

**Multivitamin (with Soy Oil) Formulation**

Version 1.3      Revision Date: 09/13/2019      SDS Number: 4257965-00004      Date of last issue: 26.06.2019  
Date of first issue: 06.05.2019

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**SECTION 1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : Multivitamin (with Soy Oil) Formulation

**Manufacturer or supplier's details**

Company : MSD

Address : 26 Talavera Road, Talavera Corp Centre, Macquarie Park  
New South Wales, 2113 Australia

Telephone : (61)-02-8988-8000

Emergency telephone number : (61)-02-8988-8000

E-mail address : EHSDATASTEWARD@msd.com

Telefax : 908-735-1496

**Recommended use of the chemical and restrictions on use**

Recommended use : Veterinary product

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**SECTION 2. HAZARDS IDENTIFICATION****GHS Classification**

Not a hazardous substance or mixture.

**GHS label elements**

Not a hazardous substance or mixture.

**Other hazards which do not result in classification**

None known.

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**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance / Mixture : Mixture

**Components**

Chemical name	CAS-No.	Concentration (% w/w)
(dl)-a-Tocopheryl acetate	7695-91-2	< 10
Vitamin A Palmitate	79-81-2	< 0.3
Colecalciferol	67-97-0	< 0.3

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**SECTION 4. FIRST AID MEASURES**

If inhaled : If inhaled, remove to fresh air.  
Get medical attention if symptoms occur.

In case of skin contact : Wash with water and soap as a precaution.  
Get medical attention if symptoms occur.

In case of eye contact : Flush eyes with water as a precaution.  
Get medical attention if irritation develops and persists.

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If swallowed	:	If swallowed, DO NOT induce vomiting. Get medical attention if symptoms occur. Rinse mouth thoroughly with water.
Most important symptoms and effects, both acute and delayed	:	None known.
Protection of first-aiders	:	No special precautions are necessary for first aid responders.
Notes to physician	:	Treat symptomatically and supportively.

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### SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Water spray Alcohol-resistant foam Carbon dioxide (CO <sub>2</sub> ) Dry chemical
Unsuitable extinguishing media	:	None known.
Specific hazards during fire-fighting	:	Exposure to combustion products may be a hazard to health.
Hazardous combustion products	:	Carbon oxides
Specific extinguishing methods	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.
Special protective equipment for firefighters	:	Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.

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### SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Follow safe handling advice and personal protective equipment recommendations.
Environmental precautions	:	Discharge into the environment must be avoided. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g. by containment or oil barriers). Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.
Methods and materials for containment and cleaning up	:	Soak up with inert absorbent material. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbent. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to deter-

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mine which regulations are applicable.  
 Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

### SECTION 7. HANDLING AND STORAGE

- Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
- Local/Total ventilation : Use only with adequate ventilation.
- Advice on safe handling : Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment  
 Take care to prevent spills, waste and minimize release to the environment.
- Hygiene measures : If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place.  
 When using do not eat, drink or smoke.  
 Wash contaminated clothing before re-use.
- Conditions for safe storage : Keep in properly labelled containers.  
 Store in accordance with the particular national regulations.
- Materials to avoid : Do not store with the following product types:  
 Strong oxidizing agents

### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
(dl)-a-Tocopheryl acetate	7695-91-2	TWA	5000 ug/m <sup>3</sup> (OEB 1)	Internal
Vitamin A Palmitate	79-81-2	TWA	>= 1 < 10 ug/m <sup>3</sup> (OEB 4)	Internal
Colecalciferol	67-97-0	TWA	5 µg/m <sup>3</sup> (OEB 4)	Internal
		Wipe limit	50 µg/100 cm <sup>2</sup>	Internal

- Engineering measures** : Ensure adequate ventilation, especially in confined areas.  
 Minimize workplace exposure concentrations.

#### Personal protective equipment

- Respiratory protection : If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.
- Filter type : Organic vapour type
- Hand protection

- Remarks : Wash hands before breaks and at the end of workday.
- Eye protection : Wear the following personal protective equipment:  
 Safety glasses
- Skin and body protection : Skin should be washed after contact.

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**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance : Aqueous solution

Colour : yellow

Odour : characteristic

Odour Threshold : No data available

pH : No data available

Melting point/freezing point : -5 °C

Initial boiling point and boiling range : 194 °C

Flash point : 244 °C

  

Evaporation rate : No data available

Flammability (solid, gas) : Not applicable

Flammability (liquids) : Not applicable

Upper explosion limit / Upper flammability limit : No data available

Lower explosion limit / Lower flammability limit : No data available

Vapour pressure : No data available

Relative vapour density : No data available

Relative density : 0.9 - 0.94

Density : No data available

Solubility(ies)

    Water solubility : practically insoluble

    Solubility in other solvents : slightly soluble  
    Solvent: Ethanol

Partition coefficient: n-octanol/water : Not applicable

Auto-ignition temperature : No data available

Decomposition temperature : No data available

Viscosity

    Viscosity, dynamic : 68.41 - 68.81 mPa.s ( 25 °C)  
    Method: Brookfield

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Viscosity, kinematic                   : No data available

Explosive properties                   : Not explosive

Oxidizing properties                   : The substance or mixture is not classified as oxidizing.

