



Manufactured By: U-CyTech Biosciences

# Material safety data sheet

*ELISPOT kit*

*(enzymatic staining procedure on PVDF plates)*

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

### Product identifiers

Product: ELISPOT kit (enzymatic staining procedure on PVDF membrane-bottomed plates)  
Catalogue no.: Please see section 16 for the exact products for with this MSDS applies.  
Brand: U-CyTech biosciences

### Relevant identified uses of the product and uses advised against

Identified uses: Laboratory reagent. To be used in ELISPOT system.  
For R&D use only, not for food, drug, household or other uses.

### Details of the supplier of the material safety data sheet

Supplier: U-CyTech biosciences  
Yalelaan 48  
3584 CM Utrecht  
The Netherlands  
Phone: +31 30 253 5960  
E-mail: info@ucytech.com

## 2. Hazard identification

### Classification of the products in this kit

Except for AEC stock solution, the items in this kit are not classified as hazardous according to Regulation (EC) no. 1272/2008 and to Directives 67/548/EC and 1999/45/EC and their amendments.

### AEC stock solution is classified as

According to Regulation (EC) no. 1272/2008:  
Acute toxicity, Oral (Category 4)  
Carcinogenicity (Category 1A)  
Skin irritation (Category 2)  
Eye irritation (Category 2)  
Specific target organ toxicity - single exposure (Category 3)


According to Directive 67/548/EC and its amendments:

May cause cancer. Harmful if swallowed. Irritating to eyes, respiratory system and skin.

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## Label elements AEC stock solution

Pictogram:	
Signal word:	Danger
Hazard statement:	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/sparks/open flames/hot surfaces. - No smoking. P261: Avoid breathing dust/fume/gas/mist/vapors/sprays. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301 + P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. P302 + P352: IF ON SKIN: Wash with plenty of soap and water. 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.
Hazard symbol:	Xi: Irritant
Risk phrase:	R22: Harmful if swallowed. R36/37/38: Irritating to eyes, respiratory system and skin. R45: May cause cancer.
Safely phrase:	S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advise. S36/37/38: Wear suitable protective clothing, gloves and eye/face protection. S45: In case of accident or if you feel unwell, seek medical advice immediately. S53: Avoid exposure - obtain special instructions before use.

Other hazards - none

### 3. Composition/information on ingredients

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

Ingredients:

Cas no.	EC no.	Index no.	Classification	Concentration
Coating antibodies (lyophilized)				
-	-	-	-	-
Biotinylated detector antibodies (lyophilized)				
-	-	-	-	-
Streptavidin-HRP conjugate (lyophilized)				
-	-	-	-	-
AEC stock solution				
-	-	-	Carc. 1A; Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H302, H315, H319, H335, H350 <hr/> Xi; Carc. Cat. 2; R36/37/38, R45	-
Substrate buffer capsules				
-	-	-	-	-
Blocking stock solution R				
-	-	-	-	-
Dilution buffer R				
-	-	-	-	-
Tween-20 (C <sub>58</sub> H <sub>114</sub> O <sub>26</sub> )				
-	-	-	-	-

For specific ingredients of all items in this kit and the full text of the Hazard statements and Risk phrases mentioned in this section, see section 16 of this material safety data sheet (MSDS).

#### 4. First aid measures

##### Description of first aid measures

- General advice: Consult physician. Show this MSDS to the doctor in attendance.
- After contact with skin: Wash contaminated area with soap and water. Remove contaminated clothing and shoes. Consult a physician.
- After swallowing: If the person is conscious, wash out mouth with water. Consult a physician.
- After contact with eyes: Rinse thoroughly with plenty of water for at least 15 minutes. Assure adequate flushing by separating the eyelids. Consult a physician.
- After inhalation: Provide fresh air. If breathing becomes difficult, consult a physician.

## Most important symptoms and effects, both acute and delayed

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

## Indication of any immediate medical attention and special treatment needed

No data available.

