SAFETY DATA SHEET

Granzyme B substrate

Item number(s): REMARDE0020

According to (EC) No. 1907/2006 (and 2020/878)

Day of issue: 07-05-2025

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

1.1. Product identifier:
Granzyme B substrate (REMARDE0020)

1.2. Relevant identified uses of the substance or mixture and uses advised against:
Liquid for research and analysis. Restricted to professional users.

1.3. Details of the supplier of the safety data sheet:
Samplix ApS Phone: (+45) - 82 30 45 00
Bregnerødvej 96,
DK-3460 Birkerød, Denmark
Responsible person for the safety data sheet (e-mail): support@samplix.com

1.4. Emergency telephone number:
NHS (England or Wales): Dial 111 or 0845 4647 NHS 24 (Scotland): Dial 111
Giftlinjen (Denmark): +45 – 82 12 12 12

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture:
CLP (1272/2008): None

2.2. Label elements:
EUH210: Safety data sheet available on request.

2.3 Other hazards: None known.
PBT/vPvB: No ingredients are PBT/vPvB, according to the criteria set out in Regulation 2023/707.
Endocrine disrupting properties: The substances are not identified as having endocrine disrupting properties in accordance with the criteria set out in Regulation 2023/707.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Mixtures:
Containing Water, Granzyme B substrate and the following substance:

% w/w	Substance name	CAS-no.	EC-no.	Index-no.	REACH Reg.no.	Classification
10-50	Dimethyl Sulfoxide (DMSO)	67-68-5	200-664-3	-	-	Not classified

SECTION 4: FIRST-AID MEASURES

4.1. Description of first aid measures:

Inhalation: Move to fresh air. **Mild cases**: Keep at rest. If needed: get medical attention. **Severe cases**: Place the person in recovery position and keep warm. If respiration has stopped, administer artificial respiration. Seek medical advice immediately.

Skin contact: Remove contaminated clothing and wash skin with water and mild soap. If irritation persists: Seek medical advice.

Eye contact: Immediately flush with water or physiological salt water for at least 15 minutes, holding eyelids open, remember to remove contact lenses, if any. If irritation persists: Seek medical advice.

Ingestion: Rinse mouth and drink plenty of water. In case of discomfort: Get medical attention.

Burns: Flush with water until pain ceases. Remove cloth that isn't burnt to the skin. If needed seek medical attention, continue to flush on the way.

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

May cause slight irritation of eyes, skin, lungs and gastrointestinal tract. Can give headache, dizziness, tiredness, nausea and vomiting. Prolonged or frequent exposure to vapours of volatile organic compounds may result in damage on liver, kidneys, blood or central nervous system (including brain damage).

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

In case of unconsciousness: Seek medical advice immediately. Show this safety data sheet to a physician or emergency ward.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media:

Use water spray (never water jet), dry chemical, foam or carbon dioxide.

5.2. Special hazards arising from the substance or mixture:

In case of fire, the product may form hazardous decomposition products such as oxides of carbon and sulphur.

5.3. Advice for firefighters:

Do not inhale smoke fumes. When extinguishing surrounding fires use breathing apparatus with an independent source of air.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures:

Use personal protective equipment - see section 8. Provide adequate ventilation. Remove sources of ignition. Avoid further spreading.

6.2. Environmental precautions:

Do not empty into drains – see section 12. Inform appropriate authorities in accordance with local regulations.

6.3. Methods and material for containment and cleaning up:

Absorb spilled liquid with inert material and place in a suitable container for disposal. Clean with water. Further handling of spillage - see section 13.

6.4. Reference to other sections:

See references above.

SECTION 7: HANDLING AND STORAGE

7.1. Precaution for safe handling:

Avoid breathing vapours. Provide adequate ventilation. Avoid contact with skin, eyes and clothing. After work, wash hands with water and mild soap. Required access to water and eye wash fountain and emergency shower. Never to be handled close to fire, sparks and hot surfaces. No smoking.

7.2. Conditions for safe storage, including any incompatibilities:

Store in a tightly closed original container at dry cool and well-ventilated area. Store in a flammable liquid storage area.

