

SketchNanoGard Self-clean: Sol-R (Liquid)

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SECTION 1. IDENTIFICATION

Product identifier used on the label

: SketchNanoGard Self-clean: Sol-R (Liquid)

Product Code(s) : Not available.

Recommended use of the chemical and restrictions on use

: Self-cleaning, hydrophilic & anti-static coating - additive formula
Recommended restrictions: None known.

Chemical family : Mixture

Name, address, and telephone number of the supplier:

Sketch Nanotechnologies Inc.

2359 Rue Guenette
Saint-Laurent, QC, Canada
H4R 2E9

Supplier's Telephone # : 514-333-3311(Monday - Friday, 9:00 am - 5:00 pm, Eastern Standard Time)

24 Hr. Emergency Tel # : Canutec: 613-966-6666

Name, address, and telephone number of the manufacturer:

Refer to supplier

SECTION 2. HAZARDS IDENTIFICATION

Classification of the chemical

Gray liquid. Odorless.

This material is not classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015).

Label elements

Hazard pictogram(s)

None required under U.S. OSHA Hazcom 2012 and Canadian WHMIS 2015 regulations.

Signal Word

Not required

Hazard statement(s)

Not required

Precautionary statement(s)

Not required

Other hazards

Other hazards which do not result in classification: Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. May be mildly irritating to skin, eyes and respiratory system.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Chemical name	Common name and synonyms	CAS #	Concentration (% by weight)
Silicon dioxide	Silicon dioxide	7631-86-9	1.0 - 5.0
titanium dioxide	Anatase Titanic acid anhydride	13463-67-7	1.0 - 5.0

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The exact concentrations of the above listed chemicals are being withheld as a trade secret.

SECTION 4. FIRST-AID MEASURES

Description of first aid measures

- Ingestion* : Do NOT induce vomiting. Have victim rinse mouth with water, then give one to two glasses of water to drink. Never give anything by mouth to an unconscious person. Call a physician.
- Inhalation* : If inhaled, move to fresh air. If breathing is difficult, give oxygen by qualified medical personnel only. If breathing has stopped, give artificial respiration. Obtain medical attention if symptoms develop and persist.
- Skin contact* : Wash off immediately with plenty of water. Remove and wash contaminated clothing before re-use. If irritation or symptoms develop, seek medical attention.
- Eye contact* : Flush eyes with water for at least 15 minutes. If irritation persists, seek prompt medical attention.

Most important symptoms and effects, both acute and delayed

- : Direct skin contact may cause slight or mild, transient irritation. Symptoms may include redness, edema, drying defatting and cracking of the skin. Direct eye contact may cause slight or mild, transient irritation. Symptoms may include stinging and tearing. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Indication of any immediate medical attention and special treatment needed

- : Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing media

- Suitable extinguishing media* : Use media suitable to the surrounding fire such as water fog or fine spray, alcohol foams, carbon dioxide and dry chemical.
- Unsuitable extinguishing media* : Do not use a solid water stream as it may scatter and spread fire.

Special hazards arising from the substance or mixture / Conditions of flammability

- : Burning may produce irritating, toxic and obnoxious fumes.

Flammability classification (OSHA 29 CFR 1910.106)

- : Not flammable.

Hazardous combustion products

- : Carbon oxides; Sulfur oxides

Special protective equipment and precautions for firefighters

- Protective equipment for fire-fighters* : Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.
- Special fire-fighting procedures* : Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode. Move containers from fire area if safe to do so. Water spray may be useful in cooling equipment exposed to heat and flame.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

- : Restrict access to area until completion of clean-up. Ensure clean-up is conducted by trained personnel only. Wear suitable protective equipment. Refer to protective measures listed in sections 7 and 8. Restrict access to area until completion of clean-up.

Environmental precautions : Ensure spilled product does not enter drains, sewers, waterways, or confined spaces.

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Methods and material for containment and cleaning up

- : Ventilate area of release. Stop spill or leak at source if safely possible. Dike for water control. Use only non-sparking tools and equipment in the clean-up process. Contain and absorb spilled liquid with non-combustible, inert absorbent material (e.g. sand), then place absorbent material into a container for later disposal (see Section 13).

