

APPENDIX G SAFETY GLAZING MATERIAL AND APPLIED WINDOW TINTING

1 SCOPE

These requirements apply to all Sections and Guidelines of VSB 14.

2 GENERAL

The windscreen of a vehicle is a particularly important safety feature that in addition to providing protection to vehicle occupants, permits the driver to maintain a clear view of the road and other traffic. The clarity of vision through the windscreen will deteriorate over time. This becomes more apparent when driving towards the sun near sunrise/sunset or from headlight glare when driving at night.

Windscreens that have minor cracks, or are otherwise deteriorated, should be replaced. Windscreens that are cracked or otherwise damaged within the driver's field of view, that have major damage or are badly cracked, must be replaced.

Some vehicle manufacturers incorporate the windscreen and rear window into the structural design of the vehicle and if damaged or improperly secured, may reduce the structural integrity and crash-worthiness of the vehicle.

3 COMPLIANCE WITH REGULATIONS.

New vehicles, including Individually Constructed Vehicles (ICVs), must be fitted with glazing that meets the requirements specified in the Australian Design Rules (ADRs). The current design rule for glazing is ADR 8/01 Safety Glazing Material.

In-service vehicles must comply with the Australian Vehicle Standards Rules (AVSR). The AVSR requires vehicles that were built to comply with the ADRs to continue to comply with the ADRs that applied to the vehicle according to its ADR category and date of manufacture.

The AVSR is the national model legislation from which all States and Territories (jurisdictions) have adopted their individual vehicle standards regulations.

The ADRs do not cover window tinting that is applied as a surface film - these provisions are contained in the AVSR.

The AVSR provides for jurisdictions to set their own limits for window tinting that is applied to the front side windows provided the luminous transmittance through the glazing and window tinting material together is not less than 35%.

4 PRE-ADR VEHICLES - COMPLIANCE WITH ADRS

Glazing that complies with ADR 8/... may be fitted to vehicles that were manufactured prior to the implementation date of ADR 8/...

5 APPROVED MATERIAL FOR WINDSCREENS, WINDOWS AND OTHER GLAZING

For vehicles manufactured after June 1953 transparent material used in the windscreen, window, or interior partition of a motor vehicle must be of an approved material. Replacement transparent material must also be of an approved material. Section LZ Appendices Version 2.0 - 1 January 2011
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Approved material means material with the same characteristics as material mentioned in any of the following standards:

- Australian Standard AS R1-1965 Safety Glass for Land Transport;
- Australian Standard AS R1-1968 Safety Glass for Land Transport;
- Australian Standard AS 2080-1977 Safety Glass for Vehicles;
- British Standard BS 857:1967 Specification for Safety Glass for Land Transport;
- **British Standard BS 5282:1975 Road Vehicle Safety Glass;**
- British Standard BS AU178:1980 Road Vehicle Safety Glass;
- Japanese Industrial Standard JIS R 3211-1979 Safety Glasses for Road Vehicles; and
- American National Standard ANSI Z26.1-1980 Safety Code for Safety Glazing Materials for Glazing Motor Vehicles Operating on Land Highway.

Transparent material does not include any coating added to the windscreen, window or partition after its manufacture.

For vehicles manufactured to comply with ADR 8/... vehicle glazing must comply with the following requirements.

Any new or replacement glass fitted to any windscreen or window or interior partition must be safety glass marked as complying with at least one of the following standards:

- Australian and New Zealand Standard AS/NZS 2080 Safety Glass for Land Vehicles;
- British Standard BS AU178: Road Vehicle Safety Glass;
- Japanese Industrial Standard JIS R 3211 Safety Glazing Materials for Road Vehicles;
- American National Standard ANSI Z26.1 Safety Code for Safety Glazing Materials for Glazing Motor Vehicles Operating on Land Highway;
- UNECE R43/00 Uniform Provisions Concerning Approval of Safety Glazing and Glazing Materials; and
- NZS 5443.