7.3. Specific end use(s):

See section 1.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters:

Occupational exposure limits (EH40/2005 with later amendments): None

DNEL/PNEC: No CSR.

8.2. Exposure controls:

Appropriate engineering controls: Ensure adequate ventilation.

Personal protective equipment:

Inhalation:	In case of insufficient ventilation: Use an approved mask (EN140) with gas filter: A (Brown - for organic vapours). The filter has a limited lifetime and must be changed. Read the instruction.
Skin:	Wear protective gloves of e.g. butyl- or neoprene rubber (thickness > 0.3 mm) (EN374). It has not been possible to find data for breakthrough time. In case of spill on the glove, it is recommended to change it after use.
Eyes:	Safety goggles (EN ISO 16321-1) when there is risk of splashes.

Environmental exposure controls: None particular.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties:

Physical state:	Liquid
Colour:	Colourless/slight yellow
Odour:	Odourless
Melting point/freezing point (°C):	18 (DMSO)
Boiling point or initial boiling point and boiling range (°C):	189 (DMSO)
Flammability (solid, gas):	Not relevant (liquid)
Lower and upper explosion limit (vol-%):	3-63 (DMSO)
Flash point (°C):	87 (DMSO)
Auto-ignition temperature (°C):	~300 (DMSO)
Decomposition temperature (°C):	> 190 (DMSO)
pH:	Not relevant
Viscosity (mPas, 20°C)	2.14 (DMSO)
Solubility:	Soluble in water
Partition coefficient n-octanol/water (log value):	-1.35 (DMSO)
Vapour pressure (mmHg, 20°C):	0.55 (DMSO)
Density and/or relative density:	1.1 (DMSO)

Relative vapour density:	2.7 (air=1) (DMSO)
Particle characteristics:	Not relevant (liquid)
9.2. Other information:	None relevant.

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity:
No available data.

10.2. Chemical stability:
Stable under normal conditions - see section 7. Combustible. Vapours can be ignited by a spark, a hot surface or a glow. Vapours are heavier than air and can travel along the ground to an ignition source and flash back to vapour source.

10.3. Possibility of hazardous reactions:
None known.

10.4. Conditions to avoid:
Formation of sparks, glows and strong heat. Excessive heating above 150°C can cause rapid exothermic decomposition.

10.5. Incompatible materials:
Alkali metals, hydrides, nitrates, halogen compounds, perchloric acid, perchlorates, chlorates, nitrogen and sulphur oxides. Reacts violently with oxidants. The liquid may attack certain plastic materials.

10.6. Hazardous decomposition products:
When heated to high temperatures (decomposition) very toxic fumes are emitted: Oxides of carbon and sulphur, formaldehyde, methyl-mercaptan, dimethylsulphides and bids(methylthio)methane.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008:
Acute toxicity: Based on available data, the classification criteria are not met.
Skin corrosion/irritation: Based on available data, the classification criteria are not met.
Serious eye damage/irritation: Based on available data, the classification criteria are not met.
Respiratory or skin sensitization: Based on available data, the classification criteria are not met.
Germ cell mutagenicity: Based on available data, the classification criteria are not met.
Carcinogenicity: Based on available data, the classification criteria are not met.
Reproductive toxicity: Based on available data, the classification criteria are not met.
STOT-single exposure: Based on available data, the classification criteria are not met.
STOT-repeated exposure: Based on available data, the classification criteria are not met.
Aspiration hazard: Based on available data, the classification criteria are not met.

Hazard class	**Data** (DMSO)	**Test**	**Data source**
Acute toxicity:			
Inhalation	LC_{50} (rat) = >5.33 mg/l/4h	OECD 403	ECHA
Dermal	LD_{50} (rat) = 40000 mg/kg	No info	ECHA
Oral	LD_{50} (rat) = 28500 mg/kg	OECD 401	ECHA
Corrosion/irritation	Slight irritation, skin and eyes, rabbit	OECD 404, EU Method B.5	ECHA
Sensitization:	No sensitization, skin, guinea pig	OECD 406	ECHA
CMR:	No geno- or reproduction toxic effects, rat	OECD 474, 412	ECHA

SECTION 11: TOXICOLOGICAL INFORMATION (cont.)

