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

1.1 Product identifier

Kjelcat tablets, Cu/Ti, 5g K2SO4 + 0.15g CuSO4 x 5H2O + 0.15g TiO2, 1000 pcs.
Article number: 12-0329

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

1.2.1 Relevant uses

Analytics
Laboratory reagents

1.2.2 Uses advised against

None known.

1.3 Details of the supplier of the safety data sheet

Company

C. Gerhardt GmbH & Co. KG
Cäsariusstraße 97
53639 Königswinter / GERMANY
Phone +49 (0)2223 2999 - 0
Fax +49 (0)2223 2999 - 99
Homepage www.gerhardt.de
E-mail info@gerhardt.de

Address enquiries to

Technical information info@gerhardt.de

Safety Data Sheet sdb@chemiebuero.de (No dispatch of safety data sheets)

Safety data sheets are available from the supplier.

1.4 Emergency telephone number

Company +49 (0) 2223 2999-0 Mo-Fr 8:00 - 16:00

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture [REGULATION (GB) CLP]

Aquatic Acute 1: H400 Very toxic to aquatic life.
Aquatic Chronic 2: H411 Toxic to aquatic life with long lasting effects.
Eye Irrit. 2: H319 Causes serious eye irritation.

2.2 Label elements

The product is required to be labelled in accordance with regulation CLP.

Hazard pictograms


Signal word WARNING

Hazard statements

H319 Causes serious eye irritation.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

P273 Avoid release to the environment.
P280 Wear protective gloves / eye protection.
P337+P313 If eye irritation persists: Get medical advice / attention.
P391 Collect spillage.
P501 Dispose of contents/container in accordance with local/national regulation.

Special labelling EUH212 Warning! Hazardous respirable dust may be formed when used. Do not breathe dust.

2.3 Other hazards

Human health dangers
Frequent persistent contact with the skin can cause skin irritation.
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.

Environmental 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.
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.

Other hazards
Further hazards were not determined with the current level of knowledge.

SECTION 3: Composition / Information on ingredients

3.1 Substances

not applicable

3.2 Mixtures

The product is a mixture.

Range [%]	Substance
1 - < 3	Copper sulfate-pentahydrate
	CAS: 7758-99-8, EINECS/ELINCS: 231-847-6, EU-INDEX: 029-023-00-4, Reg-No.: 01-2119520566-40-XXXX
	GHS/CLP: Acute Tox. 4: H302 - Eye Dam. 1: H318 - Aquatic Chronic 1: H410 - Aquatic Acute 1: H400, M-Factor (acute): 10, M-Factor (chronic): 1
1 - < 3	Titanium dioxide
	CAS: 13463-67-7, EINECS/ELINCS: 236-675-5, Reg-No.: 01-2119489379-17-XXXX

Comment on component parts
For full text of H-statements: see SECTION 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General information
Take off contaminated clothing and wash before reuse.

Inhalation
Ensure supply of fresh air.
In the event of symptoms seek medical treatment.

Skin contact
When in contact with the skin, clean with soap and water.
Consult a doctor if skin irritation persists.

Eye contact
Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.

Ingestion
Rinse out mouth and give plenty of water to drink.
Get medical advice.

4.2 Most important symptoms and effects, both acute and delayed

Vomiting.
By inhalation:
Irritant effects

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

Product itself is non-combustible. Fire extinguishing method of surrounding areas must be considered.

Extinguishing media that must not be used

Full water jet.

5.2 Special hazards arising from the substance or mixture

Risk of formation of toxic pyrolysis products.
Sulphur oxides (SOx).
Metal oxides.

5.3 Advice for firefighters

Use self-contained breathing apparatus.

Collect contaminated firefighting water separately, must not be discharged into the drains.
Fire residues and contaminated firefighting water must be disposed of in accordance within the local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation.
Wear suitable protective equipment. For personal protection see SECTION 8.

6.2 Environmental precautions

Do not discharge into the drains/surface waters/groundwater.

