

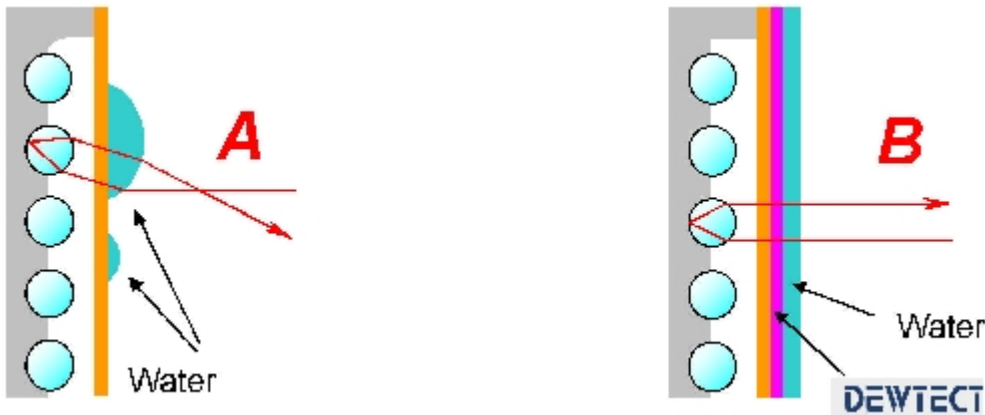
Nikkalite® Dewtect DT 142-S dew resistant sheeting, technical specification

Product Description

Nikkalite® Dewtect-S is durable transparent self adhesive sheeting with a hydrophilic surface coating which combats dew formation allowing normal retroreflectivity to occur. The sheeting is suitable for application to the surface of Nikkalite Crystal grade and Ultralite retroreflective sheeting's. Application should only be undertaken during the manufacture of new signs and as the final application process through a wide width application roller in the sign shop

Dewtect-S characteristics

Diagram **A** below left illustrates how in humid conditions dew forms on hydrophobic surfaces where high surface energies allow the water droplets to remain. Hydrophilic coatings reduce surface energies and a membrane forms on the surface of the Dewtect sheeting as in **B** below. Dew is unable to remain on the surface as the hydrophilic properties alter the contact angle of the water droplets causing the droplets to flatten and form a membrane and retroreflectivity is restored to normal levels.



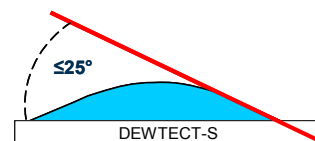
As dew starts to form and water droplets collect reflectivity is reduced, a sign not covered with DEWTECT -S overlay film will continue to lose reflectivity but a sign which is protected will recover and maintain a high level of retroreflectivity. DEWTECT -S may be applied to Nikkalite Crystal™ grade microprismatic or Ultralite Class ref 2 sheeting. Nikkalite DEWTECT® overlay also assists in keeping the sign face clean. The hydrophilic surface coating and rain fall act to loosen and remove surface contamination including carbon deposits offering self-cleaning properties.

Technical information.

The Dewtect-S surface coating process ensures the hydrophobic coating provides a contact angle of $\leq 25^\circ$ to prevent water droplets settling as dew formation on the sheeting surface.

NCI measure the contact angle at a temperature of $23^\circ\text{C} \pm 2^\circ\text{C}$, humidity $50\% (\pm 5\%)$ on samples laid flat using a contact angle meter model: G-1 manufactured by Erma Inc.

<http://www.erma.co.jp/product/anglemeter.html> .

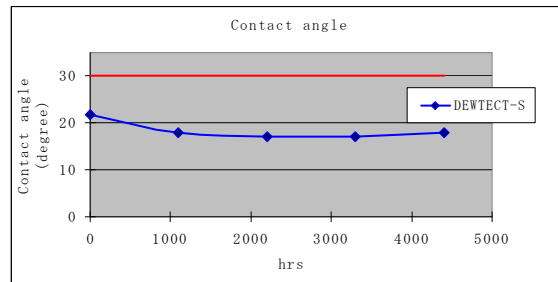


Laboratory test method

Place 4 droplets of pure (de ionized) water onto Dewtect-S film using a small pipette (wash clean by filling and emptying with de ionized water several times). Measure the contact angle of water using contact angle meter model: G-1 manufactured by Erma Inc.

The graph details typical results after 4400 hours of artificial accelerated weathering using sunshine weatherometer. DEWTECT-S dew resistant properties are retained and performing throughout the period of the accelerated weathering tests. The duration and intensity of dew out is determined by the weather conditions and may vary.

Towards the end of the effective performance life of Dewtect-S sheeting the contact angle will begin to increase reducing the effectiveness of the dew resistant properties.



Effective performance life

The effective performance life of Dewtect-S dew resistant sheeting is 7 years for signs installed in the UK or Ireland. The sign face will not discolour or fade as the Dewtect-S properties decrease and the sign will eventually revert to a normal sign face with a clear overlay sheeting which will continue a form of surface protection. In certain daylight conditions a slight discoloration or matting of the surface may be visible. This is a characteristic of the hydrophilic coating and not an indication of a defect.

Cleaning surface of Dewtect-S sheeting

The surface of Dewtect sign faces should not require washing.

If it becomes necessary the surface should only be washed using a low pressure stream of clean water in spray form, a high pressure jet of water or cloths to wipe the surface should not be used. Allow the sign face to dry naturally.

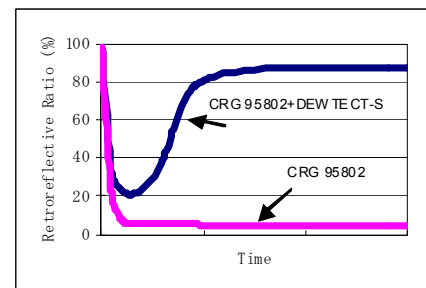
Incorrect cleaning of the Dewtect surface or the use of solvents may damage the hydrophilic properties and invalidate performance guarantees.

Nighttime visual inspection with dew forming

It is important to understand that the duration and intensity of dew formation is determined by the humid conditions. As humidity levels rise dew formation increases and before the water membrane can form a certain loss of retroreflectivity is required and therefore inevitable before Dewtect-S dew resistant properties can become effective.

The graph demonstrates *DEWTECT*[®]-S overlay film characteristics and the affect of dew on retroreflectivity during dew conditions. As dew begins to form, the reflectivity will decrease significantly on the surface of signs, which are not covered with the *DEWTECT*[®]-S overlay film.

Sign faces protected with *DEWTECT*[®]-S overlay film will maintain a high level of retroreflectivity.



Test sample : CRG with DT142-S

The photographs below show a sign installed on M5 Southbound, south of junction 21 Weston-super-Mare. The two photos were taken within approximately 30 minutes of each other and the change in the dew resistant properties can be seen to be taking effect. Humidity levels and wind conditions will determine the speed of the dew settling and hence the dew resistant water membrane forming. The top two sign sections have Dewtect-S dew resistant sheeting applied but the lower sections are standard uncoated areas of sign face. In both photos the two supporting posts can be clearly seen.



Nikkalite[®] products sold in the United Kingdom are sold with a warranty subject to the Road Traffic Sign Warranty agreement between Rennicks (UK) Limited, Nippon Carbide Industries Inc., and the Traffic Sign Manufacturer.



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