

Source: nasa.gov

# A Report on “World Ozone Day”



ENVIRONMENTAL INFORMATION SYSTEM  
RESOURCE PARTNER  
CONSUMER EDUCATION RESEARCH CENTRE



## INTRODUCTION

In the mid-1970s, scientists realized that the ozone layer was threatened by the accumulation of gases containing halogens (chlorine and bromine) in the atmosphere. Then, in the mid-1980s, scientists discovered a “Hole” in the ozone layer above Antarctica – the region of Earth’s atmosphere with severe depletion.

In 1985, the world’s governments adopted the Vienna Convention for the Protection of the Ozone Layer. Under the Convention’s Montreal Protocol, governments, scientists and industry worked together to cut out 99 per cent of all ozone-depleting substances (CFC, HCFC, HBFC, Halons, methyl Bromide etc). Thanks to the Montreal Protocol, the ozone layer is healing and expected to return to pre-1980 values by mid-century. In support of the Protocol, the Kigali Amendment, which came into force in 2019, will work towards reducing hydrofluorocarbon (HFCs), greenhouse gases with powerful climate-warming potential and damaging to the environment.

World Ozone Day is celebrated on 16<sup>th</sup> of September every year. This year, we celebrate 35 years of the Vienna Convention and 35 years of global ozone layer protection. World Ozone Day shows that collective decisions and action, guided by science, are the only way to solve major global crises.

Theme of the Year - **"Ozone for life: 35 years of ozone layer protection"**

On the occasion, Inger Anderson, Executive Director of UNEP said:

“This convention and its Montreal Protocol united the world to cut out the gases creating a hole in the planet’s ozone layer, critical in shielding us against deadly UV radiation. This model of international cooperation has put the ozone layer on the road to recovery, protecting human and ecosystem health. Such cooperation demonstrates that when people work together, they can fix problems on a global scale.

We need this unity of purpose more than ever, as we seek to address nature loss, climate change and pollution in the wake of the COVID-19 pandemic and the discussions on the replenishment of the multilateral fund. The ozone treaties have a major role to play in this work. Particularly, through the Kigali Amendment to the Montreal protocol. As we know, the Kigali Amendment has now been ratified by 100 parties and, fully implemented, will prevent 0.4°C of global warming.”

## ACTIVITIES BY CERC ENVIS RP

CERC ENVIS RP organized an **Open Quiz on “Ozone”** using google form (**Annexure 1**) to aware the mass about protection of ozone layer. The objective is to protect the ozone layer by taking measures to control total global production and consumption of substances that deplete it, with the ultimate objective of their elimination on the basis of developments in scientific knowledge and technological information.

The link created for the quiz is given below:

<https://bit.ly/3g7eLMz>

The quiz link was circulated on social media (Facebook/Twitter/WhatsApp) as well as on the official website under kid’s section:

<http://cercenvis.nic.in/PDF/Quiz%20on%20Ozone.pdf>

We are happy to announce that we have received an overwhelming response for the quiz. A total of **1450** people participated in the quiz. Top five scorers of the Quiz were published on the website as well as on our official Facebook & Twitter account. The statistics based on knowledge of ozone layer by the participants is shown in **Annexure 2**. The top five scorers of the quiz were published on our social media platforms. (**Annexure 3**)

A Poster on “**World Ozone Day**” (**Annexure 4**) & an Infographic on “**Ozone Friendly Product**” (**Annexure 5**) was prepared by CERC ENVIS to spread awareness on the subject. The poster & the infographic was circulated on social media (Facebook/Twitter/WhatsApp) & the same was uploaded on the website.

Poster link: <http://cercenvis.nic.in/PDF/Ozone%20day%202020.pdf>

Pamphlet Link: <http://cercenvis.nic.in/PDF/Infographic%20on%20ozone%20friendly%20product.pdf>

We have also conducted a webinar on “Ozone for Life” on 16<sup>th</sup> of September between 15:00 and 16:00 pm. The objective was to aware mass about ozone layer protection which is important for the sustenance of life. Ms. Apeksha Sharma, Information Officer (CERC ENVIS) anchored the entire webinar. Ms. Divya Namboothiri, Programme Officer (CERC ENVIS) briefed about the ENVIS’s Resource Partner, CERC activities. A poster for circulation was prepared for the same (**Annexure 6**). A total of 114 individuals attended the webinar. The speakers for the webinar were:

1. Dr. Manthan Tailor, Assistant Professor, Department of Environmental Science, The Maharaja Sayajirao University of Baroda, Vadodara, Gujarat

He spoke on the topic: **Convention & Protocol on Ozone Layer Protection**. He explained the incorporation of articles to control ozone depleting substances under Montreal protocol. He also shares his knowledge on Vienna convention & key features for the same.

2. Dr. Karan Rana, Academic Associate, School of Science, Navrachana University, Vadodara

He talked about “Ozone Friendly Products”. History of phasing out ozone depleting substances, impacts of ODS to ozone layer & alternatives of ODS was explained by him in detail.

