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

1.1. Product identifier

1.1.1. Trade name: **Kjeldahl tablets W12**

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

1.2.1. Relevant identified uses

Use descriptor category:

Life cycle stage (LCS)	PW: Widespread use by professional workers
Sector of use	SU24: Scientific research and development (analytical chemistry)
Technical function	fine chemical

1.2.2. Uses advised against

not known

1.3. Details of the supplier of the safety data sheet

Chemische Fabrik Wülfel GmbH & Co. KG
Hildesheimer Straße 305, D-30519 Hannover, Germany
phone number.: 0049 511 98496-0,
fax number: 0049 511 98406-40
e-mail address of the person responsible for
Safety Data Sheet: cfw@wuelfel.de
Web: www.wuelfel.de

1.4. Emergency telephone number

00 49 511 98496-0 (Office hours:
Monday - Thursday 8 o´clock a.m. to 4 o´clock p.m.)
or
Poison control centre north (Bremen, Hamburg, Lower Saxony, Schleswig-Holstein)
Tel.: 00 49 551-19 24 0 (24h emergency call)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

2.1.1. Classification according to Regulation (EC) No 1272/2008 (CLP Regulation)

No hazardous mixture.

2.2. Label elements

None

2.3. Other hazards

The mixture does not meet the criteria for classification as PBT or vPvB substance.
See also the sections 5, 6, 10, 11, 12, 15.

SECTION 3: Composition/information on ingredients

3.1. Substances

This product is a mixture.

3.2. Mixtures

A mixture of sodium sulfate and a small quantity of selenium.

Chemical name	CAS No	EC No	REACH Registration No	% w/w	Classification according to Regulation (EC) No 1272/2008
sodium sulfate, water-free	7757-82-6	231-820-9	01-2119519226-43	95.24	not classified as hazardous

3.2.1. Hazardous ingredients

Chemical name	CAS No	EC No	REACH Registration No	% w/w	Harmonised classification according to Regulation (EC) No 1272/2008 (Table 3 of Annex VI)[1)]
Selenium	7782-49-2	231-957-4	01-2119981706-25	4.76	Acute Tox 3*; H301 Acute Tox 3*; H331 STOT RE 2*; H373** Aquatic Chronic 4; H413 * Minimum classification[2)] ** No indication of the exposure pathway

[1)] The harmonized classification was based on Table 1.1 in Annex VII to the Regulation.
[2)] According to the available toxicological data (see section 11), the stated minimum classification is incorrect. After that, H301, H331 and H373 can be omitted (see the section entitled "Justification for classification or non-classification" in the REACH Dossier of Selenium).

3.3. Additional information
The text of H-Statements is given in section 16.

SECTION 4: First aid measures
4.1. Description of first aid measures
4.1.1. General informations
Consult doctor in case of pathological signs.
4.1.2. In case of eye contact
Rinse widely opened eye for several minutes (at least 10 min) under running water. Remove contact lenses. It is advisable to use an eyewash. Further treatment by an ophthalmologist.
4.1.3. In case of skin contact
Remove contaminated clothing immediately and wash affected areas with soap and water.
4.1.4. Following ingestion
Rinse mouth with water and call a doctor! Do not induce vomiting! Encourage to drink water in small sips (dilution effect).
4.1.5. Following inhalation
If inhaling abrasive dust remove victim to fresh air.
4.1.6. Self-protection of the First Aider
Avoid contact with substance still present.
4.2. Most important symptoms and effects, both acute and delayed
Vomiting, irritation of the respiratory tract
4.3. Indication of any immediate medical attention and special treatment needed
None

SECTION 5: Firefighting measures
5.1. Extinguishing media
Suitable extinguishing media:
water spray, foam, carbon dioxide or extinguishing powder
Unsuitable extinguishing media:
not known
5.2. Special hazards arising from the substance or mixture
In a fire corrosive sulphur and selenium oxides can be released.

5.3. Advice for firefighters
Product is non-combustible, fire-extinguishing measures are to be adapted to surrounding.
The extinguishing water should not enter the sewage system!

SECTION 6: Accidental release measures
6.1. Personal precautions, protective equipment and emergency procedures
Avoid formation of dust. Do not eat or drink when handling Kjeldahl tablets. Always wear gloves, goggles and protective clothing.
6.2. Environmental precautions
Product should not be discharged into drains or waterways.
6.3. Methods and material for containment and cleaning up
Take up mechanically. In the post-cleaning avoid formation of dust. The spilled product should be discarded.
6.4. Reference to other sections
See sections 4, 7, 8, and 13.