6.3 Methods and material for containment and cleaning up

Take up mechanically. Avoid production of dust.
Dispose of absorbed material in accordance within the regulations (Section 13).

6.4 Reference to other sections

See SECTION 7+8+13

SECTION 7: Handling and storage

7.1 Precautions for safe handling

The normal safety precautions for handling chemicals must be observed.
Avoid the formation and deposition of dust.
Avoid contact with eyes and skin. Use personal protective equipment.

Wash hands before breaks and after work.
Do not eat, drink or smoke when using this product.
Use barrier skin cream.
Take off contaminated clothing and wash before reuse.

7.2 Conditions for safe storage, including any incompatibilities

Keep only in original container.

Do not store together with acids and alkalies.
Do not store together with food and animal food/diet.

Keep container tightly closed.
Store in a dry place.

7.3 Specific end use(s)

See product use, SECTION 1.2

SECTION 8: Exposure controls / personal protection

8.1 Control parameters

Ingredients with occupational exposure limits to be monitored (UK)

Substance
Titanium dioxide
CAS: 13463-67-7, EINECS/ELINCS: 236-675-5, Reg-No.: 01-2119489379-17-XXXX
Long-term exposure: 4 mg/m³, respirable; total inhalable: TWA=10 mg/m³

Ingredients with occupational exposure limits to be monitored EU (2004/37/EG)

not relevant

DNEL

Substance
Titanium dioxide, CAS: 13463-67-7
There are no DNEL values established for the substance.
Copper sulfate-pentahydrate, CAS: 7758-99-8
Industrial, inhalative, Long-term - systemic effects, 1 mg/m³
Industrial, dermal, Long-term - systemic effects, 137 mg/kg bw/day
general population, oral, Long-term - systemic effects, 0,041 mg/kg bw/day
general population, oral, Acute - systemic effects, 0,082 mg/kg bw/day

PNEC

Substance
Titanium dioxide, CAS: 13463-67-7
There are no PNEC values established for the substance.
Copper sulfate-pentahydrate, CAS: 7758-99-8
freshwater, 0,0078 mg/L
seawater, 0,0052 mg/L
sewage treatment plants (STP), 0,230 mg/L
sediment (freshwater), 87 mg/kg
sediment (seawater), 676 mg/kg
terrestrial, 65 mg/kg

8.2 Exposure controls

Additional advice on system design	Ensure adequate ventilation on workstation. Pay attention to dust limit value (ACGIH-2011: 10 mg/m³ particle inhalable; 1,25 mg/m³ particle respirable).
Eye protection	safety glasses (EN 166:2001)
Hand protection	The details concerned are recommendations. Please contact the glove supplier for further information. 0,4 mm; Nitrile rubber, >480 min (EN 374-1/-2/-3).
Skin protection	light protective clothing
Other	Do not inhale dust. Avoid contact with eyes and skin. Personal protective equipment should be selected specifically for the working place, depending on concentration and quantity handled. The resistance of this equipment to chemicals should be ascertained with the respective supplier.
Respiratory protection	If workplace limit values are exceeded or if there is insufficient ventilation: Short term: filter apparatus, filter P2. (DIN EN 143)
Thermal hazards	none
Delimitation and monitoring of the environmental exposition	See SECTION 6+7.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	solid
Form	tablet
Color	white blue
Odor	odourless
Odour threshold	not determined
pH-value	4,35 (50 g/L, 20°C)
pH-value [1%]	not determined
Boiling point or initial boiling point and boiling range [°C]	not applicable
Flash point [°C]	not applicable
Flammability	not applicable
Lower explosion limit	not applicable
Upper explosion limit	not applicable
Oxidising properties	no
Vapour pressure/gas pressure [kPa]	not applicable
Density [g/cm³]	2,70 (20°C)
Relative density	not determined
Bulk density [kg/m³]	1224 (20°C)
Solubility in water	111 g/L (20°C)
Solubility other solvents	No information available.
Partition coefficient n-octanol/water (log value)	not determined
Kinematic viscosity	not applicable
Relative vapour density	not applicable
Melting point [°C]	not determined
Auto-ignition temperature [°C]	not self-igniting
Decomposition temperature [°C]	(Kupfersulfat) > 560
Particle characteristics	not relevant

9.2 Other information

none

SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reactions known if used as directed.