Ms. Divya Namboothiri, Programme Officer (CERC ENVIS) concluded the session with a vote of thanks & appreciated speakers & the audience. A video on the same has been prepared & uploaded on the website.

Link:

GALLERY:

**Stratospheric sink for chlorofluoromethanes : chlorine atom-catalysed destruction of ozone**  
**Mario J. Molina & F. S. Rowland**  
Department of Chemistry, University of California, Irvine, California 92664

Molina, M. J., & Rowland, F. S. (1974). Stratospheric sink for chlorofluoromethanes: chlorine atom-catalysed destruction of ozone. *Nature*, 249(5460), 810-812.

Later on multiple effects of UV radiation observed on  
**Human and animal health**  
**Effects on terrestrial plants**  
**Aquatic ecosystem**  
**Bio-geo-chemical cycles**  
**Materials etc.**

F. Sherwood Rowland (left) and Mario Molina

Image source: [https://undsci.berkeley.edu/article/0\\_0\\_0/ozone\\_depletion\\_03](https://undsci.berkeley.edu/article/0_0_0/ozone_depletion_03)

OZONE FRIENDLY PRODUCTS 1 / 5

**OZONE FRIENDLY PRODUCTS**

Dr. Karan Rana  
Academic Associate  
Division of Biomedical and Life Sciences  
School of Science  
Navrachana University, Vadodara

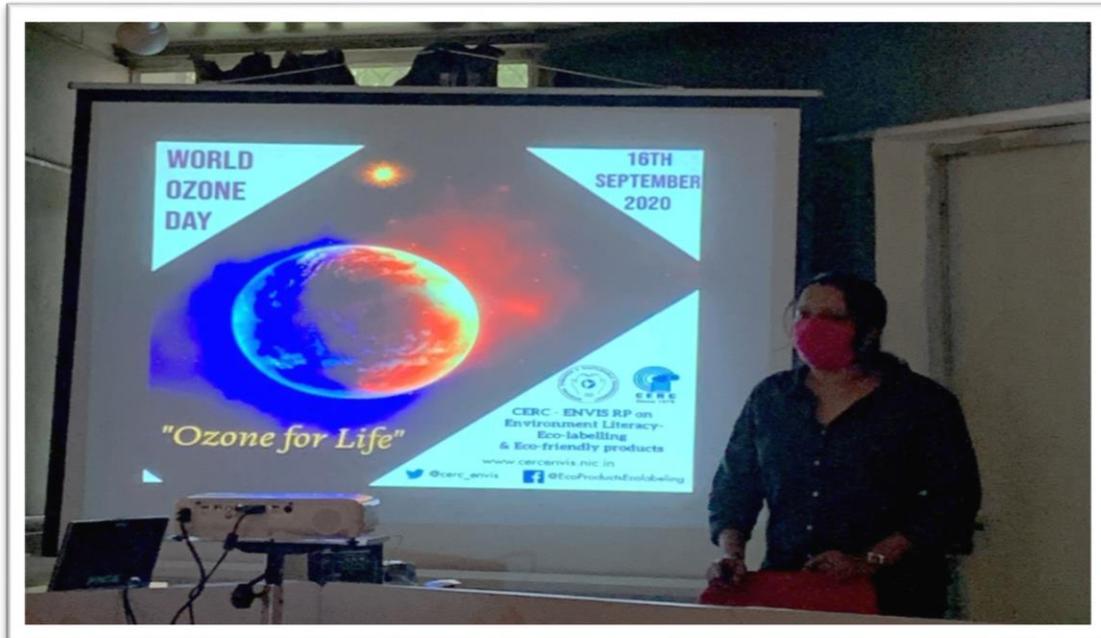
Manthan Tailor

Karan Rana

## IN – HOUSE AWARENESS PROGRAMME

We have also conducted an In-house activity for CERC staff on 15th of September. Ms. Divya Namboothiri, Programme Officer, CERC ENVIS briefed the staff members about the importance of ozone layer protection & impact of ODS on the ozone layer. Two Videos on “Ozone Depletion” & “Why don’t we hear about the Ozone Hole anymore?” were shown to them.

