

Safety data sheet

T cell ELISPOT kit

(enzymatic staining procedure on PVDF plates)

1. Identification of the product (substance or mixture) and supplier/company

1.1 Product identifiers

Product:	T cell ELISPOT kit (enzymatic staining procedure on PVDF membrane-bottomed plates)
Catalogue no.:	Please see section 16 for the exact products for which this safety data sheet (SDS) applies.
Brand:	U-CyTech biosciences
REACH no.:	The components of this product are mixtures. A registration number is not available for these substances as the substances or their uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

1.2 Relevant identified uses of the product and uses advised against

Identified uses: Laboratory chemicals. To be used in U-CyTech ELISPOT systems.
For professional (R&D) use only, not for food, drug, household or other uses.

1.3 Details of the supplier of the safety data sheet

Supplier: U-CyTech biosciences
Yalelaan 48
3584 CM Utrecht
The Netherlands
Phone: +31 85 073 1460
E-mail: info@ucytech.com

1.4 Emergency telephone number

Emergency phone: +31 85 073 1460 (only available during office hours CET).

2. Hazard identification

2.1 Classification of the components in this product (substance or mixture)

AEC stock solution is classified according to Regulation (EC) no. 1272/2008 and its amendments as

- Flammable liquid (Category 3): H226: Flammable liquid and vapor.
- Acute toxicity, Oral (Category 4): H302: Harmful if swallowed.
- Carcinogenicity (Category 1B): H350: May cause cancer.
- Skin irritation (Category 2): H315: Causes skin irritation.
- Eye irritation (Category 2): H319: Causes serious eye irritation.

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Specific target organ toxicity - single exposure (Category 3): H335: May cause respiratory irritation.

Dilution buffer R is classified according to Regulation (EC) no. 1272/2008 and its amendments as

Skin sensitization (Category 1): H317: May cause an allergic skin reaction.

Chronic aquatic toxicity (Category 3): H412: Harmful to aquatic life with long lasting effects.

Coating antibody, detection antibody, streptavidin-HRP conjugate, substrate buffer, blocking stock solution, dilution buffer Q and Tween-20 are classified according to Regulation (EC) no. 1272/2008 and its amendments as

Not a hazardous substance or mixture.

2.2 Label elements**Labeling of AEC stock solution according to Regulation (EC) no. 1272/2008 and its amendments**

Pictogram:



Signal word:

Danger

Hazard statement:

H226: Flammable liquid and vapor.
H302: Harmful if swallowed.
H315: Causes skin irritation.
H319: Causes serious eye irritation.
H335: May cause respiratory irritation.
H350: May cause cancer

Precaution statements:

P201: Obtain special instructions before use.
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261: Avoid breathing dust/fume/gas/mist/vapor/sprays.
P264: Wash hand and any exposed skin thoroughly after handling
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P301 + P312 + P330:
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth.
P332 + P313: If skin irritation occurs: Get medical advice/attention.
P337 + P313: If eye irritation persists: Get medical advice/attention.
P305 + P351 + P338:
IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P308 + P313:
IF exposed or concerned: Get medical advice/attention.

Restricted to professional users.

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Labeling of dilution buffer R according to Regulation (EC) no. 1272/2008 and its amendments

Pictogram:



Signal word:

Warning

Hazard statement(s):

H317: May cause an allergic skin reaction.

H412: Harmful to aquatic life with long lasting effects.

Precaution statement(s):

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P333 + P313: If skin irritation or a rash occurs: Get medical advice/attention.

P337 + P313: If eye irritation persists get medical advice/attention.

Supplemental Hazard information: not applicable.

Labeling of coating antibody, detection antibody, streptavidin-HRP conjugate, substrate buffer, blocking stock solution, dilution buffer Q and Tween-20 according to Regulation (EC) no. 1272/2008 and its amendments

Not a hazardous substance or mixture.

2.3 Other hazards

AEC stock solution, Tween-20 and dilution buffer R contain no components considered to be either persistent, bio-accumulative and toxic (PBT), or very persistent and very bio-accumulative (vPvB) at levels of 0.1% or higher.

