MATERIAL SAFETY DATA SHEET

Company	ELPIS-Biotech. Inc.
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SECTION 1. CHEMICAL INFORMATION

Product name Silver Stain kit (low background)

Cat. No. EBP-1051

Volume of product package: Sol A 500ml, Sol B 500ml, Sol C 500ml

Product Use : Laboratory Reagent. For R&D use only. Not for drug, household or other uses.

Manufacturer/ Supplier information

Supply company : ELPIS-Biotech. Inc.

Address : 123-12 Jeonglim-dong, Seo-gu, Daejeon, Korea

Information service or emergency call : +82-42-581-8448 (042-581-8448, Korea)

Department in charge : Research Department

SECTION 2. HAZARDOUS IDENTIFICATION

Emergency overview DANGER !

STRONG OXIDIZER. CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE. CAUSES RESPIRATORY TRACT, EYE AND SKIN BURNS. MAY BE HARMFUL IF SWALLOWED. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN CAUSE CANCER

Contact with combustible material may cause fire. This material increases the risk of fire and may aid combustion. Corrosive to the eyes, skin and respiratory system. Causes burns. Harmful if swallowed. Keep away from combustible material. Avoid exposure - obtain special instructions before use. Do not breathe vapor or mist. Do not ingest. Do not get in eyes or on skin or clothing. Contains material that can cause target organ damage. Contains material which may cause cancer. Risk of cancer depends on duration and level of exposure. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

Potential acute health effects :

Inhalation	Corrosive to the respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Ingestion	Corrosive to eyes. Causes burns.

Skin	Harmful if swallowed. May cause burns to mouth, throat and stomach.
Eyes	Corrosive to the skin. Causes burns.

Potential Chronic Health Effects :

Chronic effects	Contains material that can cause target organ damage.
Carcinogenicity	Contains material which may cause cancer. Risk of cancer vdepends on duration and level of exposure.
Mutagenicity	No known significant effects or critical hazards.
Teratogenicity	No known significant effects or critical hazards.
Developmental effects	No known significant effects or critical hazards.
Fertility effects	No known significant effects or critical hazards.
Target organs	Contains material which causes damage to the following organs: mucous membranes, upper respiratory tract, skin, eyes, nose/sinuses. Contains material which may cause damage to the following organs: blood, lungs, the nervous system.

Over-exposure signs, symptoms :

Inhalation	Adverse symptoms may include the following: respiratory tract irritation coughing.
Ingestion	Adverse symptoms may include the following: stomach pains.
Skin	Adverse symptoms may include the following: pain or irritation, redness blistering may occur.
Eyes	Adverse symptoms may include the following: pain, watering, redness.

Medical conditions aggravated by overexposure :

Pre-existing digestive disorders and disorders involving any other target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

Environmental hazards :

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

Buffer's Components in Water:

Reagent	CAS#	Concentration, %
Silver Nitrate	7761-88-8	< 3

SECTION 4. FIRST AID MEASURES

After inhalation :

Get medical attention immediately. Move exposed person to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or selfcontained breathing apparatus. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-tomouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

After swallowing (ingestion) :

Get medical attention immediately. Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

After skin contact :

Get medical attention immediately. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

After eye contact :

Get medical attention immediately. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Chemical burns must be treated promptly by a physician.

Protection of first-aiders :

No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing or wear gloves.

SECTION 5. FIRE FIGHTING MEASURES

Flammability of the product :

Contact with combustible material may cause fire. This material increases the risk of fire and may aid combustion. In a fire or if heated, a pressure increase will occur and the container may burst.

Extinguishing media :

Suitable	Use an extinguishing agent suitable for the surrounding fire.
Not suitable	None known.

Special exposure hazards :

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Hazardous combustion products :

Decomposition products may include the following materials: nitrogen oxides metal oxide/oxides.

Special protective equipment for fire-fighters :

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus with a full face-piece operated in positive pressure mode.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions :

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

Environmental precautions :

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Measures for cleaning / collecting :

Collect spilled liquid with liquid-binding material or inert absorbent and place it in container for disposal. Wash spill site after material pickup is complete.

SECTION 7. HANDLING AND STORAGE

Handling

Put on appropriate personal protective equipment. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from combustible material. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials and food and drink. Separate from reducing agents and combustible materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limits Eye protection Skin protection

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Liquid.
Color	Clear
Flash point	> 392 F, > 200° C
Explosive properties	No data available.
pH	No data available.
Vapor pressure	< 1 MMHG @ 20°C

SECTION 10. STABILITY AND REACTIVITY

Stability	Stable.
Conditions to avoid	Drying on clothing or other combustible materials may cause fire. Avoid exposure obtain special instructions before use.
Incompatible materials	Highly reactive or incompatible with the following materials: combustible materials reducing materials.
Hazardous polymerization	Will not occur.

Hazardous Decomposition Products : Carbon Monoxide, Carbon Dioxide

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Possibility of hazardous reaction Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

Eye Contact	Serious eye damage/eye irritation
Skin Contact	No data available
Respiratory or skin sensitization	No data available

Potential health effects :

Inhalation	May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Ingestion	Harmful if swallowed. Causes burns.
Skin	May be harmful if absorbed through skin. Causes skin burns.
Eyes	Causes eye burns.

Signs and Symptoms of Exposure

May cause argyria (a slate-gray or bluish discoloration of the skin and deep tissues due to the deposit of insoluble albuminate of silver)., Absorption into the body leads to the formation of methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2 to 4 hours or longer.

SECTION 12. ECOLOGICAL INFORMATION

Toxicity :

Toxicity to fish	mortality NOEC - Oncorhynchus mykiss (rainbow trout) - 0,108 mg/l - 96,0 h
	mortality LOEC - Oncorhynchus mykiss (rainbow trout) - > 0,007 mg/l - 7,0 d
	LC50 - Leuciscus idus (Golden orfe) - 0,029 mg/l - 96,0 h
Toxicity to daphnia and other aquatic invertebrates.	
	EC50 - Daphnia magna (Water flea) - 0,0006 mg/l - 48 h

SECTION 13. DISPOSAL CONSIDERATIONS

Contact a licensed professional waste disposal service to dispose of this material.

Observe all federal, state and local environmental regulations.

Dissolve or mix the material with a combustable solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

SECTION 14. TRANSPORT INFORMATION

Contact ELPIS Biotech, Inc. Company for Transportation Information.

SECTION 15. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

SECTION 16. OTHER INFORMATION

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

ELPIS Biotech Inc. shall not be held liable for any damage resulting from handling or from contact with the above product.

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