### GALLERY:

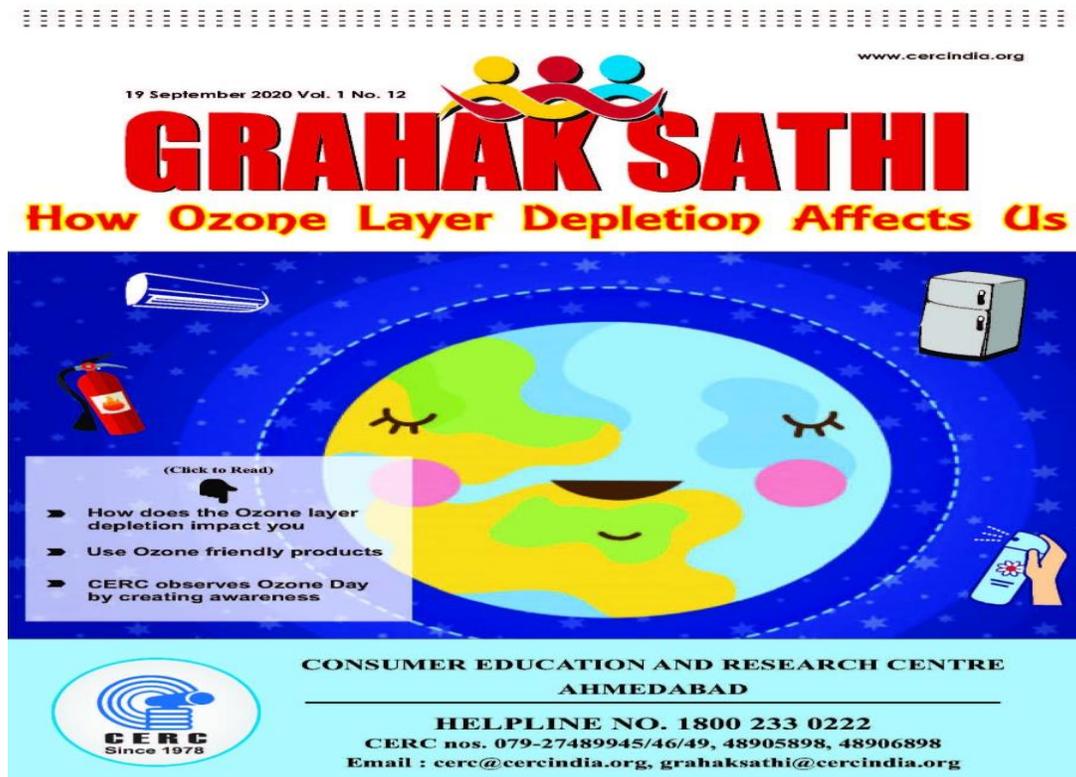


## DISSEMINATION THROUGH GRAHAK SATHI MAGAZINE:

Grahak Sathi, a bi-monthly National consumer magazine was brought out in Hindi with the support of the Department of Consumer Affairs (GoI) for five years. After the successful completion of the project, CERC has launched the Grahak Sathi weekly e-magazine in English on 1 August. The content of the weekly magazine is crisp and current and help readers to be Alert and Assertive consumers. The e-magazine is disseminated to around 90,000 readers across the country. The magazine is also brought out in Gujarati (regional language) which is sent to the VCOs in Gujarat for them to share with their members.

This time's Grahak Sathi magazine of Vol.1 Issue No. 12 was dedicated on Ozone Layer. It consists of impacts of Ozone layer depletion, Use of Ozone Friendly Products and a brief report on Ozone Day celebration at CERC.

Image:



<https://online.fliphtml5.com/vhaje/rnbc/>

## ANNEXURE 1

### Quiz on Ozone

Test your knowledge on OZONE!

\* Required

1. Email address \*

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2. Name \*

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3. Who discovered the ozone layer? \*

1 point

*Mark only one oval.*

- Henri Buisson & Charles Fabry
- Carl Sagan & Charles Fabry
- G.M.B Dobson
- Carl Sagan & G.M.B Dobson

4. What is an Ozone Layer formed from? \*

1 point

*Mark only one oval.*

- 3 oxygen atoms
- 3 carbon dioxide atoms
- 2 carbon dioxide atoms
- 2 hydrogen atoms and 1 oxygen atom

5. What is the name of the international agreement committing parties to phasing out ozone depleting substances and phasing down hydrofluorocarbons (HFCs)? \* 1 point

*Mark only one oval.*

- Vienna Protocol
- Montreal Protocol
- Paris Agreement
- Antarctic Convention

6. Which of the following UV radiations is responsible for causing sun burns and skin cancer? \* 1 point

*Mark only one oval.*

- UV-A
- UV-B
- UV-C
- All of the mentioned

7. Which of the following chemicals are responsible for the depletion of the stratospheric ozone layer? \* 1 point

*Mark only one oval.*

- Refrigerants
- Propellants
- Foam-blowing agents
- All of the mentioned

8. In which layer of the earth's atmosphere can the majority of Ozone be found? 1 point

\*

*Mark only one oval.*

- Mesosphere
- Troposphere
- Stratosphere
- Thermosphere

9. All ozone is bad for people's health. \* 1 point

*Mark only one oval.*

- True
- False

10. Which of the following is a prime health risks associated with greater UV radiation through the atmosphere due to depletion of ozone layer? \* 1 point

*Mark only one oval.*

- Damage to digestive system
- Increased liver cancer
- Increased skin cancer
- Neurological disorder