3. Composition/information on ingredients

3.2 Mixtures

Product name: T cell ELISPOT kit (enzymatic staining procedure on PVDF membrane-bottomed plates)

Synonyms: -

Components:

Cas no.	EC no.	Index no.	Classification	Concentration
Coating antibody (lyophilized)				
-	-	-	-	-
Detection antibody (biotinylated, lyophilized)				
-	-	-	-	-
Streptavidin-HRP conjugate (lyophilized)				
-	-	-	-	-
AEC stock solution				
-	-	-	Flam. Liq. 3 (H226); Carc. 1B (H350); Acute Tox. 4 (H302); Skin Irrit. 2 (H315); Eye Irrit. 2 (H319); STOT SE 3 (H335)	-
Substrate buffer (10x)				
-	-	-	-	-
Blocking stock solution (10x)				
-	-	-	-	-
Dilution buffer R (10X)				
-	-	-	Skin Sens. 1 (H317); Aquatic Chronic 3 (H412)	-
Dilution buffer Q*				
-	-	-	-	-
Tween®-20 (C₅₈H₁₁₄O₂₆)**				
9005-64-5	500-018-3	-	-	100%

For the full text of the Hazard statements mentioned in this section and (hazardous) ingredients of the components, see section 16 of this SDS.

*) Dilution buffer Q is content of the Human IL-21 T cell ELISPOT kit (cat. no. CT419-PR2 and CT419-PR5) and not included in the other kits mentioned in section 16. In the Human IL-21 T cell ELISPOT kit Dilution buffer Q replaces Dilution buffer R, which is not present in this kit. Tween-20 is also not present in the Human IL-21 T cell ELISPOT kit.

**) Tween is a registered trade mark of Uniqema, a business unit of ICI Americas Inc.

4. First aid measures

4.1 Description of first aid measures

General advice: In case of skin or eye irritation, if breathing becomes difficult or feeling unwell or concerned, consult physician and show this SDS.

After contact with skin: AEC stock solution: Remove contaminated clothing and shoes. Wash contaminated area with water / shower. Consult a physician.

Dilution buffer R: Remove contaminated clothing and shoes. Wash contaminated area with water / shower. In case of skin irritation, consult a physician.

Other components: Remove contaminated clothing and shoes. Wash contaminated area with water / shower.

After swallowing: AEC stock solution and dilution buffer R: Do NOT induce vomiting. If the person is conscious rinse mouth with water. Consult a physician immediately.

Other components: If the person is conscious, rinse mouth with plenty of water and make the person drink water (two glasses at most). Consult a physician if not feeling well.

After contact with eyes: Rinse continuously with plenty of water for several minutes. Confirm adequate flushing by separating the eyelids. Remove contact lenses if present and easy to do - continue rinsing. Consult an ophthalmologist.

After inhalation: Provide fresh air. If breathing becomes difficult, consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in section 2 and 11.

4.3 Indication of any immediate medical attention and special treatment needed

No further data available. Note to physician: treat symptomatically.

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media: Water spray, foam, carbon dioxide (CO₂), dry powder. Water mist may be used to cool closed containers.

Unsuitable extinguishing media: AEC stock solution: Do NOT use water jet.

Other components: no limitations of extinguishing agents are given.

5.2 Special hazards arising from substance or mixture

Hazardous combustion products:

Tween-20: Carbon oxides. Development of hazardous combustion gases or vapor possible in event of fire. Vapor is heavier than air and may spread along floors.

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AEC stock solution: Carbon oxides, nitrogen oxides. Combustible. Development of hazardous combustion gases or vapor possible in the event of fire. Vapor may form explosive mixtures with air.

Substrate buffer: Carbon oxides, sodium oxides. Not combustible. Ambient fire may liberate hazardous vapor. Suppress (knock down) gases/vapor/mists with a water spray jet.

Other components: No data available.

5.3 Advice for fire fighters

Stay in danger area only with self-contained breathing apparatus and protective clothing.

5.4 Further information

Prevent fire extinguishing water from contaminating surface water or the ground water system.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment to avoid exposure (section 8). Follow general safety rules for laboratories. Evacuate personnel to safe areas in case of an emergency.

AEC stock solution: Avoid breathing vapor, mist or gas. Ensure adequate ventilation. Remove all sources of ignition.

6.2 Environmental precautions

Do not let mixtures enter surface water, (sub)soil or drains. Prevent further leakage if safe to do so. If large amounts of the mixtures contaminate drains, inform appropriate authorities in accordance with local regulation.

6.3 Methods and materials for containment and cleaning up

Cover drains. Contain spillage. Observe possible material restrictions (sections 7 and 10).

Coating antibody, detection antibody and streptavidin-HRP conjugate:

Take up dry. Dispose of properly (section 13). Clean up affected area. Avoid generation of dust.

Other components (and above-mentioned components when reconstituted):

Take up with inert absorbent material and keep in suitable, closed containers for disposal (section 13).

7. Handling and storage

7.1 Precautions for safe handling

Safe handling: For laboratory use only. Ensure adequate ventilation. Handle and open containers with care. Always close containers tightly after removal of product.

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AEC stock solution: work under hood. Avoid contact with skin, eyes and clothing. Avoid inhalation of vapor or mist. Keep away from sources of ignition. Take measures to prevent electrostatic discharges.

