

**Multivitamin (with Soy Oil) Formulation**

Version            Revision Date:            SDS Number:            Date of last issue: 06/26/2019  
3.1                09/13/2019                4257976-00004            Date of first issue: 05/06/2019

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**SECTION 1. IDENTIFICATION**

Product name                                : Multivitamin (with Soy Oil) Formulation

**Manufacturer or supplier's details**

Company name of supplier                : Merck & Co., Inc  
Address                                        : 2000 Galloping Hill Road  
    Kenilworth - New Jersey - U.S.A. 07033  
Telephone                                    : 908-740-4000  
Telefax                                        : 908-735-1496  
Emergency telephone                      : 1-908-423-6000  
E-mail address                               : EHSDATASTEWARD@merck.com

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

Recommended use                          : Veterinary product

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**SECTION 2. HAZARDS IDENTIFICATION****GHS classification in accordance with 29 CFR 1910.1200**

Not a hazardous substance or mixture.

**GHS label elements**

Not a hazardous substance or mixture.

**Other hazards**

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	>= 5 - < 10
Vitamin A Palmitate	79-81-2	< 0.1
Colecalciferol	67-97-0	< 0.1

Actual concentration is withheld as a trade secret

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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.

If swallowed                                : If swallowed, DO NOT induce vomiting.  
    Get medical attention if symptoms occur.  
    Rinse mouth thoroughly with water.

Most important symptoms                 : None known.  
and effects, both acute and  
delayed

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. FIRE-FIGHTING 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 fire-fighters : 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 diking or other appropriate containment to keep material from spreading. If diked 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 determine which regulations are applicable.  
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.
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**SECTION 7. HANDLING AND STORAGE**

- Technical measures : See Engineering measures under EXPOSURE
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Local/Total ventilation : CONTROLS/PERSONAL PROTECTION section.  
 : 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.  
 Conditions for safe storage : Keep in properly labeled 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

#### Ingredients 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 : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

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.  
 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.



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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****Information on likely routes of exposure**

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 judgment

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Result : negative

**Vitamin A Palmitate:**

Test Type : Maximization Test  
Routes of exposure : Skin contact  
Species : Guinea pig  
Method : OECD Test Guideline 406  
Result : negative

**Colecalciferol:**

Test Type : Maurer optimisation test  
Routes of exposure : Skin contact  
Species : Guinea pig  
Result : negative

**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

**IARC** No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**OSHA** No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

**NTP** No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

### 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



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

**Vitamin A Palmitate:**

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

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

**Colecalciferol:**

Routes of exposure : 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

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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.

## 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	:	EC50 (Desmodesmus subspicatus (green algae)): 152.94

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

Toxicity to algae/aquatic      :    EL50 (Scenedesmus capricornutum (fresh water algae)): >  
 plants      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-      :    log Pow: > 6.2  
 octanol/water

#### **Colecalciferol:**

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

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### **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.  
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.

### **Domestic regulation**

#### **49 CFR**

Not regulated as a dangerous good

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## SECTION 15. REGULATORY INFORMATION

### **EPCRA - Emergency Planning and Community Right-to-Know**

#### **CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

#### **SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

#### **SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**

This material does not contain any components with a section 302 EHS TPQ.

**SARA 311/312 Hazards** : No SARA Hazards

**SARA 313** : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

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### US State Regulations

#### Pennsylvania Right To Know

Soya oil	8001-22-7
(dl)-a-Tocopheryl acetate	7695-91-2

#### California Prop. 65

WARNING: This product can expose you to chemicals including Vitamin A Palmitate, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

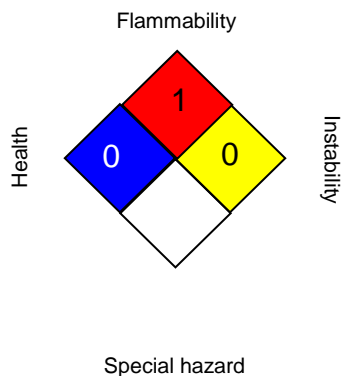
#### The ingredients of this product are reported in the following inventories:

AICS	:	not determined
DSL	:	not determined
IECSC	:	not determined

## SECTION 16. OTHER INFORMATION

### Further information

#### NFPA 704:



#### HMIS® IV:

<b>HEALTH</b>	/	0
<b>FLAMMABILITY</b>		1
<b>PHYSICAL HAZARD</b>		0

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "\*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

### Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; 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; HMIS - Hazardous Materials Identification System; 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 Organiza-

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tion; 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; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; 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; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; 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

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

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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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