NG 1314/D SOLAR PANEL PROTECTION

FOR MAXIMUM EFFICIENCY AND PERFORMANCE OF PHOTOVOLTATIC SYSTEMS AND SOLAR MIRRORS

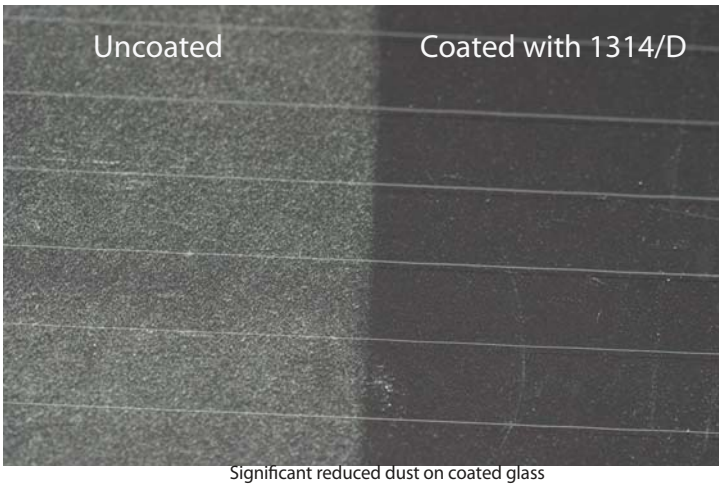
BENEFITS:

Nanovations NG1314/D is the most durable protective after market coating for solar panels and mirrors.
The multi- functional, ultra-thin coating reduces dirt and dust accumulation and at the same time provides a scratch resistant easy to clean protection.
Coated panels have a higher power output and more consistent energy efficiency.
The coating protects the glass from erosion, and from stubborn staining from salt spray and mineral deposits.
Unlike any other product , NG 1314/ D is inorganic and comes with the natural UV resistance of colloidal silica sol material. Such proven and reliable materials can handle harsh conditions from sub zero to extreme hot environments . NG 1314/D can be used solar mirrors as well.

TECHNICAL PROPERTIES :

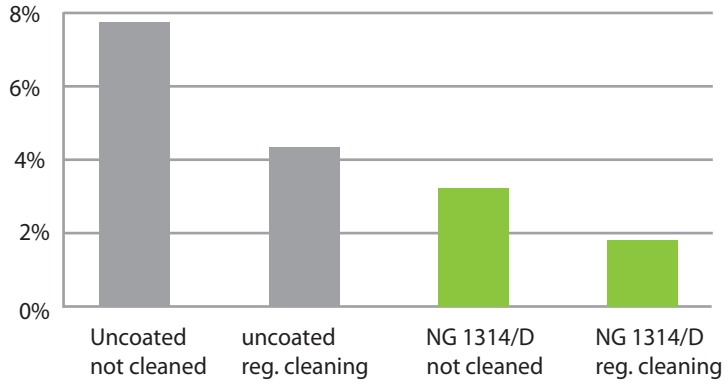
- Colloidal silica sol gel solution
- Ultra-thin , less than 60 Nm
- Cures in room temperature in seconds
- Industrial size application with spray or roll on
- Water repellent, very low roll off angle
- Low dust accumulation effect
- Easy to clean effect
- Fast cross linking with the substrate.
- Improved scratch resistance
- High durability, long lasting
- Invisible, ultra thin
- Nano structured, inorganic sol gel.
- Can be applied over ARC on Solar panels
- Cost effective, highest coverage available
- Up to 14,000 sq. ft. / gallon, 400 m2 / litre
- Outstanding UV resistance
- Heat resistant
- Up to 4 x more abrasion resistant
- Hardness up to 7 on Mohs scale
- Invisible , unchanged transmission rate

The high investments in large solar farms , and solar power stations is only sustainable when enough sunlight is available. Such locations are usually dry , hot and dusty places.
NG 1314/D does not only offer long term asset protection against the impact of weathering on the glass, but also improves energy efficiency even without regular cleaning. Exposed weathering showed, that the loss of energy output was up to 60 % higher on uncoated surfaces.



Significant reduced dust on coated glass
Blowing dust test with Arizona test dust.

Loss in energy output within a 6 month test. Ref. cleaned daily



NG 1314/D SOLAR PANEL PROTECTION

FOR MAXIMUM EFFICIENCY AND PERFORMANCE OF PHOTOVOLTATIC SYSTEMS AND SOLAR MIRRORS

Physical Data

Measured at Standard Test Conditions (STC)