Dilution buffer R: Avoid formation of aerosols. Avoid exposure.

Hygiene measures: Follow general safety rules for laboratories. Wear personal protective equipment to avoid (prolonged or repeated) exposure (section 2.2 and 8). Immediately change contaminated clothing. Wash hands before breaks and after work.

7.2 Conditions for safe storage, including any incompatibilities

Safe storage: Store product in a well-ventilated place. Keep containers tightly closed and upright to prevent leakage.

AEC stock solution: Store at -20°C. Keep away from light and heat.

Streptavidin-HRP conjugate: Store at -20°C. Keep away from light.

Tween-20: Store at ambient temperature: 20-26 °C. Keep away from light.

Other components: Store at 2-8 °C.

7.3 Specific end use(s)

Use in laboratories.

8. Exposure controls/personal protection

8.1 Control parameters

These mixtures do not contain substances above concentration limits fixing an occupational exposure limit.

8.2 Exposure controls

General protective and hygiene measures

Facilities storing or utilizing this product should be equipped with an eyewash facility, a safety shower and mechanical exhaust. Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of the workday. Immediately change contaminated clothing. Keep away from food and beverages.

Personal protective equipment

Eye protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN166 (EU). Use tightly fitting safety goggles.

Skin and body protection

Wear appropriate protective gloves and a lab coat to prevent skin exposure.

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Protective gloves must satisfy the specifications of Regulation (EU) 2016/425 and the standard EN374 derived from it. Observe the instructions regarding permeability and breakthrough time which are provided by the suppliers of the gloves. Make sure the gloves are suitable for the task regarding chemical compatibility, dexterity, operational conditions and user susceptibility (e.g. sensation effects). Take also the specific local conditions under which the product is used into consideration (e.g. danger of cuts).

Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

This recommendation applies only to the product stated in this SDS and for the designed use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves.

Respiratory protection

Required when aerosols are generated, when workers are facing concentrations above the exposure limits or where risk assessment shows air-purifying respirators are appropriate.

Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly.

Control of environmental exposure

Do not let mixtures enter drains.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Coating antibody, detection antibody and streptavidin-HRP conjugate

A. Appearance (at 20 °C):	Solid, white (lyophilized).
B. Odor:	No data available.
C. Odor threshold:	No data available.
D. pH (at 20 °C):	No data available.
E. Melting/freezing point:	No data available.
F. Initial boiling and boiling range:	No data available.
G. Flash point:	No data available.
H. Evaporation rate:	No data available.
I. Flammability (solid, gas):	No data available.
J. Upper/lower flammability or explosive limits:	No data available.
K. Vapor pressure:	No data available.
L. Vapor density:	No data available.
M. Relative density:	No data available.
N. Solubility(ies):	Soluble in water.
O. Partition coefficient: n-octanol/water:	No data available.
P. Auto-ignition temperature:	No data available.
Q. Decomposition temperature:	No data available.

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R. Viscosity:	No data available.
S. Explosive properties:	No data available.
T. Oxidizing properties:	No data available.
<u>AEC stock solution:</u>	
A. Appearance (at 20 °C):	Ochre liquid (transparent).
B. Odor:	No data available.
C. Odor threshold:	No data available.
D. pH (at 20 °C):	No data available.
E. Melting/freezing point:	No data available.
F. Initial boiling and boiling range:	No data available (N,N-diethylformamide: 176-177 °C).
G. Flash point:	No data available (N,N-diethylformamide: 60 °C).
H. Evaporation rate:	No data available.
I. Flammability (solid, gas):	No data available.
J. Upper/lower flammability or explosive limits:	No data available. Mixture is flammable.
K. Vapor pressure:	No data available.
L. Vapor density:	No data available.
M. Relative density:	No data available.
N. Solubility(ies):	No data available.
O. Partition coefficient: n-octanol/water:	No data available.
P. Auto-ignition temperature:	No data available.
Q. Decomposition temperature:	No data available.
R. Viscosity:	No data available.
S. Explosive properties:	No data available.
T. Oxidizing properties:	No data available.

Substrate buffer:

A. Appearance (at 20 °C):	Colorless liquid (transparent).
B. Odor:	No data available.
C. Odor threshold:	No data available.
D. pH (at 20 °C):	No data available.
E. Melting/freezing point:	No data available.
F. Initial boiling and boiling range:	No data available.
G. Flash point:	Does not apply.
H. Evaporation rate:	No data available.
I. Flammability (solid, gas):	No data available.
J. Upper/lower flammability or explosive limits:	No data available.
K. Vapor pressure:	No data available.
L. Vapor density:	No data available.
M. Relative density:	No data available.
N. Solubility(ies):	Does not apply, mixture is an aqueous solution.
O. Partition coefficient: n-octanol/water:	No data available.
P. Auto-ignition temperature:	Does not apply.
Q. Decomposition temperature:	No data available.
R. Viscosity:	No data available.
S. Explosive properties:	Does not apply, mixture is not explosive.

