



Robert H. Burnett  
Executive Director

July 9, 1993

TO; VIGOR

RE: European Developments

The attached documents were received today from Peter Hollins of EVC.

The European Chemical News article seems to take a page from the recent C&E News item which was so highly critical of the chlorine industry. With friends like these who needs enemies. John Svalander, the new Executive Director of ECVM, is considering an industry boycott of the publication which would include canceling subscriptions and no further advertising.

The attempted occupation of the EVC Italian headquarters may signal a new and more physically aggressive phase of Greenpeace operations. I would suggest that everyone reread Dan Stanowick's memo of June 30th (plant crisis preparedness) just in case.

RHB/pmb

cc: VI Executive Board  
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CTL006738

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GREENPEACE

This is to alert you to two developments in respect of the above:

1. The article which appeared, in of all journals, the European Chemical News (copy attached). ECVI and individual companies are taking action appropriately. I understand that Euroclor is also considering what steps it should take.
2. The Greenpeace attempted to occupy the Head Office of our Italian operation this morning, which is I understand the 17th anniversary of the Seveso incident. A small demonstration was held and the television is returning later for an interview.

A handwritten signature in black ink, appearing to read 'P T Hollins', with a stylized flourish at the end.

P T Hollins

CTL006739

# Is this the end for chlorine?

Environmental pressure group Greenpeace has stepped up its campaign against chlorine and especially PVC in recent months, calling for a phaseout and eventual ban on the use of the element. Here it outlines its concerns over chlorine's effects.

**T**HE HARMFUL nature of organochlorines like PCBs and DDT has been recognised for over 30 years. Scientific evidence which confirms the depth of the crisis facing the environment due to organochlorines continues to grow, and legislators and scientists alike have been calling for nothing less than a total phaseout of chlorine production.

This view was summed up by the German Council of Experts for Environmental Issues in 1990 when it said: 'The dynamic growth of chlorine chemistry during the 1950s and 1960s represents a decisive mistake in 20th century industrial development, which would not have occurred had our present knowledge as to environmental damage and health risks due to chlorine chemistry then been available.'

Chlorine production now exceeds 40m tonnes/year and inevitably, as organochlorines break down slowly, the burden on the environment is growing each year. The effects of some organochlorines on the environment are well known, and the case against others is building up.

No-one would dispute the irreparable damage caused by PCBs, DDT and CFCs, although these are only a few compounds within the group. Many effects of organochlorines in aquatic wildlife and humans have now been demonstrated.

Organochlorines tend to concentrate in living tissues, especially in species at the top of the food chain. Most are extremely stable. As a result they persist for hundreds of years. Others do not break down to any appreciable extent at all. When organochlorines do degrade they usually produce other organochlorines, thus perpetuating the problem.

The effects of these chemicals are not confined to the aquatic ecosystem. The Science Advisory Board to the International Joint Commission on the Great Lakes which border the US and Canada has said: 'Seven reports have concluded that toxic chemicals, in large part organochlorines, have impaired and are impairing the health of natural populations of fish, reptiles, birds and mammals in the Great Lakes basin.'

By S. Cooper/D. Adams

'The concentrations of organochlorines in the wild populations are in the same general range as those in human populations. Because of their short generation times, populations of fish and wildlife may be showing effects that will appear later in human populations.'

Already human health effects have been documented. Many organochlorines are suspected carcinogens, others can damage the nervous system, liver and kidneys. Some are easily absorbed by the skin, others, say independent scientific studies, are absorbed via the food chain.

A recent Danish study published in the *British Medical Journal* suggests that environmental factors, such as exposure to DDT, PCBs and dioxins, may have caused a 42% decline in sperm concentrations over the last 50 years. Professor Niels Skakkebaek of Copenhagen University told Reuters that this 'remarkable' decline made it likely that more men would have difficulty fathering children.

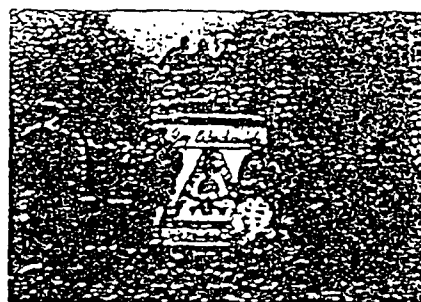
Near the Great Lakes, where organochlorines have been linked to a range of health problems in wildlife, children of mothers who had eaten local fish were born prematurely, weighed less and had smaller heads than infants from the same community whose mothers did not eat Great Lakes fish. In later tests, these infants suffered learning disabilities.

