

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

1.1. Product identifier

Product form	: Mixture
Product name	: SYNTHESIZED SOIL REFERENCE MATERIAL
Product code	: B2221
Product group	: End product

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

1.2.1. Relevant identified uses

Main use category	: Professional use
Use of the substance/mixture	: Laboratory chemicals
Function or use category	: Laboratory chemicals

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Elemental Microanalysis Ltd
1 Hameldown Road
Okehampton, Devon, EX20 1UB
GB United Kingdom
T +44 1837 54446
enquiries@microanalysis.co.uk, <https://www.elementalmicroanalysis.com/>

1.4. Emergency telephone number

Emergency number : +44 (0) 7990 767375

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Carcinogenicity, Category 1A	H350
Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation	H335
Full text of H- and EUH-statements: see section 16	

Adverse physicochemical, human health and environmental effects

May cause cancer. May cause respiratory irritation.

2.2. Label elements

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

Hazard pictograms (CLP) :



Signal word (CLP)	: Danger
Contains	: CRYSTALLINE QUARTZ
Hazard statements (CLP)	: H335 - May cause respiratory irritation. H350 - May cause cancer.
Precautionary statements (CLP)	: P201 - Obtain special instructions before use. P261 - Avoid breathing dust. P280 - Wear eye protection, protective clothing, protective gloves.

SYNTHESIZED SOIL REFERENCE MATERIAL

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

P308+P313 - IF exposed or concerned: Get medical advice/attention.
P312 - Call a POISON CENTER, doctor if you feel unwell.
EUH-statements : EUH212 - Warning! Hazardous respirable dust may be formed when used. Do not breathe dust.

2.3. Other hazards

Contains no PBT and/or vPvB substances $\geq 0.1\%$ assessed in accordance with REACH Annex XIII

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or substance(s) are not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1 %

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
KAOLIN substance with national workplace exposure limit(s) (BE, BG, DK, FI, GB, HR, IE, PL, PT, IS, CH)	CAS-No.: 1332-58-7 EC-No.: 310-194-1	89	Not classified
CRYSTALLINE QUARTZ substance with national workplace exposure limit(s) (AT, BE, DK, FI, FR, LT, NL, PL, PT, SE, SK, NO, CH); substance with a Community workplace exposure limit	CAS-No.: 14808-60-7 EC-No.: 262-373-8	39	Carc. 1A, H350i STOT SE 3, H335
TITANIUM DIOXIDE substance with national workplace exposure limit(s) (AT, BE, BG, DK, EE, ES, FR, GB, GR, HR, IE, LT, LV, PL, PT, RO, SE, SK, IS, NO, CH)	CAS-No.: 13463-67-7 EC-No.: 236-675-5 EC Index-No.: 022-006-00-2	4	Carc. 2, H351

Full text of H- and EUH-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : IF exposed or concerned: Get medical advice/attention.
First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Call a poison center or a doctor if you feel unwell.
First-aid measures after skin contact : Wash skin with plenty of water.
First-aid measures after eye contact : Rinse eyes with water as a precaution.
First-aid measures after ingestion : Call a poison center or a doctor if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after inhalation : May cause respiratory irritation.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SYNTHESIZED SOIL REFERENCE MATERIAL

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3. Advice for firefighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Only qualified personnel equipped with suitable protective equipment may intervene. Avoid breathing dust/fume/gas/mist/vapours/spray.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Mechanically recover the product. Notify authorities if product enters sewers or public waters.

Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Take all necessary technical measures to avoid or minimize the release of the product on the workplace. Limit quantities of product at the minimum necessary for handling and limit the number of exposed workers. Provide local exhaust or general room ventilation. Wear personal protective equipment. Floors, walls and other surfaces in the hazard area must be cleaned regularly. Avoid breathing dust/fume/gas/mist/vapours/spray.

Hygiene measures : Separate working clothes from town clothes. Launder separately. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep cool.

7.3. Specific end use(s)

No additional information available

SYNTHESIZED SOIL REFERENCE MATERIAL

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

KAOLIN (1332-58-7)

United Kingdom - Occupational Exposure Limits

Local name	Kaolin
WEL TWA (OEL TWA)	2 mg/m ³ respirable dust
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE

CRYSTALLINE QUARTZ (14808-60-7)

EU - Indicative Occupational Exposure Limit (IOEL)

Local name	Silica crystalline (Quartz)
IOEL TWA	0.05 mg/m ³ (respirable dust)
Remark	(Year of adoption 2003)
Regulatory reference	SCOEL Recommendations

TITANIUM DIOXIDE (13463-67-7)

United Kingdom - Occupational Exposure Limits

Local name	Titanium dioxide
WEL TWA (OEL TWA)	4 mg/m ³ respirable 10 mg/m ³ total inhalable
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

No additional information available

8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

8.2.2. Personal protection equipment

Personal protective equipment symbol(s):



8.2.2.1. Eye and face protection

Eye protection:

Safety glasses

SYNTHESIZED SOIL REFERENCE MATERIAL

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

8.2.2.2. Skin protection

Skin and body protection:

Wear suitable protective clothing

Hand protection:

Protective gloves

8.2.2.3. Respiratory protection

Respiratory protection:

[In case of inadequate ventilation] wear respiratory protection.

