SAFETY DATA SHEET

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SECTION 1: COMPANY AND PRODUCT INFORMATION

1.1 Product identifiers

Product name	:	Cholecalciferol
Product code	:	40300166
CAS number	:	67-97-0
Synonyms	:	7-Dehydrocholesterol activated (+)-Vitamin D3

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

Identified uses	:	For research and laboratory use only.

1.3 Details of the supplier of the safety data sheet

Address	:	Genelinx International Inc, dba bioWORLD 4150 Tuller Rd. Suite 228 Dublin, OH 43017
Email	:	tech@bio-world.com
Phone	:	614-792-8680

1.4 Emergency telephone number

CHEMTREC USA	:	1-800-424-9300
CHEMTREC International	:	+1-703-537-3887

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of substance or mixture

Acute toxicity, Oral (Category 2), H300
Acute toxicity, Dermal (Category 2), H310
Acute toxicity, Inhalation (Category 2), H330
Specific target organ toxicity - repeated exposure, Oral (Category 1), H372

2.2 GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 2), H300
Acute toxicity, Dermal (Category 2), H310
Acute toxicity, Inhalation (Category 2), H330
Specific target organ toxicity - repeated exposure, Oral (Category 1), H372

2.3 Label elements and precautionary statements

Pictogram :



Signal word : Danger

Hazard statement(s) : H300+H310+H330: Fatal if swallowed, in contact with skin or if inhaled
H372 Causes damage to organs through prolonged or repeated exposure if swallowed.

Precautionary statement(s)	:	P260 Do not breathe dust. P262 Do not get in eyes, on skin, or on clothing. P264 Wash skin thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P271 Use only outdoors or in a well-ventilated area. P280 Wear protective gloves/ protective clothing. P284 Wear respiratory protection. P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth. P302 + P352 + P310 IF ON SKIN: Wash with plenty of water. Immediately call a POISON CENTER/ doctor. P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor. P314 Get medical advice/ attention if you feel unwell. P361 + P364 Take off immediately all contaminated clothing and wash it before reuse. P403 + P233 Store in a well-ventilated place. Keep container tightly closed. P405 Store locked up. P501 Dispose of contents/ container to an approved waste disposal plant.

2.4 Hazards not otherwise classified (HNOC) or not covered by GHS

No unclassified hazards known.

2.5 NFPA Rating

Health hazard	:	0
Fire hazard	:	1
Reactivity hazard	:	1

2.6 HMIS Rating

Health hazard	:	0
Chronic health hazard	:	0
Reactivity hazard	:	1
Flammability	:	0
Physical hazard	:	0

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Substance	CAS#	EC#	Concentration
Cholecalciferol M.F: $C_{27}H_{44}O$ M.W: 384.64 g/mol	67-97-0	200-673-2	≤100%

3.2 Hazardous components & classification

Acute Tox. Oral 2; Acute Tox. Derm. 2; Acute Tox. Inhal. 2; H300, H310, H330

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Consult a physician if symptoms are severe or persistent. Provide this data sheet to medical personnel. If product is spilled or leaked, evacuate area.

In case of inhalation

If inhaled, move person to fresh air and monitor breathing. If not breathing, give artificial ventilation. Consult a physician if symptoms are severe or persistent.

In case of skin contact

Immediately wash with excess soap and water. If spilled on clothing, remove all affected clothing. Consult a physician if symptoms are severe or persistent.

In case of eye contact

Flush eyes with water or eye wash solution as a precaution for 15 minutes. Consult a physician if symptoms are severe or persistent.

In case of ingestion

Only induce vomiting if recommended by medical personnel. If subject is unconscious, do not give anything by mouth. If conscious, rinse mouth with water. Consult a physician if symptoms are severe or persistent.

4.2 Most important symptoms and effects, both acute and delayed

All known important symptoms are described in Section 2 and/or Section 11. No other important symptoms to report.

4.3 Indication of any immediate medical attention and special treatment needed

No special treatment indicated. Provide treatment in accordance with exhibited symptoms.