## 5. Fire-fighting measures

Extinguishing media: Water spray, carbon dioxide, dry chemical powder or alcohol-resistant foam.

Special hazards /risks: Except for Tween-20 there is no data available.

Tween-20:

Vapors heavier than air.

Forms explosive mixtures with air on intense heating.

Development of hazardous combustion gases or vapors possible in the event of fire. In case of fire carbon oxides may develop.

Advice for fire fighters: Wear self-contained breathing apparatus and protective clothing for fire fighting if necessary.

## 6. Accidental release measures

Personal precautions: Use personal protective equipment to avoid exposure. Avoid formation of dust and aerosols. Avoid breathing dust, vapors, mist or gas. Ensure adequate ventilation. Follow general safety rules for laboratories. Evacuate personnel to safe areas in case of an emergency.

Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let products enter drains. Discharge into the environment must be avoided.

Clean-up methods: Soak up with inert absorbent material or pick up and arrange disposal without creating dust. Sweep up and keep in suitable, closed containers for disposal (section 13).

## 7. Handling and storage

Safe handling: Only for laboratory use. Use personal protective equipment to avoid (prolonged or repeated) exposure. Avoid formation of dust and aerosols. Ensure adequate ventilation. Follow general safety rules for laboratories.

**Safe storage:** Store all items except AEC stock solution, Streptavidin-HRP conjugate, Substrate buffer capsules and Tween-20 at 2-8°C in a dry and well-ventilated place. Keep containers tightly closed.

Store AEC stock solution at -20°C in well-ventilated place. Keep away from light and heat. Keep container tightly closed.

Store Streptavidin-HRP conjugate at -20°C in a dry and well-ventilated place. Keep container tightly closed.

Store Substrate buffer capsules and Tween-20 in a cool, dry and well-ventilated place. Keep containers tightly closed.

## 8. Exposure controls/personal protection

Contains no substances with occupational exposure limit values.

### Appropriate engineering controls 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.

### Personal protective equipment

The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

#### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

#### Hand protection

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Handle with gloves. 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.

#### Eye protection

The selected safety glasses have to have side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

### Skin and body protection

The selected clothing has to be impervious.

## 9. Physical and chemical properties

### Coating antibodies, biotinylated detector antibodies and Streptavidin-HRP conjugate:

Physical state and appearance:	solid (lyophilized)	Color:	white
Odor:	no data available	pH (at 20°C):	no data available
Melting/freezing point:	no data available	Boiling/condensation point:	no data available
Flash point:	no data available	Auto ignition temperature:	no data available
Flammability limits:	no data available	Specific gravity:	no data available
Solubility:	soluble in water		

### AEC stock solution:

Physical state and appearance:	liquid	Color and form:	transparent, ochre
Odor:	no data available	pH (at 20°C):	no data available
Melting point:	no data available	Boiling/condensation point:	no data available
Flash point:	no data available	Auto ignition temperature:	no data available
Flammability limits:	no data available	Specific gravity:	no data available
Solubility:	no data available		

### Substrate buffer capsules:

Physical state and appearance:	solid (powder)	Color and form:	white capsule
Odor:	no data available	pH (at 20°C):	no data available
Melting/freezing point:	no data available	Boiling/condensation point:	no data available
Flash point:	no data available	Auto ignition temperature:	no data available
Flammability limits:	no data available	Specific gravity:	no data available
Solubility:	soluble in water		

### Blocking stock solution R and Dilution buffer R:

Physical state and appearance:	liquid	Color and form:	transparent, (light) yellow
Odor:	no data available	pH (at 20°C):	no data available
Melting/freezing point:	no data available	Boiling/condensation point:	no data available
Flash point:	no data available	Auto ignition temperature:	no data available
Flammability limits:	no data available	Specific gravity:	no data available
Solubility:	products are aqueous solutions		