8.2.2.4. Thermal hazards

No additional information available

8.2.3. Environmental exposure controls

Environmental exposure controls:

Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Colour	: Beige.
Odour	: odourless.
Odour threshold	: Not available
Melting point	: Not available
Freezing point	: Not applicable
Boiling point	: Not available
Flammability	: Non flammable.
Explosive limits	: Not applicable
Lower explosion limit	: Not applicable
Upper explosion limit	: Not applicable
Flash point	: Not applicable
Auto-ignition temperature	: Not applicable
Decomposition temperature	: Not available
pH	: Not available
pH solution	: Not available
Viscosity, kinematic	: Not applicable
Solubility	: Not available
Partition coefficient n-octanol/water (Log Kow)	: Not available
Vapour pressure	: Not available
Vapour pressure at 50°C	: Not available
Density	: Not available
Relative density	: Not available
Relative vapour density at 20°C	: Not applicable
Particle size	: Not available

9.2. Other information

9.2.1. Information with regard to physical hazard classes

No additional information available

9.2.2. Other safety characteristics

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

SYNTHESIZED SOIL REFERENCE MATERIAL

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

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

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

KAOLIN (1332-58-7)

LD50 oral rat	> 5000 mg/kg Source: HSDB
LD50 dermal rat	> 5000 mg/kg Source: HSDB
LC50 Inhalation - Rat (Dust/Mist)	≥ 5 mg/l Source: OSHRI GLP toxicity test

TITANIUM DIOXIDE (13463-67-7)

LD50 oral rat	> 5000 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: OECD Guideline 425 (Acute Oral Toxicity: Up-and-Down Procedure), Guideline: EPA OPPTS 870.1100 (Acute Oral Toxicity)
LC50 Inhalation - Rat (Dust/Mist)	> 6.82 mg/l Source: ECHA

Skin corrosion/irritation : Not classified

KAOLIN (1332-58-7)

pH	4.5 Source: hsdh
----	------------------

TITANIUM DIOXIDE (13463-67-7)

pH	7 Source: ECHA
----	----------------

Serious eye damage/irritation : Not classified

KAOLIN (1332-58-7)

pH	4.5 Source: hsdh
----	------------------

TITANIUM DIOXIDE (13463-67-7)

pH	7 Source: ECHA
----	----------------

Respiratory or skin sensitisation : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : May cause cancer.

CRYSTALLINE QUARTZ (14808-60-7)

IARC group	1 - Carcinogenic to humans
------------	----------------------------

SYNTHESIZED SOIL REFERENCE MATERIAL

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

TITANIUM DIOXIDE (13463-67-7)

IARC group	2B - Possibly carcinogenic to humans
Reproductive toxicity	: Not classified
STOT-single exposure	: May cause respiratory irritation.

CRYSTALLINE QUARTZ (14808-60-7)

STOT-single exposure	May cause respiratory irritation.
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified

SYNTHESIZED SOIL REFERENCE MATERIAL

Viscosity, kinematic	Not applicable
----------------------	----------------

11.2. Information on other hazards

No additional information available

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.
Hazardous to the aquatic environment, short-term (acute)	: Not classified
Hazardous to the aquatic environment, long-term (chronic)	: Not classified
Not rapidly degradable	

TITANIUM DIOXIDE (13463-67-7)

LC50 - Fish [1]	> 100 mg/l
EC50 - Other aquatic organisms [1]	> 100 mg/l Test organisms (species):
EC50 72h - Algae [1]	> 100 mg/l Test organisms (species): Raphidocelis subcapitata (previous names: Pseudokirchneriella subcapitata, Selenastrum capricornutum)
LOEC (chronic)	5 mg/l Test organisms (species): Daphnia magna Duration: '21 d'

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Endocrine disrupting properties

No additional information available

12.7. Other adverse effects

No additional information available

SYNTHESIZED SOIL REFERENCE MATERIAL

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.
HP Code : HP5 - "Specific Target Organ Toxicity (STOT)/Aspiration Toxicity:" waste which can cause specific target organ toxicity either from a single or repeated exposure, or which cause acute toxic effects following aspiration.
HP7 - "Carcinogenic:" waste which induces cancer or increases its incidence

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.2. UN proper shipping name				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.3. Transport hazard class(es)				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.4. Packing group				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.5. Environmental hazards				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
No supplementary information available				

14.6. Special precautions for user

Overland transport

Not regulated

Transport by sea

Not regulated

Air transport

Not regulated

Inland waterway transport

Not regulated

Rail transport

Not regulated

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

REACH Annex XVII (Restriction List)

Contains no substance(s) listed on REACH Annex XVII (Restriction Conditions)

SYNTHESIZED SOIL REFERENCE MATERIAL

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

REACH Annex XIV (Authorisation List)

Contains no substance(s) listed on REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

Contains no substance(s) listed on the REACH Candidate List

PIC Regulation (Prior Informed Consent)

Contains no substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals)

POP Regulation (Persistent Organic Pollutants)

Contains no substance(s) listed on the POP list (Regulation EU 2019/1021 on persistent organic pollutants)

Ozone Regulation (1005/2009)

Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 1005/2009 on substances that deplete the ozone layer)

Explosives Precursors Regulation (2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Drug Precursors Regulation (273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Abbreviations and acronyms:

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level

SYNTHESIZED SOIL REFERENCE MATERIAL

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

Abbreviations and acronyms:

NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disruptor

Full text of H- and EUH-statements:

Carc. 1A	Carcinogenicity, Category 1A
Carc. 2	Carcinogenicity, Category 2
EUH212	Warning! Hazardous respirable dust may be formed when used. Do not breathe dust.
H335	May cause respiratory irritation.
H350	May cause cancer.
H350i	May cause cancer by inhalation.
H351	Suspected of causing cancer.
STOT SE 3	Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation

The classification complies with : ATP 12

Safety Data Sheet (SDS)_EMAL, EU

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.