

**Elabscience Biotechnology Co., Ltd**

***MATERIAL SAFETY DATA SHEET***

**SECTION 1 PRODUCT AND COMPANY IDENTIFICATION**

Product name:	One-step TUNEL Flow Cytometry Apoptosis Kit (Red, Elab Fluor® 594)
Cat. No.	E-CK-A422
Application	For research use only
Company:	Elabscience Biotechnology Co., Ltd
Address:	Building B18, Biomedical Park, # 858 Gaoxin Road, Donghu Hi-Tech Development Area, Wuhan, Hubei, China
Email:	techsupport@elabscience.com
Fax:	86-27-87645690
Emergency	86-27-87385095

**SECTION 2 HAZARDS IDENTIFICATION**

Items	Physical form	Hazardous Ingredient	Concentration	CAS No.
E-CK-A32A	Odorless and brown color, liquid	Cobalt(II) chloride	0.012%	7646-79-9
E-CK-A32B	Odorless and colorless, liquid	No Hazards	-	-
E-CK-A422C	Odorless and red color, liquid	Diglyme	0.1%	111-96-6
E-CK-A42D	Odorless and colorless, liquid	Paraformaldehyde	4%	30525-89-4
E-CK-A42E	Odorless and colorless, liquid	No Hazards	-	-
E-CK-A42F	Odorless and colorless, liquid	No Hazards	-	-

**2.1 HAZARD STATEMENT**

Classification according to GHS

**2.1.1 Cobalt (II) chloride**

H302: Harmful if swallowed.

H317: May cause an allergic skin reaction.

H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H341: Suspected of causing genetic defects.

H350i: May cause cancer by inhalation.

H360: May damage fertility or the unborn child.

H410: Very toxic to aquatic life with long lasting effects.

**2.1.2 Diglyme**

H226: Flammable liquid and vapor

H360FD: May damage fertility. May damage the unborn child

**2.1.3 Paraformaldehyde**

H302: Harmful if swallowed.

H317: May cause an allergic skin reaction.  
H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
H341: Suspected of causing genetic defects.  
H350i: May cause cancer by inhalation.  
H360: May damage fertility or the unborn child.  
H410: Very toxic to aquatic life with long lasting effects.

## **2.2 PRECAUTION STATEMENT**

Classification according to GHS

### **2.2.1 Cobalt (II) chloride**

P273: Avoid release to the environment.  
P280: Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.  
P301 + P312: IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell.  
P302 + P352: IF ON SKIN: Wash with plenty of water.  
P304 + P340 + P312: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.  
P308 + P313: IF exposed or concerned: Get medical advice/ attention.

### **2.2.2 Diglyme**

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.  
No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P308 + P313: IF exposed or concerned: Get medical advice/ attention.

### **2.2.3 Paraformaldehyde**

P261 - Avoid breathing dust/fume/gas/mist/vapours/spray  
P280 - Wear protective gloves/protective clothing/eye protection/face protection  
P201 - Obtain special instructions before use  
P260 - Do not breathe dust/fume/gas/mist/vapours/spray  
P273 - Avoid release to the environment  
P264 - Wash hands thoroughly after handling  
P272 - Contaminated work clothing should not be allowed out of the workplace  
P202 - Do not handle until all safety precautions have been read and understood  
P270 - Do not eat, drink or smoke when using this product  
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water  
P305 + P351 + P338 - IF IN EYES: Rinse cautiously 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  
P308 + P311 - IF exposed or concerned: Call a POISON CENTER or doctor  
P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention  
P310 - Immediately call a POISON CENTER or doctor/physician  
P362 + P364 - Take off contaminated clothing and wash it before reuse

## SECTION 3 INFORMATION ON INGREDIENTS

### 3.1 E-CK-A32A

Ingredient	Concentration	CAS No.
H <sub>2</sub> O	98.518 %	7732-18-5
Tris acetate	0.72 %	6850-28-8
Potassium acetate	0.33 %	127-08-2
Magnesium acetate	0.42 %	16674-78-5
Cobalt(II) chloride	0.012 %	7646-79-9

