

A Joint Venture of Amyris &amp; NIKKOL GROUP

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**SECTION 1 - IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**

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<b>Product identifier</b>	Squalane
<b>Synonyms</b>	Tetracosane, 2,6,10,15,23-hexamethyl-Dodecahydrosqualene; Perhydrosqualene; Cosbiol, Robane, Spinacane, Vitabiosol, Renewable Squalane
<b>Trade names</b>	Neossance™ Squalane
<b>Chemical family</b>	Paraffinic hydrocarbons
<b>REACH Registration No.:</b>	17-2120602193-69-0000
<b>Relevant identified uses of the substance or mixture and uses advised against</b>	Used as a natural emollient, lubricant, and humectant in cosmetics.
<b>Note</b>	This SDS is written to address the handling of this chemical during manufacturing under industrial use conditions. If further information becomes available, this SDS will be updated.
<b>Issue Date</b>	26 July 2017

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**SECTION 2 - HAZARDS IDENTIFICATION**

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**Classification of the substance or mixture**

**Regulation (EC) 1272/2008**    Not classified as hazardous under these regulations.  
**OSHA HCS 2012**

**Label elements**

<b>CLP/GHS hazard pictogram</b>	None required
<b>CLP/GHS signal word</b>	None required

<b>CLP/GHS hazard statements</b>	None required
<b>CLP/GHS precautionary statements</b>	None required.
<b>Other hazards</b>	No information identified for squalane.
<b>NFPA Classification:</b>	Health Hazard: 1; Fire Hazard: 1; Reactivity Hazard; 0
<b>Note</b>	None

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### SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

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<u>Ingredient</u>	<u>CAS #</u>	<u>EC#</u>	<u>Amount</u>	<u>GHS/CLP Classification</u>
Squalane	111-01-3	203-825-6	>92%	Not classified

**Note** This substance is not considered hazardous under EU and US criteria. It contains minor isomeric byproducts which are not considered hazardous. The GHS classification is based on Regulation (EC) 1272/2008 (EU CLP) and OSHA 29 CFR 1910.1200, (United Nations ST/SG/AC 10/30 rev 3).

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### SECTION 4 - FIRST AID MEASURES

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#### Description of first aid measures

<b>Immediate Medical Attention Needed</b>	No. If exposed and concerned: Get medical advice/attention.
<b>Eye Contact</b>	If easy to do, remove contact lenses, if worn. Immediately flush eyes with copious quantities of water for at least 15 minutes. If irritation occurs or persists, notify medical personnel and supervisor.
<b>Skin Contact</b>	Wash exposed area with soap and water and remove contaminated clothing/shoes. If irritation occurs or persists, notify medical personnel and supervisor.
<b>Inhalation</b>	Immediately move exposed subject to fresh air. If not breathing, give artificial respiration. If breathing is labored, administer oxygen. Immediately notify medical personnel and supervisor.
<b>Ingestion</b>	If swallowed, call a physician immediately. Do not induce vomiting unless directed by medical personnel. Do not give anything to drink unless directed by medical personnel. Never give anything by mouth to an unconscious person. Notify medical personnel and supervisor.
<b>Protection of first aid responders</b>	See Section 8 for Exposure Controls/Personal Protection recommendations.
<b>Most important symptoms and effects, both acute and delayed</b>	See Sections 2 and 11

**Indication of immediate medical attention and special treatment needed, if necessary** Treat symptomatically and supportively. If accidental exposure occurs to an individual who is also taking one or more concomitant medications, consult the respective package or prescribing information for potential drug interactions.

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## SECTION 5 - FIREFIGHTING MEASURES

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**Extinguishing media** Use water spray (fog), foam, dry powder, or carbon dioxide, as appropriate for surrounding fire and materials.

**Specific hazards arising from the substance or mixture** No information identified. May emit toxic gasses such as carbon monoxide and carbon dioxide.

**Flammability/Explosivity** High airborne concentrations of finely divided organic particles can potentially explode if ignited.

**Advice for firefighters** Wear full protective clothing and a self-contained breathing apparatus with a full facepiece operated in the pressure demand or other positive pressure mode. Decontaminate all equipment after use.