11. Which of the following devices can be used to measure ozone in the stratosphere from the ground? \*

1 point

*Mark only one oval.*

- Spectrometer
- Photometer
- Spectrophotometer
- Spectro-ozonometer

12. Where do ozone levels fluctuate the least? \*

1 point

*Mark only one oval.*

- In a town
- In the forest
- In the mountains
- Don't know

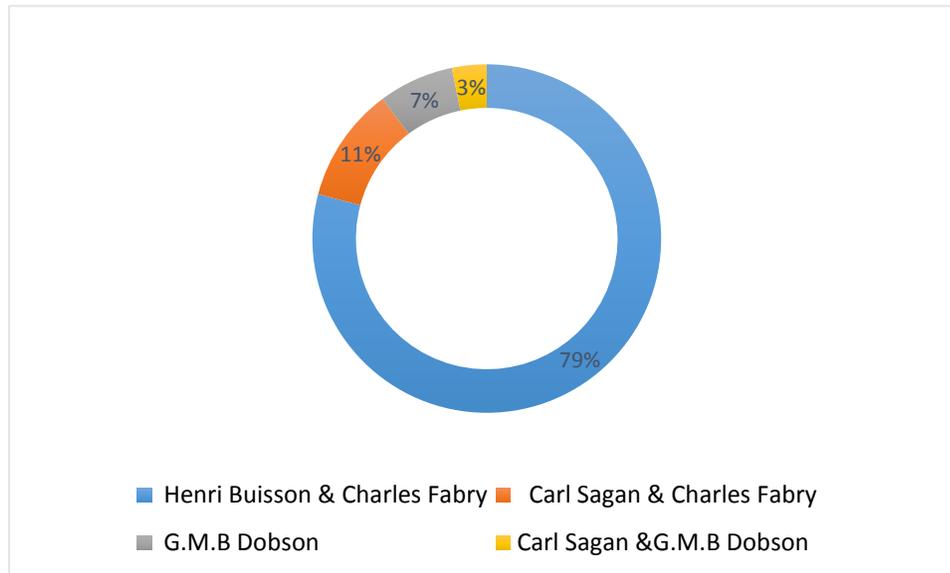
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This content is neither created nor endorsed by Google.

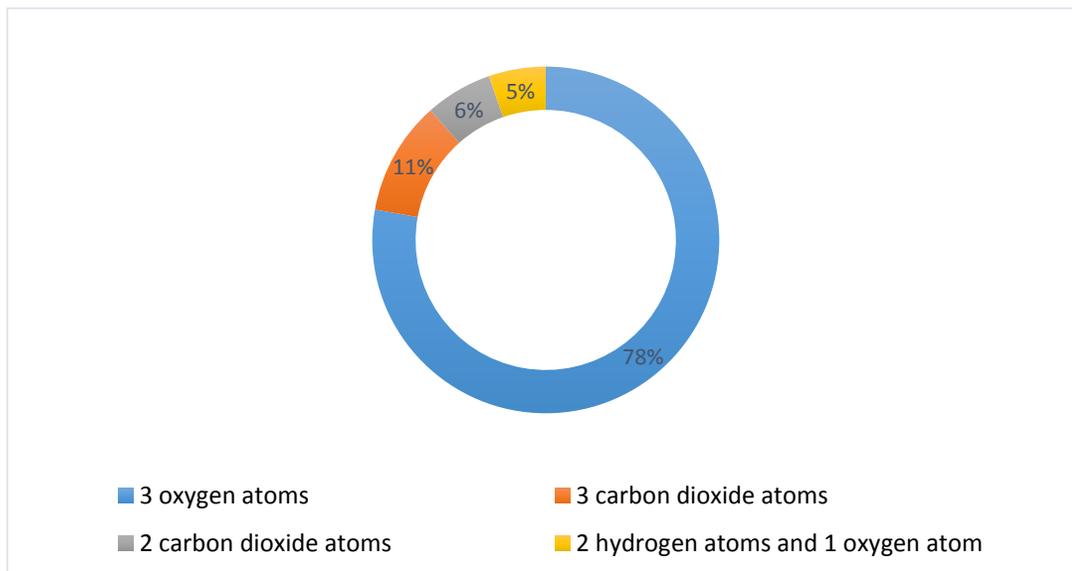
Google Forms

## ANNEXURE 2

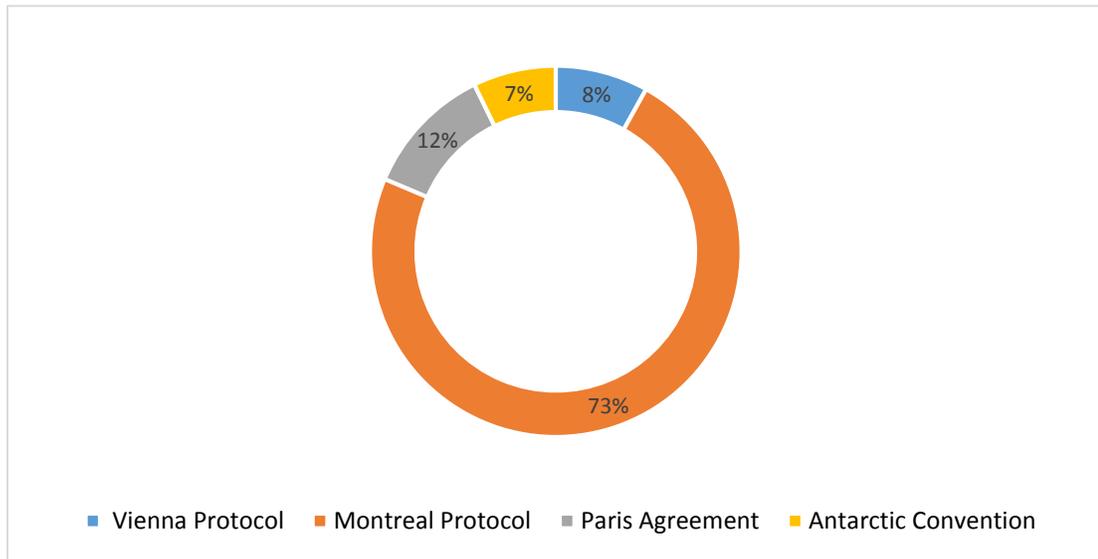
I. Who discovered the ozone layer?



