SAFETY DATA SHEET

Vitamin AD3 E

Version 1.1  Revision Date 03/31/2015  Print Date 11/30/2015

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Vitamin AD3E

Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture: Premix for Animal Feeds

1.2 Details of the supplier of the safety data sheet

Company: Paragon Specialty Products, LLC.
411 Ranch Road / PO Box 565
Rainsville, AL 35986

Telephone: (256) 638-9636
Telefax: (256) 638-9637
E-mail address: paragonprod@farmerstel.com

Emergency telephone number

Emergency # 1-800-424-9300 (24 HR CHEMTREC)

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

<table>
<thead>
<tr>
<th>CAUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
</tr>
<tr>
<td>Odour</td>
</tr>
</tbody>
</table>

GHS Classification

Flammable liquids: Category 3
Acute toxicity (Oral): Category 4
Skin irritation: Category 2
Serious eye damage: Category 1
Reproductive toxicity: Category 1B

GHS Label element

Hazard pictograms: 

Signal word: Danger

Hazard statements: H226 Flammable liquid and vapour.
H302 Harmful if swallowed.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H360 May damage fertility or the unborn child.

Precautionary statements: Prevention:
### Potential Health Effects

**Primary Routes of Entry**
- Skin Absorption

**Skin**
- May cause skin irritation.

**Eyes**
- Causes eye irritation.

**Chronic Exposure**
- This product contains a material that may cause adverse reproductive effects.*

**Aggravated Medical Condition**
- Eyes

**Symptoms of Overexposure**
- No specific symptoms known.

### Carcinogenicity:

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

**ACGIH**
- No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by ACGIH.
equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

OSHA
No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

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

Additional hazards and advice
Women of childbearing age must avoid any overexposure.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Brief description of the product: Mixture

Hazardous components

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Weight percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>retinyl propionate</td>
<td>7069-42-3</td>
<td>10 - 20</td>
</tr>
<tr>
<td>polyethylene glycol</td>
<td>25322-68-3</td>
<td>5 - 10</td>
</tr>
<tr>
<td>n-propanol</td>
<td>71-23-8</td>
<td>5 - 10</td>
</tr>
<tr>
<td>ethoxyquin</td>
<td>91-53-2</td>
<td>5 - 10</td>
</tr>
<tr>
<td>cholecalciferol (Vitamin D3)</td>
<td>67-97-0</td>
<td>0.1 - 1</td>
</tr>
</tbody>
</table>

SECTION 4. FIRST AID MEASURES

General advice: Move out of dangerous area. Show this safety data sheet to the doctor in attendance. After any accidental exposure women should seek medical advice from a physician.

If inhaled: Move to fresh air. Consult a physician after significant exposure.

In case of skin contact: Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. If symptoms persist, call a physician.

In case of eye contact: In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. Continue rinsing eyes during transport to hospital. Small amounts splashed into eyes can cause irreversible tissue damage and blindness.

If swallowed: Clean mouth with water and drink afterwards plenty of water. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. Obtain medical attention.
SAFETY DATA SHEET

Vitamin AD3E
Version 1.1  Revision Date 03/31/2015  Print Date 11/30/2015

Do NOT induce vomiting.

Most important symptoms and effects, both acute and delayed
No specific symptoms known.

Notes to physician
Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

Flammable properties
Flash point : 108.0 °F (42.2 °C)
Ignition temperature : not determined
Lower explosion limit : not determined
Upper explosion limit : not determined

Fire fighting
Suitable extinguishing media : Alcohol-resistant foam
Carbon dioxide (CO2)
Dry chemical
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Use water spray to cool unopened containers.

Protective equipment and precautions for firefighters
Specific hazards during firefighting : None known.
Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
Evacuate personnel to safe areas.
Use personal protective equipment.
Ensure adequate ventilation.
Remove all sources of ignition.
Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Environmental precautions : Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.
Prevent product from entering drains.
Methods and materials for containment and cleaning up: Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

SECTION 7. HANDLING AND STORAGE

Advice on safe handling: Avoid exposure - obtain special instructions before use. For personal protection see section 8. To avoid spills during handling keep bottle on a metal tray. Container may be opened only under exhaust ventilation hood. Dispose of rinse water in accordance with local and national regulations. Smoking, eating and drinking should be prohibited in the application area.

Advice on protection against fire and explosion: Keep away from sources of ignition - No smoking. Take necessary action to avoid static electricity discharge. Avoid formation of aerosol.