All glass used in the passenger compartment of the vehicle must comply with at least one of the standards specified above. The glass must bear an identification mark indicating the standard to which the glass has been manufactured, for example AS 2080, BS AU 178, JIS R 3211 etc. Typical marking is illustrated in Figure LZ-G1 below.



Australian Standards Marking

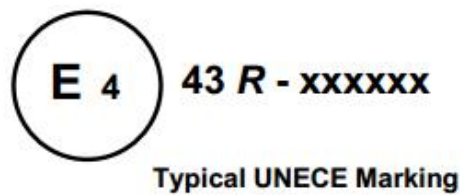


Figure LZ-G1 Typical Identification Marks for Glazing

Original glass (or genuine replacement glass) must always have a mark etched or indelibly printed on the glass.

There are two types of glass available for motor vehicles. These are classified *as tempered or laminated*.

- **Tempered glass** is specially treated so that when it is broken it forms tiny square fragments rather than jagged shards or splinters. When a tempered windscreen is broken, it crazes and is sometimes difficult to see through. Tempered windscreens now incorporate a toughened safety zone that remains relatively clear in the event of breakage allowing the driver to maintain control of the vehicle; and
- **Laminated glass** comprises a clear plastic film sandwiched between glass layers. Laminated glass is more resistant to breakage than tempered glass and even when penetrated by an object, such as a stone, it will remain substantially clear. In most cases the plastic film will also hold the broken pieces together thus avoiding the potential danger of glass shrapnel.

Windscreens fitted to vehicles manufactured after 1 January 1994 are required to be made from laminated glass. Vehicles built prior to this date do not need to meet this requirement but it is strongly recommended that when a replacement windscreen is required, laminated glass is used.

For any windscreen glass having a zone of modified heat treatment, the marking must indicate the position of the zone. All replacement transparent material must be of a type that will not shatter. The

section of the windscreen directly in front of the driver (primary vision area) must be free of scratches or chips.

6 LUMINANCE TRANSMITTANCE OF WINDSCREENS

The windscreen of a motor vehicle must have a luminous transmittance of at least:

- for a motor vehicle built after 1971 – 75%; or
- for another motor vehicle – 70%.

The windscreen must not be coated in a manner that reduces its luminance transmittance. This prohibition does not apply to the greater of the following two areas;

- the area above the highest point swept by the windscreen wipers; or
- the upper 10% of the windscreen.

7 LUMINANCE TRANSMITTANCE OF WINDOWS OR INTERNAL PARTITIONS

7.1 Internal Glazing

Internal glazing for windows or partitions must have a luminous transmittance of at least 70%.

7.2 Surface Films (Window Tinting)

These requirements apply to all vehicles irrespective of their date of manufacture and are controlled by the Australian Vehicle Standards Rules (AVSR).

Surface films reduce light transmission through windscreens and windows. This can significantly reduce a driver's vision, particularly at night and during periods of low visibility.

If windows, other than the windscreen, of a motor vehicle are coated to reduce light transmittance, the following requirements apply:

- For the windows forward of the rear of the driver's seat luminous transmittance must not be less than 70% when measured through glass and film together unless the laws of a State or Territory allow a lesser luminous transmittance. The lesser transmittance must be above 35%. (Figure LZ-G2 illustrates the window tinting requirements in terms of luminous transmittance for passenger vehicles. It also specifies the different requirements currently in force in the Northern Territory);
- For windows behind the rear of the driver's seat the luminous transmittance must not be less than 35%;
- Reflectance in the visible light range must not exceed 10%; and
- The coating must not be wrinkled, blistered, bubbled or discoloured such that visibility through the glass and film is impaired.

The prohibition for coating the windscreen does not apply to the greater of the following areas of the windscreen:

- the area above the highest point of the windscreen that is swept by the windscreen wiper; and
- the upper 10% of the windscreen.

Vehicles fitted with surface film must be equipped with an external rear vision mirror on both sides of the vehicle.

