SECTION 1: IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: Nanoman Solar
Synonyms: Nanoman Solar Coat
Nanoman Solar Panel Coating

Company Name: Nanotech Products Pty Ltd (ABN 47 153 300 933)
Address: Unit 3, 40 Ricketts Rd, Mount Waverley 3149

Telephone: 1300 696 266
Business Hours 9:00am to 5:00pm, Monday to Friday

Other Names Not Applicable

Recommended Use: For coating of solar panels to achieve a water repelling self cleaning / easy cleaning surface.

SECTION 2: HAZARDS IDENTIFICATION

Hazard Statement **Classification according to Regulation (EC) No 1272/2008 (CLP)**
Flam. Liq2; H225 Highly flammable liquid and vapour.
Eye Irrit.; H319 Causes serious eye irritation
H336 May cause drowsiness or dizziness

Label Elements **Labelling according to Regulation (EC) No 1272/2008 (CLP0**

Signal word: danger

Precautionary Statement (Prevention)
P210 Keep away from heat/sparks/open flames/hot surfaces – no smoking
P233 Keep container tightly closed
P240 Ground/bond container and receiving equipment
P241 Use explosion-proof electrical/ventilating/lighting/…../equipment
P242 Use only non-sparking tools
P243 Take precautionary measures against static discharge
P261 Avoid breathing dust/fume/gas/mist/ vapours/spray
P264 Wash …..thouroughly after handling
P271 Use only outdoors or in a well-ventilated area
P280 Wear protective gloves/protective clothing/eye protection/face protection

Preautionary Statement (Response)
P303+P361+P353 If on skin or hair: remove/take off immediately all contaminated clothing. Rinse skin with water/shower
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312 Call a POISON CENTER or doctor/physician if victim feels unwell
P337+P313 If eye irritation persists: Get medical advice/attention.
P370+P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Precautionary Statement (Storage)
P403+P233+P235 Store in a well-ventilated place. Keep cool. Keep container tightly closed.
P405 Store locked up.

Precautionary Statement (Disposal) P501 Dispose of contents/container to an approved waste disposal plant.

Other Hazards

PBT/vPvB
No information

Endocrine disrupting properties
No Information

Additional Information
No information

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Characterisation Ingredients:

Name	Name CAS EC Index Reach	%	Classification according to Regulation (EC) No 1272/2008 (CLP)	Specific Conc. Limits	Notes for substances
ethanol	64-17-5 200-578-6 603-002-00-5 01-2119457610-43	>94	Flam. Liq. 2; H225 Eye Irrit. 2; H319	/	/
butanone	78-93-3 201-159-0 606-002-00-3 01-2119457290-43	<5	Flam. Liq. 2; H225 Eye Irrit. 2; H319 STOT SE 3; H336	/	/
tetraethyl silicate	78-10-4 201-083-8 014-005-00-0	<4	Flam. Liq. 3; H226 Flam. Liq. 3; H226 Acute Tox. 4; H332 STOT SE 3; H335	/	/
sulfuric acid	7664-93-9 231-639-5 016-020-00-8 01-2119458838-20	<0.1	Met. Corr. 1; H290 Skin Corr. 1A; H314	Skin Corr. 1A; H314; C ≥15% Skin Irrit. 2; H315; 5% ≤C < 15% Eye Irrit. 2; H319; 5% ≤C < 15%	/

SECTION 4: FIRST AID MEASURES

General Advice: When in doubt or if feeling unwell seek medical assistance. Show safety data sheet and label to the physician. Never give anything by mouth to an unconcious person. Place person in recovery position and ensure airway patency.

Inhalation: Inhalation of spray mist, fog or vapours may cause respiratory irritation. Remove victim from exposure. Take affected persons out into the fresh air. In case of persistent discomfort seek medical attention.

Ingestion: Ingestion may cause may cause abdominal discomfort, nausea / vomiting and diarrhea**.** Have the mouth rinsed with water. Have the patient drink plenty of water in small sips. Do not induce vomiting. Obtain medical attention.

Skin Contact: Skin contact may cause irritation (redness, itching). Wash off immediately with plenty of water. Remove contaminated or saturated clothing. If swelling, redness, blistering or irritation occurs seek medical advice.