### Tween-20:

Physical state and appearance:	liquid to viscous	Color:	yellowish
Odor:	no data available	pH (at 20°C):	7
Melting/freezing point:	no data available	Boiling/condensation point:	100°C
Flash point:	> 110°C - closed up	Auto ignition temperature:	no data available
Flammability limits:	no data available	Density (at 25°C):	1.95 g/ml
Solubility:	soluble in water	Vapor pressure	< 1.33 hPa

## 10. Stability and reactivity

Chemical stability: Stable under recommended storage conditions.  
Conditions to avoid: AEC stock solution: keep away from open flames and hot surfaces.  
Other items: no data available.  
Materials to avoid: Bases, oxidizing agents, strong oxidizing agents, strong acids, reducing agents, heavy metal salts, strong reducing agents.  
Hazardous reactions/decomposition products:  
No data available for all items except for the following items were hazardous decomposition products are formed under fire conditions:  
AEC stock solution: Nitrogen oxides (NO<sub>x</sub>), Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>)  
Tween-20: Carbon oxides.

## 11. Toxicological information

Acute toxicity: Tween-20: LD<sub>50</sub> (oral, rat): 40.554 mg/kg.  
Other items: no data available.  
Irritation and corrosion (skin and eyes): AEC stock solution: irritating to eyes.  
Tween-20: mild skin irritation (human, 3 d)  
Other items: no data available.  
Sensitization (skin and respiratory): No data available.  
Germ cell mutagenicity: No data available.  
Carcinogenicity: AEC stock solution: Human carcinogen.  
Tween-20: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.  
Other items: no data available.  
Reproductive toxicity: No data available.  
Specific target organ toxicity (single and repeated): No data available.  
Aspiration hazard: No data available.

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 eye irritation.  
Ingestion: Harmful if swallowed.

#### Other items:

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.

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Eyes: May cause eye irritation.  
Ingestion: May be harmful if swallowed.

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

Additional information:

RTECS: Tween-20: TR7400000 - Others items: not available.

## 12. Ecological information

Toxicity: Tween-20: LC<sub>50</sub> (fish, 24h): 350 mg/l.  
Other items: no data available.

Persistence and degradability: No data available.

Bio accumulative potential: No data available.

Mobility in soil: No data available.

Results of PBT and vPvB assessment: No data available.

Other adverse effects: No data available.

## 13. Disposal considerations

Product: The generation of waste should be avoided or minimized wherever possible.  
Contact a licensed professional waste disposal service to dispose these materials.  
Dissolve or mix with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.  
Observe all federal, state and local environmental regulations.

Packaging: Dispose of as unused product.

## 14. Transport information

This product is not dangerous for road (ARD), rail (RID), inland waterways (ADNR), sea (IMDG) and air (ICAO/IATA) transport. UN number is not available.

## 15. Regulatory information

Coating antibodies, biotinylated detector antibodies, Streptavidin-HRP conjugate, Substrate buffer capsules, Blocking stock solution R, Dilution buffer R and Tween-20 are not classified as dangerous according to EU legislation.

AEC stock solution is classified as dangerous according to Regulation (EC) no. 1272/2008 and Directive 67/548/EC and its amendments.

## 16. Other information

### Specific ingredients of the items of this kit

- Lyophilized coating antibodies, biotinylated detector antibodies and Streptavidin-HRP conjugate (when reconstituted):

Cas no.	EC no.	Index no.	Classification	Concentration
Proteins (antibodies or Streptavidin-peroxidase polymer respectively)				
-	-	-	-	< 1%
Serum albumin ( <i>this ingredient is not in coating antibody present</i> )				
9048-46-8	232-936-2	-	-	1%
Trehalose, dihydrate (C <sub>12</sub> H <sub>22</sub> O <sub>11</sub> • 2H <sub>2</sub> O)				
6138-23-4	202-739-6	-	-	< 5%

- AEC stock solution:

Cas no.	EC no.	Index no.	Classification	Concentration
3-Amino-9-ethylcarbazole (AEC)				
132-32-1	205-057-7	612-280-00-7	Acute Tox. 3; Carc. 1A; H301, H350 <hr/> T; Carc. Cat. 2; R25, R45	1%
N,N-Diethylformamide				
617-84-5	210-533-2	-	Flam. Liq. 3; Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H226, H315, H319, H335 <hr/> Xi; R36/37/38	99%

- Blocking stock solution R:

Information regarding the specific chemical identity of Blocking stock solution R is being withheld as a trade secret of the manufacturer. However, the product contains no substances which at their given concentration, are considered to be hazardous to health according to Regulation (EC) no. 1272/2008 and Directive 67/548/EC and its amendments.