Information on likely routes of exposure: inhalation, skin and ingestion.

Symptoms:

Inhalation: Vapours may cause irritation of the airways. Inhalation of large amounts may cause the same symptoms as mentioned for "Ingestion".

Skin: May cause irritation with redness, rashes, stinging and burning. DMSO can easily be absorbed through skin and may enhance the rate of skin absorption of other skin-permeable substances and induce symptoms mentioned for "Ingestion".

Eyes: Splashes may cause irritation with redness and pain. Cornea damage might occur.

Ingestion: Can irritate the gastrointestinal tract with a burning sensation in the mouth and throat, nausea, vomiting, chest pain, chills, headache, nausea, dizziness and drowsiness.

Chronic effects: Frequent contact with skin may cause sensitization. Symptoms are redness, swelling and itching. Prolonged or frequent exposure to vapours of volatile organic compounds may result in damage on liver, kidneys, blood or central nervous system (including brain damage).

11.2. Information on other hazards:

None known

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity:

Aquatic	**Data** (DMSO)	**Test (Media)**	**Data source**
Fish	LC_{50} (Oncorhynchus mykiss, 96h) = >32000 mg/l	Static (FW)	IUCLID
Daphnia	EC_{50} (Daphnia sp, 24h) = 7000 mg/l	No information (FW)	IUCLID
Algae	EC_{50} (Skeletonema costatum, 96h) = >12350 mg/l	No information (SW)	IUCLID

12.2. Persistence and degradability:

DMSO is not readily degradable (7% degraded in 14 days at OECD test 301 D)

12.3. Bioaccumulative potential:

DMSO: Log K_{ow} = <0 - no significant bioaccumulation.

12.4. Mobility in soil:

DMSO: K_{oc} (calculated) = <10 – very high mobility in soil is expected.

12.5. Results of PBT and vPvB assessment:

No ingredients are PBT/vPvB, according to the criteria set out in Regulation 2023/707.

12.6. Endocrine disrupting properties:

None known.

12.7. Other adverse effects:

None known

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods:

The mixture is **not** to be considered as hazardous waste. Disposal should be according to local, state or national legislation. Dispose of through authority facilities or pass to chemical disposal company.

EWC-code: 16 05 09 (mixture itself);
15 02 03 (paper towel, inert material etc. contaminated with the mixture).

SECTION 14: TRANSPORT INFORMATION

Not dangerous goods (ADR/RID/IMDG/IATA).

14.1. UN number or ID number: None.
14.2. UN proper shipping name: None.
14.3. Transport hazard class(es): None.
14.4. Packing group: None.
14.5. Environmental hazards: No.
14.6. Special precautions for user: None.
14.7. Maritime transport in bulk according to IMO instruments: Not relevant.

SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture:
The employer shall assess the working conditions and, if there is any risk to the safety or health and any effects on the pregnancy or breastfeeding of workers, take the necessary measures to adjust the working conditions (Directive 92/85/EEC).

15.2. Chemical safety assessment:
No CSR.

SECTION 16: OTHER INFORMATION

Hazard statements mentioned in section 2 and 3:

EUH210: Safety data sheet available on request.

Abbreviations:

CMR = Carcinogenicity, mutagenicity and reproductive toxicity.

CSR = Chemical Safety Report

DNEL = Derived No-Effect Level

EC_{50} = Effect Concentration 50%

FW = Fresh Water

LC_{50} = Lethal Concentration 50%

LD_{50} = Lethal Dose 50%

PBT = Persistent, Bioaccumulative, Toxic

PNEC = Predicted No-Effect Concentration

SW= Salt water

vPvB = very Persistent, very Bioaccumulative

Literature:

ECHA = European Chemicals Agency

EPA Ecotox = The US Environmental Protection Agency's database on ecotoxicological effects for chemicals.

IUCLID = International Uniform ChemicaL Information Database.

RTECS = Register of Toxic Effects of Chemical Substances

Training advice:

No special training is required. However, the user should be well instructed in the execution of his/her task, be familiar with this Safety Data Sheet and have normal training in the use of personal protective equipment.

Changes since the previous edition:

Not relevant – first edition.

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