Eye contact: Eye contact may cause redness, tearing and pain. If the patient is wearing contact lenses, remove them immediately. Keeping eyelid open, immediately rinse thoroughly for at least 5 minutes using plenty of water or, eye rinsing solution. Seek medical attention.

Notes to physician: If required, therapy of irritative effect. Treat symptomatically. After absorbing large amounts of substance: administration of activated charcoal. Acceleration of gastrointestinal passage.

SECTION 5: FIRE-FIGHTING MEASURES

Specific Measures: Caution: Use of water spray when fighting fire may be insufficient.
Small fire: use alcohol resistant foam, dry chemical powder, CO2 or water spray.
Large Fire: Use alcohol resistant foam, fog or water spray – Do not use water jets.

Specific Hazards: HIGHLY FLAMMABLE If safe to do so move undamaged containers from fire area. Cool containers with water until well after fire is out. Avoid getting water inside containers.

In case of a fire toxic gases can be generated; do not inhale gases/smoke. In the event of fire the following can be generated: carbon monoxide (CO), carbon dioxide (CO_2), Sulphur oxides (SO_x).

Hazchem Code: 2YE

Advice for Firefighters Protective actions:
Prolonged heating can cause an explosion. Vapours can form explosive mixtures with air. In case of fire or heating do not breathe fumes/vapours. Cool containers at risk with water spray. If possible remove containers from endangered area. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters:
Firefighters should wear appropriate protective clothing for firefighters (including helmets, protective boots and gloves) (EN 469) and self-contained breathing apparatus (SCBA) with a full face-piece (EN 137).

Additional information:
Contaminated firefighting water and fire residues must be disposed of in accordance with the local regulations.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions: Use personal protective equipment

Precautionary Measures: Ensure adequate ventilation. Keep away from sources of ignition and/or heat; No smoking!

Emergency Procedures: Prevent access to unprotected personnel. No action shall be taken involving any personal risk or without suitable training. Evacuate the danger zone. Do not breathe vapour or mist. Avoid contact with skin, eyes and clothing.

Environmental Precautions: Prevent liquid entering sewers. Do not allow to enter surface waters, storm drains, etc.
In case of release into the environment, inform the relevant authorities.

Small spills: Take immediate steps to stop and contain the spill. Caution should be excised regarding personnel safety and exposure to be spilled material. Eliminate all sources of ignition and wear protective clothing. Absorb small spills onto paper towels and evaporate in a safe place Flush the contaminated area with plenty of water.

Large spills: Stop leak if you can do it without risk. Eliminate all sources of ignition and static; restrict access to area until completion of clean-up procedure. Wear adequate protective equipment, use self-contained breathing apparatus in confined poorly-ventilated areas. Large quantities should be absorbed on to sand, earth or non combustible absorbent material and removed to a safe area for disposal. Flush the contaminated area with plenty of water.

SECTION 7: HANDLING AND STORAGE

Handling and Storage: Avoid contact with skin or in eyes. Do not inhale vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build-up of electrostatic charge. Open and handle container with care. Keep away from open fire. Keep away from heating sources. Keep away from sources of ignition

Conditions for safe Storage: Keep container tightly closed in a cool, dry and well-ventilated place away from direct sunlight and other sources of heat or ignition. Store away from oxidising agents. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Check regularly for leakage.

Measured to Protect the Environment: Do not discharge into drains, surface water and soil. After use immediately close container tightly.

General Occupational Hygiene Do not eat, drink or smoke while working. Do not breathe vapours/mist. Use good personal hygiene practices – wash hands at breaks and when done working with material. Avoid contact with skin, eyes and clothes. Remove contaminated clothes and wash them before reuse. Wear suitable protective equipment.

Storage Regulations: Store in accordance with local regulations. Protect from open fire, heat and direct sunlight. Keep away from food, drink and animal feeding stuffs. Keep away from oxidising substances..

Storage class: 2A flammable liquid.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limit Value:

Name	CAS No	STEL		TWA		Source
		mg/m3	ppm	mg/m3	ppm	
ethanol	64-17-5	1,920	1,000			EH40/2005
butanone	78-93-3	600	200	899	300	2000/39/EC
tetraethyl silicate	78-10-4			44	5	2017/164/EU

Biological Limit Values

Name	CAS No	Value	Material	Source
butanone	7664-93-9	70umol	Urine	

Other Exposure Information The exposure value at the TWA (time-weighted average) is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week. STEL (short-term exposure limit) is the value above which exposure should not occure which is related to a 15 minute period.

