

subsidiary
Part II
Lecture No. 20

Ecology
Group - c
AIR Pollution

24th August

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Normal dry air pollution contains 79% N_2 , 20.9% O_2 , 0.03% CO_2 and the rest of other gases. Any harmful departure in the composition of this oxygen rich atmosphere is called air pollution.

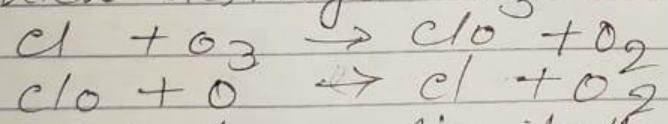
The main sources of air pollution include smoke and dust from domestic fires, chemical and industrial fertilizer factories and automobile exhausts as well as the radioactive pollutants. Air pollutant categorized

1. Primary pollutants: These are released directly from identifiable sources and include carbon compounds, sulphur compounds, halogen compounds, particles of metals etc.
2. Secondary pollutants: These are produced by combinations of primary pollutants in the atmosphere and cause - smog. It is a combination of smoke and fog made heavier and darker by smoke and chemical fumes. Peroxy Acetate Nitrate (PAN) and ozone (O_3) are produced by photochemical reactions between nitrogen oxides and hydrocarbon. Acid rains caused by combinations of SO_2 and NO_2 with water of the air, forming H_2SO_4 and Nitric acid (HNO_3).

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Ozone Depletion in Stratosphere :- O_3 in the atmospheric layer (stratosphere) absorbs solar energy near U.V. radiation otherwise if these high energy photons manage to reach the earth then can produce dangerous effects like skin cancer, stunted plant growth etc.

The pollutants emitted by jet engines like NO and NO_2 . The anthropogenic contributions of chlorine in O_3 depletion is also similar. The carbon tetrachloride (CCl_4) and chlorofluorocarbons (CFC_1 and CFC_2) used in refrigeration and as propellants in aerosol spray cans after reaching the stratosphere yield free chlorine which destroys O_3 .



Effects of Air Pollution

- (i) Necrosis, chlorosis, discolorations, lesions and abscission of leaves are caused due to increased concentrations of fluoride and oxides of nitrogen which enter through stomata.
- (ii) Disappearance of lichens from an area is indicator of SO_2 pollution in air. Acid rains change PH of soil.