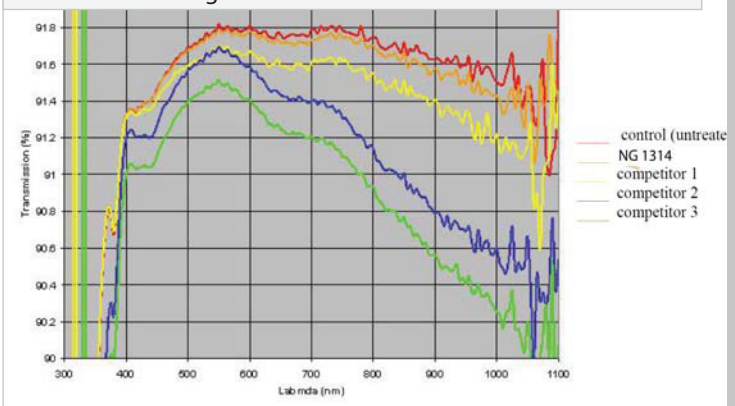
Appearance	Clear liquid
Storage shelf life	min 2 years
Application method	Spray and wipe, roller coater , Lisec coating machines
Colour	clear
Chemical composition	Colloidal Silica Sol Gel
Curing temperature	Room temp. For Infrared or UV curing please call
Hardness	6.5- 7 Mohs room temp cured . up to 7 Mohs with IR curing
Temperature resistance range	- minus 50 ° C to + 300 ° C
Specific weight	0.790 g /cbcm
Coverage rate	up to 400 m2 / litre or up to 14,000 sq.ft / gallon
Storage conditions	-5° C +/-30° C
Chemical storage for flammable liquid	class 3

Chemical Resistance

Measured at Nominal Operating Cell Temperature

Cleaners	pH 3 - pH 11	resistant
Hydrocarbon solvents, Diesel , Petrol , Kerosin		resistant
Hydrochloric and Sulphuric acid and citric acid 5 %		resistant
Break fluid , oil , hydraulic oil		resistant
Ethanol , Isopropanol Alcohols 99 %		resistant

Light Transmission Rate



Experimental Variability: Δ Eff: +/- 0.7 %,
*anything above or below that is considered real
Δ Eff = - 0.3% → **No significant change or loss in output after treatment**

Tested Operating Conditions

Temperature	-40° C to +85° C
Exposed weathering Lab Local Exposure	Allunga Exposure Laboratory, Townsville Australia Sydney , Australia
Glass thickness	3.20 mm

Warranties and Certifications

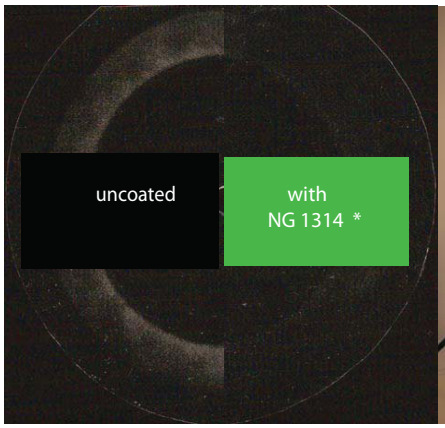
Warranties	
	10 year product warranty on the coating.
Reference	IEC 61215 , DIN 13300

Mechanical Data

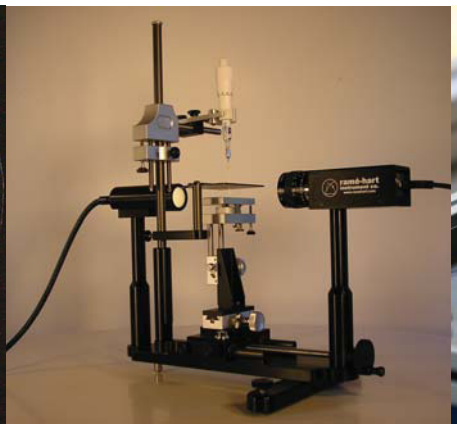
Abrasion resistance	Taber test wet scrub resistance 40,000 - 80,000 cycles 500 g / brush
Substrate	High transmission tempered glass
UV resistance	Artificial 25 year simulation
	Over 10 year in real world projects, under Australian conditions

Contact angle	112 - 118 degree
Roll off angle	6 - 8 degree
Salt Spray	1000 hours

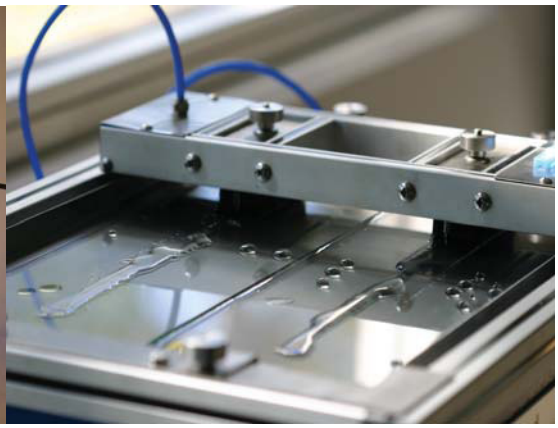
Test Images



* Visual loss of transparency abrasion test
100 cycles ,wheel C 1 , 500 g



Contact angle test with Rame-hart Geniometer
Nanovations , Serial No.1958



Taber test on 2 glass panels with 2 brushes 500 g each
40,000 cycles, Test method DIN EN 13300

Nanovations.com.au