SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product name

ZP-4AM

Synonyms

Zeolit / Zeolite / Zeolith 4AM

https://my.chemius.net/p/3JrWZD/en/pd/en

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

Relevant identified uses

Industrial use.

Uses advised against

Not known.

1.3 Details of the supplier of the safety data sheet

Supplier

SILKEM, d. o. o.
Tovarniška cesta 10
2325 Kidričevo, Slovenia
+386 2 7991 200
info@silkem.si

Manufacturer

SILKEM, d.o.o.
Tovarniška cesta 10
2325 Kidričevo, Slovenia
+386 2 7991 200
info@silkem.si

1.4 Emergency Telephone Number

Emergency

112

Supplier

+386 2 7991 208 (7h - 15h)

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

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

According to the regulation, the chemical is not classified as hazardous.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 [CLP]

Hazard statements:

Not applicable.

Supplemental hazard information (EU):

Not applicable.

Precautionary statements:

Not applicable.

2.3 Other hazards

PBT/vPvB

No information.

Endocrine disrupting properties

No information.

Additional information

The substances in the mixture are not classified as persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB).

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

For mixtures see 3.2.

3.2 Mixtures

Name	CAS EC Index Reach	%	Classification according to Regulation (EC) No 1272/2008 (CLP)	Specific Conc. Limits	Notes for substances
Zeolite, cuboidal, crystalline, synthetic, non-fibrous	1318-02-1 930-915-9 - 01-2119429034-49-0017	93 - 99	/	/	/
sodium sulphate	7757-82-6 231-820-9 - 01-2119519226-43-0000	1.5 - 2.5	/	/	/

Product description

EINECS: 215-283-8 and CAS: 1318-02-1 are merely used for information as related numbers and as a pre-registration identifier. EINECS numbers mentionned here have been designated by ECHA after registration.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General notes

When in doubt or if feeling unwell seek medical assistance.

Following inhalation

Remove patient to fresh air - move out of dangerous area. Ventilate the premises. Inhale fresh air. If symptoms develop and persist, seek medical attention.

Following skin contact

Product is not irritating to the skin. Areas of the body that have come into contact with the product must be rinsed with water.

Following eye contact

If substance has got into eyes, immediately wash out with plenty of water. If irritation persists, seek professional medical attention.

Following ingestion

In case of doubt or if feeling unwell seek medical help.

4.2 Most important symptoms and effects, both acute and delayed

Following inhalation

No information.

Following skin contact

No information.

Following eye contact

No information.

Following ingestion

No information.

4.3 Indication of any immediate medical attention and special treatment needed

No information.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Carbon dioxide. Dry chemical powder. Water spray. Alcohol resistant foam.

Unsuitable extinguishing media

Full water jet.

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products

No information.

5.3 Advice for firefighters

Protective actions

In case of fire or heating do not breathe fumes/vapours.

Special protective equipment for fire-fighters

In case of fire: Wear suitable respiratory equipment - self-contained breathing apparatus and full protective equipment.

Additional information

Contaminated firefighting water must be disposed of in accordance with the regulations; do not allow to reach the sewage system.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Protective equipment

Use personal protective equipment (Section 8). Thoroughly clean hands after use or contact.

Precautionary measures

Avoid dust generation.

Emergency procedures

No information.

For emergency responders

Wear appropriate personal protective equipment!

6.2 Environmental precautions

If accidental large entry into water or ground occurs, inform responsible authorities.

6.3 Methods and material for containment and cleaning up

For containment

No information.

For cleaning up

Pick up mechanically and remove it in accordance with regulation.

OTHER INFORMATION

No information.

6.4 Reference to other sections

See also sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Protective measures

Measures to prevent fire

Take precautionary measures against static discharges.

Measures to prevent aerosol and dust generation

Prevent dusting. Ensure good ventilation and extraction.

Measures to protect the environment

Avoid release to the environment.

Other measures

No information.

Advice on general occupational hygiene

Avoid contact with skin and eyes. Use personal protective equipment. Do not eat or drink while working.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions

Keep in well closed containers. Keep in a dry place. Keep container in a well ventilated place. Keep away from food, drink and animal feeding stuffs. This product is hygroscopic.

Packaging materials

No information.

Requirements for storage rooms and vessels

No information.

Storage class

13

Further information on storage conditions

No information.

7.3 Specific end use(s)

Recommendations

No information.