Molecular weight                       : No data available

Particle size                             : Not applicable

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**SECTION 10. STABILITY AND REACTIVITY**

Reactivity                               : Not classified as a reactivity hazard.

Chemical stability                       : Stable under normal conditions.

Possibility of hazardous reactions   : Can react with strong oxidizing agents.

Conditions to avoid                     : None known.

Incompatible materials                 : Oxidizing agents

Hazardous decomposition products   : No hazardous decomposition products are known.

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**SECTION 11. TOXICOLOGICAL INFORMATION**

Exposure routes                        : Inhalation  
Skin contact  
Ingestion  
Eye contact

**Acute toxicity**

Not classified based on available information.

**Components:****(dl)-a-Tocopheryl acetate:**

Acute oral toxicity                     : LD50 (Rat): > 5,000 mg/kg

Acute dermal toxicity                   : LD50 (Rat): > 3,000 mg/kg  
Assessment: The substance or mixture has no acute dermal toxicity

**Vitamin A Palmitate:**

Acute oral toxicity                     : LD50 (Rat): > 5,000 mg/kg  
Remarks: Based on data from similar materials

**Colecalciferol:**

Acute oral toxicity                     : LD50 (Rat, male): 35 mg/kg

Acute inhalation toxicity               : Acute toxicity estimate: 0.05 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: Expert judgement

Acute dermal toxicity                   : Acute toxicity estimate: 50 mg/kg

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Method: Expert judgement

**Skin corrosion/irritation**

Not classified based on available information.

**Components:****(dl)-a-Tocopheryl acetate:**

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : No skin irritation

**Vitamin A Palmitate:**

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : Mild skin irritation

**Serious eye damage/eye irritation**

Not classified based on available information.

**Components:****(dl)-a-Tocopheryl acetate:**

Species : Rabbit  
Result : No eye irritation  
Method : OECD Test Guideline 405

**Vitamin A Palmitate:**

Species : Rabbit  
Result : No eye irritation  
Method : OECD Test Guideline 405

**Colecalciferol:**

Species : Rabbit  
Result : No eye irritation

**Respiratory or skin sensitisation****Skin sensitisation**

Not classified based on available information.

**Respiratory sensitisation**

Not classified based on available information.

**Components:****(dl)-a-Tocopheryl acetate:**

Test Type : Draize Test  
Exposure routes : Skin contact  
Species : Humans  
Result : negative

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Test Type : Maximisation Test  
Exposure routes : Skin contact  
Species : Guinea pig  
Method : OECD Test Guideline 406  
Result : negative

**Colecalciferol:**

Test Type : Maurer optimisation test  
Exposure routes : Skin contact  
Species : Guinea pig  
Result : negative

**Chronic toxicity****Germ cell mutagenicity**

Not classified based on available information.

**Components:****(dl)-a-Tocopheryl acetate:**

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro  
Method: OECD Test Guideline 473  
Result: negative

Test Type: Bacterial reverse mutation assay (AMES)  
Method: OECD Test Guideline 471  
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
Species: Mouse  
Application Route: Ingestion  
Result: negative

**Vitamin A Palmitate:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
Species: Mouse  
Application Route: Ingestion  
Method: OECD Test Guideline 474  
Result: negative

**Colecalciferol:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Method: OECD Test Guideline 471  
Result: equivocal

Test Type: In vitro mammalian cell gene mutation test

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Method: OECD Test Guideline 476

Result: negative

Test Type: Chromosome aberration test in vitro

Method: OECD Test Guideline 473

Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
Species: Rat  
Application Route: Ingestion  
Method: OECD Test Guideline 474  
Result: negative

Test Type: In vivo mammalian alkaline comet assay

Species: Rat

Application Route: Ingestion

Result: positive

Germ cell mutagenicity - Assessment : Weight of evidence does not support classification as a germ cell mutagen.

### Carcinogenicity

Not classified based on available information.

### Components:

#### **(dl)-a-Tocopheryl acetate:**

Species : Rat  
Application Route : Ingestion  
Exposure time : 104 weeks  
Result : negative

### Reproductive toxicity

Not classified based on available information.