- Tween-20 (Tween is a registered trade mark of Uniqema, a business unit of ICI Americas Inc.; synonyms: Polyoxyethylenesorbitan monolaurate, polyethylene glycol sorbitan monolaurate):

Cas no.	EC no.	Index no.	Classification	Concentration
Tween-20				
9005-64-5	500-018-3	-	-	-

- Substrate buffer capsules (synonym: Phosphate-citrate buffer with sodium perborate capsules) (when reconstituted):

Cas no.	EC no.	Index no.	Classification	Concentration
<b>Trisodium citrate</b>				
68-04-2	200-675-3	-	-	≤ 50%
<b>Disodium hydrogenorthophosphate</b>				
7558-794	231-448-7	-	-	≤ 50%
<b>Sodium peroxmetaborate</b>				
10332-33-9	231-556-4	-	Ox. Sol.3; Repr. 1B; Acute Tox. 3; Acute Tox. 4; STOT SE 3; Eye Dam. 1; Ox.Sol. 3; Acute Tox. 4; Eye Dam. 1; H272, H302, H318, H331, H335, H360  O; T; Repr. Cat. 2; Repr. Cat. 3; R8 - R22 - R23 - R37 - R41 - R61 - R62	< 1%

- Dilution buffer R:

Cas no.	EC no.	Index no.	Classification	Concentration
<b>Proclin 300</b>				
-	-	-	Acute Tox. 4, Skin Irrit. 2, Skin Sens. 1, Resp. Sens. 1, Aquatic Chronic 2 H302, H315, H317, H334, H411  C, N; R20/21/22, R34, R43, R51/53	0.1%
<b>Tromethamine (synonym: Tris)</b>				
77-86-1	201-064-4	-	Skin Irrit. 2, Eye Irrit. 2; STOT SE 3; H315, H319, H335  Xi; R36/37/38	≤ 20%

Proclin is a registered trade mark of Rohn and Haas Company.

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

Acute Tox.	Acute toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
Eye Dam.	Serious eye damage
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
Ox. Sol.	Oxidizing solids
Repr.	Reproductive toxicity
Resp. Sens.	Respiratory sensitization
Skin Irrit.	Skin irritation
Skin Sens.	Skin sensitization
STOT SE	Specific target organ toxicity - single exposure
H226	Flammable liquid and vapor
H272	May intensify fire; oxidizer
H301	Toxic if swallowed
H302	Harmful if swallowed
H315	Causes skin irritation
H317	May cause allergic skin reaction
H318	Causes serious eye damage
H319	Causes serious eye irritation
H331	Toxic if inhaled
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335	May cause respiratory irritation
H350	May cause cancer
H360	May damage fertility or the unborn child
H411	Toxic to aquatic life with long lasting effects
C	Corrosive
N	Dangerous for the environment
O	Oxidizing
T	Toxic
Xi	Irritant
Repr.Cat.2	Toxic to Reproduction Category 2
Repr.Cat.3	Toxic to Reproduction Category 3
R8	Contact with combustible material may cause fire.
R20/21/22	Harmful by inhalation, in contact with skin and if swallowed
R22	Harmful if swallowed
R23	Toxic by inhalation
R25	Toxic if swallowed
R34	Causes burns
R36	Irritating to eyes
R37	Irritating to respiratory system
R36/37/38	Irritating to eyes, respiratory system and skin
R41	Risk of serious damage to eyes
R43	May cause sensitization by skin contact
R45	May cause cancer

