Pioneer Forensics LLC
VERITATEM PER EVIDENTIA
"Truth Through Evidence"

SDS

Safety Data Sheet

1. IDENTIFICATION

Product Identifier: **Leuco Crystal Violet Set**

Product Code(s): PF30024

Synonyms: Mixture.

Recommended Use: For manufacturing, industrial, and laboratory use only. Use as a laboratory reagent.

Uses Advised Against: Not for food, drug, or household use.

Supplier:
Pioneer Forensics, LLC
4621 Technology Drive
Golden, CO 80403
Phone: (303) 762-0800

Emergency Phone Number: For health emergency, call poison control: (800) 222-1222.

2. HAZARDS IDENTIFICATION

Component A (Solution)

Hazard Classifications:
Skin Corrosion/Irritation: Category 2
Eye Damage/Irritation: Category 1

Signal Word: DANGER

Hazard Statements:
Causes skin irritation.
Causes serious eye damage.

Pictograms:



Precautionary Statements:

Prevention:
Wash thoroughly after handling.
Wear protective gloves, protective clothing, eye protection, and face protection.

Response: If on skin: Wash with plenty of water**.** If skin irritation occurs: Get medical attention. Take off contaminated clothing and wash it before reuse.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor.

Storage: Not applicable.

Disposal: Dispose of contents and container in accordance with local, regional, national, and international regulations.

Hazards Not Otherwise Classified: May pose a pressure hazard when sealed. Use vented containers to avoid hazardous pressure buildup.
May be harmful to aquatic life. Avoid release to the environment.

Toxicity Statement: Not applicable.

Component B (Leuco Crystal Violet)

Hazard Classifications:

Skin corrosion/Irritation:	Category 2
Eye Damage/Irritation:	Category 2A
Specific Target Organ Toxicity (Single Exposure):	Category 3

Signal Word: WARNING

Hazard Statements: Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation.

Pictograms:



Precautionary Statements:

Prevention: Wash thoroughly after handling.
Wear protective gloves, eye protection, and face protection.
Avoid breathing dust.
Use only outdoors or in a well-ventilated area.

Response: Call a poison center or doctor if you feel unwell.
If on skin: Wash with plenty of water. If skin irritation occurs: Get medical attention. Take off contaminated clothing and wash it before reuse.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.
If inhaled: Remove person to fresh air and keep comfortable for breathing.

Storage: Store in a well-ventilated place. Keep container tightly closed.
Store locked up.

Disposal: Dispose of contents and container in accordance with local, regional, national, and international regulations.

Hazards Not Otherwise Classified: Not applicable.

Toxicity Statement: Not applicable.

Component C (Sodium Acetate)

Hazard Classifications: This product is classified as not hazardous under OSHA's Hazard Communication Standard, 29 CFR 1910.1200 (HCS) and the United Nations' Globally Harmonized System of Classification and Labeling of Chemicals (GHS). However, all chemicals handled and used in the workplace should be treated with caution.

Signal Word: Not applicable.

Hazard Statements: Not applicable.

Pictograms: Not applicable.

Precautionary Statements:

Prevention: Not applicable.

Response: Not applicable.

Storage: Not applicable.

Disposal: Not applicable.

Hazards Not Otherwise Classified: Formation of dusts may cause a combustion hazard.

Toxicity Statement: Not applicable.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

Component A (Solution)

Component	Common Name / Synonyms	CAS#	Chemical Formula	% by Weight
Water	Water	7732-18-5	H_2O	93.0
Trade Secret*	N/A	N/A	N/A	7.00

Component B (Leuco Crystal Violet)

Component	Common Name / Synonyms	CAS#	Chemical Formula	% by Weight
Leuco Crystal Violet	Leucocrystal Violet	603-48-5	$C_{25}H_{31}N_3$	≥ 99.0

Component C (Sodium Acetate)

Component	Common Name / Synonyms	CAS#	Chemical Formula	% by Weight
Sodium Acetate, Anhydrous	Acetic Acid, Sodium Salt	127-09-3	$NaC_2H_3O_2$	≥ 99.0

Trade Secret Statement: *The specific name, identifiers, and formula of the component "Trade Secret" above have been withheld under a trade secret. Any effects of this component on the overall hazard classification of this product are considered, and health and safety information are provided where applicable.

4. FIRST AID MEASURES

First Aid Procedures:

Inhalation: Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Call a physician if symptoms occur.

Ingestion: Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, keep head low so that vomit does not enter lungs. Never give anything by mouth to an unconscious person. Call a doctor or poison control center immediately.

Skin Contact: Wash skin with soap and plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Call a physician if symptoms occur.

Eye Contact: Check for and remove contact lenses, if present and easy to do. Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Immediate medical attention is required. Get medical attention immediately.

General Advice: Poison information centers in each state can provide additional assistance for scheduled poisons. Ensure that those providing first aid and medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Symptoms and Effects: Ingestion may cause abdominal pain, nausea, and vomiting. Inhalation may cause hoarseness. Skin contact may cause burning sensation. Eye contact may cause burns and damage. May affect the central nervous system, gastrointestinal system, respiratory system, brain, and blood.

Immediate Medical Care/ Special Treatment: Get medical attention immediately if feeling unwell or concerned. Treat symptomatically.

5. FIREFIGHTING MEASURES

Suitable Extinguishing Media: Water spray, dry powder, alcohol resistant foam, carbon dioxide.

Unsuitable Extinguishing Media: Do not use a solid (straight) water stream, as it may scatter and spread fire.

Hazardous Combustion Products: Sodium oxides, carbon oxides, nitrogen oxides, sulfur oxides.