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## SECTION 6 - ACCIDENTAL RELEASE MEASURES

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**Personal precautions, protective equipment and emergency procedures** If product is released or spilled, take proper precautions to minimize exposure by using appropriate personal protective equipment (see Section 8). Area should be adequately ventilated.

**Environmental precautions** Do not empty into drains. Avoid release to the environment.

**Methods and material for containment and cleaning up** For small spills (such as in a laboratory), soak up material with absorbent pads and wash spill area thoroughly with soap and water. For large spills in manufacturing, absorb liquid with an appropriate adsorbent. Do not raise dust. Eliminate ignition sources. Use only equipment suitable for use with combustible liquids. Place spill materials into a leak-proof container suitable for disposal. Dispose of material in a manner that is compliant with federal, state and local laws

**Reference to other sections** See Sections 8 and 13 for more information.

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## SECTION 7 - HANDLING AND STORAGE

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**Precautions for safe handling** Avoid contact with eyes and other mucous membranes. Wash thoroughly after handling. Use personal protective equipment. Avoid breathing vapor. Do not eat, drink or smoke while handling this product. Avoid prolonged or repeated exposure. Provide sufficient air exchange and/or exhaust in workrooms. Use normal preventative fire protection measures. Keep away from sources of ignition. Keep away from incompatible materials such as oxidizing agents.

**Conditions for safe storage including any incompatibilities** Keep container tightly closed in a cool and well ventilated area. To maintain product quality, do not store in heat or direct sunlight.

**Specific end use(s)** Cosmetic ingredient.

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## SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

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### Control Parameters/Occupational Exposure Limit Values

<u>Compound</u>	<u>Issuer</u>	<u>Type</u>	<u>OEL</u>
Squalane	--	--	--

### DNEL/PNEC Limits

In the chemical safety assessment performed according to Article 14 in connection with Annex 1(Health, environmental and PBT/vPvB assessments), no hazard was identified. Therefore according to REACH, an exposure estimation is not necessary. Consequently all identified uses of the substance are assessed as safe for human health and environment.

### Exposure/Engineering controls

Provide ventilation. Use local exhaust and/or enclosure at mist/ aerosol/spray-generating points. High-energy operations such as spraying should be done within an approved emission control or containment system. Remove ignition sources.

#### Respiratory protection

If adequate ventilation is unavailable, use a NIOSH approved N95 or P95 dust mask or an approved and properly fitted air-purifying respirator with organic vapor cartridge based on an assessment of risk and exposure level. Choice of respiratory protection should be appropriate to the task and the level of existing engineering controls.

#### Hand protection

Wear nitrile or other impervious gloves if skin contact is possible as squalane may act as a vehicle for skin absorption of other toxic substances in the workplace.

#### Skin protection

Wear appropriate gloves, lab coat, or other protective overgarment if skin contact is likely. Base the choice of skin protection on the job activity, potential for skin contact and solvents and reagents in use.

#### Eye/face protection

Wear safety glasses with side shields, chemical splash goggles, or full face shield, if necessary. Base the choice of protection on the job activity and potential for contact with eyes or face. An emergency eye wash station should be available.

#### Environmental Exposure Controls

Avoid release to the environment and operate within closed systems wherever practicable. Air and liquid emissions should be directed to appropriate pollution control devices. In case of spill, do not release to drains. Implement appropriate and effective emergency response procedures to prevent release and to prevent inadvertent contact by personnel.

#### Other protective measures

Wash hands after handling substance especially before eating, drinking or smoking. Protective equipment is not to be worn outside the work area (e.g., in common areas or out-of-doors). Decontaminate all protective equipment following use.

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## SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

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### Information on basic physical and chemical properties