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T. Oxidizing properties:	No data available.
<u>Blocking stock solution:</u>	
A. Appearance (at 20 °C):	Light yellow liquid (transparent).
B. Odor:	No data available.
C. Odor threshold:	No data available.
D. pH (at 20 °C):	No data available.
E. Melting/freezing point:	No data available.
F. Initial boiling and boiling range:	No data available.
G. Flash point:	No data available.
H. Evaporation rate:	No data available.
I. Flammability (solid, gas):	No data available.
J. Upper/lower flammability or explosive limits:	No data available.
K. Vapor pressure:	No data available.
L. Vapor density:	No data available.
M. Relative density:	No data available.
N. Solubility(ies):	Does not apply, mixture is an aqueous solution.
O. Partition coefficient: n-octanol/water:	No data available.
P. Auto-ignition temperature:	No data available.
Q. Decomposition temperature:	No data available.
R. Viscosity:	No data available.
S. Explosive properties:	No data available.
T. Oxidizing properties:	No data available.

<u>Dilution buffer R:</u>	
A. Appearance (at 20 °C):	Light yellow liquid (transparent) (at 20 °C).
B. Odor:	Odorless.
C. Odor threshold:	Does not apply, mixture is odorless.
D. pH (at 20 °C):	7.2 ± 0.2
E. Melting/freezing point:	No data available.
F. Initial boiling and boiling range:	No data available.
G. Flash point:	No data available.
H. Evaporation rate:	No data available.
I. Flammability (solid, gas):	Does not apply.
J. Upper/lower flammability or explosive limits:	Does not apply, mixture is not flammable.
K. Vapor pressure:	No data available.
L. Vapor density:	No data available.
M. Relative density:	1.1 (at 20 °C).
N. Solubility(ies):	Does not apply, mixture is an aqueous solution.
O. Partition coefficient: n-octanol/water:	No data available.
P. Auto-ignition temperature:	No data available.
Q. Decomposition temperature:	No data available.
R. Viscosity:	No data available.
S. Explosive properties:	Does not apply, mixture is not explosive.
T. Oxidizing properties:	None.

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Dilution buffer Q:

A. Appearance (at 20 °C):	Light yellow liquid (transparent).
B. Odor:	No data available.
C. Odor threshold:	No data available.
D. pH (at 20°C):	No data available.
E. Melting/freezing point:	No data available.
F. Initial boiling and boiling range:	No data available.
G. Flash point:	No data available.
H. Evaporation rate:	No data available.
I. Flammability (solid, gas):	No data available.
J. Upper/lower flammability or explosive limits:	No data available.
K. Vapor pressure:	No data available.
L. Vapor density:	No data available.
M. Relative density:	No data available.
N. Solubility(ies):	Does not apply, mixture is an aqueous solution.
O. Partition coefficient: n-octanol/water:	No data available.
P. Auto-ignition temperature:	No data available.
Q. Decomposition temperature:	No data available.
R. Viscosity:	No data available.
S. Explosive properties:	No data available.
T. Oxidizing properties:	No data available.

Tween-20:

A. Appearance (at 20 °C):	Yellow liquid (viscous).
B. Odor:	Odorless.
C. Odor threshold:	No data available.
D. pH (at 20°C):	7.
E. Melting/freezing point:	Melting point: 98.9 °C.
F. Initial boiling and boiling range:	> 100 °C.
G. Flash point:	275 °C at ca. 1,013 hPa.
H. Evaporation rate:	No data available.
I. Flammability (solid, gas):	No data available.
J. Upper/lower flammability or explosive limits:	No data available.
K. Vapor pressure:	< 1.4 hPa at 20 °C.
L. Vapor density:	No data available.
M. Relative density:	1,095 g/ml at 25 °C.
N. Solubility(ies):	In water: 0.0002 g/l at 20 °C.
O. Partition coefficient: n-octanol/water:	No data available.
P. Auto-ignition temperature:	No data available.
Q. Decomposition temperature:	No data available.
R. Viscosity:	No data available.
S. Explosive properties:	No data available.
T. Oxidizing properties:	No data available.

9.2 Other information

No additional information relevant to safe use of the mixtures.

10. Stability and reactivity

10.1 Reactivity

Tween-20 forms explosive mixtures with air on intense heating. A range from approximately 15 Kelvin below the flash point is to be rated as critical.

Other components: no specific test data related to reactivity available for these mixtures or their ingredients.