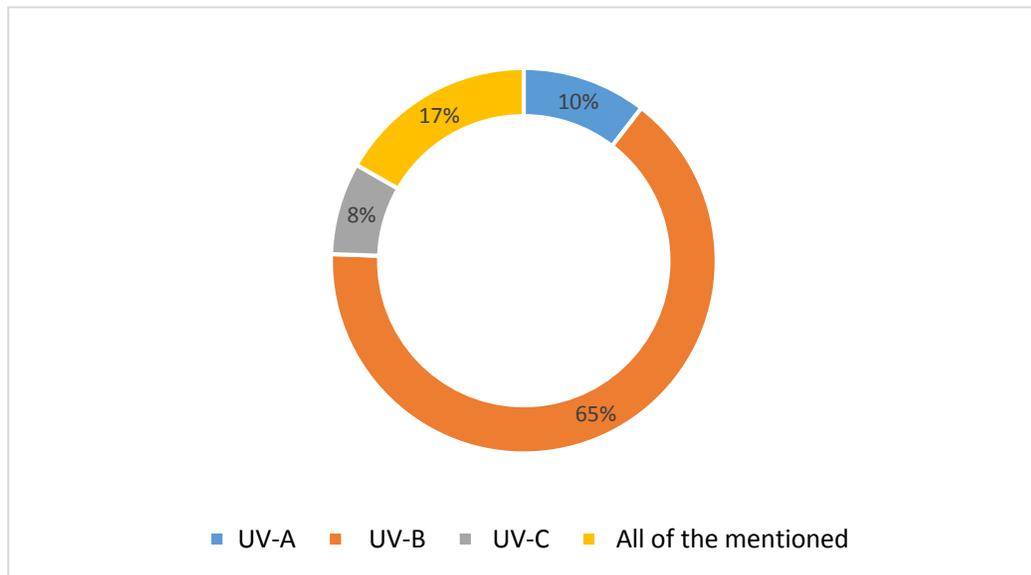
II. What is an Ozone Layer formed from?



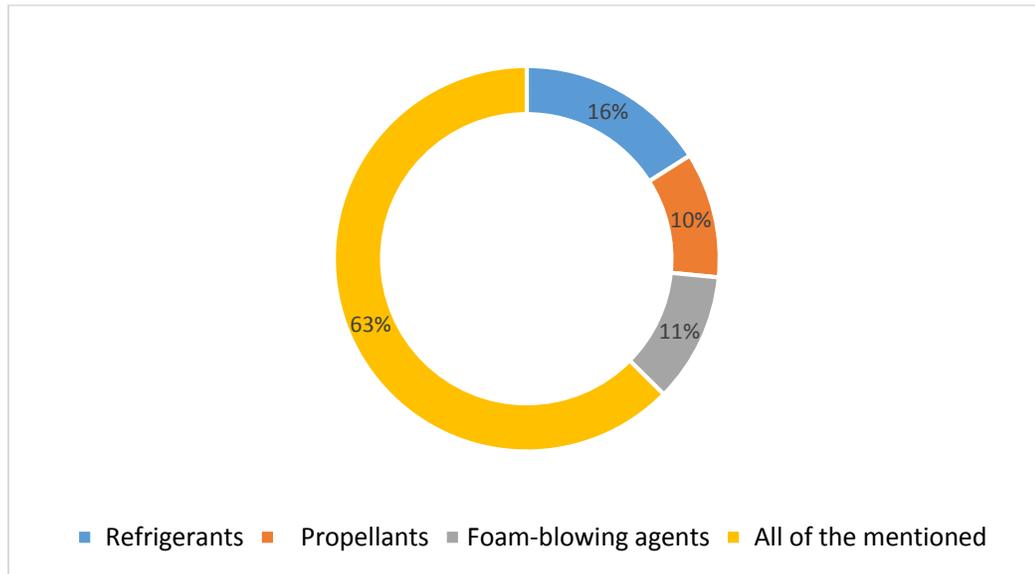
III. What is the name of the international agreement committing parties to phasing out ozone depleting substances and phasing down hydrofluorocarbons (HFCs)?