### 3.2 E-CK-A32B

Ingredient	Concentration	CAS No.
H <sub>2</sub> O	98.515 %	7732-18-5
Tris hydrochloride	0.92 %	1185-53-1
Sodium chloride	0.36 %	7647-14-5
EDTA disodium salt	0.005 %	6381-92-6
Recombinant TdT	0.20 %	-

### 3.3 E-CK-A422C

Ingredient	Concentration	CAS No.
H <sub>2</sub> O	96.975%	7732-18-5
Tris hydrochloride	0.92 %	1185-53-1
EDTA disodium salt	0.005 %	6381-92-6
Diglyme	0.1%	111-96-6
Elab Fluor® 594-dUTP	2 %	-

### 3.4 E-CK-A42D

Ingredient	Concentration	CAS No.
H <sub>2</sub> O	95.075%	7732-18-5
Tris hydrochloride	0.92 %	1185-53-1
EDTA disodium salt	0.005 %	6381-92-6
Paraformaldehyde	4%	30525-89-4

## SECTION 4 FIRST-AID MEASURES

Classification according to GHS

### 4.1 General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

### 4.2 If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

### 4.3 In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

### 4.4 In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

### 4.5 If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth

with water. Consult a physician.

## **SECTION 5 FIRE FIGHTING MEASURES**

### **5.1 Suitable extinguishing media**

Suitable: Water spray, alcohol-resistant foam, dry chemical, carbon dioxide or appropriate foam.

For small fires, use media such as “alcohol” foam, dry chemical or carbon dioxide.

For large fires, apply water from as far as possible. Use large quantities of water applied as a mist or spray. Solid streams of water may be ineffective. Cool affected containers with flooding quantities of water.

### **5.2 Special precautions for fire-fighters**

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

### **5.3 Special hazards arising from the substance or mixture**

Carbon oxides, Nitrogen oxides (NO<sub>x</sub>), Sulphur oxides, Hydrogen chloride gas.

## **SECTION 6 ACCIDENTAL RELEASE MEASURES**

### **6.1 Person-related safety precautions**

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

### **6.2 Measures for environmental protection**

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

### **6.3 Measures for containment and cleaning**

Contain spillage, and then collect with non-combustible absorbent material (eg. sand, diatomaceous earth, vermiculite). Place in a container for disposal according to local regulations. Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal. Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

## **SECTION 7 HANDLING AND STORAGE**

### **7.1 Handling**

- Wear appropriate protective clothing and safety gloves.
- Avoid inhalation.
- Avoid contact with eyes, skin and clothing.
- Mechanical exhaust required.
- Keep away from ignition sources, heat and flame.
- No smoking at working site.
- Incompatibilities: Strong oxidizing agents, Strong acids. Handling and unloading should be light, to prevent packaging broken, damp and cause losses.
- Working place should be equipped with appropriate varieties and quantities of firefighting equipment and leakage emergency treatment equipment.

### **7.2 Storage**

- Store in cool place. Keep container tightly closed in a dry and well-ventilated place.
- Keep away from heat, sparks and flame.
- Keep away from sources of ignition.
- Incompatible: Strong oxidizing agents, Strong acids.
- Storage place should be equipped with appropriate varieties and quantities of firefighting equipment and leakage emergency treatment equipment.

## **SECTION 8 EXPOSURE CONTROL/PPE**

### **8.1 Engineering Controls**

Mechanical exhaust required. Safety shower and eye bath.

### **8.2 Personal Protective Equipment**

- Respiratory: Government approved respirator if needed.
- Eye/face: Chemical safety goggles if needed.
- Clothing: Wear appropriate protective clothing.
- Hand/skin: Protective 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.
- Body protection: Wear suitable protective clothing according to the concentration and amount of the substance at the workplace.

### **8.3 Other Protect**

No smoking, drinking and eating at working site. Wash thoroughly after handling.

