



Safety Data Sheet

acc. to OSHA HCS

Printing date 02/11/2019

Reviewed on 02/11/2019

1 Identification

· **Product identifier**

· **Product name: 8 - Minerals and trace elements in Premix**

· **Part number:** PT-AF-08

· **Application of the substance / the mixture** Reference material for laboratory use only

· **Details of the supplier of the safety data sheet**

· **Manufacturer/Supplier:**

VHG Labs, Inc

LGC Standards

276 Abby Road

Manchester, NH 03103

UNITED STATES OF AMERICA

Tel : +1 (603) 622-7660

Fax : +1 (603) 622-5180

eMail : custsvc@vhglabs.com

Web : www.vhglabs.com

· **Information department:**

Product safety department

eMail : sds-request@lgcgroup.com

· **Emergency telephone number:**

INFOTRAC 24-hour Emergency telephone number:

800-535-5053 (US & Canada);

352-323-3500 (International)

2 Hazard(s) identification

· **Classification of the substance or mixture**



GHS08 Health hazard

Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Muta. 2 H341 Suspected of causing genetic defects.

Carc. 1B H350 May cause cancer.

Repr. 1B H360 May damage fertility or the unborn child.



GHS09 Environment

Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.



GHS07

Skin Sens. 1 H317 May cause an allergic skin reaction.

Aquatic Acute 2 H401 Toxic to aquatic life.

· **Label elements**

· **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

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Hazard pictograms

GHS08 GHS09

Signal word *Danger***Hazard-determining components of labeling:***Cobalt sulphate***Hazard statements***H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.**H317 May cause an allergic skin reaction.**H341 Suspected of causing genetic defects.**H350 May cause cancer.**H360 May damage fertility or the unborn child.**H401 Toxic to aquatic life.**H411 Toxic to aquatic life with long lasting effects.***Precautionary statements***P261 Avoid breathing dust/fume/gas/mist/vapors/spray**P280 Wear protective gloves/protective clothing/eye protection/face protection.**P284 [In case of inadequate ventilation] wear respiratory protection.**P321 Specific treatment (see on this label).**P405 Store locked up.**P501 Dispose of contents/container in accordance with local/regional/national/international regulations.***Classification system:****NFPA ratings (scale 0 - 4)***Health = 1**Fire = 0**Reactivity = 0***HMIS-ratings (scale 0 - 4)***Health = 0**Fire = 0**Reactivity = 0***Other hazards****Results of PBT and vPvB assessment****PBT:** *Not applicable.***vPvB:** *Not applicable.*

3 Composition/information on ingredients

Chemical characterization: *Mixtures***Description:** *Mixture: consisting of the following components.*

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· Dangerous components:		
CAS: 7758-98-7 RTECS: GL 8800000	Copper (II) sulfate ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410; ⚠ Acute Tox. 4, H302; Skin Irrit. 2, H315; Eye Irrit. 2A, H319	<2%
CAS: 1313-13-9 RTECS: OP 0350000	Manganese dioxide ⚠ Acute Tox. 4, H302; Acute Tox. 4, H332	<2%
CAS: 10124-43-3	Cobalt sulphate ⚠ Resp. Sens. 1, H334; Muta. 2, H341; Carc. 1B, H350; Repr. 1B, H360; ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410; ⚠ Acute Tox. 4, H302; Skin Sens. 1, H317	<2%
CAS: 1314-13-2 RTECS: ZH4810000	Zinc oxide ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410	<2%
CAS: 112926-00-8 RTECS: VV7315000	Silicon Dioxide - Crystalline Free ⚠ Eye Irrit. 2A, H319; STOT SE 3, H335	<2%

4 First-aid measures

- **Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:**
Supply fresh air and to be sure call for a doctor.
In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water.
- **After swallowing:** Rinse mouth. Do not induce vomiting.
- **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
- **Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Avoid formation of dust.

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· Environmental precautions:

Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water.

· Methods and material for containment and cleaning up:

Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.