10.2 Chemical stability

The product is stable under standard conditions.

10.3 Possibility of hazardous reactions

No hazardous reactions known.

10.4 Conditions to avoid

Sensitive to moisture.

10.5 Incompatible materials

Alkalis and corrosion-sensitive metals.

10.6 Hazardous decomposition products

No decomposition if used and stored according to specifications.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute oral toxicity

Product
ATE-mix, oral, > 2000 mg/kg

Substance
Titanium dioxide, CAS: 13463-67-7
LD50, oral, Rat, > 10000 mg/kg
Copper sulfate-pentahydrate, CAS: 7758-99-8
ATE, oral, 481 mg/kg

Acute dermal toxicity Based on the available information, the classification criteria are not fulfilled.

Substance
Copper sulfate-pentahydrate, CAS: 7758-99-8
LD50, dermal, > 2000 mg/kg (OECD 402)

Acute inhalational toxicity Based on the available information, the classification criteria are not fulfilled.

Substance
Titanium dioxide, CAS: 13463-67-7
LD50, inhalative, Rat, > 6,8 mg/l (4 h)

Serious eye damage/irritation Irritant
Based on the available information, the classification criteria are fulfilled.
Calculation method

Substance
Titanium dioxide, CAS: 13463-67-7
Eye, non-irritating
Copper sulfate-pentahydrate, CAS: 7758-99-8
Eye, Rabbit, OECD 405, corrosive

Skin corrosion/irritation Based on the available information, the classification criteria are not fulfilled.

Substance
Titanium dioxide, CAS: 13463-67-7
dermal, non-irritating
Copper sulfate-pentahydrate, CAS: 7758-99-8
dermal, Rabbit, OECD 404, non-irritating

Respiratory or skin sensitisation Based on the available information, the classification criteria are not fulfilled.

Substance
Titanium dioxide, CAS: 13463-67-7
dermal, non-sensitizing
inhalative, non-sensitizing
Copper sulfate-pentahydrate, CAS: 7758-99-8
dermal, Guinea pig, OECD 406, non-sensitizing

Specific target organ toxicity — single exposure Based on the available information, the classification criteria are not fulfilled.

Substance
Titanium dioxide, CAS: 13463-67-7
inhalative, non-irritating

Specific target organ toxicity — repeated exposure

Based on the available information, the classification criteria are not fulfilled.

Substance
Copper sulfate-pentahydrate, CAS: 7758-99-8
NOAEL, oral, Rat, 16,7 mg/kg bw/day, In vivo study, negativ

Mutagenicity

Based on the available information, the classification criteria are not fulfilled.

Substance
Titanium dioxide, CAS: 13463-67-7
in vitro, no adverse effect observed
in vivo, no adverse effect observed
Copper sulfate-pentahydrate, CAS: 7758-99-8
oral, Rat, OECD 486, negativ

Reproduction toxicity

Based on the available information, the classification criteria are not fulfilled.

- Fertility

Substance
Titanium dioxide, CAS: 13463-67-7
NOAEL, oral, Rat, 1000 mg/kg bw/day (subchronic), no adverse effect observed
Copper sulfate-pentahydrate, CAS: 7758-99-8
NOAEL, oral, Rat, 24 mg/kg bw/day, negativ

- Development

Substance
Titanium dioxide, CAS: 13463-67-7
NOAEL, oral, Rat, 1000 mg/kg bw/day (subchronic), no adverse effect observed

Carcinogenicity

Based on the available information, the classification criteria are not fulfilled.

Substance
Copper sulfate-pentahydrate, CAS: 7758-99-8
Ames-test, negativ

Aspiration hazard

Based on the available information, the classification criteria are not fulfilled.