Industrial sector specific solutions

No information.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Occupational Exposure limit values

Name	mg/m^3	ml/m^3	Short-term value mg/m^3	Short-term value ml/m^3	Remark	Biological Tolerance Values
Zeolite, cuboidal, crystalline, synthetic, non-fibrous	10	/	/	/	WEL long-term, inhalable	/
Zeolite, cuboidal, crystalline, synthetic, non-fibrous	4	/	/	/	WEL long-term, respirable	/

Information on monitoring procedures

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.BS EN 482:2021 Workplace exposure. Procedures for the determination of the concentration of chemical agents. Basic performance requirements.

DNEL/DMEL values

For product

No information.

For components

Name	Type	Exposure route	exp. frequency	Remark	value
Zeolite, cuboidal, crystalline, synthetic, non-fibrous	Worker	inhalation	long term	/	3 mg/m³
Zeolite, cuboidal, crystalline, synthetic, non-fibrous	Worker	dermal	long term	/	2.5 mg/kg bw/day
sodium sulphate	Worker	inhalation	long term systemic effects	/	20 mg/m³
sodium sulphate	Worker	inhalation	long term local effects	/	20 mg/m³
sodium sulphate	Consumer	inhalation	long term systemic effects	/	12 mg/m³
sodium sulphate	Consumer	inhalation	long term local effects	/	12 mg/m³

PNEC values

For product

No information.

For components

Name	Exposure route	Remark	value
Zeolite, cuboidal, crystalline, synthetic, non-fibrous	fresh water	/	3.2 mg/L
Zeolite, cuboidal, crystalline, synthetic, non-fibrous	marine water	/	0.32 mg/L
Zeolite, cuboidal, crystalline, synthetic, non-fibrous	soil	/	600 mg/kg dw
sodium sulphate	fresh water	/	11.09 mg/L
sodium sulphate	marine water	/	1.109 mg/L
sodium sulphate	water treatment plant	/	800 mg/L
sodium sulphate	fresh water sediment	/	40.2 mg/kg
sodium sulphate	marine water sediment	/	4.02 mg/kg
sodium sulphate	soil	/	1.54 mg/kg
sodium sulphate	water, intermittent release	/	17.66 mg/L

8.2 Exposure controls

Appropriate engineering control

Substance/mixture related measures to prevent exposure during identified uses

Use good personal hygiene practices – wash hands at breaks and when done working with material. Handle in accordance with good industrial hygiene and safety practice.

Structural measures to prevent exposure

No information.

Organisational measures to prevent exposure

Keep eyewash bottles or personal eyewash units available.

Technical measures to prevent exposure

Provide good ventilation and local exhaust in areas with increased concentration.

Personal protective equipment

Eye and face protection

Safety glasses with side protection (EN 166).

Hand protection

Protective gloves (EN 374).

Appropriate materials

No information

Skin protection

Cotton protective clothing and shoes that cover the entire foot (EN ISO 20345).

Respiratory protection

Not needed under normal use and adequate ventilation. Mask with dust filter (P2) or FFP2 (EN 149).

Thermal hazards

No information.

Environmental exposure controls

Substance/mixture related measures to prevent exposure

No information.

Instruction measures to prevent exposure

No information.

Organisational measures to prevent exposure

No information.

Technical measures to prevent exposure

No information.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state

solid - granules

Colour

white

Odour

odourless

Important health, safety and environmental information

Odour threshold	No information.
Melting point/Freezing point	No information.
Boiling point or initial boiling point and boiling range	No information.
Flammability	No information.
Lower and upper explosion limit	No information.
Flash point	No information.
Auto-ignition temperature	No information.
Decomposition temperature	No information.
pH	10 – 12
Viscosity	No information.
Solubility	No information.
Partition coefficient	No information.
Vapour pressure	No information.
Density and/or relative density	Relative density: 470 – 570 kg/m^3
Relative vapour density	No information.
Particle characteristics	No information.

9.2 OTHER INFORMATION

Explosive properties	No information.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Stable under normal conditions.

10.2 Chemical stability

Product is stable under normal conditions.

10.3 Possibility of hazardous reactions

The product is stable under recommended storage and handling conditions.

10.4 Conditions to avoid

No special precautions required. Consider the directions for use and storage. Protect from moisture and water - keep in dry place.

10.5 Incompatible materials

Not known.

10.6 Hazardous decomposition products

Under normal use conditions no hazardous decomposition products are expected.