10.2 Chemical stability

The mixtures are chemically stable under recommended conditions of storage, use and temperature.

10.3 Possibility of hazardous reactions

AEC stock solution: No data available.

Dilution buffer R: Violent reactions possible with the generally known reaction partners of water.

Other components: No hazardous reaction when handled and stored according to recommended conditions of storage, use and temperature.

10.4 Conditions to avoid

AEC stock solution: Keep away from: open flames, hot surfaces, sources of ignition and incompatible products.

Tween-20: Strong heating.

Dilution buffer R: No specific conditions to avoid.

Other components: No data available.

10.5 Incompatible materials

AEC stock solution: Strong oxidizing agents.

Tween-20: Strong oxidizing agents.

Other components: No data available.

10.6 Hazardous decomposition products

AEC stock solution: Nitrogen oxides, carbon monoxide, carbon dioxide.

Substrate buffer: Ambient fire may libate hazardous vapor.

Tween-20: Hazardous decomposition products formed under fire conditions - carbon oxides.

Other components: Does not decompose when used for intended uses (section 1.2).

11. Toxicological information

11.1 Information on toxicological effects

Tween-20

Acute toxicity: LD50 oral - rat - 38,900 mg/kg.

LD50 inhalation - rat - male and female - 4h - >5.1 mg/l.

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Skin corrosion/irritation: Skin - rabbit - result: no skin irritation - 4h.
Serous eye damage/irritation: No data available.
Respiratory/skin sensitization: Guinea pig: does not cause skin sensitization.
Germ cell mutagenicity: Ames test - Escherichia coli/Salmonella typhimurium - result: negative.
Carcinogenicity: No component of this ingredient is present at levels higher than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
Reproductive toxicity: No data available.
Specific target organ toxicity (single and repeated): No data available.
Aspiration hazard: No data available.

Other mixtures

Acute toxicity: No data available.
Skin corrosion/irritation: No data available.
Serous eye damage/irritation: No data available.
Respiratory/skin sensitization: No data available.
Germ cell mutagenicity: No data available.
Carcinogenicity: No data available.
Reproductive toxicity: No data available.
Specific target organ toxicity (single and repeated): No data available.
Aspiration hazard: No data available.

11.2 Additional information

Signs and symptoms of exposure:

To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.

Potential health effects AEC stock solution:

Inhalation: May be harmful if inhaled and may cause respiratory tract irritation.

Skin: May be harmful if absorbed through skin and causes skin irritation.

Eyes: Causes serious eye irritation.

Ingestion: Harmful if swallowed.

Further hazardous properties cannot be excluded. The product should be handled with the care usual when dealing with chemicals.

Potential health effects other components:

Inhalation: May be harmful if inhaled and may cause respiratory tract irritation.

Skin: May be harmful if absorbed through skin and may cause skin irritation.

Eyes: May cause eye irritation.

Ingestion: May be harmful if swallowed.

Hazardous properties cannot be excluded but are unlikely when the product is handled with the care usual when dealing with chemicals.

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(Hazardous) ingredients of AEC stock solution (section 16):

3-Amino-9-ethylcarbazole (AEC):

Acute toxicity: LD50 oral - rat - 144 mg/kg.
 Skin corrosion/irritation: No data available.
 Serous eye damage/irritation: No data available.
 Respiratory/skin sensitization: No data available
 Germ cell mutagenicity: No data available.
 Carcinogenicity: Category 1B - May cause cancer.
 Reproductive toxicity: No data available.
 Specific target organ toxicity (single and repeated): No data available.
 Aspiration hazard: No data available.
 Additional information: The ingredient 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.

N,N-Diethylformamide:

Acute toxicity: No data available.
 Skin corrosion/irritation: No data available.
 Serous eye damage/irritation: Category 2 - Causes skin irritation.
 Respiratory/skin sensitization: Category 2 - Causes serious eye irritation.
 Germ cell mutagenicity: No data available.
 Carcinogenicity: No component of this ingredient is present at levels higher than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
 Reproductive toxicity: No data available.
 Specific target organ toxicity (single): Category 3 - Inhalation - May cause respiratory irritation.
 Specific target organ toxicity (repeated): No data available.
 Aspiration hazard: No data available.
 Additional information: RTECS: LQ1925000.

(Hazardous) ingredients of coating antibody, detection antibody and streptavidin-HRP conjugate (section 16):

Proteins (antibodies or streptavidin - horseradish peroxidase polymer) and phosphate-buffered saline:

Acute toxicity: There is no evidence available indicating acute toxicity.
 Skin corrosion/irritation: No data available.
 Serous eye damage/irritation: No data available.
 Respiratory/skin sensitization: No data available.
 Germ cell mutagenicity: No data available.
 Carcinogenicity: No data available.
 Reproductive toxicity: No data available.
 Specific target organ toxicity (single and repeated): No data available.
 Aspiration hazard: No data available.