### Components:

#### **(dl)-a-Tocopheryl acetate:**

Effects on fertility : Test Type: Reproduction/Developmental toxicity screening test  
Species: Rat  
Application Route: Ingestion  
Result: negative

Effects on foetal development : Test Type: Embryo-foetal development  
Species: Rabbit  
Application Route: Ingestion  
Result: negative

#### **Vitamin A Palmitate:**

Effects on foetal development : Test Type: Embryo-foetal development  
Species: Monkey  
Application Route: Ingestion



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Result: positive

Reproductive toxicity - Assessment : Clear evidence of adverse effects on development, based on animal experiments.

**STOT - single exposure**

Not classified based on available information.

**STOT - repeated exposure**

Not classified based on available information.

**Components:****Vitamin A Palmitate:**

Exposure routes : Ingestion  
Assessment : No significant health effects observed in animals at concentrations of 100 mg/kg bw or less.

**Colecalciferol:**

Exposure routes : Ingestion  
Target Organs : Kidney, Blood, Bone  
Assessment : Shown to produce significant health effects in animals at concentrations of 10 mg/kg bw or less.

**Repeated dose toxicity****Components:****(dl)-a-Tocopheryl acetate:**

Species : Rat  
NOAEL : 500 mg/kg  
Application Route : Ingestion  
Exposure time : 90 Days

**Vitamin A Palmitate:**

Species : Rat  
NOAEL : 1.43 - 3.32 mg/kg  
Application Route : Ingestion  
Exposure time : 3 Months  
Remarks : Based on data from similar materials

**Colecalciferol:**

Species : Rat  
NOAEL : 0.06 mg/kg  
LOAEL : 0.3 mg/kg  
Application Route : Ingestion  
Exposure time : 90 Days  
Method : OECD Test Guideline 408

**Aspiration toxicity**

Not classified based on available information.

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### SECTION 12. ECOLOGICAL INFORMATION

#### Ecotoxicity

##### Components:

##### **(dl)-a-Tocopheryl acetate:**

- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 100 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202
- Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201
- NOEC (Pseudokirchneriella subcapitata (green algae)): >= 100 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201
- Toxicity to fish (Chronic toxicity) : NOEC (Oncorhynchus mykiss (rainbow trout)): 100 mg/l  
Exposure time: 28 d
- Toxicity to microorganisms : EC50: > 927 mg/l  
Exposure time: 30 min  
Method: ISO 8192

##### **Vitamin A Palmitate:**

- Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): > 1,000 mg/l  
Exposure time: 96 h  
Method: DIN 38412  
Remarks: Based on data from similar materials
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 100 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202  
Remarks: Based on data from similar materials
- Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): 152.94 mg/l  
Exposure time: 72 h

##### **Colecalciferol:**

- Toxicity to fish : LL50 (Danio rerio (zebra fish)): > 100 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203
- Toxicity to daphnia and other : EL50 (Daphnia magna (Water flea)): > 100 mg/l

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aquatic invertebrates      Exposure time: 48 h  
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EL50 (Scenedesmus capricornutum (fresh water algae)): > 100 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 201

**Persistence and degradability****Components:****(dl)-a-Tocopheryl acetate:**

Biodegradability : Result: Not readily biodegradable.  
Biodegradation: 21.7 - 31 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301C

**Vitamin A Palmitate:**

Biodegradability : Result: Not readily biodegradable.  
Biodegradation: 40 - 50 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301F

**Colecalciferol:**

Biodegradability : Result: Not readily biodegradable.  
Biodegradation: <= 7 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301C

**Bioaccumulative potential****Components:****Vitamin A Palmitate:**

Partition coefficient: n-octanol/water : log Pow: > 6.2

**Colecalciferol:**

Partition coefficient: n-octanol/water : log Pow: > 6.2  
Method: OECD Test Guideline 107

**Mobility in soil**

No data available

**Other adverse effects**

No data available

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**SECTION 13. DISPOSAL CONSIDERATIONS****Disposal methods**

Waste from residues : Dispose of in accordance with local regulations.

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Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.  
If not otherwise specified: Dispose of as unused product.

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**SECTION 14. TRANSPORT INFORMATION****International Regulations****UNRTDG**

Not regulated as a dangerous good

**IATA-DGR**

Not regulated as a dangerous good

**IMDG-Code**

Not regulated as a dangerous good

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

Not applicable for product as supplied.

**National Regulations****ADG**

Not regulated as a dangerous good

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**SECTION 15. REGULATORY INFORMATION****Safety, health and environmental regulations/legislation specific for the substance or mixture**

Prohibition/Licensing Requirements : There is no applicable prohibition or notification/licensing requirements, including for carcinogens under Commonwealth, State or Territory legislation.

**The components of this product are reported in the following inventories:**

AICS : not determined

DSL : not determined

IECSC : not determined

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**SECTION 16. OTHER INFORMATION****Further information**

Revision Date : 09/13/2019

Sources of key data used to compile the Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

Date format : dd.mm.yyyy

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**Full text of other abbreviations**

AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

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