Appearance	Liquid
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<b>Color</b>	Clear to Colorless
<b>Odor</b>	Odorless.
<b>Odor threshold</b>	No information identified.
<b>pH</b>	No information identified.
<b>Melting point/freezing point</b>	-38°C (-36.4°F) literature
<b>Initial boiling point and boiling range</b>	176°C (348°F) at 0.05 mm Hg; 210-215°C at 1.0 mm Hg, literature
<b>Flash point</b>	218 °C (424 °F) – closed cup
<b>Evaporation rate</b>	No information identified.
<b>Flammability (solid, gas)</b>	No information identified.
<b>Upper/lower flammability or explosive limits</b>	No information identified.
<b>Vapor pressure</b>	No information identified
<b>Vapor density</b>	No information identified.
<b>Relative density</b>	0.81 g/mL
<b>Water solubility</b>	Insoluble.
<b>Solvent solubility</b>	Soluble in alcohols.
<b>Partition coefficient (<i>n</i>-octanol/water)</b>	No information identified.
<b>Auto-ignition temperature</b>	No information identified.
<b>Decomposition temperature</b>	No information identified.
<b>Viscosity</b>	34 cP at 20°C, literature
<b>Explosive properties</b>	Non explosive.
<b>Oxidizing properties</b>	No information identified.

**Other information**

<b>Molecular weight</b>	422.83
<b>Molecular formula</b>	C <sub>30</sub> H <sub>62</sub>

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**SECTION 10 - STABILITY AND REACTIVITY**

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<b>Reactivity</b>	No information identified.
<b>Chemical stability</b>	Stable under recommended storage conditions.
<b>Possibility of hazardous reactions</b>	Not expected to occur.
<b>Conditions to avoid</b>	Keep away from heat, sparks, and open flame.

<b>Incompatible materials</b>	Strong oxidizing agents.
<b>Hazardous decomposition products</b>	No information identified.

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## SECTION 11 - TOXICOLOGICAL INFORMATION

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### Information on toxicological effects

<b>Route of entry</b>	May be absorbed by inhalation, skin contact and ingestion.
<b>Acute toxicity</b>	Squalane is not considered acutely toxic. No adverse effects were noted in repeat dose studies on rats (Wistar) at dose rates >1000 mg/kg bw for up to 28 days.
<b>Irritation/Corrosion</b>	Squalane is considered non-irritating based on results from both skin and eye irritation testing carried out according to EPA OPPTS 870.2500 and 870.2400, respectively.
<b>Sensitization</b>	Squalane is not a dermal sensitizer based on results from Local Lymph Node Assay and Human Repeat Insult Patch Test with 100% squalane which showed no adverse effects.
<b>STOT-single exposure</b>	No studies identified.
<b>STOT-repeated exposure/Repeat-dose toxicity</b>	Squalane is not considered toxic from repeated exposure.
<b>Reproductive toxicity</b>	No adverse effect observed; NOAEL 1000 mg/kg bw/day (chronic; rat).
<b>Developmental toxicity</b>	No adverse effect observed; NOAEL 1000 mg/kg bw/day (chronic; rat).
<b>Genotoxicity</b>	Negative in an Ames bacterial cell mutagenicity assay.
<b>Carcinogenicity</b>	No studies identified. This substance is not listed by NTP, IARC, ACGIH or OSHA as a carcinogen.
<b>Aspiration hazard</b>	No
<b>Human health data</b>	See "Section 2 - Other Hazards"
<b>Additional information</b>	None available.

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## SECTION 12 - ECOLOGICAL INFORMATION

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### Toxicity

<u>Compound</u>	<u>Type</u>	<u>Species</u>	<u>Concentration</u>
Squalane	LC50 (96h)	<i>Danio rerio</i>	>100 mg/L
	NOEC (72h)	<i>Pseudokirchnerella subcapitata</i>	>100 mg/L
	LC50 (48h)	<i>Daphnia magna</i>	>100 mg/L

<b>Additional toxicity information</b>	No data available for the minor components.
<b>Persistence and Degradability</b>	Squalane is considered inherently biodegradable.
<b>Bioaccumulative potential</b>	No data available.

<b>Mobility in soil</b>	No data available.
<b>Results of PBT and vPvB assessment</b>	Based on the results of the chemical safety assessment, squalane is not a PBT/vPvB substance. It is inherently biodegradable and not toxic to aquatic species.
<b>Other adverse effects</b>	No data available.
<b>Note</b>	The environmental characteristics of this substance have not been fully investigated. Releases to the environment should be avoided.