SECTION 11: TOXICOLOGICAL INFORMATION

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

(a) Acute toxicity

For product

Exposure route	Type	Species	Time	value	Method	Remark
inhalation	LC_{50}	rat	4 h	18.3 mg/l	/	dust/aerosol
dermal	LD_{50}	rabbit	/	2000 mg/kg	/	/
oral	LD_{50}	rat	/	10000 mg/kg	/	/

For components

Name	Exposure route	Type	Species	Time	value	Method	Remark
Zeolite, cuboidal, crystalline, synthetic, non-fibrous	oral	LD_{50}	Dog	/	1000 - 31600 mg/kg	/	/
Zeolite, cuboidal, crystalline, synthetic, non-fibrous	oral	LD_{50}	rat	/	5000 - 31600 mg/kg	/	/

Name	Exposure route	Type	Species	Time	value	Method	Remark
sodium sulphate	oral	LD_{50}	rat	/	2001 mg/kg	OECD 401	/
sodium sulphate	inhalation	LC_{50}	rat	4 h	5.01 mg/l	OECD 436	/
sodium sulphate	oral	ATE	/	/	2001 mg/kg bw	/	/
sodium sulphate	inhalation	ATE	/	4 h	5.01 mg/l	/	/

(b) Skin corrosion/irritation

For components

Name	Species	Time	result	Method	Remark
Zeolite, cuboidal, crystalline, synthetic, non-fibrous	/	/	Non-irritant.	/	/
sodium sulphate	/	/	Non-irritant.	/	/

(c) Serious eye damage/irritation

For components

Name	Exposure route	Species	Time	result	Method	Remark
Zeolite, cuboidal, crystalline, synthetic, non-fibrous	/	/	/	It may cause a slight and transient irritation to the eyes.	/	Apart from mild congestion after 2 hours after application of the preparation, which has disappeard within 24 hours, no inflammation changes of conjunctiva mucosa have been observed there.
sodium sulphate	/	/	/	Irritating.	/	/

(d) Respiratory or skin sensitisation

For components

Name	Exposure route	Species	Time	result	Method	Remark
Zeolite, cuboidal, crystalline, synthetic, non-fibrous	-	/	/	Non sensitising.	/	/
sodium sulphate	dermal	guinea pig	/	Negative.	/	/

(e) (Germ cell) mutagenicity

For components

Name	Type	Species	Time	result	Method	Remark
Zeolite, cuboidal, crystalline, synthetic, non-fibrous	/	/	/	Negative.	/	/

(f) Carcinogenicity

For components

Name	Exposure route	Type	Species	Time	value	result	Method	Remark
Zeolite, cuboidal, crystalline, synthetic, non-fibrous	/	/	/	/	/	negative	/	/

(g) Reproductive toxicity

For components

Name	Reproductive toxicity type	Type	Species	Time	value	result	Method	Remark
Zeolite, cuboidal, crystalline, synthetic, non-fibrous	-	-	/	/	/	Negative.	/	/
sodium sulphate	Teratogenicity	NOAEL	rat (male/female)	/	160 mg/kg bw	not teratogenic	OECD 414	/
sodium sulphate	Maternal toxicity	NOAEL	rat (male/female)	/	160 mg/kg bw	Not toxic for reproduction.	OECD 414	/

Summary of evaluation of the CMR properties

No information.

(h) STOT-single exposure

No information.

(i) STOT-repeated exposure

No information.

(j) Aspiration hazard

No information.

Symptoms related to the physical, chemical and toxicological characteristics

No information.

Interactive effects

No information.

11.2 Information on other hazards

Endocrine disrupting properties

No information.

Other information

No information.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Acute (short-term) toxicity

For product

Type	Exposure time	Species	organism	Method	Remark	value
EC_{50}	72 h	algae	/	/	/	560 - 1000 mg/L
LC_{50}	96 h	fish	/	/	/	1800 - 3200 mg/L

For components

Name	Type	value	Exposure time	Species	organism	Method	Remark
Zeolite, cuboidal, crystalline, synthetic, non-fibrous	EC_{50}	> 100 mg/L	48 h	daphnia	/	/	/
Zeolite, cuboidal, crystalline, synthetic, non-fibrous	LC_{50}	> 680 mg/L	96 h	fish	/	/	/
Zeolite, cuboidal, crystalline, synthetic, non-fibrous	EC_{50}	> 300 mg/L	96 h	algae	/	/	/
sodium sulphate	LC_{50}	7960 mg/L	96 h	fish	*Pimephales promelas*	/	/
sodium sulphate	EC_{50}	1766 mg/L	48 h	crustacea	*Daphnia magna*	/	/
sodium sulphate	EC_{50}	1900 mg/L	72 h	algae	*Nitzschia linearis*	/	/