General remarks

Toxicological data of complete product are not available.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

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.

11.2.2 Other information

none

SECTION 12: Ecological information

12.1 Toxicity

Substance
Titanium dioxide, CAS: 13463-67-7
LC0, (48h), Leuciscus idus, > 1000 mg/l
Copper sulfate-pentahydrate, CAS: 7758-99-8
LC50, 25 µg/l (pH 5,5-6,5)
LC50, 35 µg/l (pH >6,5-7,5)
LC50, 29,8 µg/l (pH >7,5-8,5)
NOEC, 11,4 µg/l (pH >7,5-8,5)
NOEC, 7,4 µg/l (pH >6,5-7,5)
NOEC, 7,4 µg/l (pH 5,5-6,5)

12.2 Persistence and degradability

Behaviour in environment compartments No information available.

Behaviour in sewage plant sludge is possible, depending on the local conditions and concentrations involved.

Biological degradability

Substance
Titanium dioxide, CAS: 13463-67-7
The methods for determining the boilogical degradability are not applicable to inorganic substances.
Copper sulfate-pentahydrate, CAS: 7758-99-8
The methods for determining the boilogical degradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

Substance
Copper sulfate-pentahydrate, CAS: 7758-99-8
BCF, ≤ 1

12.4 Mobility in soil

The product is mobile in an aqueous environment.

12.5 Results of PBT and vPvB assessment

Based on all available information not to be classified as PBT or vPvB respectively.

12.6 Endocrine disrupting properties

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

Do not discharge product unmonitored into the environment or into the drainage.
Ecological data of complete product are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. It is not possible to determine a waste code for this product in accordance with the European Waste Catalogue (EWC) since it is only possible to classify it according to how it is used by the customer. The waste code is to be determined within the EU in liaison with the waste-disposal operator.

Product

Dispose of as hazardous waste.

Waste no. (recommended) 060313*

Contaminated packaging

Contaminated packing should be disposed of as product waste.

Waste no. (recommended) 150110* packaging containing residues of or contaminated by hazardous substances

SECTION 14: Transport information

14.1 UN number or ID number

Transport by land according to ADR/RID	3077
Inland navigation (ADN)	3077
Marine transport in accordance with IMDG	3077
Air transport in accordance with IATA	3077

14.2 UN proper shipping name

Transport by land according to ADR/RID	Environmentally hazardous substance, solid, n.o.s. (Copper(II)-sulphate-Pentahydrate)
- Classification Code	M7
- Label	
- ADR LQ	5 kg
- ADR 1.1.3.6 (8.6)	Transport category (tunnel restriction code) 3 (-)
Inland navigation (ADN)	Environmentally hazardous substance, solid, n.o.s. (Copper(II)-sulphate-Pentahydrate)
- Classification Code	M7
- Label	
Marine transport in accordance with IMDG	Environmentally hazardous substance, solid, n.o.s. (Copper(II)-sulphate-Pentahydrate)
- EMS	F-A, S-F
- Label	
- IMDG LQ	0,5 kg
Air transport in accordance with IATA	Environmentally hazardous substance, solid, n.o.s. (Copper(II)-sulphate-Pentahydrate)
- Label	

14.3 Transport hazard class(es)

Transport by land according to ADR/RID	9 (N)
Inland navigation (ADN)	9 (N)
Marine transport in accordance with IMDG	9
Air transport in accordance with IATA	9

14.4 Packing group

Transport by land according to ADR/RID	III
Inland navigation (ADN)	III
Marine transport in accordance with IMDG	III
Air transport in accordance with IATA	III

14.5 Environmental hazards

Transport by land according to ADR/RID	yes
Inland navigation (ADN)	yes
Marine transport in accordance with IMDG	MARINE POLLUTANT
Air transport in accordance with IATA	yes

14.6 Special precautions for user

Relevant information under SECTION 6 to 8.

14.7 Maritime transport in bulk according to IMO instruments

No information available.