SECTION 5: FIREFIGHTING MEASURES

5.1 Suitable extinguishing media

Water spray, alcohol-resistant foam, dry chemical, and carbon dioxide extinguishers are suitable.

5.2 Unsuitable extinguishing media

No known unsuitable extinguishing media.

5.3 Special hazards arising from the substance

Carbon oxides.

5.4 Advice for firefighters

Wear protective gear, such as self-contained breathing apparatus, if necessary.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Provide suitable ventilation. Use any necessary personal protective equipment. Avoid contact with skin and eyes, and avoid creation and inhalation of vapor or dust. Keep all unnecessary personnel away.

For personal protection see section 8

6.2 Environmental precautions

Prevent product from entering public sewers and waterways.

6.3 Methods and material for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

For proper disposal see section 13

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Provide suitable ventilation. Wear any necessary personal protective equipment.

For precautions see section 2

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions	:	Storage class (TRGS 510): 6.1A: Combustible, acute toxic Cat. 1 and 2/very toxic hazardous materials.
Incompatible materials	:	Strong oxidizing agents, Acid anhydrides, Acid chlorides

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

This product is not known to contain any substances with occupational exposure limit values.

8.2 Engineering controls

Follow good industrial hygiene and safety practices when handling product.

8.3 Personal protective equipment

Eye/face protection	:	Use only government-approved safety glasses with side-shields.
Skin protection	:	Use gloves when handling product. Inspect gloves before use to ensure suitability for use. Remove without exposing skin to the gloves outer surface. Discard used gloves according to all pertinent laws and/or current good practices (cGXP). Wash hands with soap and water.
Body protection	:	Wear appropriate clothing. Ensure clothing is in good condition, with no holes or tears. When selecting clothing, consider the concentration and amount of substance to be handled.
Respiratory protection	:	Use only approved respirators and components which comply with CDC and NIOSH (US) or CEN (EU) regulations. Required only when vapors or aerosols are created.
Control of environmental exposure	:	Prevent product from entering the environment, especially through public sewers or waterways.
General hygiene considerations	:	Comply with general industrial hygiene practice guidelines.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	:	Powder

b)	Physical states	:	Solid
c)	Odor	:	Not Available
d)	Odor threshold	:	Not Available
e)	Melting point	:	83 - 86°C
f)	Boiling point range	:	Not Available
g)	pH	:	Not Available
h)	Density	:	Not Available
i)	Flash point	:	Not Available
j)	Evaporation rate	:	Not Available
k)	Flammability	:	Not Available
l)	Upper/lower flammability or explosive limits:	:	Not Available
m)	Vapor pressure	:	Not Available
n)	Vapor density	:	Not Available
o)	Relative density	:	Not Available
p)	Water solubility	:	Not Available
q)	Partition coefficient:n-octanol/water	:	Not Available
r)	Autoignition temperature	:	Not Available
s)	Decomposition temperature	:	Not Available
t)	Kinematic viscosity	:	Not Available
u)	Explosive properties	:	Not Available
v)	Oxidizing properties	:	Not Available
w)	Solubility in other solvents	:	Not Available
x)	Surface tension	:	Not Available

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

No special reactivity is known.

10.2 Chemical stability

Product is stable when stored and used as recommended.

10.3 Stability note(s)

No special or unusual instability known.

10.4 Polymerization

No known polymerization.

10.5 Possibility of hazardous reactions

No known hazardous reactions under normal processing.