Chronic (long-term) toxicity

For components

Name	Type	value	Exposure time	Species	organism	Method	Remark
Zeolite, cuboidal, crystalline, synthetic, non-fibrous	NOEC	> 86.7 mg/l	/	fish	/	/	/

Name	Type	value	Exposure time	Species	organism	Method	Remark
Zeolite, cuboidal, crystalline, synthetic, non-fibrous	NOEC	32 mg/l	/	aquatic invertebrate	/	/	/
Zeolite, cuboidal, crystalline, synthetic, non-fibrous	NOEC	> 200 mg/l	/	sediment organisms	/	/	/
Zeolite, cuboidal, crystalline, synthetic, non-fibrous	LC_{50}	9000 mg/kg soil dw	23 days	Terrestrial plants	/	OECD 208	seedling emergence
Zeolite, cuboidal, crystalline, synthetic, non-fibrous	EC50	9000 mg/kg soil dw	/	Terrestrial plants	/	OECD 208	seedling growth
Zeolite, cuboidal, crystalline, synthetic, non-fibrous	NOEC	5000 mg/kg soil dw	/	Terrestrial plants	/	OECD 208	/
sodium sulphate	NOEC	8000 mg/l	/	crustacea	/	/	/

12.2 Persistence and degradability

Abiotic degradation, physical- and photo-chemical elimination

For components

Name	Environment	Type / Method	Half Time	Evaluation	Method	Remark
Zeolite, cuboidal, crystalline, synthetic, non-fibrous	water	hydrolysis	/	The hydrolysis rate is accelerated at high and low pH and is retarded by high concentrations of hydrolysis products	/	/
Zeolite, cuboidal, crystalline, synthetic, non-fibrous	water	hydrolysis	/	The hydrolytic reaction results in the formation of natural aluminosilicates such that natural constituents of soil, sediment and water are formed	/	/

Biodegradation

No information.

12.3 Bioaccumulative potential

Partition coefficient

For components

Name	Media	value	Temperature °C	pH	Concentration	Method
sodium sulphate	Octanol-water (log Pow)	-4.38	/	/	/	/

Bioconcentration factor (BCF)

For components

Name	Species	organism	value	Duration	Evaluation	Method	Remark
Zeolite, cuboidal, crystalline, synthetic, non-fibrous	-	/	/	/	Does not bioaccumulate.	/	/
sodium sulphate	BCF	/	0.5	/	/	/	/

12.4 Mobility in soil

Known or predicted distribution to environmental compartments

No information.

Surface tension

No information.

Adsorption/Desorption

For components

Name	Type	Criterion	value	Evaluation	Method	Remark
Zeolite, cuboidal, crystalline, synthetic, non-fibrous	Soil	/	/	Not amenable to biodegradation. In practice zeolite improve nutrient balance in soil.	/	/

12.5 Results of PBT and vPvB assessment

The components in this formulation do not meet the criteria for classification as PBT or vPvB.

12.6 Endocrine disrupting properties

No information.

12.7 Other adverse effects

No information.

12.8 Additional information

For product

Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product / Packaging disposal

Waste chemical

Waste should be handled in accordance with local or national regulations

Waste codes / waste designations according to LoW

No information.

Packaging

Deliver completely emptied containers to approved waste disposal authorities.

Waste codes / waste designations according to LoW

No information.

Waste treatment-relevant information

Disposal in accordance with the Rules on the management of waste.

Sewage disposal-relevant information

No information.

Other disposal recommendations

No information.

SECTION 14: TRANSPORT INFORMATION

14.1 UN number or ID number

ADR/RID	IMDG	IATA	ADN
Not dangerous according to transport regulations.	Not dangerous according to transport regulations.	Not dangerous according to transport regulations.	Not dangerous according to transport regulations.