## **SECTION 9 PHYSICAL/CHEMICAL PROPERTIES**

### **9.1 Cobalt (II) chloride**

- a) Appearance: light blue crystalline
- b) Odor: No data available
- c) Odor Threshold: No data available
- d) pH: No data available
- e) Melting point/freezing point: Melting point/range: 724 °C - lit.
- f) Initial boiling point and boiling range: 1.049 °C at 1.013 hPa
- g) Flash point: Not applicable
- h) Evaporation rate No data available
- i) Flammability (solid, gas): The product is not flammable.
- 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: 3,36 g/cm<sup>3</sup> at 25 °C
- n) Water solubility: 585,9 g/l at 20 °C
- o) Partition coefficient: n-octanol/water: Not applicable for inorganic substances
- p) Autoignition 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 Diglyme**

a) Appearance: colorless liquid

b) Odor: ether-like

c) Odor Threshold: No data available

d) pH: at 20 °C neutral

e) Melting point/freezing point: -64 °C - lit

f) Initial boiling point and boiling range: 162 °C - lit

g) Flash point: 51 °C - closed cup

h) Evaporation rate: No data available

i) Flammability (solid, gas): No data available

j) Upper/lower flammability or explosive limits: Upper explosion limit: 17,4 %(V), Lower explosion limit: 1,4 %(V)

k) Vapor pressure: 0,6 hPa at 20 °C , 7,7 hPa at 50 °C

l) Vapor density: 4,62 - (Air = 1.0)

m) Relative density: No data available

n) Water solubility: at 20 °C soluble

o) Partition coefficient: log Pow: -0,36 at 25 °C - Bioaccumulation is not expected.

p) Autoignition temperature: not auto-flammable

q) Decomposition temperature: > 165 °C

r) Viscosity: No data available

s) Explosive properties: No data available

t) Oxidizing properties: No data available

## **9.3 Paraformaldehyde**

a) Appearance: colorless liquid

b) Odor: No data available

c) Odor Threshold: No data available

d) pH: No data available

e) Melting point/freezing point: No data available

f) Initial boiling point 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) Water solubility: No data available

o) Partition coefficient: No data available

p) Autoignition temperature: not auto-flammable

q) Decomposition temperature: No data available

r) Viscosity: No data available

s) Explosive properties: No data available

t) Oxidizing properties: No data available

## SECTION 10 STABILITY AND REACTIVITY

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

Stable under recommended storage conditions

### 10.3 Possibility of hazardous reactions

No data available

### 10.4 Conditions to avoid

Heat, flames and sparks

### 10.5 Incompatible materials

Strong oxidizing agent, Light sensitive, Alcohols, Organic materials, Heavy metals, Powdered metals, Strong reducing agents, Amines, Mercaptans.

### 10.6 Hazardous decomposition products

Other decomposition products: No data available

Hazardous decomposition products formed under fire conditions: Carbon oxides, Nitrogen oxides (NO<sub>x</sub>), Sulphur oxides, Hydrogen chloride gas.

## SECTION 11 TOXICOLOGICAL INFORMATION

### 11.1 Cobalt (II) chloride

#### Acute toxicity

LD50 Oral - Rat - male and female - 537 mg/kg

LD50 Dermal - Rat - male and female - > 2.000 mg/kg

#### Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 4 h

#### Serious eye damage/eye irritation

Eyes - Rabbit

Result: Corrosive

#### Respiratory or skin sensitization

No data available

#### Germ cell mutagenicity

Suspected of causing genetic defects.

Ames test

S. typhimurium

Result: negative

Mouse - male and female

Result: negative

#### Carcinogenicity

Carcinogenicity- Mouse- male and female- inhalation (vapor)The value is given in analogy to the following substances:

May cause cancer by inhalation.

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Cobalt(II) chloride)

#### Reproductive toxicity

Presumed human reproductive toxicant

**Specific target organ toxicity - single exposure**

No data available

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

No data available

**11.2 Diglyme**

**Acute toxicity**

LD50 Oral - Rat - female - 4.760 mg/kg

LC50 Inhalation - Rat - male and female - 7 h - > 11 mg/l

**Skin corrosion/irritation**

Skin - Rabbit

Result: No skin irritation - 24 h

**Serious eye damage/eye irritation**

Eyes - Rabbit

Result: No eye irritation

**Respiratory or skin sensitization**

No data available

**Germ cell mutagenicity**

Test Type: Ames test

Test system: Salmonella typhimurium

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Test Type: unscheduled DNA synthesis assay

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 482

Result: negative

Test Type: Chromosome aberration test

Species: Rat

Cell type: Bone marrow

Application Route: inhalation (vapor)

Method: OECD Test Guideline 475

Result: negative

**Carcinogenicity**

No data available

**Reproductive toxicity**

May damage the unborn child.