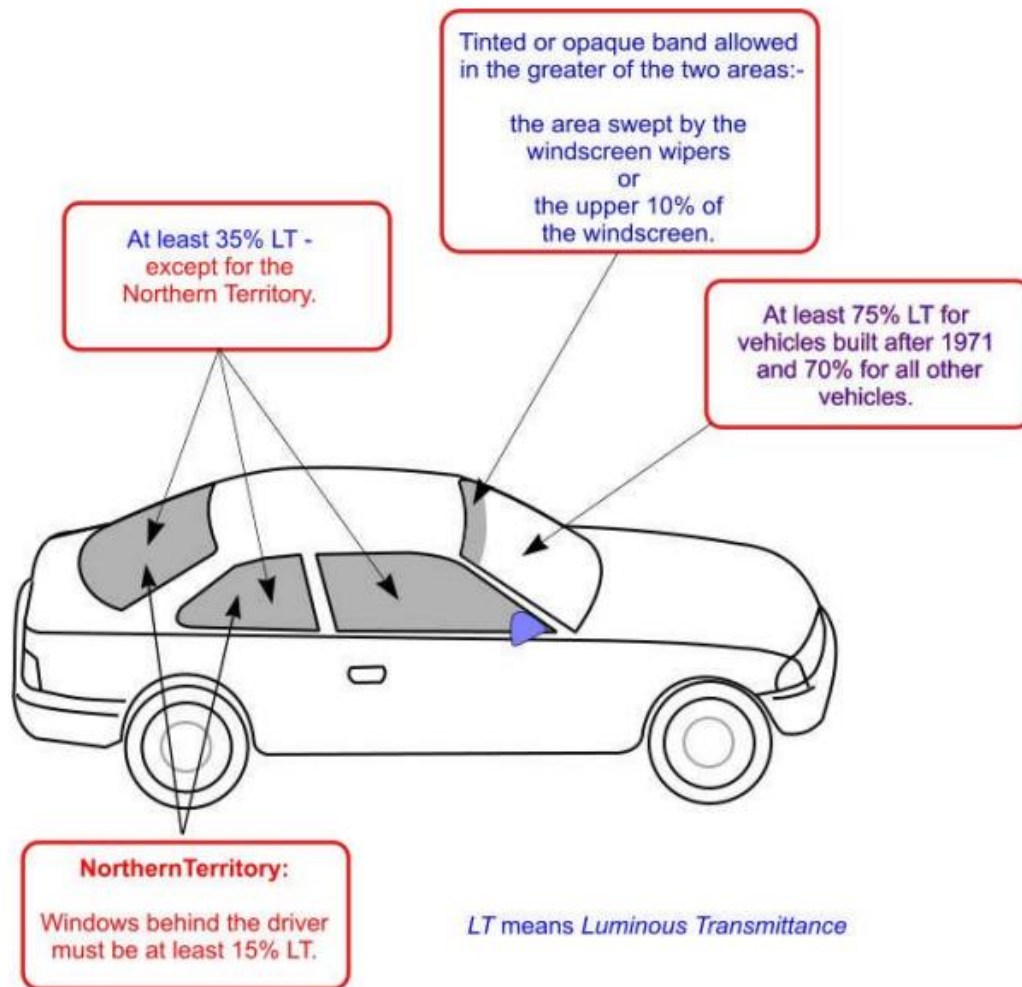


Figure LZ-G2 Window Tinting – Luminous Transmittance Requirements for Passenger Vehicles

Note: Since the AVSR allows jurisdictions to set alternative limits for window tinting, it is important that the jurisdiction in which the vehicle is to be either registered or used, be contacted for that jurisdiction's specific requirements.

Many jurisdictions also have alternative requirements for tinting on commercial vehicle windows that do not affect the safe operation of the vehicle.

8 MEASURING AND CALCULATING LUMINOUS TRANSMITTANCE

Luminous transmittance on glazing that is coated must always be measured through the glazing and film together. This is because the glazing has its own luminous transmittance value - usually around 70%. In this case, any film applied must have a luminous transmittance of at least 50%.

To calculate the estimated luminous transmittance the two percentage values, expressed as decimals, must be multiplied together, i.e.: 0.7 (glass LT) * 0.5 (film LT) = 0.35 (LT for the glass and film in combination).