SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878

Version 6.10
Revision Date 20.07.2026
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GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name	:	Cholecalciferol
Product Number	:	PHR1237
Brand	:	Sigma-Aldrich
Index-No.	:	603-180-00-4
REACH No.	:	A registration number is not available for this substance as the substance or its uses are exempted from registration or the annual tonnage does not require a registration.
CAS-No.	:	67-97-0

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

Identified uses	:	Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company	:	Merck Life Science S.A.S 80 Rue de Luzais F-38297 SAINT QUENTIN FALLAVIER CEDEX
Telephone	:	+33 (0)1 85 16 94 34
E-mail address	:	servicetechnique@merckgroup.com

1.4 Emergency telephone number

Emergency Phone #	:	+33 (0)9 75 18 14 07 (CHEMTREC) +33 (0)1 45 42 59 59 (I.N.R.S.)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Acute toxicity, Category 2	H300: Fatal if swallowed.
Acute toxicity, Category 2	H330: Fatal if inhaled.
Acute toxicity, Category 2	H310: Fatal in contact with skin.
Specific target organ toxicity - repeated exposure, Category 1	H372: Causes damage to organs through prolonged or repeated exposure if

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swallowed.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Danger

Hazard statements :

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 statements :

Prevention:

P260	Do not breathe dust.
P262	Do not get in eyes, on skin, or on clothing.
P280	Wear protective gloves/ protective clothing.

Response:

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.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

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SECTION 3: Composition/information on ingredients

3.1 Substances

Substance name : Vitamin D3

Index-No. : 603-180-00-4

EC-No. : 200-673-2

Components

Chemical name	CAS-No. EC-No.	Concentration (% w/w)	M-Factor, SCL, ATE
Vitamin D3	67-97-0 200-673-2	>= 90 - <= 100	specific concentration limit STOT RE 1; H372 >= 3 % STOT RE 2; H373 0,3 - < 3 % Acute toxicity estimate Acute oral toxicity: 35 mg/kg Acute inhalation toxicity (dust/mist): 0,05 mg/l Acute dermal toxicity: 50 mg/kg

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : First aiders need to protect themselves.
Show this safety data sheet to the doctor in attendance.

If inhaled : After inhalation: fresh air. Immediately call in physician.
If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

In case of skin contact : In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

In case of eye contact : After eye contact: rinse out with plenty of water.

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Call in ophthalmologist.
Remove contact lenses.

If swallowed : If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2 GHS label elements) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Water
Foam
Carbon dioxide (CO2)
Dry powder

Unsuitable extinguishing media : For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire fighting : Combustible.

Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

Special protective equipment for fire-fighters : Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information : Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Advice for non-emergency personnel:
Avoid generation and inhalation of dusts in all circumstances.
Avoid substance contact.
Ensure adequate ventilation.

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Evacuate the danger area, observe emergency procedures, consult an expert.

Wear appropriate personal protective equipment, as indicated in Section 8.

6.2 Environmental precautions

Environmental precautions	:	Do not let product enter drains.

6.3 Methods and material for containment and cleaning up

Methods for 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.

6.4 Reference to other sections

For disposal considerations see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling	:	Work under hood. Do not inhale substance/mixture.
Hygiene measures	:	Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2 GHS label elements

7.2 Conditions for safe storage, including any incompatibilities

Further information on storage conditions	:	Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorised persons.
Storage class (TRGS 510)	:	6.1A, Combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials
Recommended storage temperature	:	Recommended storage temperature see product label.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

8.2 Exposure controls

Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection	:	Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Hand protection

Material	:	Nitrile rubber
Break through time	:	480 min
Glove thickness	:	0,11 mm
Protective index	:	Full contact
Manufacturer	:	KCL 741 Dermatril® L

Material	:	Nitrile rubber
Break through time	:	480 min
Glove thickness	:	0,11 mm
Protective index	:	Splash contact
Manufacturer	:	KCL 741 Dermatril® L

Remarks	:	This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Skin and body protection	:	protective clothing
Respiratory protection	:	required when dusts are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.
Recommended Filter type:	:	Filter type P3

The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Environmental exposure controls

Advice	:	Do not let product enter drains.

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	:	solid
Form	:	crystalline
Colour	:	white
Odour	:	odourless
Odour Threshold	:	Not applicable
Melting point/ range	:	84 - 85 °C
Boiling point	:	No data available
Flammability	:	No data available
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Flash point	:	Not applicable
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
pH	:	No data available
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available
Flow time	:	No data available
Water solubility	:	No data available
Partition coefficient: n-octanol/water	:	log Pow: 10,24 Method: (calculated) Potential bioaccumulation (Lit.)

