

COOL-LITE IR PRODUCT TECHNICAL STATEMENT

PRODUCT DESCRIPTION

Cool-lite IR controls heat and saves on energy costs. With the ever increasing cost of energy production, today's buildings call for energy-efficient designs. Allowing high levels of natural light into buildings can reduce energy costs associated with artificial lighting; however, this natural light can then lead to rapid interior heat build-up due to the penetration of solar heat from the sun, actually raising energy costs from the need to cool the building. Cool-lite IR is premium grade sheeting with the same highly UV-resistant gel-coated surface as Ampelite Wonderglas S-996.

Cool-lite IR filters out 99% of harmful ultraviolet radiation but allows a high level of visible light. At the same time, it reflects out a large percentage of infra-red waves, reducing heat so your building stays cooler. Now you can turn the most powerful light source in the universe into the most effective low cost, low temperature workplace lighting. The full test reports are available from Ampelite (NZ) Limited.

How Cool-lite IR works

Cool-lite IR filters out 99% of harmful ultraviolet radiation and allows a high level of the visible light spectrum to be transmitted into your building so colours appear brighter and clearer, while at the same time reflecting out a large percentage of the infra-red waves, reducing heat so your building stays cooler.

Selectivity Index

The ability of sheeting to select between light and heat can be measured by dividing the Total Visible Light Transmission by the Total Solar Transmission; this is called the Selectivity Index. The chart below shows the difference in the Selectivity Index for the two grades of Cool-lite IR when compared to Clear and Opal sheets. Cool-lite IR IV is 28% more selective than normal clear sheeting and Cool-lite IR VIII is 36% more selective than Opal.

	Visible Light	Total Solar Transmission	Selectivity Index
Cool-lite IR IV	64%	50%	1.28
WonderGlas Clear	63%	63%	1.00
Cool-lite IR VIII	49%	36%	1.36
WonderGlas Opal	36%	40%	0.90

Cool-lite IR IV is recommended for factories and warehouses where a high level of light transmission is required and would be used instead of Clear sheeting, whereas Cool-lite IR VIII is recommended where lower heat levels are needed and would replace Opal sheeting.

FEATURES

- **Light transmission is maintained.** Loss of light transmission after 10 years is just 10%, compared to a loss of 30% for standard surface film protected fibreglass sheeting. Cool-lite IR has a highly UV-resistant gel coat of 100 microns.
- **Very high resistance to yellowing and discolouration.** Over 10 years, changes are negligible and are covered by warranty. Only minor changes may occur in later years.
- **Surface erosion (fibre show) is eliminated.** It is covered by warranty for 25 years.
- **Low surface erosion.** This also improves weathering properties. The 100 micron gel-coated surface provides an impenetrable barrier and the sheet is warranted against

FOR FULL INSTALLATION DETAILS PLEASE DOWNLOAD A COPY OF OUR INSTALLION GUIDE:

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INSTALLATION

Cool-Lite IR sheeting shall be installed in accordance with Ampelite fixing instructions and with AS/NZS 1562.3:1996, Design and installation of sheet roof and wall cladding, Part 3: Plastic, the requirements of the NZ building code and the NZ Metal Roofing Manufacturers Association Code of Practice.

Please note these additional important requirements:

Cool-Lite IR shall be installed using the fastening length applicable to the chosen profile. The sheeting must be installed by pre-drilling 12mm oversize holes to allow for expansion and contraction. The fixing screws shall be located in the centre of the rib must not be over tightened to an extent that the sheet buckles, allowing water penetration at the seal or sheet overlap. Fixing should be made at every second crest at both ends of the sheet, and every third crest at intermediate purlin's. Cool-Lite IR sheeting shall only be installed using Metal profiled washer along with an EPDM washer which fits the profile correctly ensures the fixings remain watertight.

To ensure accuracy Ampelite recommends the following:

- 1- Install screws into the Cool-Lite IR sheeting in the same manner as metal.
- 2- When completed, remove fixings from the Cool-Lite IR sheet.
- 3- Using the existing screw hole as a guide, re drill over sizing the hole.
- 4- Re install the fixing screw. (Note how the screw is centrally located in the hole.)
- 5- Do not over tighten the screw putting undue pressure on the Cool-Lite IR sheet.

SPAN TABLES BY ROOF PROFILE – 1.5Kpa Wind Load. Concentrated loads as per AS1170.2.F

SPANNING	1.5KPA			
Gauge	1.1mm/1800	1.4mm/2400	1.7mm/3050	2.2mm/3660
Corrugated	1000	1200	1300	1400
SixRib	1000	1200	1300	1400
Low Rib Trapezoidal, 5 Rib, Trimdek, etc	1200	1500	1700	1900
Metric, Windek, MC1000, Ribline 960, Kliplok 406	1200	1500	1700	1900
Steelspan, Topspan	1600	1800	2100	2400
Multispan, MC930, Maxispan	1600	1800	2000	2300
BB900, ST900, Multirib LT7, ST7, RT7, ST963, etc	1400	1700	1900	2200
Trough Profiles, DD300, DD400, HiRib, etc	1200	1400	1700	2000
Supersix	1600	1800	2100	2400

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BUILDING CODE COMPLIANCE

The product will, if used in accordance with the Ampelite installation and maintenance requirements, assist with meeting the following provisions of the building code for a period of 20 years:

- Clause B2 Durability: Performance B2.3.1
- Clause C3 Fire affecting areas beyond the fire source: Buildings C3.3
- Clause E2 External moisture: Performance E2.3.1, E2.3.2
- Clause F2 Hazardous building materials: Performance F2.3.1
- Clause G7 Natural Light

EVIDENCE MEETS NZBC

Test information available from Ampelite (NZ) Ltd and past history of use of Cool-Lite IR products in New Zealand indicate that, provided the product use and maintenance is in line with the guidelines contained in the current literature referenced, Ampelite S-996 gel coated roofing & wall cladding systems can be expected to meet the performance criteria in clause B2, C3, E2, F2 and G7 of the New Zealand Building Code, for a period of not less than 25 years.

TESTING & SUPPORTING EVIDENCE

The product has and can make available the following additional evidence to support the above statements:

Cool-Lite IR has been tested at the Allunga Exposure Laboratory in Allunga QLD, a world renowned testing facility. All methods of testing are performed to strict Standards. The Altrac system (in which the sample tracks the sun), is generally accepted to have a 5 to 1 weathering value. The Cool-Lite IR result was a light loss of 22% over a period equivalent to 20 years exposure. The test samples still displayed a very smooth, glossy surface with no fibre show at all

ISO5660 (2002), "Reaction to fire test". Fire Group 3 Rating Testing conducted by Centre of Advanced Composite Metals, Engineering, University of Auckland.

NZ Metal Roofing Manufacturers Association Inc. (NZMRM)
Code of Practice

STANDARDS

Ampelite NZ Limited is an AS/NZS ISO 9001: 2002 SAI Global Certification accredited company providing Quality Assurance in Manufacturing, Supply and Servicing. License number QEC 4787 was certified and issued to the company on the 20 June 1995.

Ampelite Manufactures its products to Australian/New Zealand Standard AS4256.3: 1994, described as "Plastic roof and wall cladding materials – Part 3 – Glass fibre reinforced polyester (GRP)".



**World Class, Quality
PLASTIC ROOFING PRODUCTS**

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