

DISINFECTION SYSTEM

This invention, UVC Disinfection System, relates generally to the:

1. addition of UVC lamp in the Lighting Unit of the motor vehicle and/or
2. addition of UVC lamp in the motor vehicle (“UVC Lamp Unit”)

for the purpose of disinfection of the motor vehicle.

This invention, which can be installed in all existing and new motor vehicles, provides a sustainable and chemical free solution to keeping the motor vehicle hygienically clean, reducing risk of infection for the operator, driver and/or passenger of the motor vehicle and reducing aversion against usage of the motor vehicle.

General

Unless the context otherwise requires, references to the singular number shall include references to the plural number and vice versa.

Motor vehicle carries the same definition as ‘Every other motor vehicle’ in Road Traffic Act (Chapter 276, Sections 6 and 140) Road Traffic (Motor Vehicles, Lighting) Rules.

Background

The use of ultraviolet light is becoming more widely used in healthcare facilities for disinfecting patient and operating rooms.

According to the World Health Organisation, the three types of UV radiation are classified according to their wavelength. They differ in their biological activity and the extent to which they can penetrate the skin. The shorter the wavelength, the more harmful the UV radiation. However, shorter wavelength UV radiation is less able to penetrate the skin. Short wavelength ultraviolet (“UVC”) is the most damaging type of UV radiation. However, it is completely filtered by the atmosphere and does not reach the earth’s surface.

UVC light cannot pass through any solid material. The benefits of using UVC light for disinfection can be maximised without harming any human being by containing the UVC light in an enclosure made of solid material and making sure that there are no human being in the enclosure.

Modern science has been able to create UVC light that is able to penetrate the cell wall of microorganisms such as bacteria and viruses including coronavirus and alter their DNA structure such that the microorganism becomes nonviable, unable to reproduce and/or infect a human being.

Results have proven that UVC light exposure to the air and surrounding surfaces disinfect and reduce the number of microorganisms such as bacteria and viruses including coronavirus, helping to fight and cut transmission of microorganisms such as bacteria and viruses including coronavirus.

By introducing UVC light into the motor vehicle, the UVC light will disinfect and reduce the number of microorganisms such as bacteria and viruses including coronavirus in the air and surfaces in the motor vehicle. This addition and/or improvement, which can be installed in all existing and new motor vehicle, provides a sustainable and chemical free solution to keeping the motor vehicle hygienically clean, reducing risk of infection for the operator, driver and/or passenger of the motor vehicle and reducing aversion against usage of the motor vehicle.

Lighting Unit Of Motor Vehicle

The main purpose of the Lighting Unit of the motor vehicle is for internal illumination.

There are generally two Lighting Units in each motor vehicle. The first Lighting Unit is generally between the front passenger seats. The second Lighting Unit is generally in between the front and rear passenger seats.

Each Lighting Unit includes at least one lamp, which may be fluorescent, light emitting diode or others. Each Lighting Unit includes at least one control switch to be manipulated by a user's thumb and/or fingers to control the Lighting Unit. Each Lighting Unit is also connected and controlled by the memory module and software application of the motor vehicle.

Addition Of UVC Lamp In The Lighting Unit Of Motor Vehicle

One or more UVC lamp will be added to each Lighting Unit of the motor vehicle. The specification and number of UVC lamp will be dependent on the size of the motor vehicle and the Lighting Unit.

UVC light cannot pass through any solid material. The UVC lamp cover will cover the UVC lamp when the UVC lamp is not activated. The UVC lamp cover will open when the UVC lamp is activated.

The operator of the motor vehicle will wrap the entire motor vehicle with a cover made of solid material such as opaque plastic before activating the UVC lamp.

One or more infrared mechanism will be included in each Lighting Unit. Upon activation of the UVC lamp, the infrared mechanism will scan the motor vehicle and ensure that there is no movement in and around the motor vehicle before allowing the UVC lamp to be turned on. After the UVC lamp is turned on, the infrared mechanism will continue to operate and turn off the UVC lamp if there is the slightest movement in the motor vehicle. The same infrared mechanism will also turn off the UVC lamp if the motor vehicle is not wrapped up with a cover made of

solid material and there is the slightest movement around the motor vehicle. This prevents exposure of UVC light to any human being.

The UVC lamp can only be activated outside the motor vehicle remotely via remote control and/or smart phone by the operator of the motor vehicle as and when required. The operator of the motor vehicle will ensure that there is no human being in or around the motor vehicle and the motor vehicle is wrapped with a cover made of solid material before activating the UVC lamp. This additional precaution prevents exposure of UVC light to any human being.

The UVC lamp will disinfect and reduce the number of microorganisms such as bacteria and viruses including coronavirus in the air and surfaces in the motor vehicle. The period of disinfection will depend on the size of the motor vehicle, the specification of UVC lamp used etc. The UVC lamp will turn off automatically after the period of disinfection.

This invention, which can be installed in all existing and new motor vehicles, provides a sustainable and chemical free solution to keeping the motor vehicle hygienically clean, reducing risk of infection for the operator, driver and/or passenger of the motor vehicle and reducing aversion against usage of the motor vehicle.

Addition Of UVC Lamp Unit

The UVC Lamp Unit is separate from the Lighting Unit. One or more UVC Lamp Unit can be added to the motor vehicle if it is not viable to add one or more UVC lamp to each Lighting Unit of the motor vehicle. The specification and number of UVC lamp in the UVC Lamp Unit will be dependent on the size of the motor vehicle and the UVC Lamp Unit.

The UVC Lamp Unit may also be added instead of adding UVC lamp to the Lighting Unit of the motor vehicle if the owner and/or manufacturer of the motor vehicle prefer such an arrangement.

