawn from use. Such a strategy will also improve the occupational environment by replacing more toxic chemicals with less toxic ones.

These proposals do not threaten the survival of the chemical industry, they merely call for the production of better chemicals.

We must take action now; the massive expansion of the production and use of synthetic chemicals since the 1930s has been undertaken with insufficient regard for the health of humans and the environment - now we have the chance to protect people and the environment from the effects of dangerous chemicals.

Signatories include:

Friends of the Earth (England, Wales and Northern Ireland), Friends of the Earth (Scotland), World Wide Fund For Nature (WWF) UK, UNISON, Women's Environmental Network (WEN), Scottish Wildlife Trust, Marine Conservation Society, SERA (the Labour Environment Campaign), Association for Public Health and The Food Commission.

Sign up to the joint statement and join us!

I/our group (delete as applicable) would like to sign Friends of the Earth's Joint Statement on Chemicals and Health.

Name (contact name if part of a group): _____ Signed:_____

Name of the group you represent (if relevant): _____

Address:_____

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Send to: Chemicals and Health Campaign, Friends of the Earth, 26-28 Underwood Street, London N1 7JQ