Information on Monitoring Procedures BS EN 14042:2003 Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. BS EN 689:2018 Workplace exposure. Measurement of exposure by inhalation to chemical agents. Strategy for testing compliance with occupational exposure limit values. BS EN 482:2021 Workplace exposure. Procedures for the determination of the concentration of chemical agents. Basic performance requirements.

DNEL/DMEL values:
For product
No information.

For components
No information.

PNEC values
For product
No information.

For components
No information.

Appropriate Engineering Controls

In industrial situations maintain the concentrations values below the TWA. This may be achieved by process modification, use of local exhaust ventilation, capturing substances at the source, or other methods.

Do not breathe vapours/aerosols. Use good personal hygiene practices – wash hands at breaks and when done working with material. Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke while working. Avoid contact with skin, eyes and clothes.

Structural Measures to Prevent Exposure:

No information

Organisational Measures to Prevent Exposure:

Remove all contaminated clothes immediately and wash them before reuse.

Technical Measures to Prevent Expsoure:

Provide good ventiliation and local exhaust with increased concentrations. Keep away from food, drink and animal feeding stuffs. Do not allow product to reach drains, sewage systems or ground water.

Respiratory Protection:

Where ventilation is not adequate, respiratory protection may be required. Avoid breathing vapours or mists. Select and use respirators in accordance with (BS EN 136) with filter A2-P2 (BS EN 14387) (Australian Standard AS 1716 – Respiratory Protective Devices and be selected in accordance with AS 1715 – Selection, Use and Maintenance of Respiratory Protective Devices.

Eye Protection:

The use of a face shield, chemical goggles or safety glasses with side shield protection as appropriate. Must comply with BS EN ISO 16321-1:2022 (Australian Standards AS 1337 and be selected and used in accordance with AS 1336).

Hand Protection:

Protective gloves BS EN ISO 374. (Australian Standard AS 2161 Occupational protective gloves – Selection Use and Maintenance. Recommendation: PVC, neoprene or nitile rubber gloves)

The penetration time is determined by the protective glove manufacturer and must be observed. Observe the manufacturer's instructions regarding the use, storage, maintenance and replacement of gloves. In case of damage or at the first signs of wear and tear, change the gloves immediately. The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturerto manufacturer.

Skin Protection:

Hand protection should comply with AS 2161, Occupational protective gloves – Selection Use and Maintenance. Recommendation: PVC, neoprene or nitile rubber gloves.

Footwear:

Safety boots in industrial situations is advisory. Foot protection should comply with BS EN ISO 20345:2022. (Australian Standard AS 2210, occupational protective footwear- Guide to selection, care and use).

Other Protective Clothing Equipment

Impermeable clothing. Final choice of personal protective equipment will depend on individual circumstances and/or according to risk assessments undertaken BS EN ISO 20345:2022 **.**

Hygienic Measures:

Always wash hand before smoking, eating or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using.

Thermal hazards: No information

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Form:	Liquid
Appearance:	Colourless
Odor:	Alcoholic, mild
Melting Point:	N/A
Boiling Point:	82-83°C
Solubility in Water:	fully miscible
Flash Point: :	12 °C
Vapor Pressure:	42 hPa at 20 °C
Specific Gravity:	0.785 – 0.786 g/^{c}m^{3} at 20 °C
Relative Density:	0.822 kg/l (at 20^{o} C)
Ignition Temp.	ca. 425 °C
Evaporation Rate:	0.300 (n=BuAc = 1)
Explosion Limits:	lower: 2,0 Vol-% upper: 12,0 Vol-%
pH (500 g/l H_2O):	n.a
Dynamic viscosity:	1 mPa.s (at 20^{o} C)
Kinematic viscosity	1 mm^{2}/s (at 20^{o} C)
Volatile Organic Compounds (VOC):	99.57% 818.426g/l

