

# Protection from Solar UV Radiation Within Motor Vehicles

Workers in motor vehicles can still receive substantial amounts of solar UV radiation – particularly UVA radiation.<sup>1</sup> The design and function of a car, truck, tractor, or machine impacts how much UV the worker receives.

Workplaces that have outdoor workers who spend a lot of time in motor vehicles should consider **engineering** and **administrative control measures** associated with window glass, window tinting, and air conditioning to reduce solar UV exposure of these workers.

## Hierarchy of Risk Controls for Sun Safety:

1. Elimination or substitution

**2. Engineering controls**

3. Controls that increase awareness

**4. Administrative controls**

5. Personal protection

## UV Transmission Through Windows

The amount of UV that can pass through glass depends on the type, colour, and thickness of the glass. The most important factor is the type of glass.<sup>2</sup>

- Motor vehicle windscreens are generally made from laminated glass, which provides very good protection by blocking most UVA and UVB.<sup>3</sup>
- Side and rear window of vehicles are usually made from tempered glass, which blocks most of the UVB rays but can let through a lot of UVA.<sup>4</sup> Depending on the type of glass used for side and rear windows, the amount of UVA radiation transmitted has been found to range from 0% up to 25.7%.<sup>4</sup>

For workers who spend a lot of their time in vehicles, driving with the windows up/closed will therefore provide good protection from solar UV.

## Window Films/Tinting

Clear and tinted window films can be applied to windows to provide additional protection for workers. These films can be applied to vehicle windows after production and can reduce the amount of UV transmitted by side windows by over 99%.<sup>5</sup>

Many tinted window films reduce the visible light transmission by up to 30%, a level similar to many general purpose sunglasses, depending on the work tasks, high levels of tinting may not be appropriate. A range of clear window films are available that provide very good UV absorbance but allow much higher levels of visible light transmission.<sup>3,4</sup> Provincial traffic regulations should be consulted before deciding which film to use.



Visit [sunsafetyatwork.ca](http://sunsafetyatwork.ca) for more information.

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## In-Vehicle Air Conditioning

When workers are in a vehicle with the windows closed, air conditioning is needed to reduce the potential for heat stress. When a vehicle is stationary, the vehicle should be parked in shade or the air conditioning should remain on.

Some workplaces have policies that restrict vehicle idling – these may need to be reviewed to allow idling during periods of the day when there are peak UV levels (11am to 3pm).

### Controlling for Solar UV Exposure Within Vehicles

- Drive with windows up/closed, and the air conditioning on
- Attach clear or tinted window films to side and rear windows
- When vehicles are stationary, park in the shade
- Implement/review policies to allow vehicle idling during peak solar UV times, so that air conditioning can remain on

Due to the potential for solar UV exposure while in a vehicle, workers should also be mindful to use **personal protection measures** such as long sleeved clothing, broad-brimmed hats, eye protection, and sunscreen, and remain hydrated while inside vehicles.