SECTION 7: Handling and storage
7.1. Precautions for safe handling
Do not eat or drink when handling Kjeldahl tablets. Use protective gloves, goggles and protective clothing.
7.2. Conditions for safe storage, including any incompatibilities
Kjeldahl tablets should be stored dry in tightly closed containers, separate from foodstuffs, beverages and animal feedstocks.
Storage class: 13 (non-combustible solids) according to TRGS 510 (Storage of hazardous substances in nonstationary containers), Annex 4.
7.3. Specific end use(s)
For determination of nitrogen by the Kjeldahl method.

SECTION 8: Exposure controls/personal protection
8.1. Control parameters
Sodium sulfate:
General limit for dust (TRGS 900 (Technical Rules for Hazardous Substances)):
Inhalable fraction (I dust): 10 mg/m³ (TWA)
Respirable fraction (R dust): 1.25 mg/m³ (TWA)
Selenium:
OEL (TRGS 900): 0.05 mg/m³ inhalable fraction (Exceeding factor: 1 (I) with (I) for substances where the local effect is limiting or for respiratory sensitizers)
Selenium and its inorganic compounds:
BAT value (List of the DFG, 2018): 150 µg selenium/l (Specimen: serum)

DNEL (systemic)
All figures are taken from REACH registration dossiers for sodium sulfate and selenium.

Route	Substance	Worker	General population
Inhalation (Long time exposure)	sodium sulfate	20 mg/m³	12 mg/m³
	selenium	0.05 mg/m³	0.015 mg/m³
Dermal (Long time exposure)	sodium sulfate	no hazard identified	
	selenium	7 mg/kg bw/day	4.3 mg/kg bw/day
Oral (Long time exposure)	sodium sulfate	no hazard identified	
	selenium	-	4.3 µg/kg bw/day

PNEC

All figures are taken from REACH registration dossiers for sodium sulfate and selenium.

Substance	sodium sulfate	selenium
Freshwater	11.09 mg/l	2.67 µg/l
Seawater	1.109 mg/l	2 µg/l
Sediment (Freshwater)	40.2 mg/ kg Sediment dw	8.2 mg/kg Sediment dw
Sediment (Seawater)	4.02 mg/ kg Sediment dw	6.2 mg/kg Sediment dw
Soil	1.54 mg/ kg Boden dw	0.1 mg/kg Boden dw

8.2. Exposure controls

Ensure good ventilation. Avoid formation of dust.

8.2.1. Personal protective equipment

8.2.1.1. Eye / Face protection

Safety glasses required.

8.2.1.2. Respiratory protection

Required when occurrence of dusts (particle filter P2 according to DIN 3181).

8.2.1.3. Skin protection

Chemical protective gloves, e.g. consisting of nitrile rubber (check for damage before use), penetration time (value for permeation: Level 6, > 480 min, EN 374)

8.2.2. General health and safety measures

Avoid unnecessary contact with the product.
Wash hands after work, change contaminated clothing.
While using do not eat, drink or smoke.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance:	grey tablets
Weight:	1.05 g
Odour:	odourless
Odour threshold:	not applicable
pH value (20 °C):	5.9 (at 50 g/l H_2O)
Melting point or melting range:	not determined
Initial boiling point and boiling range:	not determined
Flash point:	not applicable, since mixture of solids
Evaporation rate:	not determinable, since vapor pressure too low
Flammability:	not applicable, since mixture of inorganic solids
Upper/lower flammability or explosive limits:	see the comments on flammability
Vapour Pressure (20 °C):	< 10^{-3} mbar (< 10^{-1} Pa)
Vapour density:	not applicable, since vapor pressure too low
Density (20 °C):	2.7 g/cm^3
Bulk Density (20 °C):	1280 kg/m^3
Solubilities	
Solubility in water (20 °C):	170 g/l (residue of selenium)
Partition coefficient: n-octanol/water (log K_{OW}):	not determined, since mixture of inorganic solids
Auto-ignition temperature:	not applicable, since inorganic solid
Decomposition temperature:	not determined
Viscosity:	not applicable
Viscosity:	not applicable, since solid
Explosive properties:	not applicable, since stable inorganic solid

	(insensitive to heat, impact or friction, contains no chemically unstable or high energetic groups)
Oxidising properties:	not applicable, all components contain no oxidizing acting molecule groups

9.2. Other information
Other physical and chemical properties have not been determined.

SECTION 10: Stability and reactivity
10.1. Reactivity
No specific reactivity.
10.2. Chemical stability
No decomposition when used and stored as intended.
10.3. Possibility of hazardous reactions
Not known.
10.4. Conditions to avoid
The contact with moisture.
10.5. Incompatible materials
Alkalis and corrosion sensitive metals.
10.6. Hazardous decomposition products
If the product is overheated or in a fire corrosive sulphur and selenium oxides hazardous to health can be released.