14.2 UN proper shipping name

ADR/RID	IMDG	IATA	ADN
Not given/not applicable	Not given/not applicable	Not given/not applicable	Not given/not applicable

14.3 Transport hazard class(es)

ADR/RID	IMDG	IATA	ADN
Not given/not applicable	Not given/not applicable	Not given/not applicable	Not given/not applicable

14.4 Packing group

ADR/RID	IMDG	IATA	ADN
Not given/not applicable	Not given/not applicable	Not given/not applicable	Not given/not applicable

14.5 Environmental hazards

ADR/RID	IMDG	IATA	ADN
NO	NO	NO	NO

14.6 Special precautions for user

ADR/RID	IMDG	IATA	ADN
Limited quantities: **Not given/not applicable**	Limited quantities: **Not given/not applicable**		Limited quantities: **Not given/not applicable**

14.7 Maritime transport in bulk according to IMO instruments

ADR/RID	IMDG	IATA	ADN
	Not given/not applicable		

SECTION 15: REGULATORY INFORMATION

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

- Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (including last amendment Commission Regulation (EU) 2020/878)

- Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures

Information according 2004/42/EC about limitation of emissions of volatile organic compounds (VOC-guideline)

not applicable

Regulation EC 648/2004 on detergents

No information.

Special instructions

No information.

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

SECTION 16: OTHER INFORMATION

Indication of changes

2.3 Other hazards 4.1 Description of first aid measures 9.1 Information on basic physical and chemical properties 9.2 OTHER INFORMATION 11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008 12.6 Endocrine disrupting properties 12.7 Other adverse effects 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Key literature references and sources for data

ZP - 4AM, Silkem, d. o. o., version 2

Abbreviations and acronyms

ATE - Acute Toxicity Estimate
ADR - Agreement concerning the International Carriage of Dangerous Goods by Road
ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
CEN - European Committee for Standardisation
C&L - Classification and Labelling
CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
CAS# - Chemical Abstracts Service number
CMR - Carcinogen, Mutagen, or Reproductive Toxicant
CSA - Chemical Safety Assessment
CSR - Chemical Safety Report

DMEL - Derived Minimal Effect Level
DNEL - Derived No Effect Level
DPD - Dangerous Preparations Directive 1999/45/EC
DSD - Dangerous Substances Directive 67/548/EEC
DU - Downstream User
EC - European Community
ECHA - European Chemicals Agency
EC-Number - EINECS and ELINCS Number (see also EINECS and ELINCS)
EEA - European Economic Area (EU + Iceland, Liechtenstein and Norway)
EEC - European Economic Community
EINECS - European Inventory of Existing Commercial Substances
ELINCS - European List of notified Chemical Substances
EN - European Standard
EQS - Environmental Quality Standard
EU - European Union
Euphrac - European Phrase Catalogue
EWC - European Waste Catalogue (replaced by LoW – see below)
GES - Generic Exposure Scenario
GHS - Globally Harmonized System
IATA - International Air Transport Association
ICAO-TI - Technical Instructions for the Safe Transport of Dangerous Goods by Air
IMDG - International Maritime Dangerous Goods
IMSBC - International Maritime Solid Bulk Cargoes
IT - Information Technology
IUCLID - International Uniform Chemical Information Database
IUPAC - International Union for Pure Applied Chemistry
JRC - Joint Research Centre
Kow - octanol-water partition coefficient
LC50 - Lethal Concentration to 50 % of a test population
LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose)
LE - Legal Entity
LoW - List of Wastes (see http://ec.europa.eu/environment/waste/framework/list.htm)
LR - Lead Registrant
M/I - Manufacturer / Importer
MS - Member States
MSDS - Material Safety Data Sheet
OC - Operational Conditions
OECD - Organization for Economic Co-operation and Development
OEL - Occupational Exposure Limit
OJ - Official Journal
OR - Only Representative
OSHA - European Agency for Safety and Health at work
PBT - Persistent, Bioaccumulative and Toxic substance
PEC - Predicted Effect Concentration
PNEC(s) - Predicted No Effect Concentration(s)
PPE - Personal Protection Equipment
(Q)SAR - Qualitative Structure Activity Relationship
REACH - Registration, Evaluation, Authorisation and Restriction of ChemicalsRegulation (EC) No 1907/2006
RID - Regulations concerning the International Carriage of Dangerous Goods by Rail
RIP - REACH Implementation Project
RMM - Risk Management Measure
SCBA - Self-Contained Breathing Apparatus
SDS - Safety data sheet
SIEF - Substance Information Exchange Forum
SME - Small and Medium sized Enterprises
STOT - Specific Target Organ Toxicity
(STOT) RE - Repeated Exposure
(STOT) SE - Single Exposure
SVHC - Substances of Very High Concern
UN - United Nations
vPvB - Very Persistent and Very Bioaccumulative

List of relevant H phrases

No information.