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Vapour pressure	:	No data available
Relative density	:	No data available
Density	:	No data available
Relative vapour density	:	No data available

9.2 Other information

Explosives	:	No data available
Oxidizing properties	:	none
Burning rate	:	No data available
Evaporation rate	:	No data available
Molecular weight	:	384,64 g/mol

SECTION 10: Stability and reactivity

10.1 Reactivity

The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions

Hazardous reactions : Violent reactions possible with:

Oxidizing agents
Acid anhydrides
acid halides
acids

10.4 Conditions to avoid

Conditions to avoid : Air
Light.

no information available

10.5 Incompatible materials

No data available

10.6 Hazardous decomposition products

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For Hazardous combustion products in the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Acute toxicity estimate Oral - 35 mg/kg
(Acute toxicity estimate according to Regulation (EC) No. 1272/2008)
Acute toxicity estimate Inhalation - 0,05 mg/l - dust/mist

(Acute toxicity estimate according to Regulation (EC) No. 1272/2008)
Acute toxicity estimate Dermal - 50 mg/kg
(Acute toxicity estimate according to Regulation (EC) No. 1272/2008)

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation
Remarks: (External MSDS)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation
Remarks: (External MSDS)

Respiratory or skin sensitization
Sensitisation test: - Guinea pig
Result: negative
Remarks: (External MSDS)

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

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

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Specific target organ toxicity - repeated exposure
Ingestion - Causes damage to organs through prolonged or repeated exposure.
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Aspiration hazard
No data available

11.2 Additional Information

Endocrine disrupting properties

Product:

Assessment	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

RTECS: VS2900000
hypercalcemia
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

After absorption:

Diarrhoea
ataxia (impaired locomotor coordination)
Headache
lack of appetite
Stomach/intestinal disorders
Cardiac irregularities
muscular weakness

After long-term exposure to the chemical:

hypercalcaemia
tissue damage

Damage to:

Kidney

Substances which occur in nature

This substance should be handled with particular care.

Other dangerous properties can not be excluded.

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SECTION 12: Ecological information

12.1 Toxicity

Components:

Vitamin D3:

Toxicity to daphnia and other aquatic invertebrates	:	NOEC (Daphnia magna (Water flea)): 100 mg/l Exposure time: 48 h Method: OECD Test Guideline 202 Remarks: (above the solubility limit in the test medium)
Toxicity to algae/aquatic plants	:	NOEC (Pseudokirchneriella subcapitata (green algae)): 100 mg/l Exposure time: 96 h Method: OECD Test Guideline 201 Remarks: (above the solubility limit in the test medium)
Toxicity to microorganisms	:	EC10 (Pseudomonas putida): > 10.000 mg/l Exposure time: 30 min Remarks: (above the solubility limit in the test medium) (External MSDS)

12.2 Persistence and degradability

Components:

Vitamin D3:

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

12.3 Bioaccumulative potential

Components:

Vitamin D3:

Partition coefficient: n-octanol/water	:	log Pow: 10,24 Method: (calculated) Remarks: Potential bioaccumulation (Lit.)

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

Product:

Assessment	:	This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very

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bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

Components:

Vitamin D3:

Additional ecological information : Discharge into the environment must be avoided.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

14.1 UN number or ID number

ADR : UN 2811

IMDG : UN 2811

IATA : UN 2811

14.2 UN proper shipping name

ADR : TOXIC SOLID, ORGANIC, N.O.S. (Vitamin D3)

IMDG : TOXIC SOLID, ORGANIC, N.O.S. (Vitamin D3)

IATA : Toxic solid, organic, n.o.s. (Vitamin D3)

14.3 Transport hazard class(es)

	Class	Subsidiary risks

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ADR	:	6.1
IMDG	:	6.1
IATA	:	6.1

14.4 Packing group

ADR

Packing group	:	II
Classification Code	:	T2
Hazard Identification Number	:	60
Labels	:	6.1
Tunnel restriction code	:	(D/E)

IMDG

Packing group	:	II
Labels	:	6.1
EmS Code	:	F-A, S-A

IATA (Cargo)

Packing instruction (cargo aircraft)	:	676
Packing instruction (LQ)	:	Y644
Packing group	:	II
Labels	:	Division 6.1 - Toxic substances

IATA_P (Passenger)

Packing instruction (passenger aircraft)	:	669
Packing instruction (LQ)	:	Y644
Packing group	:	II
Labels	:	Division 6.1 - Toxic substances

14.5 Environmental hazards

ADR

Environmentally hazardous	:	no

IMDG

Marine pollutant	:	no

14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

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REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)	:	Conditions of restriction for the following entries should be considered: Number on list 3: Vitamin D3 Number on list 75 If you intend to use this product as tattoo ink, please contact your vendor.
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	:	Not applicable
Regulation (EU) No 2024/590 on substances that deplete the ozone layer	:	Not applicable
Regulation (EU) 2019/1021 on persistent organic pollutants (recast)	:	Not applicable
REACH - List of substances subject to authorisation (Annex XIV)	:	Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.	H2	ACUTE TOXIC

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out

SECTION 16: Other information

Full text of H-Statements

H372	:	Causes damage to organs through prolonged or repeated exposure.
H373	:	May cause damage to organs through prolonged or repeated exposure.
H372	:	Causes damage to organs through prolonged or repeated exposure.

Full text of other abbreviations

Acute Tox.	:	Acute toxicity
STOT RE	:	Specific target organ toxicity - repeated exposure
STOT RE	:	Specific target organ toxicity - repeated exposure

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling

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Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; 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; GHS - Globally Harmonised 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 Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; 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; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation 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; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Other information : The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.
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