



EcoMirror Window Coatings

Energy Saving Windows for the Mobility Sector

Benefits

- Blocks heat energy to help regulate internal temperature
- Reduces wasted energy from climate control
- Coatings can be applied to glass or polycarbonate windows
- Near transparent and highly scratch and corrosion resistant
- Does not block telecommunication signals

Background

Window tints on cars, trains buses and other mobility solutions are simply pigmented to reduce glare. They absorb the sun's rays and transmit the energy as heat, into the internal environment. EcoMirror window coatings reflect the heat, reducing the ambient internal temperature (or stopping internal heat loss). EcoMirror films are scratch and corrosion resistant and can be replaced if damaged.

Traditional reflective coatings block a wide range of wavelengths, not just infrared heat or harmful UV rays, but also telecommunications signals. EcoMirror can be tuned to become transparent to chosen frequencies, such as 4G/5G signals for superior connectivity.

Technology

EcoMirror Window Coatings use a proprietary combination of thin film layers to achieve a balance of performance, durability, and optical transparency. UniSA has developed a unique tuning technology that provides high visual transmittance and high heat rejection, while enabling the transmittance of chosen wavelengths.

UniSA EcoMirror coatings offer excellent UV protection, block 70% of the IR radiation and transmit 70% of the visible light, providing excellent aesthetics. The low reflectance in the visible range of 15% enhances views while maintaining exterior appearance, and its unique composition and combination of materials offer no signal interference, with attenuation values for 4G/5G frequencies as low as 1 dB.

Potential Markets

Opportunities in Mobility and Public Transport, Defence, and Construction.

The primary opportunities for this technology are in the mobility sector, where the heat reflective properties can offer significant energy savings by reducing the load on the climate control systems. In turn, extend battery range or reduce fuel consumptions. Further savings may be possible by replacing glass with light weight polycarbonate, facilitated by the class leading scratch resistance of the EcoMirror coatings.

In Defence, as well as the energy savings available, there may be security applications, tuning the coating to specifically block telecommunications, while allowing a different band of frequencies to pass through.

Substrate type	Visible light		TSER*	Solar Heat rejected	UV light rejected
	Reflected	Transmitted			
Glass	12%	70%	52%	70%	99%
Polycarbonate	16%	68%	54%	70%	99.9%

*TSER= Total Solar Energy Rejected

The Construction industry use similar film coatings, but these are not durable and subject to degradation from the elements, so are typically sandwiched between layers of glass inside double-glazed windows. EcoMirror coatings offer potential cost savings because they are far more durable and may be suitable to place on single pane glass, while still offering heat reflective properties for achievement of energy ratings.

Partnering Opportunities


UniSA is looking to partner with manufacturers or operators in the mobility and public transport sectors, and with manufactures of glass and polycarbonate products. We seek opportunities to tailor this technology to your specific requirements.


IP Status

Patent applications have been submitted

Contact Us

UniSA Ventures
+61 8 8302 5300
unisaventures@unisa.edu.au

 [@UniSAVentures](https://twitter.com/UniSAVentures)

 [linkedin.com/company/unisaventures](https://www.linkedin.com/company/unisaventures)