SECTION 10: STABILITY AND REACTIVITY

Reactivity:	Stable under recommended transport or storage conditions
Chemical Stability:	Stable under normal conditions of use, recommended handling and storage conditions.
Possibility of Hazardous Reactions:	Vapours and air can form flammable or explosive mixtures.
Conditions to Avoid	Heat, sparks, flame and build up of static electricity.
Incompatibility (Material To Avoid):	Acids, alkalines, oxidants, reductants.
Hazardous Decomposition	Does not decompose with normal use.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute Toxicity: The product is not classified for acute tocicity

Information available for the ingredients:

Ingredient	Oral Toxicity (LD50)	Dermal Toxicity (LD50)	Inhalation Toxicity (LC50)
ethanol	10,470 mg/kg (rat)	/	124.7mg/l (rat)
butanone	>2,193 mg/kg (rat)	>5000 mg/kg (rabbit)	34mg/l(rat)
tetraethyl silicate	6,270 mg/kg (rat)	5,878 mg/kg (rabbit)	10mg/l (rat)
sulfuric acid	/	/	/

Skin: Contact may the skin may result in irritation, redness,or rash.

Eyes: Irritating to the eyes. Contact may result in irritation, watering, pain and redness. High concentration of vapours may cause irritation.

Inhalation: Where the material is used in a poorly ventilated area or in confined spaces, vapour may cause irritation to the mucous membranes of the respiratory tract. May cause headaches, dizziness and nausea.

Ingestion: May cause nausea, vomiting, headache, dizziness and gastric irritation.

Sensitisation: Not classified as causing skin or respiratory sensitisation.

Mutagenicity: Not classified as a mutagen.

Carcinogenicity: Not classified as a carcinogen.

Reproductive toxicity: Not classified as a reproductive toxin.

STOT-single exposure: Not classified based on available information.

STOT-repeated Exposure: Not classified based on available information.

Aspiration Hazard: Not classified based on available information

Endocrine disrupting Not classified based on available information.

SECTION 12: ECOLOGICAL INFORMATION

Toxicity: Not classified as hazardous to the aquatic environment

Persistence and Degradability: The substance is readily biodegradable

Bioaccumulative Potential: No data available

Mobility in soil: No data available

Results of PBT and vPvB assessment No data available

Endocrine disrupting properties No data available

Other adverse Effects: No data available

Additional Information: Product is not classified as dangerous for environment. Do not allow to reach ground water, water courses or sewage system. Water hazard class 1 (self-assessment): slightly hazardous for water.

SECTION 13: DISPOSAL CONSIDERATIONS

Disposal Considerations Whatever cannot be saved for recovery or recycling should be disposed of according to relevant local authority, state and federal government regulations.

Waste treatment Methods: Dispose of in accordance with applicable waste disposal regulation. Disposal must be made according to official regulations: deliver it to authorised collector/remover/transformer of hazardous waste. Do not allow product to reach drains/sewage systems.

Waste codes / waste designations according to LoW: No information.

Packaging: Dispose of in accordance with applicable waste disposal regulation. Uncleaned containers are classified as hazardous waste - they should be handled in the same manner as the contents. Deliver completely emptied containers to approved waste disposal authorities. Uncleaned containers should not be perforated, cut or welded. Empty containers represent a fire hazard as they may contain flammable product residues and vapour.

Sewage disposal relevant information: Do not empty into drains. Avoid release to the environment.

Other disposal Recommendations: Consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by local or national waste management facilities.

SECTION 14: TRANSPORT INFORMATION

	Land Transport (ADR / RID / ADN)	**Sea Transport (IMDG / IMO)**	**Air Transport (IATA / ICAO / DGR)**
UN Number	1170	1170	1170
Proper Shipping Name	Ethanol Solution / Mixture (Ethyl Alcohol Solution)	Ethanol Solution / Mixture (Ethyl Alcohol Solution)	Ethanol Solution / Mixture (Ethyl Alcohol Solution)
DG Class	3	3	3
Danger labels			
Classification Code	F1		
Special provisions (SP)	144, 601	144	A3, A58, A180
Excepted quantities (EQ)	E2	E2	E2
Limited quantities	1 L	1 L	1 L
Transport category (TC)	2	2	
EmS		F-E, S-D	
Stowage category		A	