SECTION 11: Toxicological information
11.1. Information on toxicological effects
No toxicological data available for the mixture.
For selenium generally applies:
Selenium is an essential trace element for humans. See “Opinion of the Scientific Committee on Food on the Tolerable Upper Intake Level of Selenium” (SCF/CS/NUT/UPPLEV/25 Final, November 28, 2000).
In elemental form, selenium is considered to be acutely relatively non-toxic, with the exception of exposure to fine dust or smoke.
11.1.1. Acute toxicity
All figures are taken from REACH registration dossiers for sodium sulfate and selenium.
Acute oral toxicity
Sodium sulfate: LD_{50} (rat) > 2000 mg/kg bw (OECD Test guideline 423)
Selenium (powder form): LD_{50} (rat) > 5000 mg/kg bw (OECD Test guideline 401)
Acute inhalation toxicity
Sodium sulfate: LC_{50}: (rat) > 2.4 mg/l/4h (OECD Test guideline 436)
Selenium powder (Aerosol): LC_{50}: (rat) > 5.67 mg/l/4h (Test guideline EPA OPP 81-3)
11.1.2. Skin corrosion/irritation
The product can cause skin irritations. But the effect does not meet the criteria for classification.
11.1.3. Eye damage/irritation
The product can cause eye irritation. But the effect does not meet the criteria for classification.
11.1.4. Sensitisation to the respiratory tract and the skin
Not known.
11.1.5. Germ cell mutagenicity
Not known.
11.1.6. Carcinogenicity
Not known.

11.1.7. Reproductive toxicity
Not known.
11.1.8. Specific target organ toxicity (single exposure)
Not known.
11.1.9. Specific target organ toxicity (repeated exposure)
Not known.
11.1.10. Aspiration hazard
Not known.

SECTION 12: Ecological information
12.1. Toxicity
12.1.1. Acute aquatic toxicity
All figures are taken from REACH registration dossiers for sodium sulfate and selenium.
Toxicity to fish
Sodium sulfate
LC_{50} (*Pimephales promelas*, 96 h): 7960 mg/l (Test guideline EPA/600/4-90/027)
Selenium
LC_{50} (*Oncorhynchus mykiss,* 96 h): > 100 mg selenium/l (nominal) (OECD Test guideline 203)
> 26.2 µg selenium/l (solved)
Toxicity to daphnia
Sodium sulfate
EC_{50} (*Daphnia magna,* 48 h): 4580 mg/l (Test guideline EPA/600/4-90/027)
Selenium
EC_{50} (*Daphnia magna*, 48 h): > 100 mg/l (nominal) (OECD Test guideline 202)
> 160,3 µg Selen/l (solved)
Toxicity to algae
Selenium
EC_{r50} (*Pseudokirchneriella subcapitata,* 72 h): > 1.73 µg selenium/l (solved) (Growth rate)
(OECD Test guideline 201)
12.1.2. Chronic aquatic toxicity
All figures are taken from REACH registration dossiers for selenium.
Selenium
NOEC (*Oncorhynchus mykiss,* 28 d): ≥ 10 mg selenium/l (nominal) (OECD Test guideline 215)
≥ 1.57 µg selenium/l (solved)
NOEC (*Daphnia magna,* 21 d): ≥ 3.42 µg selenium/l (solved) (OECD Test guideline 211)
NOEC (*Pseudokirchneriella subcapitata,* 72 h): 0.547 µg selenium/l (solved) (Growth rate)
(OECD Test guideline 201)
12.2. Persistence and degradability
Selenium is not degraded in soil and water sediments, but is enriched by adsorption.
12.3. Bioaccumulative potential
Selenium is not biodegradable, it is accumulated in the soil.
12.4. Mobility in soil
Selenium is water-insoluble and is enriched in the soil and converted by a longer period of time due to oxidation in water-soluble selenium compounds.
12.5. Results of PBT and vPvB assessment
Not applicable to inorganic substances.
12.6. Other adverse effects
Not known.