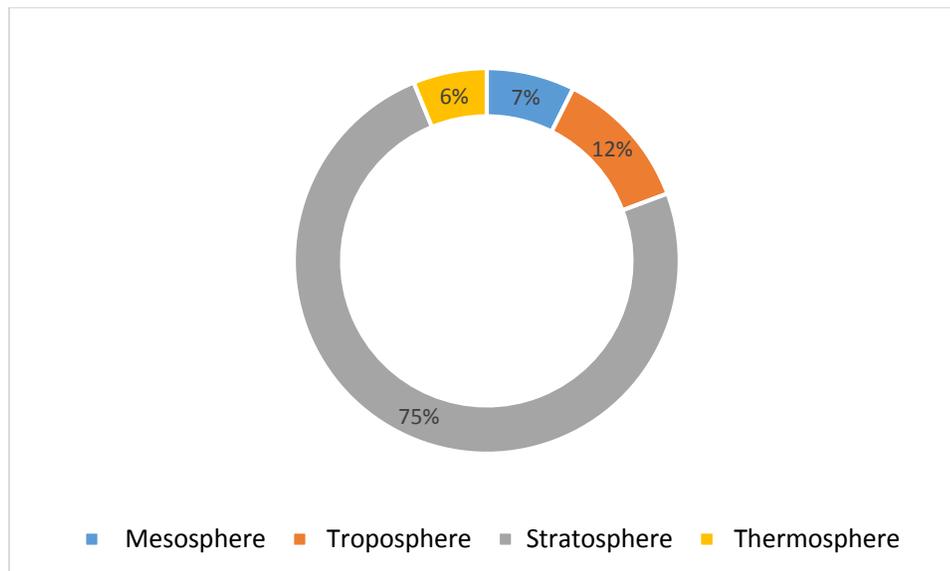
IV. Which of the following UV radiations is responsible for causing sun burns and skin cancer?



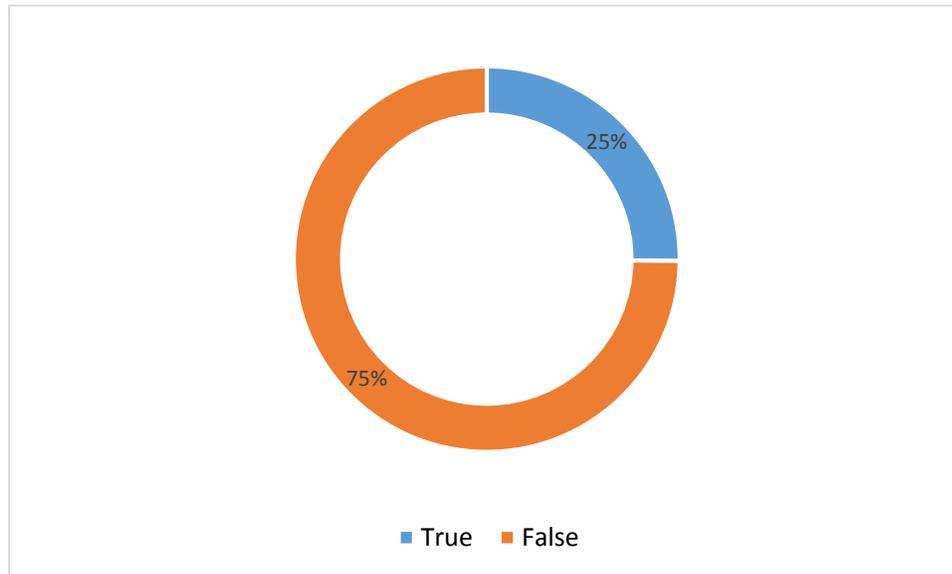
V. Which of the following chemicals are responsible for the depletion of the stratospheric ozone layer?



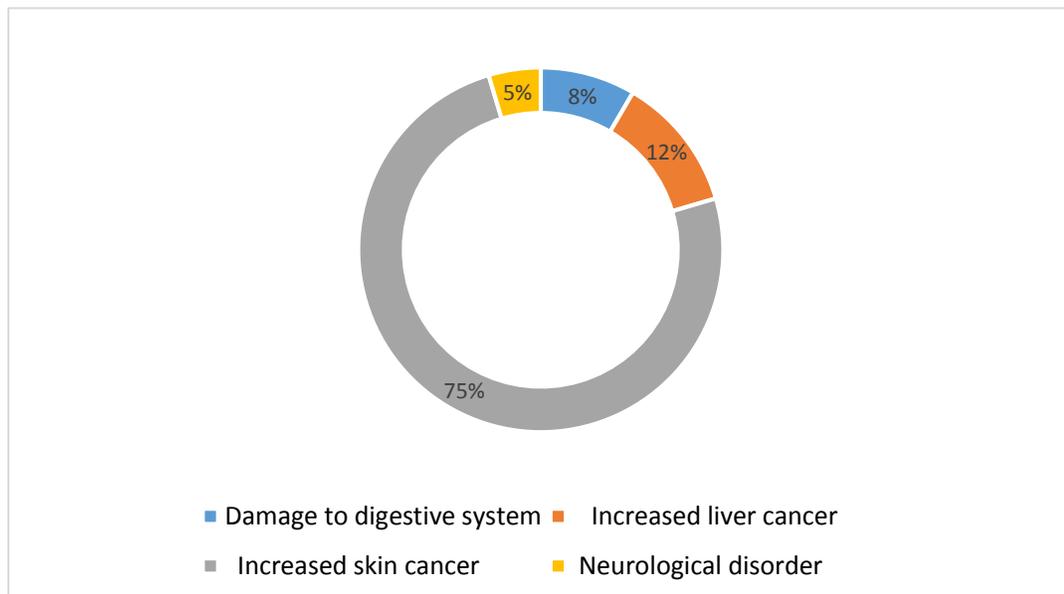
VI. In which layer of the earth's atmosphere can the majority of Ozone be found?