Conditions for safe storage: No smoking. Keep container tightly closed and dry. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Electrical installations / working materials must comply with the technological safety standards.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters / Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-propanol</td>
<td>TWA</td>
<td>100 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>200 ppm / 500 mg/m3</td>
<td>OSHA Z-1</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>200 ppm / 500 mg/m3</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td></td>
<td>ST</td>
<td>250 ppm</td>
<td>NIOSH REL</td>
</tr>
</tbody>
</table>

Further information: established for men

Further information: established for women
**SAFETY DATA SHEET**

**Vitamin AD3E**

**Version 1.1**  
**Revision Date 03/31/2015**  
**Print Date 11/30/2015**

<table>
<thead>
<tr>
<th>Personal protective equipment</th>
<th>625 mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory protection</td>
<td>In the case of vapour formation use a respirator with an approved filter.</td>
</tr>
<tr>
<td>Hand protection</td>
<td>Glove material: for example nitrile rubber</td>
</tr>
<tr>
<td></td>
<td>Consider the hazard characteristics of this product and any special workplace conditions when selecting the appropriate type of protective gloves.</td>
</tr>
<tr>
<td></td>
<td>Solvent-resistant gloves</td>
</tr>
<tr>
<td></td>
<td>Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.</td>
</tr>
<tr>
<td>Eye protection</td>
<td>Safety glasses with side-shields</td>
</tr>
<tr>
<td></td>
<td>Wear face-shield and protective suit for abnormal processing problems.</td>
</tr>
<tr>
<td>Skin and body protection</td>
<td>Choose body protection according to the amount and concentration of the dangerous substance at the workplace.</td>
</tr>
<tr>
<td>Hygiene measures</td>
<td>When using do not eat or drink.</td>
</tr>
<tr>
<td></td>
<td>When using do not smoke.</td>
</tr>
<tr>
<td></td>
<td>Avoid contact with skin, eyes and clothing.</td>
</tr>
<tr>
<td></td>
<td>Wash hands before breaks and immediately after handling the product.</td>
</tr>
</tbody>
</table>

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

**9.1 Information on basic physical and chemical properties**

- **Appearance**: liquid
- **Odour**: No information available.
- **Odour Threshold**: No information available.
- **pH**: No data available
- **Melting point/range**: not determined
- **Boiling point/boiling range**: not determined
- **Flash point**: 42.2 °C
- **Evaporation rate**: not determined
- **Lower explosion limit**: not determined
- **Upper explosion limit**: not determined
- **Vapour pressure**: not determined
- **Relative vapour density**: Not applicable
- **Density**: not determined
- **Water solubility**: not determined
- **Partition coefficient: n-octanol/water**: Not applicable
- **Auto-ignition temperature**: No data available
- **Ignition temperature**: not determined
### SECTION 10. STABILITY AND REACTIVITY

| Reactivity | No hazards to be specially mentioned. |
| Chemical stability | Stable under recommended storage conditions. |
| Possibility of hazardous reactions | Possible incompatibility with materials listed under section 10.5. |
| Conditions to avoid | Heat, flames and sparks. |
| Incompatible materials | Strong acids and strong bases, Strong oxidizing agents |
| Hazardous decomposition products | No decomposition if used as directed. |

### SECTION 11. TOXICOLOGICAL INFORMATION

| Acute oral toxicity | Acute toxicity estimate: 1,547 mg/kg (Calculation method) |
| Acute inhalation toxicity | Acute toxicity estimate: > 10 mg/l (Calculation method) |
| Acute dermal toxicity | Acute toxicity estimate: > 5,000 mg/kg (Calculation method) |
| Skin irritation | May cause skin irritation and/or dermatitis. |
| Eye irritation | May irritate eyes. |
| Sensitisation retinyl propionate | Did not cause sensitisation on laboratory animals. (Guinea pig, Maximisation Test (GPMT), OECD Test Guideline 406) The effect is probably caused by degradation products or by decomposition products. |
| polyethylene glycol | Does not cause skin sensitisation. (Guinea pig, Buehler Test, OECD Test Guideline 406) |
Carcinogenicity
cholecalciferol: No indication for carcinogenicity known.

Genotoxicity in vitro
retinyl propionate: not mutagenic, not genotoxic (Various test systems)
polyethylene glycol: not mutagenic (Ames test, OECD Test Guideline 471)

Genotoxicity in vivo
cholecalciferol: not genotoxic (Rat, Bone marrow, Mutagenicity (micronucleus test))

Teratogenicity
retinyl propionate: Teratogenic embryotoxic

cholecalciferol: May lead to malformations at dose levels that cause maternal toxicity.
NOAEL: 0.0095 mg/kg bw/d (Rabbit female, OECD Test Guideline 414)

STOT - single exposure
n-propanol: May cause drowsiness or dizziness.