Tunnel restriction code (TRC)	D/E		
Identification Number of Hazard	33	33	33
Hazchem Code	2YE	2YE	2YE
Packaging Group	II	II	II
Marine pollutant	no	no	no

SECTION 15: REGULATORY INFORMATION

Classification: Highly Flammable

Poisons Schedule: Not scheduled

Safety, health and Environmental regulations/legislation specific for the substance or mixture Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (including last amendment Commission Regulation (EU) 2020/878)

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures

Information according 2004/42/EC about limitation of emissions of volatile organic compounds (VOC-guideline) not applicable

Regulation EC 648/2004 on detergents no information

Special instructions: Observe the regulations on employment and protection against dangerous substances for young people, pregnant women and nursing mothers.

Chemical Safety Assessment: No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

SECTION 16: OTHER INFORMATION

Abrreviations and Acronyms:

(STOT) RE	Repeated Exposure
(STOT) SE	Single Exposure
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
C&L	Classification and Labelling
CAS#	Chemical Abstracts Service number
CEN	European Committee for Standardisation
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
CMR	Carcinogen, Mutagen, or Reproductive Toxicant
CSA	Chemical Safety Assessment
CSR	Chemical Safety Report
DGR	Dangerous Goods Regulations (see IATA/DGR)
DMEL	Derived Minimal Effect Level
DNEL	Derived No Effect Level
DPD	Dangerous Preparations Directive 1999/45/EC
DSD	Dangerous Substances Directive 67/548/EEC
DU	Downstream User
EC No	Number - EINECS and ELINCS Number (see also EINECS and ELINCS)
EC	European Community

ECHA	European Chemicals Agency
EEA	European Economic Area (EU + Iceland, Liechtenstein and Norway)
EEC	European Economic Community
EH40/2005	EH40/2005 Workplace exposure limits (http://www.nationalarchives.gov.uk/doc/open-government-li- cence/)
EINECS	European Inventory of Existing Commercial Substances
ELINCS	European List of notified Chemical Substances
EmS	Emergency Schedule
EN	European Standard
EQS	Environmental Quality Standard
EU	European Union
Euphrac	European Phrase Catalogue
EWC	European Waste Catalogue (replaced by LoW – see below)
GES	Generic Exposure Scenario
OSHA	European Agency for Safety and Health at work
PBT	Persistent, Bioaccumulative and Toxic
PBT	Persistent, GHS Globally Harmonized System
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	TI - Technical Instructions for the Safe Transport of Dangerous Goods by Air
IMDG	International Maritime Dangerous Goods
IMSBC	International Maritime Solid Bulk Cargoes
index No	The Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
IT	Information Technology
IUCLID	International Uniform Chemical Information Database
IUPAC	International Union for Pure Applied Chemistry
JRC	Joint Research Centre
Kow	octanol - water partition coefficient
LC50	Lethal Concentration to 50 % of a test population
LD50	Lethal Dose to 50% of a test population (Median Lethal Dose)
LE	Legal Entity
LoW	List of Wastes (see http://ec.europa.eu/environment/waste/framework/list.htm)
LR	Lead Registrant
M/I	Manufacturer / Importer
MS	Member States
MSDS	Material Safety Data Sheet
OC	Operational Conditions
OECD	Organization for Economic Co-operation and Development
OEL	Occupational Exposure Limit
OJ	Official Journal
OR	Only Representative
PBT	Persistant, Bioaccumulative and Toxic substance
PEC	Predicted Effect Concentration
PNEC(s)	Predicted No Effect Concentration(s)
PPE	Personal Protection Equipment
ppm	Parts per million
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
RIP	REACH Implementation Project
RMM	Risk Management Measure
SCBA	Self-Contained Breathing Apparatus
SDS	Safety data sheet
SIEF	Substance Information Exchange Forum
SME	Small and Medium sized Enterprises
STEL	Short-term exposure limit
STOT	Specific Target Organ Toxicity
SVHC	Substances of Very High Concern
TWA T	ime-weighted average

UN	United Nations
VOC	Volatile Organic Compounds

List of relevent H phrases

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H373	May cause damage to organs through prolonged or repeated exposure.

Key literature References and sources for data:

Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU.Transport dangerous goods by road, rail and inland waterway (ADR/RID/ADN). International Maritime

Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

DISCLAIMER:

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