Special spill response procedures

- : If a spill/release in excess of the EPA reportable quantity is made into the environment, immediately notify the national response center in the United States (phone: 1-800-424-8802).
 US CERCLA Reportable quantity (RQ): See section 15.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling

- : Use only in well-ventilated areas. Wear protective equipment during handling. Avoid breathing vapours or mists. Avoid contact with eyes, skin and clothing. Keep away from extreme heat and flame. Keep away from incompatibles. Keep containers tightly closed when not in use. Wash thoroughly after handling.

Conditions for safe storage

- : Store in a cool, dry, well-ventilated area. Store away from incompatible materials. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Inspect periodically for damage or leaks. No smoking in the area.

Incompatible materials

- : Oxidizing agents

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<u>Exposure Limits:</u>				
<u>Chemical Name</u>	<u>ACGIH TLV</u>		<u>OSHA PEL</u>	
	<u>TWA</u>	<u>STEL</u>	<u>PEL</u>	<u>STEL</u>
Silicon dioxide	10 mg/m ³ (inhalable); 3 mg/m ³ (respirable) (as PNOS)	N/Av	20 mppcf	N/Av
titanium dioxide	10 mg/m ³	N/Av	15 mg/m ³ (total dust)	N/Av

Exposure controls

Ventilation and engineering measures

- : Use in a well-ventilated area. Use general or local exhaust ventilation to maintain air concentrations below recommended exposure limits.

Respiratory protection

- : If airborne concentrations are above the permissible exposure limit or are not known, use NIOSH-approved respirators. Advice should be sought from respiratory protection specialists. Respirators should be selected based on the form and concentration of contaminants in air, and in accordance with OSHA (29 CFR 1910.134) or CSA Z94.4-02.

Skin protection

- : Gloves impervious to the material are recommended. Advice should be sought from glove suppliers.

Eye / face protection

- : Wear safety goggles or glasses as appropriate for the job.

Other protective equipment

- : Wear sufficient clothing to prevent skin contact. Depending on conditions of use, an impervious apron should be worn. An eyewash station and safety shower should be made available in the immediate working area.

General hygiene considerations

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: Avoid breathing vapour or mist. Avoid contact with skin, eyes and clothing. Wash contaminated clothing before reuse. Do not eat, drink, smoke or use cosmetics while working with this product. Upon completion of work, wash hands before eating, drinking, smoking or use of toilet facilities. Remove soiled clothing and wash it thoroughly before reuse. Handle in accordance with good industrial hygiene and safety practice.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Gray liquid.
Odour : Odorless
Odour threshold : N/Av
pH : Not available.
Melting/Freezing point : Not available.
Initial boiling point and boiling range
: Not available.
Flash point : Not Applicable (Does not burn)
Flashpoint (Method) : N/Av
Evaporation rate (BuAe = 1) : Not available.
Flammability (solid, gas) : Not applicable.
Lower flammable limit (% by vol.)
: N/Av
Upper flammable limit (% by vol.)
: N/Av
Oxidizing properties : Not applicable
Explosive properties : Not applicable.
Vapour pressure : Not available.
Vapour density : Not available.
Relative density / Specific gravity
: Not determined.
Solubility in water : Soluble in all proportions.
Other solubility(ies) : Not available.
Partition coefficient: n-octanol/water or Coefficient of water/oil distribution
: N/Av
Auto-ignition temperature : Not applicable.
Decomposition temperature : Not available.
Viscosity : Not available.
Volatiles (% by weight) : Not available.
Volatile organic Compounds (VOC's)
: N/Av
Absolute pressure of container
: N/Av
Flame projection length : N/Av
Other physical/chemical comments
: None known or reported by the manufacturer.

SECTION 10. STABILITY AND REACTIVITY

Reactivity : This product is not reactive.
Chemical stability : Material is stable under normal conditions.
Possibility of hazardous reactions
: No dangerous reaction known under conditions of normal use.