SECTION 15: Regulatory information

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

EEC-REGULATIONS	2008/98/EG (2000/532/EC); 2010/75/EU; 2004/42/EG; (EG) 648/2004; (EC) 1907/2006 (REACH); (EU) 1272/2008; 75/324/EWG ((EC) 2016/2037); (EU) 2020/878; (EU) 2016/131; (EU) 517/2014; (EU) 2019/1148; (EU) 2019/1021, (EU) 2023/707
- Comment on component parts	Substances of Very High Concern - SVHC: substances are not contained or are below 0.1%.
- Annex XIV (REACH)	According to Annex XIV of Regulation (EC) 1907/2006 (REACH) the product does not contain any substances ≥ 0.1% that are subject to authorisation.
- Annex XVII (REACH)	According to Annex XVII of Regulation (EC) 1907/2006 (REACH) the product contains ≥ 0.1% of substances with the following restrictions. 75 According to Annex XVII of Regulation (EC) 1907/2006 (REACH) the product is not subject to any restrictions.
TRANSPORT-REGULATIONS	ADR (2023); IMDG-Code (2023, 41. Amdt.); IATA-DGR (2024)
NATIONAL REGULATIONS (UK):	EH40/2005 Workplace exposure limits (Second edition, published December 2011); UK REACH; GB CLP.
- Observe employment restrictions for people	Observe employment restrictions for mothers-to-be and nursing mothers. Observe employment restrictions for young people. SEVESO III (Directive 2012/18/EU), Hazard categories in accordance with Regulation (EC) No 1272/2008: E1 ENVIRONMENTAL HAZARDS
- VOC (2010/75/CE)	0 %

15.2 Chemical safety assessment

For this product a chemical safety assessment has not been carried out.

SECTION 16: Other information

16.1 Hazard statements (SECTION 3)

H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.
H318 Causes serious eye damage.
H302 Harmful if swallowed.

16.2 Abbreviations and acronyms:

ADR = Accord européen relatif au transport international des marchandises Dangereuses par Route
RID = Règlement concernant le transport international ferroviaire de marchandises dangereuses
ADN = Accord européen relatif au transport international des marchandises dangereuses par voie de navigation intérieure
ATE = acute toxicity estimate
CAS = Chemical Abstracts Service
CLP = Classification, Labelling and Packaging
DMEL = Derived Minimum Effect Level
DNEL = Derived No Effect Level
EC50 = Median effective concentration
ECB = European Chemicals Bureau
EEC = European Economic Community
EINECS = European Inventory of Existing Commercial Chemical Substances
EL50 = Median effective loading
ELINCS = European List of Notified Chemical Substances
EmS = Emergency Schedules
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC-Code = International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
IC50 = Inhibition concentration, 50%
IMDG = International Maritime Code for Dangerous Goods
IUCLID = International Uniform ChemicaL Information Database
IVIS = In vitro irritation score
LC50 = Lethal concentration, 50%
LD50 = Median lethal dose
LC0 = lethal concentration, 0%
LOAEL = lowest-observed-adverse-effect level
LL50 = Median lethal loading
LQ = Limited Quantities
MARPOL = International Convention for the Prevention of Marine Pollution from Ships
NOAEL = No Observed Adverse Effect Level
NOEC = No Observed Effect Concentration
PBT = Persistent, Bioaccumulative and Toxic substance
PNEC = Predicted No-Effect Concentration
REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals
STP = Sewage Treatment Plant
TLV®/TWA = Threshold limit value – time-weighted average
TLV®STEL = Threshold limit value – short-time exposure limit
VOC = Volatile Organic Compounds
vPvB = very Persistent and very Bioaccumulative

16.3 Other information

Classification procedure

Aquatic Acute 1: H400 Very toxic to aquatic life. (Calculation method)
Aquatic Chronic 2: H411 Toxic to aquatic life with long lasting effects. (Calculation method)
Eye Irrit. 2: H319 Causes serious eye irritation. (Calculation method)

Modified position

2.1, 2.3, 11.2, 12.6, 15.1