STOT - repeated exposure
cholecalciferol: NOAEL (Oral, Rat): 0.06 mg/kg bw/d
Sub-chronic toxicity study (90-day) (OECD Test Guideline 408)
Causes damage to organs through prolonged or repeated exposure.

Experience with human exposure
retinyl propionate: RDA (Recommended Daily Allowance) 0.8 mg pure vitamin A (retinol) per day established for men
RDA (Recommended Daily Allowance) ca. 0.7 mg pure vitamin A (retinol) per day established for women

cholecalciferol: RDA (Recommended Daily Allowance) 0.005 - 0.01 mg

Experience with human exposure: Ingestion
retinyl propionate: Acute overdose produces the following symptoms: Headache, Irritability, Tiredness, Drowsiness, Nausea, Vomiting, Signs of increased intracranial pressure, Generalized desquamation of the skin (after ca. 24 hours)

cholecalciferol: Acute overdose produces the following symptoms: Nausea, Vomiting, Headache, Weakness, Abdominal pain, Dry mouth, Metallic taste, Loss of appetite
Further information: May cause irritation of respiratory tract. Solvents may degrease the skin.

SECTION 12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish
polyethylene glycol: Cyprinus carpio (Carp)
LC50 (96 h) > 100 mg/l
(OECD Test Guideline 203)

Toxicity to daphnia and other aquatic invertebrates
retinyl propionate: Daphnia magna (Water flea)
EC50 (48 h) 6.8 mg/l
(OECD Test Guideline 202)
EC0 (48 h) 1.8 mg/l

polyethylene glycol: Daphnia magna (Water flea)
EC50 (48 h) > 100 mg/l
(OECD Test Guideline 202)

ethoxyquin: Crustaceans
EC50 (48 h) 2 mg/l

Toxicity to algae
retinyl propionate: Desmodesmus subspicatus (green algae)
EbC50 (72 h) 9.1 mg/l
(nominal concentration)
(OECD Test Guideline 201)
ErC50 (72 h) 24.6 mg/l
(nominal concentration)

Toxicity to bacteria
retinyl propionate: activated sludge
Concentration of the substance 22.9 mg/l
No inhibition was observed under the biodegradation test conditions.
(OECD Test Guideline 301B)

No data is available on the product itself.

Persistence and degradability

Biodegradability
retinyl propionate: Not readily biodegradable.
32 % (29 d)
(OECD Test Guideline 301B)

polyethylene glycol: Readily biodegradable
> 70 % (21 d)
(OECD Test Guideline 301A)
cholecalciferol : Not readily biodegradable.
<= 7 % (28 d)
(OECD Test Guideline 301C)

No data is available on the product itself.

Bioaccumulative potential
Bioaccumulation : No data available
Partition coefficient: n-octanol/water : Not applicable

Mobility in soil
Distribution among environmental compartments : No data available

Results of PBT and vPvB assessment
Assessment : Not applicable

Other adverse effects
Regulation : 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks : This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
Additional ecological information : Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods
Waste from residues : User must determine if any wastes generated exhibit hazardous characteristics as per 40 CFR Part 261 or other national / local legislation.
Discharge into the environment must be avoided.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Do not dispose of waste into sewer.
Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging : Do not burn, or use a cutting torch on, the empty drum.
Dispose of as unused product.
Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

International Regulation
IATA-DGR
### SAFETY DATA SHEET

**Vitamin AD3E**  
Version 1.1  
Revision Date 03/31/2015  
Print Date 11/30/2015

<table>
<thead>
<tr>
<th>UN/ID No.</th>
<th>UN 1993</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Proper shipping name</strong></td>
<td>Flammable liquid, n.o.s. (n-propanol, retinyl propionate)</td>
</tr>
<tr>
<td><strong>Class</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Packing group</strong></td>
<td>III</td>
</tr>
<tr>
<td><strong>Labels</strong></td>
<td>Flammable Liquids</td>
</tr>
<tr>
<td><strong>Packing instruction (cargo aircraft)</strong></td>
<td>366</td>
</tr>
<tr>
<td><strong>Packing instruction (passenger aircraft)</strong></td>
<td>355</td>
</tr>
</tbody>
</table>

**IMDG-Code**

<table>
<thead>
<tr>
<th>UN number</th>
<th>UN 1993</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Proper shipping name</strong></td>
<td>FLAMMABLE LIQUID, N.O.S. (n-propanol, retinyl propionate)</td>
</tr>
<tr>
<td><strong>Class</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Packing group</strong></td>
<td>III</td>
</tr>
<tr>
<td><strong>Labels</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>EmS Code</strong></td>
<td>F-E, S-E</td>
</tr>
<tr>
<td><strong>Marine pollutant</strong></td>
<td>no</td>
</tr>
</tbody>
</table>

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

Not applicable for product as supplied.