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- Conditions to avoid** : Avoid contact with incompatible materials. Do not use in areas without adequate ventilation.
- Incompatible materials** : See Section 7 (Handling and Storage) for further details.
- Hazardous decomposition products** : None known, refer to hazardous combustion products in Section 5.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure:

- Routes of entry inhalation** : YES
- Routes of entry skin & eye** : YES
- Routes of entry Ingestion** : YES
- Routes of exposure skin absorption** : YES

Potential Health Effects:

Signs and symptoms of short-term (acute) exposure

Sign and symptoms Inhalation

- : May cause respiratory irritation. Symptoms may include sore throat, running nose and shortness of breath.

Sign and symptoms ingestion

- : Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Sign and symptoms skin

- : Direct skin contact may cause slight or mild, transient irritation.

Sign and symptoms eyes

- : Direct eye contact may cause slight or mild, transient irritation.

Potential Chronic Health Effects

- : Frequent or prolonged contact may dry the skin, leading to discomfort and dermatitis.

Mutagenicity

- : Not expected to be mutagenic in humans.

Carcinogenicity

- : Not classifiable as a human carcinogen. Contains Titanium dioxide. Titanium dioxide is classified as possibly carcinogenic by IARC (Group 2B). However, the Titanium dioxide used in this product is in a non-respirable form and under normal conditions of use, Titanium dioxide cannot become airborne. The carcinogenic effects of Titanium dioxide are therefore not applicable to this product.

Reproductive effects & Teratogenicity

- : Not expected to cause reproductive effects.

Sensitization to material

- : Not expected to be a skin or respiratory sensitizer.

Specific target organ effects

- : This material is not classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015).

Medical conditions aggravated by overexposure

- : None known.

Synergistic materials

- : Not available.

Toxicological data

- : There is no available data for the product itself, only for the ingredients. See below for individual ingredient acute toxicity data.

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<u>Chemical name</u>	<u>LC₅₀(4hr)</u> <u>inh, rat</u>	<u>LD₅₀</u>	
		<u>(Oral, rat)</u>	<u>(Rabbit, dermal)</u>
Silicon dioxide	N/Av	3160 mg/kg	> 5000 mg/kg
titanium dioxide	> 6.82 mg/kg (dust) (No mortality)	> 25 000 mg/kg	> 10 000 mg/kg

Other important toxicological hazards

: None known or reported by the manufacturer.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity : Not classified for hazards to the environment. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

titanium dioxide	13463-67-7	> 100 mg/L (Japanese ricefish)	N/Av	None.
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titanium dioxide	13463-67-7	> 100 mg/L (Daphnia magna)	N/Av	None.
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titanium dioxide	13463-67-7	> 100 mg/L/72hr (Green algae)	N/Av	None.
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Persistence and degradability

: Not available.

Bioaccumulation potential

: Not available.

<u>Components</u>	<u>Partition coefficient n-octanol/water (log Kow)</u>	<u>Bioconcentration factor (BCF)</u>
Silicon dioxide (CAS 7631-86-9)		no bioaccumulation expected

Mobility in soil : High water solubility indicates a high mobility in soil.

Other Adverse Environmental effects

: No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

SECTION 13. DISPOSAL CONSIDERATIONS

Handling for Disposal

: Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.

Methods of Disposal

: Dispose in accordance with all applicable federal, state, provincial and local regulations.

RCRA

: If this product, as supplied, becomes a waste in the United States, it may meet the criteria of a hazardous waste as defined under RCRA, Title 40 CFR 261. It is the responsibility of the waste generator to determine the proper waste identification and disposal method. For disposal of unused or waste material, check with local, state and federal environmental agencies.

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SECTION 14. TRANSPORT INFORMATION

Regulatory Information	UN Number	UN proper shipping name	Transport hazard class(es)	Packing Group	Label
TDG	None.	Not regulated.	Not regulated	none	
TDG Additional information	None.				
49CFR/DOT	None.	Not regulated.	not regulated	none	
49CFR/DOT Additional information	None.				

Special precautions for user : None known or reported by the manufacturer.

Environmental hazards : This product does not meet the criteria for an environmentally hazardous mixture, according to the IMDG Code. See ECOLOGICAL INFORMATION, Section 12.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

: This substance/mixture is not intended to be transported in bulk.

