

## **Human Dependency on the Chemical Industry**

It is difficult to imagine a modern society without the benefits of chemicals and the chemical industry. Pharmaceuticals, petrochemicals, agrochemicals, industrial and consumer chemicals all contribute to our modern lifestyles. However, with the rise of chemical manufacture has come increasing public awareness and concern regarding the presence of chemicals in the environment. There is an important distinction between the presence of chemicals in the environment (contamination) and pollution. Although these terms tend to be used in similar ways in everyday speech and journalism, in scientific areas there is a broad consensus that the term 'contamination' should be used where a chemical is present in a given sample with no evidence of harm, and 'pollution' used in cases where the presence of the chemical is causing harm. Pollutants, therefore, are chemicals causing environmental harm. Any chemical can become a pollutant in water causing one or more of these effects, if it is present at a high enough concentration.

Serious pollution incidents result from spills of sugar and milk, substances which contain a high organic content. In fact, the majority of pollution incidents in the UK continue to be due to gross organic pollution. In 1998 sewage accounted for 24% of the 17,863 substantiated pollution incidents in England and Wales with oil being the single most frequent cause, accounting for 30%. Such organic pollution is caused by the effluents containing biodegradable organic chemicals which generally act as pollutants. Not because they contain chemicals at concentrations that are toxic, but rather the reverse. They contain chemicals that provide food for microorganisms which multiply rapidly as a result of the increased food input. Preventing pollution of the environment by priority chemicals is very complex as chemicals are released and can gain entry to the environment at any stage in their life cycle.

Releases to the environment can broadly be categorised into point source releases, specific inputs from an industrial site or sewage work and diffuse or non-point source releases. Controls have tended in the past to concentrate on tackling the largest point sources and introducing strict requirements on discharges to water and sewer. Between one third and one half of the land surface has been transformed by human action, the carbon dioxide concentration in the atmosphere has increased by nearly 30% since the beginning of the Industrial Revolution. More atmospheric nitrogen is now fixed by humanity than by all natural terrestrial sources combined, more than half of all accessible surface fresh water is put to use by humanity, and about one-quarter of the bird species on Earth have been driven to extinction, All, trace to a single cause, the growing scale of the human enterprise. The rates, scales, kinds, and combinations of changes occurring now are fundamentally different from those at any other time in history; we are changing the Earth more rapidly than we are understanding it. The biodiversity on the Earth is profound, among these species are the plants, microorganisms, animals, bacteria and fungi that degrade natural wastes and the wastes we discard, the sewage, garbage, and other organic wastes and pollutants. These waste-degrading creatures could live without us, but we cannot live without them. Scientists increasingly emphasise that we are exceeding the capacity of some ecosystems to absorb our wastes.

**Q. Write the meanings of the following words in the spaces provided.**

a. consensus \_\_\_\_\_

b. substantiate \_\_\_\_\_

c. effluent \_\_\_\_\_

d. profound \_\_\_\_\_

e. consumerist \_\_\_\_\_

f. productive \_\_\_\_\_

**Q. Answer the following questions based on the text 'Human Dependency on the Chemical Industry'.**

a. How dependent are humans on the chemical industry? Why is this so?

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b. What have been the main sources of pollution incidents in the UK?

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c. Why are 'priority chemicals' not enough to prevent pollution?

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d. How much has pollution increased since the Industrial Revolution? Explain why?

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e. Explain how humans are removing the balance between consuming and nature?

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f. What other systems can be affected because of pollution?

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g. Is it possible to reverse the damage which has already been caused? Explain your answer.

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