# MATERIAL SAFETY DATA SHEET

## SECTION1 PRODUCT AND COMPANY IDENTIFICATION

| | |
|---|---|
| **Product name:** | Human CYFRA21-1(Cytokeratin Fragment Antigen 21-1) ELISA Kit |
| **Catalog Number:** | E-EL-H2077 |
| **Application:** | For research use only |

## SECTION2 HAZARDS IDENTIFICATION

| Component Items | Physical form | Hazardous | Concentration | CAS No. |
|---|---|---|---|---|
| Biotinylated Detection Ab/Ag | Odorless and colorless, liquid | Proclin 300 | 0.04% | 55965-84-9 |
| Assay diluent | Odorless and colorless, liquid | Proclin 300 | 0.04% | 55965-84-9 |
| HRP Conjugate | Odorless and colorless, liquid | Proclin 300 | 0.04% | 55965-84-9 |
| Standard | Odorless and white/faint yellow Clear powder/ solid | Proclin 300 | 0.04% | 55965-84-9 |
| Substrate | Odorless and colorless, liquid | Carbamide peroxide(CP) | 0.05% | 124-43-6 |
| | | 3,3',5,5'-tetramethylbenzidine | 0.005% | 54827-17-7 |
| Stop solution | Slight pungent and colorless, liquid | Sulfuric acid ($H_2SO_4$) | 4.76% | 7664-93-9 |

**2. HAZARD STATEMENT**

**2.1 Proclin 300**

**2.1.1 Classification of the substance or mixture**

**Classification according to Regulation (EC) No 1272/2008 [GHS/CLP].**

Sensitization, skin - Category 1

**2.1.2 Label Elements**

**Labeling according to Regulation (EC) No 1272/2008 [GHS/CLP]**

Signal Word: WARNING

Danger symbol: 

Hazard Statement(s):

H317: May cause an allergic skin reaction.

Precaution Statement(s):

P261: Avoid breathing dust/fumes/gas/mist/vapours/spray.

P272: Contaminated work clothing should not be allowed out of the workplace.

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

P302+352: IF ON SKIN: Wash with plenty of soap and water.

P333+313: If skin irritation or rash occurs: Get medical advice/attention.

**2.2 Sulfuric acid ($H_2SO_4$)**

**2.2.1 Classification of the substance or mixture**

**Classification according to regulation 1272/2008/EC:**

Not a hazardous substance or mixture according to Regulation (EC) No 1272/2008.

Specific concentration limits: Skin Corr. 1A, H314: C≥15 %; Skin Irrit. 2, H315: 5 %≤C<15 %; Eye Irrit. 2, H319: 5 %≤C<15 %.

**2.2.2 Label Elements**

Not a hazardous substance or mixture according to Regulation (EC) No 1272/2008.

**2.3 Carbamide peroxide (CP)**

**2.3.1 Classification of the substance or mixture**

Not a hazardous substance or mixture according to Regulation (EC) No 1272/2008.

**2.3.2 Label Elements**

Not a hazardous substance or mixture according to Regulation (EC) No 1272/2008.

**2.4 3,3',5,5'-tetramethylbenzidine**

**2.4.1 Classification of the substance or mixture**

Not a hazardous substance or mixture according to Regulation (EC) No 1272/2008.

**2.4.2 Label Elements**

Not a hazardous substance or mixture according to Regulation (EC) No 1272/2008.

## SECTION3 COMPOSITION/INFORMATION ON INGREDIENTS

| Ingredient | CAS No. | EC No. |
|---|---|---|
| Sodium chloride | 7647-14-5 | 231-598-3 |
| Potassium chloride | 7447-40-7 | 231-211-8 |
| Disodium phosphate dodecahydrate | 10039-32-4 | 231-448-7 |
| Potassium dihydrogen phosphate | 7778-77-0 | 231-913-4 |
| Tris | 77-86-1 | 201-064-4 |
| EDTA | 60-00-4 | 200-449-4 |
| Glycerol | 56-81-5 | 200-289-5 |
| Tween20 | 9005-64-5 | 500-018-3 |
| Protective protein | 9048-46-8 | 232-936-2 |
| Mannitol | 69-65-8 | 200-711-8 |
| PVP40 | 9003-39-8 | -- |
| Proclin 300 | 55965-84-9 | -- |
| Carbamide peroxide(CP) | 124-43-6 | 204-701-4 |
| Sulfuric acid (H2SO4) | 7664-93-9 | 231-639-5 |
| 3,3',5,5'-tetramethylbenzidine | 54827-17-7 | 259-364-6 |
| N,N-Dimethylformamide (DMF) | 68-12-2 | 200-679-5 |
| Sodium tetraphenylborate | 143-66-8 | 205-605-5 |
| Citric acid | 77-92-9 | 201-069-1 |
| Water | 7732-18-5 | 231-791-2 |

## SECTION4 FIRST-AID MEASURES

**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.

## SECTION5 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 (NOx), Sulphur oxides, Hydrogen chloride gas.

## SECTION6 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.

## SECTION7 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 fire fighting 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 fire fighting equipment and leakage emergency treatment equipment.