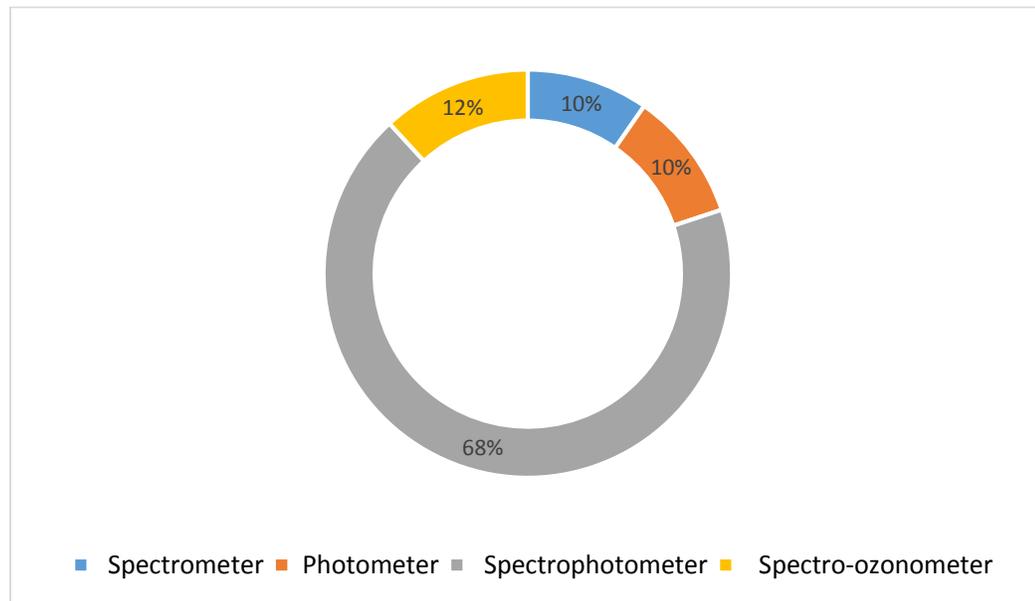
VII. All ozone is bad for people's health.



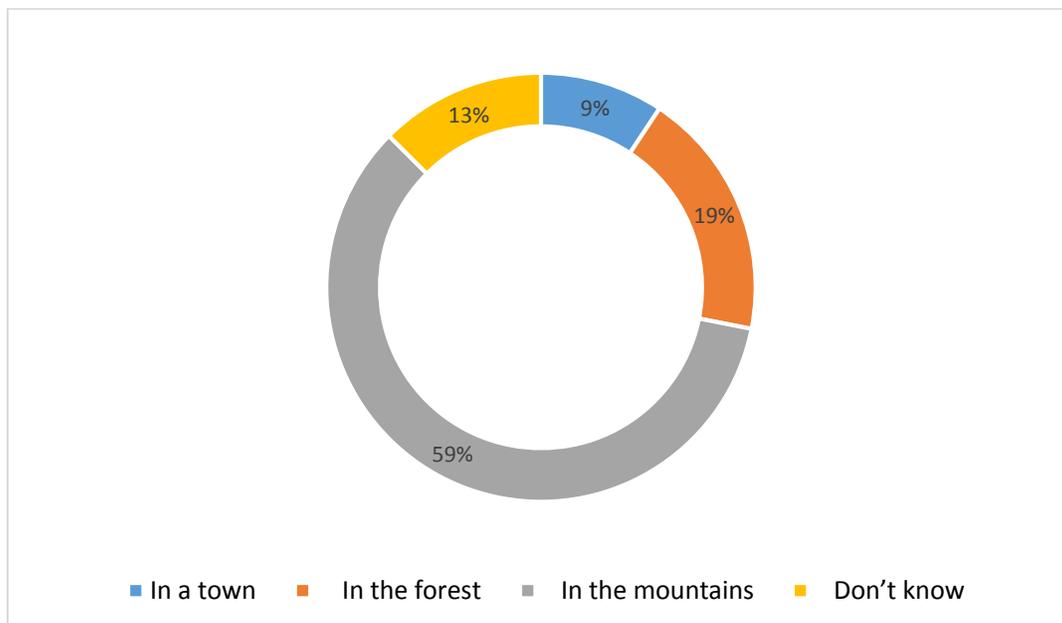
VIII. Which of the following is a prime health risks associated with greater UV radiation through the atmosphere due to depletion of ozone layer?