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Serum albumin (*this ingredient is no part of coating antibody*):

Acute toxicity: No data available.

Skin corrosion/irritation: No data available.

Serous eye damage/irritation: No data available.

Respiratory/skin sensitization: No data available.

Germ cell mutagenicity: No data available.

Carcinogenicity: No component of this ingredient is present at levels higher than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity: No data available.

Specific target organ toxicity (single and repeated): No data available.

Aspiration hazard: No data available.

Trehalose, dihydrate:

Acute toxicity: LD50 oral - rat - male and female - >16,000 mg/kg.

Skin corrosion/irritation: Skin - rabbit: result: no skin irritation.

Serous eye damage/irritation: Eyes - rabbit: result: no eye irritation.

Respiratory/skin sensitization: Human - result: negative.

Germ cell mutagenicity: *In vitro* mammalian cell gene mutation test - Chinese hamster fibroblast - with and without metabolic activation - result: negative.

Mammalian bone marrow sister chromatid exchange - mouse - result: negative.

Carcinogenicity: No data available.

Reproductive toxicity: No data available.

Specific target organ toxicity (single and repeated): No data available.

Aspiration hazard: No data available.

(Hazardous) ingredients of blocking stock solution and dilution buffer Q (section 16):

Streptomycin sulfate:

Acute toxicity: LD50 oral - rat - 430 mg/kg.

Skin corrosion/irritation: No data available.

Serous eye damage/irritation: No data available.

Respiratory/skin sensitization: No data available.

Germ cell mutagenicity: No data available.

Carcinogenicity: No component of this ingredient is present at levels higher than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity: May cause adverse reproductive effects - such as birth defect, miscarriages, or infertility.

Specific target organ toxicity (single and repeated): No data available.

Aspiration hazard: No data available.

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(Hazardous) ingredients of dilution buffer R (section 16):

Proclin 300:
Acute toxicity: LD50 oral - rat - 53 mg/kg.
Skin corrosion/irritation: Skin - rabbit: result: corrosive.
Serous eye damage/irritation: Eyes - rabbit: result: corrosive.
Respiratory/skin sensitization: Guinea pig: may cause sensitization by skin contact.
Ingredient may cause an allergic skin reaction.
Germ cell mutagenicity: No data available.
Carcinogenicity: No data available.
Reproductive toxicity: No data available.
Specific target organ toxicity (single and repeated): No data available.
Aspiration hazard: No data available.

12. Ecological information

Mixtures

12.1 Toxicity:

Tween-20: LL50 - Danio rerio (zebra fish) - >100 mg/ml - 96h.

EC50 - Daphnia (water flea) - >10 mg/l - 48h.

EC50 - Bacteria - 146-774 mg/l - 5 min.

Other components: No data available.

12.2 Persistence and degradability:

Tween-20: Aerobic - exposure time 28d - result: >60% - readily biodegradable.

Other components: No data available.

12.3 Bio-accumulative potential: No data available.

12.4 Mobility in soil: No data available.

12.5 Results of PBT and vPvB assessment:

AEC stock solution, substrate buffer, dilution buffer R:

This substance/mixture contains no components considered to be either PBT or vPvB at levels of 0.1% or higher.

Other components: No data available.

12.6 Other adverse effects: No data available.

Ingredient coating antibody, detection antibody and streptavidin-HRP conjugate:

Toxicity Trehalose, dihydrate:

Static test EC50 - Daphnia magna (water flea) - >100 mg/l - 48h

Static test ErC50 - Desmodesmus sunspicatus (green algae) - 30.41 mg/l - 72h

Biodegradability ingredient Trehalose, dihydrate:

Aerobic - exposure time 28d

Remarks: The 10 day time window criterion is not fulfilled. (anhydrous substance)

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13. Disposal considerations

13.1 Waste treatment methods

Products: The generation of waste should be avoided or minimized wherever possible. Waste material must be disposed in accordance with local, regional and national/federal regulations. Do not let products enter drains. The waste of AEC stock solution is classified as hazardous: offer surplus and non-recyclable solution to licensed disposal company.

Packaging: Dispose of as unused product.