May damage fertility.

**Specific target organ toxicity - single exposure**

No data available

**Specific target organ toxicity - repeated exposure**

No data available



**Aspiration hazard**

No data available

**11.3 DNase I****Acute toxicity**

LD50 Oral - Rat - 800mg/kg

LC50 Inhalation - 170 mg/m<sup>3</sup>

**Skin corrosion/irritation**

Data are conclusive but insufficient for classification

**Serious eye damage/eye irritation**

Causes serious eye damage

**Respiratory or skin sensitization**

May cause sensitisation by skin contact

**Germ cell mutagenicity**

Suspected of causing genetic defects

**Carcinogenicity**

Contains a known or suspected carcinogen

**Reproductive toxicity**

Data are conclusive but insufficient for classification

**Specific target organ toxicity - single exposure**

Causes damage to organs

**Specific target organ toxicity - repeated exposure**

Data are conclusive but insufficient for classification

**Aspiration hazard**

Data are conclusive but insufficient for classification

**SECTION 12 ECOLOGICAL INFORMATION****12.1 Cobalt (II) chloride****Toxicity**

Toxicity to fish: flow-through test LC50 - Danio rerio (zebra fish) – 85.3 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates: flow-through test LC50 - Chironomus sp. - 429 mg/l - 96 h

Toxicity to algae: static test ErC50 - Dunaliella tertiolecta (marine algae) – 71.314 mg/l - 96 h

Toxicity to bacteria: static test EC50 - activated sludge - 120 mg/l - 30 min

**Persistence and degradability**

The methods for determining the biological degradability are not applicable to inorganic substances.

**Bioaccumulative potential**

No data available

**Mobility in soil**

No data available

**Results of PBT and vPvB assessment**

This substance/mixture contains 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.

**Other adverse effects**

No data available

**12.2 Diglyme****Toxicity**

Toxicity to fish: LC50 - Pimephales promelas (fathead minnow) - 8.569 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates: semi-static test EC50 - Daphnia magna (Water flea) - 943 mg/l – 48 h

Toxicity to algae: semi-static test ErC50 - Pseudokirchneriella subcapitata (green algae) - > 10.000 mg/l-72 h

**Persistence and degradability**

Biodegradability: aerobic -Exposure time 28 d. Result: 67 %-Readily biodegradable.

**Bioaccumulative potential**

No data available

**Mobility in soil**

No data available

**Results of PBT and vPvB assessment**

This substance/mixture contains 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.

**Other adverse effects**

No data available

**12.3 Paraformaldehyde****Toxicity**

No data available

**Persistence and degradability**

No data available

**Bioaccumulative 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

**SECTION 13 DISPOSAL CONSIDERATION****13.1 Disposal methods**

Dispose of waste in accordance to applicable national, regional, or local regulations. Burn in a chemical incinerator equipped with an afterburner and scrubber b highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

**13.2 Contaminated packaging**

Dispose in the same manner as unused product.

## **SECTION 14 TRANSPORT INFORMATION**

**RID/ADR:** Non-Hazardous for Transport: This substance is considered to be non-hazardous for transport.

**IATA:** Non-Hazardous for Air Transport.

**IMO:** Non-Hazardous for Sea Transport.

## **SECTION 15 REGULATORY INFORMATION**

This material safety data sheet complies with the requirements of Regulation (EC) No. 1272/2008 and its amendments.

## **SECTION 16 OTHER INFORMATION**

**IMPORTANT! Read the safety data sheets before the use and disposal of this product. Insure that this information is understood by the operators exposed to this product. Use this product for the intended purpose as indicated in the instruction manual.**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as guide. We make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from this use. Users should make their own investigation to determine the suitability of the information for their particular purposes. In no way shall we be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising from using the above information.