· Reference to other sections

See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

· Protective Action Criteria for Chemicals**· PAC-1:**

CAS: 7758-98-7	Copper (II) sulfate	7.5 mg/m ³
CAS: 1313-13-9	Manganese dioxide	4.7 mg/m ³
CAS: 10124-43-3	Cobalt sulphate	0.16 mg/m ³
CAS: 1314-13-2	Zinc oxide	10 mg/m ³
CAS: 112926-00-8	Silicon Dioxide - Crystalline Free	18 mg/m ³

· PAC-2:

CAS: 7758-98-7	Copper (II) sulfate	9.9 mg/m ³
CAS: 1313-13-9	Manganese dioxide	7.9 mg/m ³
CAS: 10124-43-3	Cobalt sulphate	14 mg/m ³
CAS: 1314-13-2	Zinc oxide	15 mg/m ³
CAS: 112926-00-8	Silicon Dioxide - Crystalline Free	200 mg/m ³

· PAC-3:

CAS: 7758-98-7	Copper (II) sulfate	59 mg/m ³
CAS: 1313-13-9	Manganese dioxide	690 mg/m ³
CAS: 10124-43-3	Cobalt sulphate	84 mg/m ³
CAS: 1314-13-2	Zinc oxide	2,500 mg/m ³
CAS: 112926-00-8	Silicon Dioxide - Crystalline Free	1,200 mg/m ³

7 Handling and storage

· Handling:**· Precautions for safe handling**

Ensure good ventilation/exhaustion at the workplace.
Store in cool, dry place in tightly closed receptacles.
Open and handle receptacle with care.

· Information about protection against explosions and fires: Keep respiratory protective device available.

· Conditions for safe storage, including any incompatibilities

· Storage:

· Requirements to be met by storerooms and receptacles:

Please refer to the manufacturers certificate for specific storage and transport temperature conditions.

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- Store only in the original receptacle unless other advice is given on the CoA.
 Keep container in a well-ventilated place. Keep away from sources of ignition and heat.
- **Information about storage in one common storage facility:** Store away from foodstuffs.
 - **Further information about storage conditions:** Keep receptacle tightly sealed.
 - **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**

· **Components with limit values that require monitoring at the workplace:**

CAS: 1313-13-9 Manganese dioxide

PEL	Ceiling limit value: 5 mg/m ³ as Mn
REL	Short-term value: 3 mg/m ³ Long-term value: 1 mg/m ³ as Mn
TLV	Long-term value: 0.02 0.1 mg/m ³ as Mn; <u>respirable inhalable fraction</u>

CAS: 10124-43-3 Cobalt sulphate

PEL	Long-term value: 0.1 mg/m ³ as Co; <u>for metal dust and fume</u>
REL	Long-term value: 0.05 mg/m ³ as Co; <u>metal dust & fume</u>
TLV	Long-term value: (0.02) NIC-0.02 mg/m ³ as Co, <u>inhalable; NIC-DSEN; RSEN; BEI</u>

CAS: 1314-13-2 Zinc oxide

PEL	Long-term value: 15 5 mg/m ³ <u>total dust respirable fraction and fume</u>
REL	Short-term value: 10 mg/m ³ Long-term value: 5 mg/m ³ Ceiling limit value: 15 mg/m ³ <u>dust only fume</u>
TLV	Short-term value: 10 mg/m ³ Long-term value: 2 mg/m ³ as <u>respirable fraction</u>

CAS: 112926-00-8 Silicon Dioxide - Crystalline Free

PEL	20mppcf or 80mg/m ³ /%SiO ₂
REL	Long-term value: 6 mg/m ³ See Pocket Guide App. C
TLV	TLV withdrawn

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· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

· **Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

· **Protection of hands:**

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374



Protective gloves

· **Material of gloves** Nitrile rubber, NBR

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

9 Physical and chemical properties

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

· **General Information**

· **Appearance:**

Form: Solid

Color: Beige

· **Odor:** Odorless

· **Odor threshold:** Not determined.

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· pH-value:	<i>Not applicable.</i>
· Change in condition	
Melting point/Melting range:	<i>Not determined.</i>
Boiling point/Boiling range:	<i>Not determined.</i>
· Flash point:	<i>Not applicable.</i>
· Flammability (solid, gaseous):	<i>Not determined.</i>
· Ignition temperature:	<i>Not determined.</i>
· Decomposition temperature:	<i>Not determined.</i>
· Auto igniting:	<i>Product is not selfigniting.</i>
· Danger of explosion:	<i>Not determined.</i>
· Explosion limits:	
Lower:	<i>Not determined.</i>
Upper:	<i>Not determined.</i>
· Vapor pressure:	<i>Not applicable.</i>
· Density:	<i>Not determined.</i>
· Relative density	<i>Not determined.</i>
· Vapor density	<i>Not applicable.</i>
· Evaporation rate	<i>Not applicable.</i>
· Solubility in / Miscibility with Water:	<i>Insoluble.</i>
· Partition coefficient (n-octanol/water):	<i>Not determined.</i>
· Viscosity:	
Dynamic:	<i>Not applicable.</i>
Kinematic:	<i>Not applicable.</i>
· Solvent content:	
VOC content:	<i>0.00 %</i>
· Other information	<i>No further relevant information available.</i>