14. Transport information

AEC stock solution:

- 14.1 UN number (ADR, RID, ADN, IMDG, IATA): UN1993.
 - 14.2 UN proper shipping name (ADR, RID, ADN, IMDG, IATA): Flammable liquid, N.O.S.
 - 14.3 Transport hazard class(es) (ADR, RID, ADN, IMDG, IATA): 3.
 - 14.4 Packing group (ADR, RID, ADN, IMDG, IATA): III.
 - 14.5 Environmental hazards: No hazards identified.
 - 14.6 Special precautions for user: Not applicable.
 - 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code: Not applicable.
- Additional information Transportation of Dangerous Goods (ADR, RID, ADN, IMDG, IATA):**

Limited quantities (LQ): 5L.
 Excepted quantities (EQ): Code: E1.
 Maximum net quantity per inner packaging: 30 ml.
 Maximum net quantity per outer packaging: 1000 ml.

Other components:

- 14.1 UN number (ADR, RID, ADN, IMDG, IATA): Not applicable.
- 14.2 UN proper shipping name (ADR, RID, ADN, IMDG, IATA): Not dangerous.
- 14.3 Transport hazard class(es) (ADR, RID, ADN, IMDG, IATA): Not applicable.
- 14.4 Packing group (ADR, RID, ADN, IMDG, IATA): Not applicable.
- 14.5 Environmental hazards: None.
- 14.6 Special precautions for user: Not applicable.
- 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code: Not applicable.

15. Regulatory information

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

AEC stock solution:

- German Water hazard class: WGK2 (self-classified).
- Dilution buffer R:
 German Water hazard class: WGK2 (self-classified).
 German Storage class: Class 12 (self-classified).

Other components:



German Water hazard class: No data available.

15.2 Chemical Safety Assessment

For these mixtures a chemical safety assessment has not been carried out.

16. Other information

This SDS applies to the following U-CyTech T cell ELISPOT kits

Analyte	Human	Old World Monkey	New World Monkey	Mouse	Rat
IFN- γ	CT230-PR2 CT230-PR5	CT121-PR2 CT121-PR5 CT126-PR2 CT126-PR5	CT939-PR2 CT939-PR5	CT317-PR2 CT317-PR5	CT079-PR2 CT079-PR5
IL-1B	CT242-PR2 CT242-PR5	CT123-PR2 CT123-PR5			
IL-2	CT231-PR2 CT231-PR5	CT127-PR2 CT127-PR5		CT435-PR2 CT435-PR5	
IL-4	CT232-PR2 CT232-PR5	CT128-PR2 CT128-PR5		CT319-PR2 CT319-PR5	CT081-PR2 CT081-PR5
IL-5	CT233-PR2 CT233-PR5	CT129-PR2 CT129-PR5		CT321-PR2 CT321-PR5	
IL-6	CT234-PR2 CT234-PR5	CT130-PR2 CT130-PR5			
IL-10	CT235-PR2 CT235-PR5	CT131-PR2 CT131-PR5		CT320-PR2 CT320-PR5	
IL-12/23p40		CT135-PR2 CT135-PR5	CT942-PR2 CT942-PR5		
IL-12p70	CT240-PR2 CT240-PR5				
IL-13	CT236-PR2 CT236-PR5	CT132-PR2 CT132-PR5	CT943-PR2 CT943-PR5		
IL-17A	CT416-PR2 CT416-PR5	CT401-PR2 CT401-PR5	CT944-PR2 CT944-PR5		
IL-17F	CT418-PR2 CT418-PR5	CT403-PR2 CT403-PR5			
IL-21	CT419-PR2* CT419-PR5*				
G-CSF	CT680-PR5	CT122-PR5			
GM-CSF	CT241-PR2 CT241-PR5	CT124-PR2 CT124-PR5			
Granzyme B	CT229-PR2 CT229-PR5				
Perforin	CT681-PR2 CT681-PR5	CT136-PR2 CT136-PR5			
TNF- α	CT237-PR2 CT237-PR5	CT133-PR2 CT133-PR5	CT938-PR2 CT938-PR5	CT322-PR2 CT322-PR5	

*) The Human IL-21 T cell ELISPOT kits (cat. no. CT419-PR2 and CT419-PR5) do not contain Tween-20 and Dilution buffer R. In the Human IL-21 T cell ELISPOT kits Dilution buffer Q replaces Dilution buffer R, which is not present in this kit.