**National Regulations**

<table>
<thead>
<tr>
<th>49 CFR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UN/ID/NA number</strong></td>
</tr>
<tr>
<td><strong>Proper shipping name</strong></td>
</tr>
<tr>
<td><strong>Class</strong></td>
</tr>
<tr>
<td><strong>Packing group</strong></td>
</tr>
<tr>
<td><strong>Labels</strong></td>
</tr>
<tr>
<td><strong>ERG Code</strong></td>
</tr>
<tr>
<td><strong>Marine pollutant</strong></td>
</tr>
<tr>
<td><strong>Remarks</strong></td>
</tr>
</tbody>
</table>

**SECTION 15. REGULATORY INFORMATION**

<table>
<thead>
<tr>
<th>TSCA list</th>
<th>Not relevant</th>
</tr>
</thead>
</table>
| EPCRA - Emergency Planning and Community Right-to-Know Act

**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.
**SAFETY DATA SHEET**

**Vitamin AD3E**

**Version 1.1**  
**Revision Date 03/31/2015**  
**Print Date 11/30/2015**

**SARA 311/312 Hazards**: Fire Hazard  
Acute Health Hazard  
Chronic Health Hazard

**SARA 302**: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**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.

### Clean Air Act

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 12 (40 CFR 61).  
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).  
The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489):

<table>
<thead>
<tr>
<th>Chemical</th>
<th>CAS Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poly(oxy-1,2-ethanediyl), .alpha.-hydro-.omega.-hydroxy-Ethane-1,2-diol, ethoxylated</td>
<td>7.4853 %</td>
<td></td>
</tr>
<tr>
<td>n-propanol</td>
<td>71-23-8</td>
<td>6.9652 %</td>
</tr>
</tbody>
</table>

### Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. Clean Water Act, Section 311, Table 116.4A.  
This product does not contain any Hazardous Chemicals listed under the U.S. Clean Water Act, Section 311, Table 117.3.  
This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

### Massachusetts Right To Know

<table>
<thead>
<tr>
<th>Chemical</th>
<th>CAS Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-propanol</td>
<td>71-23-8</td>
<td>5 - 10 %</td>
</tr>
</tbody>
</table>

### Pennsylvania Right To Know

<table>
<thead>
<tr>
<th>Chemical</th>
<th>CAS Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,4-dihydro-2,5,7,8-tetramethyl-2-(4,8,12-trimethyltridecyl)-2H-benzopyran-6-yi ace- tate</td>
<td>7695-91-2</td>
<td>20 - 30 %</td>
</tr>
<tr>
<td>Poly(oxy-1,2-ethanediyl), .alpha.-hydro-.omega.-hydroxy-Ethane-1,2-diol, ethoxylated</td>
<td>9004-96-0</td>
<td>10 - 20 %</td>
</tr>
<tr>
<td>n-propanol</td>
<td>7069-42-3</td>
<td>10 - 20 %</td>
</tr>
<tr>
<td>polyoxyethylene sorbitan monooleate</td>
<td>9005-65-6</td>
<td>5 - 10 %</td>
</tr>
<tr>
<td>Poly(oxy-1,2-ethanediyl), .alpha.-hydro-.omega.-hydroxy-Ethane-1,2-diol, ethoxylated</td>
<td>5 - 10 %</td>
<td></td>
</tr>
<tr>
<td>n-propanol</td>
<td>71-23-8</td>
<td>5 - 10 %</td>
</tr>
<tr>
<td>ethoxyquin</td>
<td>71-23-8</td>
<td>5 - 10 %</td>
</tr>
</tbody>
</table>

### New Jersey Right To Know

**New Jersey Right To Know**
Vitamin AD3E

SECTION 16. OTHER INFORMATION

Further information

NFPA:  

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Instability</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

- HEATH: 3*
- FLAMMABILITY: 2
- PHYSICAL HAZARD: 0

0 = not significant, 1 = Slight, 2 = Moderate, 3 = High, 4 = Extreme, * = Chronic

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 given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.