TITANCARE® TT

TECHNICAL DATA SHEET V2.3
PRODUCT INFORMATION

ADVANCED NANO COMPOSITE MATERIAL APPLICATION

General Description

- anti-bacterial and anti-viral Nano coating fluid
- green material, 100% non-toxic and environmentally-friendly
- easy to use, long lasting 24/7 basic des-infection
- approved, registered and tested by worldwide renowned authorities such as FDA, MICROBAC®, Ofi, SGS

Features

- outstanding anti-bacterial & anti-viral properties
- suppression efficacy up to > 99,999% against Germs
- excellent self-cleaning & anti-dirt effect
- decomposes formaldehydes and VOCs and anti-odor function
- perfect adhesion and durability on any material like glass, metals like alloy, copper and stainless steel, marble and stone plates, ceramics and tiles, textiles and plastics

Applications

as a protective and preventive measure in areas of

- health and medical
- food processing industries
- gastronomy and hotels
- merchandising and retail
- offices and public spaces
- OEM applications like glass, solar panel and window production, lighting and medical equipment, refinery and tank facilities, filter and industrial plant builders, wood industry,

Standard Packing

1kg bottle, 20kg / plastic drum & 200kg / plastic drum

Storage

Please store under room temperature 25 °C, humidity>45% with good ventilation and avoid exposure to direct sunshine. Keep container sealed after opening. Shelf-life 1 year from date of manufacture.

SCUTUM NANO SOLUTIONS

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TITAN CARE®

Typical Physical Properties

These properties are typical but should not be considered specifications.

Item		Unit	Specification
Property	Appearance	Visual	Light yellow solution
	Component	-	TiO2 Nano silver H_2O
	Solid Content	wt%	1.0~1.2
	Particle Size	nm	<100nm
	pH value	-	7.5~9.5
	Viscosity	25 °C mPa s	<5
	Reflectance	-	2.2~2.4
	Specific Gravity	25°C	1.02
	Freezing Point	°C	4
Safety	Peroral Acute Toxicity	LD50 (mg/kg. mouse)	>5000mg/kg
	Primary Skin Irritation	Primary irritation index	0

Reference Data

Item	Test Method	Unit	Result
Appearance	1)	Color difference	Light yellow [1)]
Decomposition Activity Index	TN-031	Nmol / (L ◦ min)	>10
Anti-microbial	JIS Z 2801	%	>99,999% [2)]
Virus Inhibition	ASTM E1052-11	%	>99,998%
Pencil Hardness	ASTM D3363-00	-	7H [3)]
Cross Cut	CNS10757	-	5B
Cross-Cut after dipping in boiled water	Dipping in boiled water (100 °C)/30 minutes		5B
Transparency	4)	T	Refer to table below
Reflectance	4)	R	Refer to table below
Durability	CNS 10757	times	3000 times
Contact Angle	TN-031	degree	<10°

Methodology: baking 30 minutes at 400 °C after spraying 30g/m^2 on the glass.

[1)] Substrate: Glass

[2)] R: Anti-microbial rate R=2 stands for 99%

[3)] Substrate: Glass. Increased hardness of up to 2H on other substrates

[4)] Transparency & reflectance may be affected by process method

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Item	Spray 10g/m^2	Spray 20g/m^2	Spray 30g/m^2	Dipping once
Transparency(%)	81.33	80.79	80.56	88.71
Reflectance(%)	16.29	16.47	16.99	9.52

Methodology: baking 30 minutes at 400 °C after spraying on the glass

Average transparency of untreated glass : 88.987%

Dipping pull speed: 22.5mm/min

Comparison of Baking Temperature

Item	Room Temp. Day 1	Room Temp. Day 3	Baking 100 °C	Baking 200 °C	Baking 300 °C	Baking 400 °C
Anti-microbial	✓	✓	✓	✓	✓	✓
Hardness	B	B	H	6H	7H	7H
Durability of wiping with water [1)]	200	200	1500	1500	1500	2000
Durability of wiping with alcohol [2)]	200	200	1500	1500	1500	2000

Methodology: baking 30 minutes after spraying 30g/m^2 on the glass

[1)] Test method: load 500g weight on the substrate and wipe by non-dust cloth with water

[2)] Test method: load 500g weight on the substrate and wipe by non-dust cloth with alcohol

Super-Hydrophilicity

	Light 1min	Light 3min	Light 5min	Light 10min	Light 15min	Light 30min
Contact Angle (degree)	<10	<10	<10	<10	<10	<10

Methodology: baking 30 minutes at 400 °C after spraying 30g/m^2 on the glass

Subject test specimens to UVA [1mW/ cm^{2}] after keeping in a dark [non lighted] area for 1 week

Super-Hydrophilicity (Duration at inert condition)

	1day	3day	5day	7day
Contact Angle (degree)	<10	<10	>20	>30

Methodology: baking 30 minutes at 400 °C after spraying 30g/m^2 on the glass

Subject test specimens to UVA [1mW/ cm^{2}] and keeping in a dark place

Recommended Application Process

1. **Equipment**
   a) Spraying: spray gun, nozzle diameter 0.3~1mm, air pressure 0.3~3kg under room temperature 10~40 ℃
   b) Dipping method: pulling speed: 50~150mm/min, solution temperature 25 ℃
2. **Process**
   a) Ensure a thorough cleaning of the substrate surface.
   b) Apply Nano coating after cleaned surface is dry using spraying or dipping method.
   c) Ripening: room temperature~500 ℃ oven with hot air circulation.
   d) Rinse equipment with water after application.

Note: The data above is for reference only. Rubberized surfaces may require plasma treatment. Please use the materials based on actual substrate & environment.

Safety & Notice

1. In order to ensure product reliability, please apply under clean environment.
2. Keep containers sealed after opening and store under recommended environment.
3. Minimum Storage temperature = 5°C, ensure good ventilation.
4. Precipitation and slight color change to light yellow is normal.
5. Please refer to Safety Data Sheet (SDS) for more details.

Product Stewardship

Scutum Nano Solutions GmbH encourages its customers to ensure that our products are not used in ways for which they are not intended or tested. Our personnel assist you to answer your questions and to provide reasonable technical support. Scutum Nano Solutions GmbH safety data sheets should be considered prior to use.

Disposal

Disposal according to official regulation, not contaminated and completely emptied packaging can be recycled.

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