SECTION 15 - REGULATORY INFORMATION

US Federal Information:

Components listed below are present on the following U.S. Federal chemical lists:

<u>Ingredients</u>	CAS #	TSCA Inventory	CERCLA Reportable Quantity(RQ) (40 CFR 117.302):	SARA TITLE III: Sec. 302, Extremely Hazardous Substance, 40 CFR 355:	SARA TITLE III: Sec. 313, 40 CFR 372, Specific Toxic Chemical	
					Toxic Chemical	de minimus Concentration
Silicon dioxide	7631-86-9	Yes	None.	None.	No	N/Ap
titanium dioxide	13463-67-7	Yes	None.	None.	No	N/Ap

SARA TITLE III: Sec. 311 and 312, SDS Requirements, 40 CFR 370 Hazard Classes: None.

US State Right to Know Laws:

The following chemicals are specifically listed by individual States:

<u>Ingredients</u>	CAS #	California Proposition 65		State "Right to Know" Lists					
		Listed	Type of Toxicity	CA	MA	MN	NJ	PA	RI
Silicon dioxide	7631-86-9	No	N/Ap	Yes	Yes	Yes	No	Yes	No
titanium dioxide	13463-67-7	Yes	Cancer (airborne, unbound particles of respirable size)	No	Yes	Yes	Yes	Yes	Yes

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Canadian Information:

WHMIS information: Refer to Section 2 for a WHMIS Classification for this product.

Canadian Environmental Protection Act (CEPA) information: All ingredients listed appear on the Domestic Substances List (DSL).

International Information:

Components listed below are present on the following International Inventory list:

<u>Ingredients</u>	<u>CAS #</u>	<u>European EINECs</u>	<u>Australia AICS</u>	<u>Philippines PICCS</u>	<u>Japan ENCS</u>	<u>Korea KECI/KECL</u>	<u>China IECSC</u>	<u>NewZealand IOC</u>
Silicon dioxide	7631-86-9	231-545-4	Present	Present	(1)-548	KE-31032	Present	May be used as a single component chemical under an appropriate group standard.
titanium dioxide	13463-67-7	236-675-5	Present	Present	(5)-5225; (1)-558	KE-33900	Present	May be used as a single component chemical under an appropriate group standard.

SECTION 16. OTHER INFORMATION

Legend

: ACGIH: American Conference of Governmental Industrial Hygienists
 CAS: Chemical Abstract Services
 CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980
 CFR: Code of Federal Regulations
 CSA: Canadian Standards Association
 DOT: Department of Transportation
 EPA: Environmental Protection Agency
 HMIS: Hazardous Materials Identification System
 HSDB: Hazardous Substances Data Bank
 IARC: International Agency for Research on Cancer
 Inh: Inhalation
 LC: Lethal Concentration
 LD: Lethal Dose
 MN: Minnesota
 N/Ap: Not Applicable
 N/Av: Not Available
 NFPA: National Fire Protection Association
 NIOSH: National Institute of Occupational Safety and Health
 NJ: New Jersey
 NTP: National Toxicology Program
 OECD: Organisation for Economic Co-operation and Development
 OSHA: Occupational Safety and Health Administration
 PA: Pennsylvania
 PEL: Permissible exposure limit
 RCRA: Resource Conservation and Recovery Act
 RI: Rhode Island
 RTECS: Registry of Toxic Effects of Chemical Substances
 SARA: Superfund Amendments and Reauthorization Act

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STEL: Short Term Exposure Limit
TLV: Threshold Limit Values
TWA: Time Weighted Average
WHMIS: Workplace Hazardous Materials Identification System

References

- : 1. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices for 2016
- 2. International Agency for Research on Cancer Monographs, searched 2017
- 3. Canadian Centre for Occupational Health and Safety, CCHInfoWeb databases, 2017 (Chempendium, HSDB and RTECs).
- 4. Material Safety Data Sheets from manufacturer.
- 5. US EPA Title III List of Lists - 2017 version.
- 6. California Proposition 65 List - 2017 version.
- 7. OECD - The Global Portal to Information on Chemical Substances - eChemPortal, 2017.

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Other special considerations for handling

: Provide adequate information, instruction and training for operators.

<p>Prepared for: Sketch Nanotechnologies Inc. 2359 Rue Guenette Saint-Laurent, QC H4R 2E9 Telephone: 514-333-3311</p>	
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