



Major Forms of Pollutants in Environment

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INTRODUCTION

A pollutant or novel entity is a chemical or energy put into the environment that has unintended consequences or reduces the utility of a resource. These can be either naturally occurring (minerals or extracted substances such as oil) or anthropogenic (made materials or byproducts). Pollutants cause environmental pollution or become a public health risk when they reach a high enough concentration to have a major detrimental impact.

Pollutants are the atoms, molecules and particles that contribute to pollution; when exposed to these materials, life can be injured and the consequences on humans and plants are well documented. Pollutants can enter the environment in a variety of ways, both naturally and by humans. What pollutants do once they are released into the atmosphere, soil or water supply depends on the type of pollutant, but it is useful to categorize them as follows: Primary pollutants are those that are directly discharged into the environment, whereas secondary pollutants are those that are generated from primary pollutants and external circumstances.

DESCRIPTION

Many contaminants enter the environment in various ways, have diverse and sometimes unique health impacts and are found in varying concentrations. It is difficult to summarize these for each chemical, however they may be found on each pollutant's own page. Pollutants of various types include:

- Nitrogen Oxides (NO_x)
- Particulate Matter (PM)
- Ground level ozone (O₃)
- Volatile Organic Compounds (VOCs)
- Mercury (Hg)
- Peroxyacyl Nitrates (PANs)

Carbon monoxide, sulphur dioxide, Chlorofluorocarbons (CFCs) and nitrogen oxides are common gaseous pollutants emitted by industry and motor vehicles. When nitrogen oxides and hydrocarbons combine with sunlight, photochemical ozone and smog are formed.

A pollutant can cause long-term or short term damage by altering the growth rate of plant or animal species or by interfering with human resources, human health or well-being or property values. Some contaminants are biodegradable and, as a result, will not persist in the environment over time. However, the degradation products of some pollutants, such as DDE and DDD generated by the decomposition of DDT, are polluting in their own right. Pollution has a wide range of harmful effects on the environment. When viewed through the lens of planetary boundaries, human culture has released unique creatures that far beyond safe amounts.

Different types of pollutants in the environment

Pollutants can be classified in a variety of ways. It is occasionally useful, for example, to distinguish between stock polluters and fund pollutants. Another approach is to categorize them based on their specific features, such as organic, particle, medicinal and so on. The ecosystem has the ability to absorb several discharges without discernible harm, which is known as "assimilative capacity (or absorptive capacity); a pollutant creates pollution when the assimilative capacity is exceeded.

Stock pollutants

Stock pollutants are pollutants that have a poor absorption capability in the environment. Persistent organic pollutants such as PCBs, non-biodegradable polymers and heavy metals are examples. Over time, stock pollutants accumulate in the environment. The damage they cause grows with the amount of pollution discharged and continues while the pollutant accumulates. Stock pollution can impose a load on future generations, ignoring the damage that lasts long after the benefits of incurring that

damage have been forgotten. Officially, scientists have determined that the planetary bounds for safe chemical pollutant levels (new entities) have been exceeded.

Fund pollutants

In contrast to stock pollutants, which have a low absorptive capacity in the environment, fund pollutants have a moderate absorptive capacity. Fund pollutants do not harm the environment unless the rate of emission surpasses the absorptive capacity of the receiving environment (for example, carbon dioxide, which is absorbed by plants and oceans). Pollutants in funds are not destroyed, but rather transformed into less hazardous compounds or diluted/dispersed to non-harmful concentrations.

Specific groups of pollutants

Many pollutants are within the following notable groups:

- Environmental Persistent Pharmaceutical Pollutants (EPPP)
- Greenhouse Gases (GHGs)
- Particulate Matter (PM)
- Persistent Organic Pollutants (POPs)
- Polycyclic Aromatic Hydrocarbons (PAHs)
- Volatile Organic Compounds (VOCs)

Light pollutant

The impact of manmade light on the visibility of the night sky is referred to as light pollution. It also includes ecological light pollution, which explains the effect of artificial light on individual creatures as well as the overall structure of ecosystems.

Zones of influence

Pollutants can also be defined by their zones of influence, both horizontally and vertically.

Horizontal zone

Light pollution refers to the effect of artificial light on the visibility of the night sky. It also covers ecological light pollution, which describes how artificial light affects both individual organisms and the broader structure of ecosystems.

Vertical zone

The vertical zone denotes whether the damage is at ground level or in the atmosphere. Surface pollutants degrade the environment by gathering near the earth's surface. Global pollutants harm the environment by concentrating in the atmosphere.

Measuring concentration

This section is an excerpt from pollutant concentration measures. Pollutant concentration measurements are utilized in public health risk assessment. Industry is constantly synthesizing new compounds and their regulation necessitates an assessment of the possible harm to human health and the environment. Risk assessment is now seen as vital for making scientifically informed judgements.

Measures or defined limits include:

- No Observed Adverse Effect Level (NOAEL), also called No Effect Concentration (NEC), No Observed Effect Concentration (NOEC)
- Lowest Observed Adverse Effect Level (LOAEL)
- Acceptable Operator Exposure Level (AOEL)
- ECx (in percentage).

CONCLUSION

In conclusion, there are numerous strategies to reduce pollution on planet, including implementing the 3Rs concept, reducing vehicle usage on the road, raising awareness among individuals and enforcing regulations that would produce a healthier environment for the benefit of both mankind and our mother planet.