10 Stability and reactivity

- **Reactivity**
Stable under normal conditions.
No further relevant information available.
- **Chemical stability** *Stable under normal conditions.*
- **Thermal decomposition / conditions to be avoided:**
Formation of toxic gases is possible during heating or in case of fire.
- **Possibility of hazardous reactions** *No dangerous reactions known.*

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- **Conditions to avoid Heat.**
- **Incompatible materials:** Strong oxidizing agents.
- **Hazardous decomposition products:** Formation of toxic gases is possible during heating or in case of fire.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:**

CAS: 7758-98-7 Copper (II) sulfate

Oral	LD50	300 mg/kg (rat)
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CAS: 1314-13-2 Zinc oxide

Oral	LD50	7,950 mg/kg (mouse)
Inhalative	LC50/2h	2,500 mg/m ³ (mouse)
	LD 50 (Intraperitoneal)	240 mg/kg (rat)

- **Primary irritant effect:**
- **on the skin:** Based on available data, the classification criteria are not met.
- **on the eye:** Based on available data, the classification criteria are not met.
- **Sensitization:**
 - Sensitization possible through inhalation.
 - Sensitization possible through skin contact.
- **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

 - Harmful
 - Irritant

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

CAS: 10124-43-3	Cobalt sulphate	2B
CAS: 112926-00-8	Silicon Dioxide - Crystalline Free	3

- **NTP (National Toxicology Program)**

None of the ingredients is listed.

- **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

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12 Ecological information

· Toxicity**· Aquatic toxicity:****CAS: 1314-13-2 Zinc oxide**

LC50/48 0.098 mg/l (crustacean)

LC50/96 h 1.1 mg/l (fish)

· Persistence and degradability No further relevant information available.**· Behavior in environmental systems:****· Bioaccumulative potential** No further relevant information available.**· Mobility in soil** No further relevant information available.**· Ecotoxicological effects:****· Remark:** Toxic for fish**· Additional ecological information:****· General notes:**

Water hazard class 3 (Self-assessment): extremely hazardous for water

Do not allow product to reach ground water, water course or sewage system, even in small quantities.

Danger to drinking water if even extremely small quantities leak into the ground.

Also poisonous for fish and plankton in water bodies.

Toxic for aquatic organisms

· Results of PBT and vPvB assessment**· PBT:** Not applicable.**· vPvB:** Not applicable.**· Other adverse effects** No further relevant information available.

13 Disposal considerations

· Waste treatment methods**· Recommendation:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· Uncleaned packagings:**· Recommendation:** Dispose in accordance with national regulations.

14 Transport information

· UN-Number**· DOT, ADR, IMDG, IATA****· DOT****· ADR**

UN3077

Environmentally hazardous substance, solid, n.o.s. (Zinc oxide, Cobalt sulphate)

3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc oxide, Cobalt sulphate)

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<ul style="list-style-type: none">· IMDG· IATA	<i>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc oxide, Cobalt sulphate), MARINE POLLUTANT ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc oxide, Cobalt sulphate)</i>
<ul style="list-style-type: none">· Transport hazard class(es)· DOT, ADR, IMDG, IATA 	
<ul style="list-style-type: none">· Class· Label	<i>9 Miscellaneous dangerous substances and articles 9</i>
<ul style="list-style-type: none">· Packing group· DOT, ADR, IMDG, IATA	<i>III</i>
<ul style="list-style-type: none">· Environmental hazards:· Marine pollutant:· Special marking (ADR):· Special marking (IATA):	<i>Product contains environmentally hazardous substances: Cobalt sulphate Yes (DOT) Symbol (fish and tree) Symbol (fish and tree) Symbol (fish and tree)</i>
<ul style="list-style-type: none">· Special precautions for user· Danger code (Kemler):· EMS Number:· Stowage Category· Stowage Code	<i>Warning: Miscellaneous dangerous substances and articles 90 F-A,S-F A SW23 When transported in BK3 bulk container, see 7.6.2.12 and 7.7.3.9.</i>
<ul style="list-style-type: none">· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	<i>Not applicable.</i>
<ul style="list-style-type: none">· Transport/Additional information:· DOT· Remarks:	<i>Special marking with the symbol (fish and tree).</i>
<ul style="list-style-type: none">· ADR· Excepted quantities (EQ)	<i>Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g</i>
<ul style="list-style-type: none">· UN "Model Regulation":	<i>UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (ZINC OXIDE, COBALT SULPHATE), 9, III</i>



