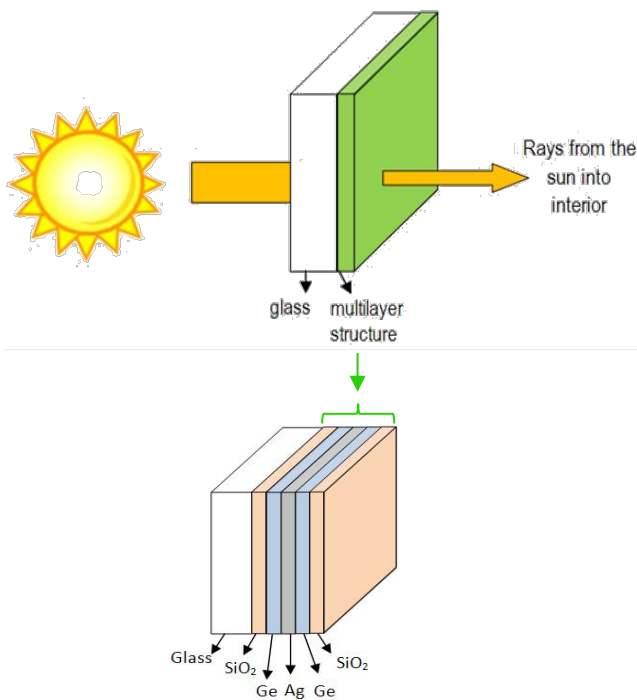


Cool Glass: Multifunctional heat rejection coating

About the Invention

The properties of silicon dioxide (SiO_2) were harnessed to develop a multifunctional heat rejection coating that can be applied on glass.



Schematic diagram of the various components (SiO_2 / Ge/ Ag/ Ge/ SiO_2) which are present in the multilayer structure of the coating, applied on glass.

Advantages of SiO_2 :

- Eliminates the environment stability issues of the silver (Ag) layers
- Functions as a perfect passivation layer against oxygen to protect the critical silver heat rejection layer
- Requires only a very thin layer of this low cost material in the multilayer structure

Key Features

The coating :

- filters off UV and near-infrared and short-wave infrared light yet allowing more natural light to pass through;
- reduces heat and helps save cost in cooling interiors;
- is lightweight, durable and scratch-resistant;
- has self-cleaning properties;
- is easy to apply using existing physical vapour deposition (PVD) technique;
- comprises non-toxic materials.



Glass coated with the IMRE-invented multilayer structure that filters UV rays and blocks heat from passing through while letting in natural light.

Potential Applications

- Windows for 'green' buildings and automobiles to keep interiors cool.

Collaboration Opportunities

- Scale up development with glass coating or automobile window film coating companies.

P.T.O.

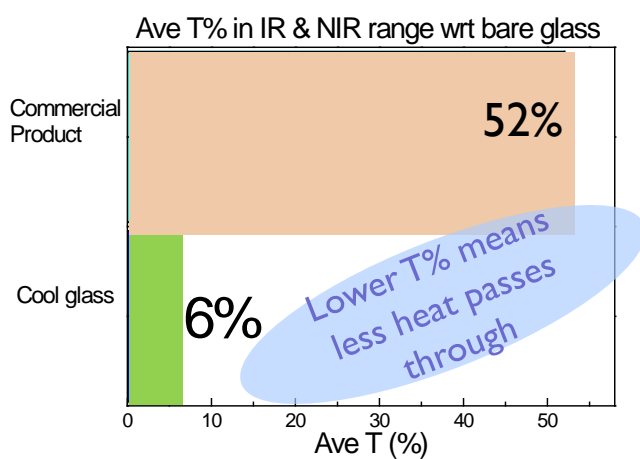




Performance Data

IMRE-developed 'Cool Glass' VS Commercial Products

	'Cool Glass'	Commercial Product 1	Commercial Product 2
Visible light transmission	Tunable 30-75%	17%	41%
Solar reflectance, exterior	58%	-	57%
G-value: measures heat gain; the lower the better	0.25	0.33	0.44
Shading coefficient	0.29	0.38	0.50
Other function	<ul style="list-style-type: none"> • UV-filter • Self-cleaning • Scratch resistance 	<ul style="list-style-type: none"> • UV-filter 	<ul style="list-style-type: none"> • UV-filter



IMRE-developed 'Cool Glass' allows less heat to pass through, potentially reducing the energy (and the cost) required to keep a room cool.