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## SECTION 13 - DISPOSAL CONSIDERATIONS

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<b>Waste treatment methods</b>	Used product should be disposed of according to local, state, and federal regulations. Do not send down the drain or flush down the toilet. All wastes containing the material should be properly labeled. Dispose of wastes in accordance to prescribed federal, state, and local guidelines, e.g., appropriately permitted chemical waste incinerator. Rinse waters resulting from spill cleanups should be discharged in an environmentally safe manner, e.g., appropriately permitted municipal or on-site wastewater treatment facility.
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## SECTION 14 - TRANSPORT INFORMATION

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<b>Transport</b>	Based on the available data, this substance is not regulated as a hazardous material/ dangerous good under EU ADR/RID, US DOT, Canada TDG, IATA, or IMDG.
<b>UN number</b>	None assigned.
<b>UN proper shipping name</b>	None assigned.
<b>Transport hazard classes and packing group</b>	None assigned.
<b>Environmental hazards</b>	Based on the available data, this substance is not regulated as an environmental hazard or a marine pollutant.
<b>Special precautions for users</b>	Avoid release to the environment.
<b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.

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## SECTION 15 - REGULATORY INFORMATION

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<b>Safety, health and environmental regulations/legislation specific for the substance or mixture</b>	This SDS complies with the requirements under US, EU and GHS (EU CLP - Regulation EC No 1272/2008) guidelines. Consult your local or regional authorities for more information.
<b>Chemical safety assessment</b>	Conducted.
<b>OSHA Hazardous</b>	Not hazardous.

<b>WHMIS classification</b>	This SDS contains the information required by WHMIS 2015 regulations.
<b>US TSCA status</b>	Listed on the TSCA inventory, 2016.
<b>EU REACH status</b>	Pre-registration number: 17-2120602193-69-0000
<b>Canada DSL</b>	On DSL Supplement to Canada Gazette, Part I, January 26, 1991
<b>China 2014 IECIC</b>	Squalane
<b>SARA section 313</b>	Not listed.
<b>California proposition 65</b>	Not listed.

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## SECTION 16 - OTHER INFORMATION

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**Full text of R phrases and EU Classifications** Not applicable.

**Full text of H phrases, P phrases and GHS classification** Not applicable.

**Sources of data** Information from published literature and internal company data.

**Abbreviations** ACGIH - American Conference of Governmental Industrial Hygienists ADR/RID - European Agreement Concerning the International Carriage of Dangerous Goods by Road/Rail AIHA - American Industrial Hygiene Association CAS# - Chemical Abstract Services Number DNEL - Derived No Effect Level DOT - Department of Transportation EINECS - European Inventory of New and Existing Chemical Substances ELINCS - European List of Notified Chemical Substances EU - European Union GHS - Globally Harmonized System of Classification and Labelling of Chemicals IARC - International Agency for Research on Cancer IDLH - Immediately Dangerous to Life or Health IATA - International Air Transport Association IMDG - International Maritime Dangerous Goods LOEL - Lowest Observed Effect Level LOAEL - Lowest Observed Adverse Effect Level NIOSH - The National Institute for Occupational Safety and Health NOEL - No Observed Effect Level NOAEL - No Observed Adverse Effect Level NTP - National Toxicology Program OEL - Occupational Exposure Limit OSHA - Occupational Safety and Health Administration PBT - Persistent, Bioaccumulative and Toxic PNEC - Predicted No Effect Concentration SARA - Superfund Amendments and Reauthorization Act STEL - Short Term Exposure Limit TDG - Transport Dangerous Goods TSCA - Toxic Substances Control Act TWA - Time Weighted Average WHMIS - Workplace Hazardous Materials Information System

**Revisions** This is the second version of this SDS.



## **Disclaimer**

The above information is based on data available to us and is believed to be correct. Since the information may be applied under conditions beyond our control and with which we may be unfamiliar, we do not assume any responsibility for the results of its use and all persons receiving it must make their own determination of the effects, properties and protections which pertain to their particular conditions. No representation, warranty, or guarantee, express or implied (including a warranty of fitness or merchantability for a particular purpose), is made with respect to the materials, the accuracy of this information, the results to be obtained from the use thereof, or the hazards connected with the use of the material. Caution should be used in the handling and use of the material because it is a chemical product. The above information is offered in good faith and with the belief that it is accurate. As of the date of issuance, we are providing all information relevant to the foreseeable handling of the material. However, in the event of an adverse incident associated with this product, this Safety Data Sheet is not, and is not intended to be, a substitute for consultation with appropriately trained personnel.