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15 Regulatory information

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

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

CAS: 7758-98-7 Copper (II) sulfate

CAS: 1313-13-9 Manganese dioxide

CAS: 10124-43-3 Cobalt sulphate

CAS: 1314-13-2 Zinc oxide

· **TSCA (Toxic Substances Control Act):**

CAS: 7758-98-7 Copper (II) sulfate

CAS: 1313-13-9 Manganese dioxide

CAS: 10124-43-3 Cobalt sulphate

CAS: 1314-13-2 Zinc oxide

· **TSCA new (21st Century Act): (Substances not listed)**

CAS: 112926-00-8 Silicon Dioxide - Crystalline Free

· **Proposition 65**

· **Chemicals known to cause cancer:**

CAS: 10124-43-3 Cobalt sulphate

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

CAS: 1313-13-9 Manganese dioxide

D

CAS: 1314-13-2 Zinc oxide

D, I, II

· **TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

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Hazard pictograms

GHS08 GHS09

Signal word *Danger***Hazard-determining components of labeling:***Cobalt sulphate***Hazard statements***H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.**H317 May cause an allergic skin reaction.**H341 Suspected of causing genetic defects.**H350 May cause cancer.**H360 May damage fertility or the unborn child.**H401 Toxic to aquatic life.**H411 Toxic to aquatic life with long lasting effects.***Precautionary statements***P261 Avoid breathing dust/fume/gas/mist/vapors/spray**P280 Wear protective gloves/protective clothing/eye protection/face protection.**P284 [In case of inadequate ventilation] wear respiratory protection.**P321 Specific treatment (see on this label).**P405 Store locked up.**P501 Dispose of contents/container in accordance with local/regional/national/international regulations.***National regulations:****Information about limitation of use:***Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation.**Exceptions can be made by the authorities in certain cases.***Chemical safety assessment:** *A Chemical Safety Assessment has not been carried out.***16 Other information**

The information in this Safety Data Sheet meets the requirements of the United States OCCUPATIONAL SAFETY AND HEALTH ACT and regulations promulgated thereunder (29 CFR 1910.1200 et. seq.) This document is intended only as a guide to the appropriate precautionary handling of the material by a person trained in, or supervised by a person trained in, chemical handling. The user is responsible for determining the application. Depending on usage, protective clothing including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/fumes. Exposure to this product may have serious adverse health effects. This chemical may interact with other substances. Since the potential uses are so varied, we cannot warn of all of the potential dangers of use or interaction with other chemicals or materials. We warrant that the chemical meets the specifications set forth on the label. We (LGC/VHG/ARMI) disclaim any other warranties, expressed or implied with regard to the product supplied hereunder, its merchantability or its fitness for a particular purpose. The user should recognize that this product can cause severe injury and even death, especially if improperly handled or the known dangers of use are not heeded. Read all precautionary information.

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· **Date of preparation / last revision** 02/11/2019 / -

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Acute Tox. 4: Acute toxicity – Category 4

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

Resp. Sens. 1: Respiratory sensitisation – Category 1

Skin Sens. 1: Skin sensitisation – Category 1

Muta. 2: Germ cell mutagenicity – Category 2

Carc. 1B: Carcinogenicity – Category 1B

Repr. 1B: Reproductive toxicity – Category 1B

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1

Aquatic Acute 2: Hazardous to the aquatic environment - acute aquatic hazard – Category 2

Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1

Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2

· **Sources**

Tables 3.1 and 3.2 from Annex 6 of EC 1272/2008, EC 1907/2006, EH40/2005 as amended 2011, Registry of Toxic Effects of Chemical Substances (RTECS), The Dictionary of Substances and their Effects, 1st Edition, IUCLID.

· **Data compared to the previous version altered.** All sections have been updated.