## SECTION8 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.

## SECTION9 PHYSICAL/CHEMIICAL PROPERTIES

**9.1 Proclin 300**

Appearance: Liquid

Odour: No data available

Odour threshold: No data available

pH 4.1 at 100 g/L

Melting point/freezing point: -40 °C

Initial boiling point and boiling range: 189 °C

Flash point: 118 °C - closed cup

Evaporation rate: No data available

Flammability (solid, gas): No data available

Upper/lower flammability or explosive limits: No data available

Vapour pressure: No data available

Vapour density: No data available

Relative density: 1.03 $g/cm^3$

Water solubility: Soluble

Partition coefficient: noctanol/water: No data available

Auto-ignition temperature: No data available

Decomposition temperature: No data available

Viscosity: No data available

Explosive properties: No data available

Oxidizing properties: No data available

**9.2 Sulfuric acid ($H_2SO_4$)**

Appearance: Colorless Liquid

Odor: Pungent
Odor threshold: No data available
pH: ~1
Melting point/freezing point: No data available
Boiling point/Boiling range: No data available
Flash point: No data available
Evaporation rate: No data available
Flammablitiy (solid, gas): No data available
Upper/lower flammability or explosive limits: No data available
Vapor density: No data available
Vapor pressure: No data available
Relative density: No data available
Solubility in/Miscibility with Water: Soluble
Partition coefficient: noctoanol/water: No data available
Auto igniting: No data available
Decomposition temperature: No data available
Viscosity: No data available

**9.3 Carbamide peroxide (CP)**

Appearance: White crystalline
Odour: No data available
Odour threshold: No data available
pH: No data available
Melting point/freezing point: 90 - 93 °C - lit.
Initial boiling point and boiling range: No data available
Flash point: No data available
Evaporation rate: No data available
Flammability (solid, gas): No data available
Upper/lower flammability or explosive limits: No data available
Vapour pressure: 23.3 mmHg at 30 °C
Vapour density: No data available
Relative density: 1.390 g/cm$^3$ at 20 °C
Water solubility: No data available
Partition coefficient: noctanol/water: No data available
Auto-ignition temperature: No data available
Decomposition temperature: > 60 °C
Viscosity: No data available
Explosive properties: No data available
Oxidizing properties: The substance or mixture is classified as oxidizing with the category
Other safety information: Bulk density 0.6 - 0.7 g/L

**9.4 3,3',5,5'-tetramethylbenzidine**

Appearance: Liquid
Odor: No data available
Odor Threshold: No data available
pH: No data available

Melting point/freezing point: 168-171 °C - lit.
Initial boiling point and boiling range: 168 - 169 °C
Flash point: No data available
Evaporation rate: No data available
Flammability (solid,gas): No data available
Upper/lower flammability or explosive limits: No data available
Vapor pressure: No data available
Vapor density: No data available
Relative Density: No data available
Water solubility: insoluble
Partition coefficient: octanol/water: No data available
Autoignition temperature: No data available
Decomposition temperature: No data available
Viscosity: No data available
Explosive properties: No data available
Oxidizing properties: No data available

## SECTION10 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 (NOx), Sulphur oxides, Hydrogen chloride gas.

## SECTION11 TOXICOLOGICAL INFORMATION

**11.1 Proclin 300**
Acute toxicity
$LD_{50}$ Oral - Rat - 862 mg/kg
$LD_{50}$ Dermal - Rabbit - 2,800 mg/kg
Skin corrosion/irritation

Skin - Rabbit Result: Corrosive Serious eye damage/eye irritation

Eyes - Rabbit Result: Corrosive to eyes

Respiratory or skin sensitisation - Guinea pig Result: May cause sensitisation by skin contact.

Carcinogenicity

IARC: 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.

**11.2 Sulfuric acid ($H_2SO_4$)**

Acute toxicity

$LD_{50}$ Oral - Rat - 1530 mg/kg

$LD_{50}$ Dermal - Rabbit - 2730 mg/kg

$LC_{50}$ Inhalation- Rat - 850 mg/$m^3$ 1 h

Skin corrosion/irritation: Can cause severe burns

Serious eye damage/irritation: Can cause severe burns

Respiratory or skin sensitization: No data available

Germ cell mutagenicity: No data available

Carcinogenicity: No data available

Reproductive toxicity: No data available

Aspiration hazard: Can cause severe burns

Ingestion: May be harmful if swallowed. Causes burns.

Skin contact: May be harmful if absorbed through skin. Causes burns.

Eye contact: Causes eye burns.

**11.3 Carbamide peroxide (CP)**

$LD_{50}$ = 4060 mg/kg (skin-rat)

Carcinogenicity:

IARC: 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.

**11.4 3,3',5,5'-tetramethylbenzidine**

Acute toxicity

Oral: No data available

Inhalation: No data available

Dermal: No data available

Skin corrosion/irritation: No data available

Serious eye damage/eye irritation: No data available

Respiratory or skin sensitization: No data available

Germ cell mutagenicity

Test Type: Mouse

Test system: lymphocyte

Remarks: Mutation in mammalian somatic cells.

Carcinogenicity: No data available

Reproductive toxicity: No data available

Aspiration hazard: Can cause severe burns

## SECTION12 ECOLOGICAL INFORMATION

**12.1 Proclin 300**

**Ecotoxicity**

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

**12.2 Sulfuric acid ($H_2SO_4$)**

**Ecotoxicity**

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

**12.3 Carbamide peroxide (CP)**

**Ecotoxicity**

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

**12.4 3,3',5,5'-tetramethylbenzidine**

**Ecotoxicity**

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**

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

## 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.

## SECTION15 REGULATORY INFORMATION

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

## SECTION 16 OTHER INFORMATION

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a 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 its 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.