10.6 Incompatible materials

Strong oxidizing agents, Acid anhydrides, Acid chlorides

10.7 Hazardous decomposition products

Carbon oxides.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Acute toxicity

LD50 Oral : LD50 Oral - Rat - male and female - 35 mg/kg (OECD Test Guideline 401)

LD50 Dermal : LD50 Dermal - Rat - male - 50 mg/kg (OECD Test Guideline 402)

LC50 Inhalation : Rat - 0.05 mg/l - dust/mist

11.2 Skin corrosion/irritation

Skin - Rabbit - No skin irritation

11.3 Serious eye damage/eye irritation

Eyes - Rabbit - No eye irritation

11.4 Respiratory or skin sensitization

Sensitization test: - Guinea pig - negative

11.5 Germ cell mutagenicity

Test Type: Ames test
Test system: Escherichia coli/Salmonella typhimurium
Method: OECD Test Guideline 471
Result: positive

Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster lung cells
Method: OECD Test Guideline 473
Result: negative

Test system: Mouse lymphoma test
Method: OECD Test Guideline 476
Result: negative

Test Type: Micronucleus test
Species: Rat
Cell type: Bone marrow
Method: OECD Test Guideline 474
Result: negative

11.6 Carcinogenicity

IARC : Product and components are not regulated by the IARC.

ACGIH : Product and components are not regulated by the ACGIH.

NTP : Product and components are not regulated by the NTP.

OSHA : Product and components are not regulated by OSHA.

11.7 Reproductive toxicity

No reproductive toxicity data available.

11.8 Specific target organ toxicity – single exposure

No specific organ toxicity data available.

11.9 Specific target organ toxicity – repeated exposure

Ingestion - Causes damage to organs through prolonged or repeated exposure.

11.10 Aspiration hazard

No aspiration hazard data available.

11.11 Additional Information

RTECS: VS2900000

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

No ecological toxicity data available.

12.2 Aquatic toxicity

Toxicity to daphnia and other aquatic invertebrates: NOEC (Daphnia magna (Water flea)): 100 mg/l
Toxicity to algae/aquatic plants: NOEC (Pseudokirchneriella subcapitata (green algae)): 100 mg/l
Toxicity to microorganisms: EC10 (Pseudomonas putida): > 10,000 mg/l

12.3 Persistence and degradability

Result: Not readily biodegradable.
Biodegradation:
Exposure time: 28 d
Method: OECD Test Guideline 301C

12.4 Bioaccumulative potential

No bioaccumulation data available.

12.5 Mobility in soil

No soil mobility data available.

12.6 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment is not required/was not conducted.

12.7 Other adverse effect

No other adverse effect data available.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

13.2 Packaging

Packaging should be disposed of in the same manner as unused product.

13.3 Recommendation

Disposal must be made according to official regulations.

SECTION 14: TRANSPORTATION INFORMATION

14.1 DOT (US)

UN number: 2811
Class: 6.1 (Toxic substances)
Packing group: II
Proper shipping name: Toxic solids, organic, n.o.s. (Vitamin D3)

14.2 IMDG

UN number: 2811
Class: 6.1 (Toxic substances)
Packing group: II
Proper shipping name: Toxic solids, organic, n.o.s. (Vitamin D3)

14.3 IATA

UN number: 2811
Class: 6.1 (Toxic substances)
Packing group: II
Proper shipping name: Toxic solids, organic, n.o.s. (Vitamin D3)

SECTION 15: REGULATORY INFORMATION

15.1 SARA

311/312: Acute Health Hazard, Chronic Health Hazard

15.2 Clean water act (CWA)

No chemicals are present in this product that are subject to regulation under the Clean Water Act.

15.3 Right to know components

Massachusetts	:	No chemicals are present which require disclosure under the Massachusetts Right to Know Act.
Pennsylvania	:	No chemicals are present which require disclosure under the Pennsylvania Right to Know Act.
New Jersey	:	No chemicals are present which require disclosure under the New Jersey Right to Know Act.
California proposition 65 components	:	This product contains no chemicals which are known to the State of California to cause cancer, or birth defects or other reproductive harm.

SECTION 16: OTHER INFORMATION

16.1 Disclaimer

This product is offered by bioWORLD for research, laboratory or further manufacturing use. Not for human use or consumption. The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchant-ability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall bio-WORLD.com be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect,incidental,consequential or exemplary damages, howsoever arising, even if bio-WORLD.com has been advised of the possibility of such damages.

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16.2 Preparation Information

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