IX. Which of the following devices can be used to measure ozone in the stratosphere from the ground?



X. Where do ozone levels fluctuate the least?



## ANNEXURE 3

### Top five scorers of OZONE QUIZ



Ms. Anannya A Pillai  
S.Y B.Sc.(MZC)  
Hyderabad, Telangana



Mr. Afridi Shaikh  
T.Y B.Sc. (Zoology)  
Nani Daman, Daman & Diu



Bhaumik Pragneshbhai Patel  
S.Y. B.Sc. In Computer Science  
Vijapur ,Mehsana ,Gujarat



Isha Darshan Naik  
B.Sc. Environmental Science  
Navsari, Gujarat



Nirali Y. Goswami  
.Sc. Environmental science &  
Technology  
Amreli, Gujarat



ENVIS Resource Partner on Environment Literacy- Eco-labelling  
& Eco-friendly products  
Consumer Education & Research Centre

Website: [www.cercenvis.nic.in](http://www.cercenvis.nic.in)



**WORLD  
OZONE  
DAY**

**16TH  
SEPTEMBER  
2020**



*"Ozone for Life"*



**CERC - ENVIS RP on  
Environment Literacy-  
Eco-labelling  
& Eco-friendly products**

[www.cercenvis.nic.in](http://www.cercenvis.nic.in)



@cerc\_envis



@EcoProductsEcolabeling

## ANNEXURE 5

**Ozone Friendly Product** reduces and eliminates the impact on the stratospheric ozone layer caused by the products made with, or containing ozone depleting substances (ODS) such as CFCs, HCFCs, halons, methyl chloroform and methyl bromide

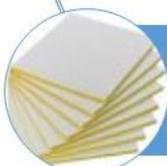


**One kilogram**  
of halon 1211 can destroy  
50 tonnes of ozone

### Have we stopped using ozone depleting substances



The Sri Lankan tea industry has phased out the use of Methyl Bromide in all tea plantations. Instead, ozone-friendly substitutes are now being used to protect tea bushes from various pest attacks, particularly the nematodes (roundworms) found in tea nurseries.



Foam blowing agents are used in a wide variety of applications including refrigerators, buildings, automobiles, furniture, packaging, and many more. Ozone friendly Foam blowing agents does reduces the damage caused by ODS.



Refrigeration end-uses typically use a refrigerant in a vapor compression cycle to cool and/or dehumidify a substance or space, like a refrigerator cabinet, room, office building, or warehouse.



Fire suppression have used halons in many applications and are extremely efficient in extinguishing most types of fires. Because of their strong ozone depletion potential, the production and import of virgin halons has been phased out.

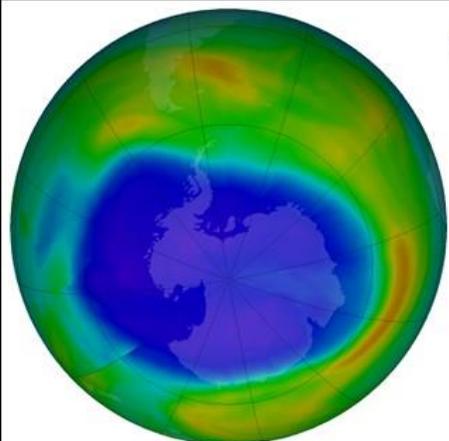


Hydrocarbon-based aerosol propellants are identified in most of the aerosol sub-sectors as the preferred substitute technology for phasing out CFCs. Aerosols can cool the climate, masking some of the warming effect that results from the emission of greenhouse gases



ENVIS Resource Partner on Environment Literacy- Eco-labelling  
& Eco-friendly products  
Consumer Education & Research Centre





# WEBINAR on "Ozone for Life"



*Date: 16<sup>th</sup> of September, 2020*

*Timing: 15:00 to 16:00 PM*



Dr. Manthan Tailor, Asst. Professor  
Department of Environmental Studies, The Maharaja Sayajirao  
University of Baroda  
Topic: "Convention & Protocol on Ozone Layer Protection"



Dr. Karan Rana, Academic Associate  
Division of Biomedical & Life Sciences, School of Science,  
Navrachana University  
Topic: "Ozone Friendly Products"

**Link for the webinar:**

[meet.google.com/sye-vycb-ngs](https://meet.google.com/sye-vycb-ngs)

Moderator: Ms. Apeksha Sharma  
Information Officer  
CERC ENVIS RP

Concluder: Ms. Divya Namboothiri  
Programme Officer  
CERC ENVIS RP

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