Specific (hazardous) ingredients of the components in this product

- Coating antibody, detection antibody and streptavidin-HRP conjugate - items are lyophilized, when reconstituted:

Cas no.	EC no.	Index no.	Classification	Concentration
Proteins (antibodies or streptavidin - horseradish peroxidase polymer respectively)				
-	-	-	-	< 1% (v/v)
Serum albumin (this ingredient is no part of coating antibody)				
9048-46-8	232-936-2	-	-	1% (w/v)
Trehalose, dihydrate (C₁₂H₂₂O₁₁ • 2H₂O)				
6138-23-4	202-739-6	-	-	< 5% (w/v)
Phosphate-buffered saline (PBS)				
-	-	-	-	> 90% (v/v)

- AEC stock solution:

Cas no.	EC no.	Index no.	Classification	Concentration
3-Amino-9-ethylcarbazole (AEC) (C₁₄H₁₄N₂)				
132-32-1	205-057-7	612-280-00-7	Acute Tox. 3 (H301); Carc. 1B (H350)	1% (w/v)
N,N-Diethylformamide (C₅H₁₁NO)				
617-84-5	210-533-2	-	Flam. Liq. 3 (H226); Skin Irrit. 2 (H315); Eye Irrit. 2 (H319); STOT SE 3 (H335)	99%

- Substrate buffer:

No components need to be disclosed according to the applicable regulations.

- Blocking stock solution and dilution buffer Q*:

Cas no.	EC no.	Index no.	Classification	Concentration
Streptomycin sulfate				
3810-74-0	223-286-0	-	Acute Tox. 4 (H302); Repr. 2 (H361)	0.007-0.021% (v/v)

*) Dilution buffer Q is only a part of the Human IL-21 T cell ELISPOT kit (cat. no. CT419-PR2 and CT419-PR5) and not present in the other kits mentioned in section 16.

No further components need to be disclosed according to the applicable regulations.

- Dilution buffer R:

Cas no.	EC no.	Index no.	Classification	Concentration
Proclin 300 (mixture of: CMIT/MIT: 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-2H-isothiazol-3-one [3:1])				

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55965-84-9	911-418-6	613-167-00-5	Acute Tox. 2 (H310, H330), Acute Tox. 3 (H301), Skin Corr. 1C (H314), Eye Dam. 1 (H318), Skin Sens. 1A (H317), Aquatic Acute 1 (H400), Aquatic Chronic 1 (H410) Concentration limits: ≥ 0.6%: Skin Corr. 1C, H314 ≥ 0.06% - < 0.6%: Skin Irrit. 2, H315 ≥ 0.0015% - < 0.06%: Skin Sens. 1A, H317 ≥ 0.6%: Eye Dam. 1, H318 ≥ 0.06% - < 0.6%: Eye Irrit. 2, H319 M-factor: Aquatic Acute: 100 Aquatic Chronic: 100	0.0273% (w/w)
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Proclin is a registered trade mark of Rohn and Haas Company.

No further components need to be disclosed according to the applicable regulations.

Reason for revision: Adjustments in section 12 an 16.

Text of Hazard statements and Risk phrases mentioned in section 3 and 16:

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
Eye Dam.	Eye damage
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
Repr.	Reproductive toxicity
Skin Corr.	Skin corrosion
Skin Irrit.	Skin irritation
Skin Sens.	Skin sensitization
STOT SE	Specific target organ toxicity - single exposure
H226	Flammable liquid and vapor
H301	Toxic if swallowed
H302	Harmful if swallowed
H310	Fatal in contact with skin
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H317	May cause allergic skin reaction
H318	Causes serious eye damage
H319	Causes serious eye irritation
H330	Fatal if inhaled
H335	May cause respiratory irritation

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H350	May cause cancer
H361	Suspected of damaging fertility or the unborn child
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

Abbreviations and acronyms:

- AEC: 3-Amino-9-ethylcarbazole
- 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
- CAS: Chemical Abstract Service
- CE: Conformité Européenne
- CEN: European Committee for Standardization
- CET: Central European Time
- CMIT/MIT: 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-2H-isothiazol-3-one
- EC: European Commission
- EC50: Effective concentration, 50%
- EC no: European Chemical number
- EQ: Excepted quantities
- ErC50: Concentration with 50% reduction in growth rate
- EU: European Union
- IARC: International Agency for Research on Cancer
- IATA: International Air Transport Association
- IBC code: International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in bulk
- IMDG: International Maritime Dangerous Goods
- LD50: Lethal dose, 50%
- LL50: Lethal load, 50%
- LQ: Limited quantities
- Marpol: Marine Pollution
- M-factor: multiplication factor
- NIOSH: National Institute for Occupational Safety & Health
- No: Number
- NOS: Not otherwise specified
- PBT: Persistent, bio-accumulative and toxic
- R&D: Research & Development
- REACH: Registration, Evaluation, Authorization and restriction of Chemicals
- RTECS: Registry of Toxic Effects of Chemical Substances
- RID: Regulations concerning the International Carriage of Dangerous Goods by Rail
- SDS: Safety data sheet
- UN: United Nations
- US: United States
- WGK: German Water Endangerment Class
- vPvB: Very persistent and very bio-accumulative

Further information

The information provided in this SDS is to the best of our knowledge and present information. The information is described as a guidance for safe handling and is not considered a warranty or

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