

Safety data sheet

AEC coloring system

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

1.1 Product identifiers

Product: AEC coloring system
The AEC coloring system consists of AEC stock solution and Substrate buffer.

Catalogue no.: CT392

Brand: U-CyTech biosciences

REACH no.: The items in 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 items 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.
Specific target organ toxicity - single exposure (Category 3): H335: May cause respiratory irritation.

Substrate buffer is 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.

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

Not a hazardous substance or mixture.

2.3 Other hazards

These mixtures contain no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

3. Composition/information on ingredients

3.2 Mixtures

Product name: AEC coloring system

Formula: -

Synonyms: -

Components:

Cas no.	EC no.	Index no.	Classification	Concentration
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				
-	-	-	-	-

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

4. First aid measures

4.1 Description of first aid measures

General advice: 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.

Substrate buffer: Remove contaminated clothing and shoes. Wash contaminated area with water / shower.

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

Substrate buffer: 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. 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.

Substrate buffer: no limitations of extinguishing agents are given.

5.2 Special hazards arising from substance or mixture

Hazardous combustion products:

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 libate hazardous vapor. Suppress (knock down) gases/vapor/mists with a water spray jet.

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). Avoid breathing vapor, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Follow general safety rules for laboratories. Evacuate personnel to safe areas in case of an emergency.

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 mixture contaminate drains, inform appropriate authorities in accordance with local regulation.

6.3 Methods and materials for containment and cleaning up

Cover drains. Contain spillage. Take up with inert absorbent material and keep in suitable, closed containers for disposal (section 13). Observe possible material restrictions (sections 7 and 10).



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.

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.

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:

AEC stock solution: Store at -20°C in well-ventilated place. Keep away from light and heat. Keep container tightly closed and kept upright to prevent leakage.

Substrate buffer: Store at 2-8°C, in dry and well-ventilated place. Keep container tightly closed.

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. 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 NIOHS (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 expose

Do not let mixtures enter drains.

9 Physical and chemical properties

9.1 Information on basic physical and chemical properties

AEC stock solution:

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.



U-CyTech B.V.
Yalelaan 48
3584 CM Utrecht
The Netherlands
+31 85 073 1460
info@ucytech.com
www.ucytech.com

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.
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

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.

Substrate buffer: 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 and sources of ignition.
Incompatible products.

Substrate buffer: No data available.

10.5 Incompatible materials

AEC stock solution: Strong oxidizing agents.

Substrate buffer: 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.

11 Toxicological information

11.1 Information on toxicological effects

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 Substrate buffer:

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.

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.

12 Ecological information

Mixtures

12.1 Toxicity: No data available.
 12.2 Persistence and degradability: 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: This substance/mixture contains no components considered to be either PBT or vPvB at levels of 0.1% or higher.
 12.6 Other adverse effects: No data available.



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.

Substrate buffer:

- 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).

Substrate buffer:

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

Specific hazardous ingredients of the items in this product

- 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.

Reason for revision: Adjustments in section 16.

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

●	Acute Tox.	Acute toxicity
●	Carc.	Carcinogenicity
●	Eye Irrit.	Eye irritation
●	Flam. Liq.	Flammable liquids
●	Skin Irrit.	Skin irritation
●	STOT SE	Specific target organ toxicity - single exposure
●	H226	Flammable liquid and vapor
● ●	H301	Toxic if swallowed
● ●	H302	Harmful if swallowed
● ●	H315	Causes skin irritation
● ●	H319	Causes serious eye irritation
● ●	H335	May cause respiratory irritation
● ●	H350	May cause cancer

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

U-CyTech B.V.
 Yalelaan 48
 3584 CM Utrecht
 The Netherlands
 +31 85 073 1460
 info@ucytech.com
 www.ucytech.com

CE: Conformité Européenne
 CEN: European Committee for Standardization
 CET: Central European Time
 EC: European Commission
 EC no: European Chemical number
 EQ: Excepted quantities
 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%
 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 quality specification. The information is only applicable to the described products and may not be valid for such products used in combination with any other products, materials or in any process, unless specified in the text. U-CyTech B.V. shall not be held liable for any damage resulting from handling or from contact with the above products.

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