The main purpose of the UVC Lamp Unit is to disinfect the air and surfaces in the motor vehicle of microorganisms such as bacteria and viruses including coronavirus.

Each UVC Lamp Unit includes at least one UVC lamp. All UVC Lamp Unit does not have any control switch that can be manually manipulated. All UVC Lamp Unit are connected and controlled by the memory module and software application of the motor vehicle to enable remote activation via remote control and/or smart phone by the operator of the motor vehicle.

UVC light cannot pass through any solid material. The UVC Lamp Unit will be covered when it is not activated. The cover will open when the UVC Lamp Unit is activated.

The operator of the motor vehicle will wrap the motor vehicle with a cover made of solid material such as opaque plastic before activating the UVC Lamp Unit.

One or more infrared mechanism will be included in each UVC Lamp Unit. Upon activation of the UVC Lamp Unit, the infrared mechanism will scan the motor vehicle and ensure that there is

no movement in and around the motor vehicle before allowing the UVC Lamp Unit to be turned on. After the UVC Lamp Unit is turned on, the infrared mechanism will continue to operate and turn off the UVC Lamp Unit if there is the slightest movement in the motor vehicle. The same infrared mechanism will also turn off the UVC Lamp Unit if the motor vehicle is not wrapped up with a cover made of solid material and there is the slightest movement around the motor vehicle. This prevents exposure of UVC light to any human being.

The UVC Lamp Unit can only be activated outside the motor vehicle remotely via remote control and/or smart phone by the operator of the motor vehicle as and when required. The operator of the motor vehicle will ensure that there is no human being in or around the motor vehicle and the motor vehicle is wrapped with a cover made of solid material before activating the UVC Lamp Unit. This additional precaution prevents exposure of UVC light to any human being.

The UVC Lamp Unit will disinfect and reduce the number of microorganisms such as bacteria and viruses including coronavirus in the air and surfaces in the motor vehicle. The period of disinfection will depend on the size of the motor vehicle, the specification of UVC lamp used etc. The UVC Lamp Unit will turn off automatically after the period of disinfection.

This invention, which can be installed in all existing and new motor vehicles, provides a sustainable and chemical free solution to keeping the motor vehicle hygienically clean, reducing risk of infection for the operator, driver and/or passenger of the motor vehicle and reducing aversion against usage of the motor vehicle.

Brief Description Of The Drawings

The invention will be better understood by reference to the following drawings in which:

Figure 1 shows the legend for Figures 2A, 2B, 3A and 3B.

Figure 2A shows addition of a UVC lamp in the Lighting Unit of motor vehicle with UVC lamp cover opened.

Figure 2B shows addition of a UVC lamp in the Lighting Unit of motor vehicle with UVC lamp cover closed.

Figure 3A shows a UVC Lamp Unit of motor vehicle with UVC lamp cover opened.

Figure 3B shows a UVC Lamp Unit of motor vehicle with UVC lamp cover closed.

Figure 4 shows a motor vehicle covered with solid material.

Claims

Therefore, the invention should be limited only by the spirit and scope of the appended claims.

What is claimed is

1. The Lighting Unit provides internal illumination for the motor vehicle wherein the improvement comprises of the addition of UVC lamp in the Lighting Unit of the motor vehicle which will disinfect and reduce the number of microorganisms such as bacteria and viruses including coronavirus in the air and surfaces in the motor vehicle, as and when required. This addition and/or improvement provides a sustainable and chemical free solution to keeping the motor vehicle hygienically clean, reducing risk of infection for the operator, driver and/or passenger of the motor vehicle and reducing aversion against usage of the motor vehicle.
2. The Lighting Unit according to claim 1 wherein the improvement comprises of remote activation of the UVC lamp in the Lighting Unit of the motor vehicle via remote control and/or smart phone by the operator of the motor vehicle is an addition and/or improvement that will prevent exposure of UVC light to any human being.
3. The Lighting Unit according to claim 1 wherein the improvement comprises of addition of one or more infrared mechanism in the Lighting Unit of the motor vehicle which will scan the motor vehicle and ensure that there is no movement in the motor vehicle before allowing the UVC lamp in the Lighting Unit to be turned on. The same infrared mechanism will turn off the UVC lamp in the Lighting Unit of the motor vehicle if there is the slightest movement in the motor vehicle and/or if the motor vehicle is not wrapped up with a cover made of solid material and there is the slightest movement around the vehicle. This addition and/or improvement prevent exposure of UVC light to any human being.
4. The UVC Lamp Unit is separate from the Lighting Unit and can be added to the motor vehicle wherein the improvement comprises of addition of UVC Lamp Unit in the motor vehicle which will disinfect and reduce the number of microorganisms such as bacteria and viruses including coronavirus in the air and surfaces in the motor vehicle, as and when required. This addition and/or improvement provides a sustainable and chemical free solution to keeping the motor vehicle hygienically clean, reducing risk of infection for the operator, driver and/or passenger of the motor vehicle and reducing aversion against usage of the motor vehicle.
5. The UVC Lamp Unit according to claim 4 wherein the improvement comprises of remote activation of the UVC Lamp Unit of the motor vehicle via remote control and/or smart phone by the operator of the motor vehicle is an addition and/or improvement that will prevent exposure of UVC light to any human being.
6. The UVC Lamp Unit according to claim 4 wherein the improvement comprises of addition of one or more infrared mechanism in the UVC Lamp Unit of the motor vehicle which will scan the motor vehicle and ensure that there is no movement in the motor

vehicle before allowing the UVC Lamp Unit to be turned on. The same infrared mechanism will turn off the UVC Lamp Unit of the motor vehicle if there is the slightest movement in the motor vehicle and/or if the motor vehicle is not wrapped up with a cover made of solid material and there is the slightest movement around the motor vehicle. This addition and/or improvement prevent exposure of UVC light to any human being.