OZONE

16TH Sept 2022

International Day for the Preservation of the Ozone Layer (World Ozone Day)

Theme: "Montreal Protocol @35: Global Cooperation Protecting Life on Earth"

Montreal Protocol ended one of the biggest threats ever to face humanity as a whole: the depletion of the ozone layer.

Ozone Layer

The ozone layer, a fragile shield of gas, protects the Earth from the harmful portion of the rays of the sun, thus helping preserve life on the planet. Ozone is made up of three atoms of oxygen (O_3).

Ozone layer protects the earth from the harmful ultraviolet radiation of the sun. It is a natural layer of gas in the upper atmosphere that protects humans and other living beings.

Ozone layer is formed in the mid-stratosphere, encircling the earth which has large amount of ozone in it. Without ozone layer, our Earth surface would sterilize from ultra violet radiation. Which in turn may increase skin cancer and cataracts in humans and impairs immune system of all animals.

Did you know?

Ultra Violet A-Rays (UVA) is more harmful than Ultra Violet B-Rays (UVB), it penetrates more deeply and causes a deadly skin cancer and premature aging.

Points to be noted

- On 19th December 1994, the United Nations General Assembly proclaimed 16th September the international day for the preservation of the ozone layer, commemorating the date, in 1987 on which the Montreal Protocol on substances that deplete the ozone layer was signed.

- Montreal protocol finalized in 1987, is a global agreement to protect the stratospheric ozone layer by phasing out the production and consumption of ozone depleting substances (ODS).

- Ozone layer was discovered by French physicists Charles Fabry and Henri Buisson in 1913.

- World Ozone Day is important as it opens up the opportunity for green innovations and it gives opportunity to preserve the plants.

Important facts about the Ozone Layer

- Word 'Ozone' is derived from the Greek verb 'Ozein', which is 'to smell'.

- It's a pale blue gas that gives off a pungent smell and harmful when it's too close to earth.

- Depletion of the ozone layer is the major factor in global warming.

- Ozone is only a trace gas in the atmosphere.

Ozone Depleting Substances

- ***Chlorofluorocarbons (CFCs)*** are a group of odourless manufactured chemicals used in home applicants such as freezer, refrigerator and air conditioners.

- ***Hydrofluorocarbons (HCFs)*** are a group of industrial chemicals primarily used for cooling and refrigeration. It contains chlorine which is harmful to ozone layer.

- ***Halons*** are widely used in fire extinguisher and explosion suppression system. It has an extremely high potential for ozone depletion. They are ten times more potent than chlorofluorocarbons.

- ***Carbon Tetrachloride*** is a clear, non-flammable, heavy liquid. Previously, it was widely used as a cleaning fluid in home and industry. It is also used in selected fire extinguisher and solvent. Carbon Tetrachloride contributes to the destruction of Earth ozone layer. The production of Carbon Tetrachloride was banned since 2010.

- ***Methyl Chloroform*** is commonly used in industries for cold cleaning, vapor degreasing, chemical processing and some aerosols.

Alternatives to the Ozone- Depleting Products

- Ozone friendly inhaler
- Kyocera's ozone free printers
- Ozone regulating anti-bacterial sanitizer
- Balloons and satellite to measure atmospheric greenhouse gases
- Non-ozone depleting fire extinguisher

Why is it important to use Ozone Friendly Products?

Usage of ozone friendly products should be given importance as it limits the radiation to reach the surface of the earth. The need of sun radiation is a must to live but too much of it can damage living things. Thus, ozone layer acts as a shield for life on Earth.

The ozone hole has shown signs of healing since 2000. The reduction of ozone depleting substance has a beneficial side-effect. By reducing the emission of ozone-depleting substances the Montreal Protocol has protected both the ozone layer and climate change at the same time.

Effects of Ozone Depletion

- If ozone layer is depleted, humans will be overly exposed to UV lights. It will affect the health of a human resulting in skin cancer, cataracts, quick aging etc.
- Crop species are vulnerable to strong UV light and overexposure may lead to minimal growth, photosynthesis and flowering. Crops species that are vulnerable to UV light are wheat, barley, corn, oats and broccoli.
- Ozone depletion affects marine life as well, especially, planktons. They are greatly impacted by strong Ultra Violet rays and in aquatic food chain planktons are high up. If planktons decrease in number due to ozone layer destruction, the marine food chain will be disrupted in many ways.
- Domesticated animals are also affected. Too much Ultraviolet radiation can lead to skin and eye cancer.
- Materials like plastics, woods, fabrics, rubber are massively degraded by too much ultraviolet radiation.

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