Studies of dioxins indicate that extremely low doses mimic and disrupt the body's natural hormones, resulting in immune system suppression, infertility, birth defects, cancer and impaired childhood development.

Despite all this, production of chlorine continues apace. The final products are continually adding to the burden of chlorine chemicals in the environment. These include pesticides, solvents, PVC and refrigerants; additionally, water disinfection and pulp and paper bleaching use vast chlorine. And materials such as polyurethanes and titanium dioxide involve chlorine in their production.

Now governments are waking up to the enormity of the problem. In the past they have tried to regulate organochlorines on a substance-by-substance basis, with little success. While cutting the amounts of particular pollutants, this approach does nothing to control the total accumulation of organochlorines in the environment. The effects of a cocktail of organochlorines discharged by industries are impossible to predict.

As a result of pressure by environmental groups, at last year's Oslo-Paris Commission meeting, organochlorines were classed together and earmarked for phaseout from the marine environment. Thirteen European nations pledged to reduce organochlorine discharges for



Photos: Greenpeace

the protection of the northeast Atlantic, signalling yet more bans to come.

This was consistent with the recommendations of the International Joint Commission (IJC) in its Sixth Biennial Report on Great Lakes Water Quality (1992), where it

recommended sunsetting the use of chlorine and chlorine-containing compounds and the elimination of toxic, persistent substances.

Still not enough is known about the persistence and toxicity of organochlorines to justify an outright ban. But because the production of chlorine inevitably produces organochlorines as by-products and as products, chlorine itself should be phased out.

Industry is already seeing a decline in chlorine use. The major European chlor-alkali producers - including ICI, Solvay, Dow Chemicals, Eka Nobel (Sweden's largest producer) and some of the



chlorine products. Associated Oxy-  
chlorine, Polene and Norsk Hydro – are all  
experiencing a drop in demand for chlori-  
ne-based products.

Environmental considerations have  
forced reductions in chlorine bleaching  
and CFC production. Industry analysts  
predict that by the end of the decade the  
world's paper industry will consume only  
a third of the chlorine it used in 1980.  
Reductions in the water purification sec-  
tor could be of the same order, due to the  
increasing trend away from chlorination  
to other forms of disinfection. The deple-  
tion of the ozone layer has led to interna-  
tional agreements which will phase out

dioxins in the products themselves can be  
released out of cling film into food, into a  
room with a PVC floor, into a child's  
digestive system if she/he chews on a PVC  
toy. When burned in incinerators, PVC  
releases hydrochloric acid along with  
dioxins.

Now national, regional and local gov-  
ernments throughout Europe are ban-  
ning and phasing out the use of PVC as  
building material, in hospitals and for  
packaging. In June 1987 the German  
town of Bielefeld banned the use of PVC  
in all of its public buildings after a  
bowling alley fire involving PVC furniture  
left high dioxin levels in the ash. Only two  
years later Bielefeld had achieved 90%  
substitution in its construction.

Over 50 local authorities in Germany  
now have a PVC phaseout programme for  
public buildings. German manufacturers  
such as Herlitz, AEG and Volkswagen  
have stopped using PVC in their products.  
In Austria, two states and almost half of  
the regional capitals have banned PVC  
use in buildings.

PVC packaging is also under attack by  
retailers all over Europe. The large Swiss  
retail chain Migros has substituted 75%  
of its PVC packaging since 1980s. The  
Swedish government banned PVC con-  
tainers through a voluntary agreement  
with the industry in 1990, and in Novem-

ber 1991 IKEA, one of the largest furni-  
ture distributors in the world, announced  
it would phase out PVC use in all products  
and not introduce new articles made of  
PVC unless no PVC-free material exists.

In Denmark, supermarket chain IRMA  
has cut PVC in products sold by 99%.  
Bergen, the second largest city in Nor-  
way, has also begun to phase out PVC use  
in public buildings. Recently in the UK,  
the well known retail chain Body Shop  
International announced it intended to  
eliminate PVC from its products by 1994,  
the first such move by a UK company.

In retaliation the industry has tried to  
convince consumers of the PVC recycling  
myth. But PVC is not a single material like  
glass. It is composed of numerous  
amounts of additives and stabilisers –  
cadmium, flame retardants and plasticis-  
ers, for example – that make recycled  
PVC suitable for only low quality prod-  
ucts. PVC recycling also usually involves  
the incineration of residues which cre-  
ates dangerous dioxins.