SECTION 13: Disposal considerations
13.1. Waste treatment methods
Product residues and the packaging must be disposed in accordance with the Waste Directive

2008/98/EC and national and regional regulations.
The revised list of waste pursuant to article 7 of the Directive was published with the Commission's Decision 2014/955/EU.

Product

Waste key:
06 03 14 (solid salts and solutions not containing cyanides or heavy metals)

Packaging

Contaminated packaging should be disposed of like the product.

SECTION 14: Transport information

Not hazardous substance according to the national and international dangerous goods regulations.

SECTION 15: Regulatory information

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

15.1.1. EU regulations

Safety Data Sheet:
Regulation (EC) No 1907/2006 (REACH), Annex II (SDS) amended by Regulation (EU) 2015/830.
Classification and labelling:
Regulation (EC) No 1272/2008 (CLP (EU-GHS) Regulation)

15.1.2. Basic national regulations (Germany)

Act for the protection of young people at work (JArbSchG)
Observe employment restrictions according to § 22 for teens.
Act for the protection of mothers at work, in education and in study (MuSchG)
Inadmissible activities and working conditions according to §§ 11 and 12 MuSchG for expectant and nursing mothers.
Act on protection against hazardous substances (Chemicals Act (ChemG))
Regulation on protection against hazardous substances (Hazardous Substances Regulation (GefStoffV))
Regulation on bans and restrictions on the marketing and delivery of certain substances, mixtures and products pursuant to the Chemicals Act (ChemVerbotsV)
Ordinance on facilities for handling substances that are hazardous to water (AwSV) of 18 April 2017.
Sodium sulfate (identification number: 286, see database Rigoletto) - Water hazard class (WGK): 1 (slightly hazardous to water)
Selenium (identification number: 2751, see database Rigoletto) - Water hazard class (WGK): 2 (obviously hazardous to water)
Water hazard class (WGK) of Kjeldahl tablets W12: 1 (slightly hazardous to water)
(Derivation: mass fraction of sodium sulfate ≥ 3%, see AwSV, Annex 1, section 5.2.3 Derivation of water hazard class 1)

15.2. Chemical Safety Assessment

For this product a chemical safety assessment was not created.

SECTION 16: Other information

16.1. Indication of changes

Subsection 3.2.1.	- Update
Subsection 8.1.	- Update
Section 9.1.	- Update
Subsection 11.1.	- Update
Subsection 11.1.1.	- Update

Subsection 12.1.2. - Update
Subsection 16.3. - Update
Subsection 16.4. - Update

16.2. Hazard statements according to Regulation (EC) No 1272/2008, the text was not specified in section 3

H301 - Toxic if swallowed.
H331 - Toxic if inhaled.
H373 - May cause damage to organs through prolonged or repeated exposure.
H413 - May cause long lasting harmful effects to aquatic life.

16.3. Literature and sources

Directives and Regulations

REACH Regulation (EC) No 1907/2006 as last amended by Regulation (EU) 2018/2005.
CLP (EU-GHS) Regulation (EC) No 1272/2008, as last amended by Regulation (EU) 2018/1480.

REACH registration dossiers

Sodium sulfate (REACH Registration No 01-2119519226-43)
Selenium (REACH Registration No 01-2119981706-25)

16.4. Abbreviations and acronyms

bw	body weight
CAS	Chemical Abstracts Service
CLP	Classification, Labelling, Packaging
DIN	German Institute for Standardization Incorporated Society - Deutsches Institut für Normung e. V.
DNEL	Derived No Effect Level
dw	dry weight
EC	European Community
EC	Effective Concentration
EC_r	Effective Concentration (Growth rate)
ECHA	European Chemicals Agency
EN	European Standards
EPA	Environmental Protection Agency
EU	European Union
GHS	Globally Harmonized System of Classification, Labelling and Packaging of Chemicals
LC	Lethal Concentration
LD	Lethal Dose
NOEC	No Observed Effect level Concentration
OECD	Organisation for Economic Co-operation and Development (Organisation de coopération et de développement économiques, OCDE)
OEL	Occupational Exposure Limit
PBT	Persistent, Bioaccumulative, Toxic
PNEC	Predicted No Effect Concentration
REACH	Regulation, Evaluation and Authorization of Chemicals
TRGS	Technical Rules for Hazardous Substances
TWA	Time-Weighted Average
vPvB	very persistent and very bioaccumulative

16.5. Further information

This information is based on our present knowledge, they do not constitute an assurance of product properties and establishes no contract legal rights.