R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R61	May cause harm to the unborn child
R62	Possible risk of impaired fertility

This MSDS applies for the following U-CyTech ELISPOT kits  
(please find below the catalogue number of the ELISPOT kit)

Analyte	Species			
	Human	Old World Monkey	Mouse	Rat
IFN- $\gamma$	ACT230-PR2 (2-plate)	ACT121-PR2 (2-plate)	ACT317-PR2 (2-plate)	ACT080-PR2 (2-plate)
	ACT230-PR5 (5-plate)	ACT121-PR5 (5-plate)	ACT317-PR5 (5-plate)	ACT080-PR5 (5-plate)
		ACT126-PR2 (2-plate)		
		ACT126-PR5 (5-plate)		
IL-1 $\beta$	ACT242-PR2 (2-plate)	ACT123-PR2 (2-plate)		
	ACT242-PR5 (5-plate)	ACT123-PR5 (5-plate)		
IL-2	ACT231-PR2 (2-plate)	ACT127-PR2 (2-plate)	ACT435-PR2 (2-plate)	
	ACT231-PR5 (5-plate)	ACT127-PR5 (5-plate)	ACT435-PR5 (5-plate)	
IL-4	ACT232-PR2 (2-plate)	ACT128-PR2 (2-plate)	ACT319-PR2 (2-plate)	ACT081-PR2 (2-plate)
	ACT232-PR5 (5-plate)	ACT128-PR5 (5-plate)	ACT319-PR5 (5-plate)	ACT081-PR5 (5-plate)
IL-5	ACT233-PR2 (2-plate)	ACT129-PR2 (2-plate)	ACT321-PR2 (2-plate)	
	ACT233-PR5 (5-plate)	ACT129-PR5 (5-plate)	ACT321-PR5 (5-plate)	
IL-6	ACT234-PR2 (2-plate)	ACT130-PR2 (2-plate)	ACT436-PR2 (2-plate)	
	ACT234-PR5 (5-plate)	ACT130-PR5 (5-plate)	ACT436-PR5 (5-plate)	
IL-10	ACT235-PR2 (2-plate)	ACT131-PR2 (2-plate)	ACT320-PR2 (2-plate)	
	ACT235-PR5 (5-plate)	ACT131-PR5 (5-plate)	ACT320-PR5 (5-plate)	
IL-12/23p40		ACT135-PR2 (2-plate)		
		ACT135-PR5 (5-plate)		
IL-12p70	ACT240-PR2 (2-plate)			
	ACT240-PR5 (5-plate)			
IL-13	ACT236-PR2 (2-plate)	ACT132-PR2 (2-plate)		
	ACT236-PR5 (5-plate)	ACT132-PR5 (5-plate)		
IL-17	ACT416-PR2 (2-plate)	ACT401-PR2 (2-plate)		
	ACT416-PR5 (5-plate)	ACT401-PR5 (5-plate)		
GM-CSF	ACT241-PR2 (2-plate)	ACT124-PR2 (2-plate)		
	ACT241-PR5 (5-plate)	ACT124-PR5 (5-plate)		
Granzyme B	ACT229-PR2 (2-plate)			
	ACT229-PR5 (5-plate)			
Perforin	ACT681-PR2 (2-plate)	ACT136-PR2 (2-plate)		
	ACT681-PR5 (5-plate)	ACT136-PR5 (5-plate)		
TNF- $\alpha$	ACT237-PR2 (2-plate)	ACT133-PR2 (2-plate)	ACT322-PR2 (2-plate)	
	ACT237-PR5 (5-plate)	ACT133-PR5 (5-plate)	ACT322-PR5 (5-plate)	

Further information

The information provided with this document is furnished in good faith and without warranty of any kind. Personnel handling this product must consider these data only as supplemental to other information gathered by them and must make independent determinations of this suitability and completeness of information from all sources to assure proper use and disposal of the materials and the safety and health of employees and customers. U-CyTech B.V. shall not be held liable for any damage resulting from handling or from contact with the above product.