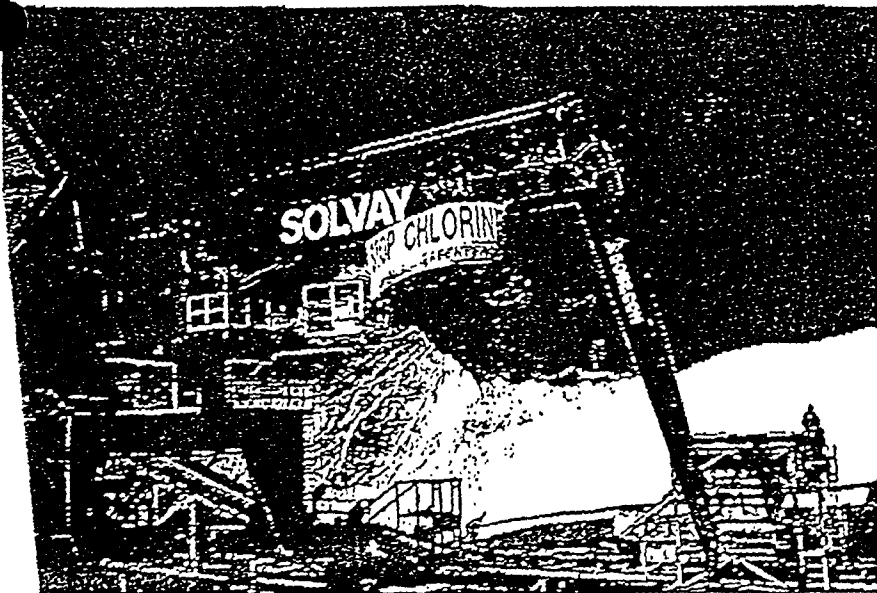
In leaked minutes of a meeting on PVC  
recycling in 1990, leading chlorine com-  
pany Solvay admitted recycling 'is not  
economically viable...', but 'necessary...  
for enhancing the public profile of PVC,  
which is now under frequent attack'. The  
company has set out a costly four-year  
campaign to 'establish the ecological  
credibility of the product'.

Chemical alternatives to chlorine al-  
ready exist. Naturally occurring sub-  
stances such as alcohols or water-based  
alkaline detergents are equally viable as  
chlorinated alternatives, in particular for  
metal degreasing applications. Alterna-  
tive processes – such as laser techniques  
or metal working – can be used, instead  
of degreasing.

Some manufacturers and users are  
already switching to chlorine-free alter-  
natives. Sweden's largest chlorine perox-  
ide gas producer Eka Nobel is moving to  
hydrogen peroxide for paper bleaching.  
Norway has agreed to a ban on chlorine  
gas bleaching in its pulp and paper plants  
by 1998. Alternatives to organochlorine  
solvents are already being introduced in  
the automobile, electronics and aero-  
space industries. Water-based alterna-  
tives have replaced some chloro-solvent  
paints and dyes. Even a UK-based steam  
alternative exists for dry cleaning, a  
non-toxic alternative to perchloro-  
ethylene. According to the US Office of  
Technology Assessment, such changes  
result in reduced costs and improved  
productivity.

With the recent IJC and Oslo-Paris  
Convention decisions, combined with the  
new information about the increased  
dangers of dioxins, the chlorine industry  
will have a difficult time surviving into  
the next century. As the International  
Joint Commission Science Advisory  
Board has stated, 'The technology either  
exists, or can with very few exceptions be  
developed at some cost, to replace (or  
control in the interim) the use of persis-  
tent, toxic substances.'

Sufficient information is now known  
for society to take a very restrictive  
approach to allowing persistent toxic  
substances in the ecosystem and to de-  
clare such materials too risky to the  
biosphere and humans to permit their  
release in any quantity.



duction of CFCs and 1,1,1-trichloro-  
ne.

The most buoyant sector in the chlo-  
rine industry is the production of PVC.  
Even this use for chlorine is now being  
questioned. The polymer creates envi-  
ronmental problems throughout its  
life cycle. Highly toxic waste is  
produced during the manufacture of vinyl  
chloride – the main constituent of PVC.  
1000 other toxic ingredients are  
used in its production. Toxic addi-

tives in the products themselves can be  
released out of cling film into food, into a  
room with a PVC floor, into a child's  
digestive system if she/he chews on a PVC  
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