Specific Hazards: Excessive thermal conditions may yield corrosive and/or toxic fumes. Formation of dusts may cause a combustion hazard.

Special Protective Equipment/ Precautions for Firefighters: As in any fire, wear MSHA/NIOSH-approved (or equivalent), self-contained, positive-pressure or pressure-demand breathing apparatus and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Protective Equipment: Isolate hazard area and keep unnecessary and unprotected personnel away from the area of the leak or spill. Wear appropriate personal protective equipment (see Section 8). Avoid contact with eyes, skin, and clothing.

Emergency Procedures: In case of chemical emergency, or if unsure how to address an accidental release, consult a professional (see Section 1).

Methods for Containment: Stop the flow of material, if this is without risk. Prevent entry into waterways, sewer, basements, or confined areas. Dike the spilled material, where this is possible. Avoid

generation of dust. Product should not be released to the environment. Contain and recover waste when possible.

Methods for Cleanup: Collect or absorb spills with an inert material (e.g. vermiculite, dry sand, earth, cloth, or fleece) and place in a non-combustible container for reclamation or disposal. Do not flush to sewer. Clean contaminated surface thoroughly. Residues from spills can be diluted with water. Never return spills in original containers for reuse. Clean up in accordance with all applicable regulations.

7. HANDLING AND STORAGE

Handling: Wear personal protective equipment (see Section 8). Avoid contact with skin, eyes, and clothing. Do not ingest. When using, do not eat, drink, or smoke. Limit exposure to air, moisture, and light. Keep away from incompatible materials (see Section 10). Handle in accordance with good industrial hygiene and safety practice. Wash thoroughly after handling. Containers of this material may be hazardous when empty, as they retain product residues. Observe all warnings and precautions listed for this product.

Storage: Store in a cool, dry, ventilated area. Store in a segregated and approved area away from heat and incompatible materials (see Section 10). Store in original container. Keep containers tightly closed and upright. Keep away from food, drink, and animal foodstuffs. Keep out of the reach of children. Comply with all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of this product.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits:

Component A (Solution)

Water: No information found.

"Trade Secret": ACGIH (TLV): 1 ppm
OSHA (PEL): 1 ppm
1.4 mg/m^3

Component B (Leuco Crystal Violet)

No information found.

Component C (Sodium Acetate)

No information found.

Engineering Controls: Ensure adequate ventilation. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Personal Protective Measures:

Eye/Face Protection: Wear safety glasses with side shields or goggles. Maintain approved eye wash station and accessible rinse facilities in work area.

Skin Protection: Wear appropriate chemical resistant clothing (with long sleeves) and appropriate chemical resistant gloves.

Respiratory Protection:	An air-purifying, NIOSH-approved respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Use a positive-pressure, air-supplied respirator if there is any potential for an uncontrolled release, if exposure levels are unknown, or if any other circumstances exist where air-purifying respirators may not provide adequate protection.
Specific Requirements for Personal Protective Equipment:	Ensure that glove material is compatible with this product. This information is available from glove manufacturers.

9. PHYSICAL AND CHEMICAL PROPERTIES

Unless otherwise indicated, all properties are given at standard temperature and pressure.

Component A (Solution)

Appearance:	Yellowish, transparent liquid.
Odor:	Slight, sweet.
Odor Threshold:	No information found.
Formula Weight:	Mixture.
pH:	No information found.
Melting/Freezing Point:	No information found.
Boiling Point/Range:	No information found.
Decomposition Temperature:	No information found.
Flash Point:	Not applicable.
Auto-ignition Temperature:	Not applicable.
Flammability:	Not flammable.
Flammability/Explosive Limits:	Not applicable.
Solubility:	Miscible with water.
Vapor Pressure:	No information found.
Vapor Density:	No information found.
Specific Gravity:	1.00 (Water = 1)
Evaporation Rate:	No information found.
Viscosity:	No information found.
Partition Coefficient (n-octanol/water):	No information found.

Component B (Leuco Crystal Violet)

Appearance:	Greyish-white, crystalline solid.
Odor:	Odorless.
Odor Threshold:	No information found.
Formula Weight:	373.54
pH:	No information found.
Melting/Freezing Point:	175 °C
Boiling Point/Range:	No information found.
Decomposition Temperature:	No information found.

Flash Point:	Not applicable.
Auto-ignition Temperature:	Not applicable.
Flammability:	Not flammable.
Flammability/Explosive Limits:	Not applicable.
Solubility:	Soluble in water.
Vapor Pressure:	No information found.
Vapor Density:	No information found.
Specific Gravity:	No information found.
Evaporation Rate:	No information found.
Viscosity:	No information found.
Partition Coefficient (n-octanol/water):	No information found.

Component C (Sodium Acetate)

Appearance:	White, opaque, powdered solid.
Odor:	Mild, vinegar.
Odor Threshold:	No information found.
Formula Weight:	82.09
pH:	8 – 9 (10 g/L aqueous)
Melting/Freezing Point:	324 °C
Boiling Point/Range:	No information found.
Decomposition Temperature:	No information found.
Flash Point:	> 250 °C
Auto-ignition Temperature:	607 °C
Flammability:	Not flammable.
Flammability/Explosive Limits:	Not applicable.
Solubility:	505 g/L aqueous.
Vapor Pressure:	No information found.
Vapor Density:	No information found.
Specific Gravity:	1.52 (Water = 1)
Evaporation Rate:	No information found.
Viscosity:	No information found.
Partition Coefficient (n-octanol/water):	- 3.72

10. STABILITY AND REACTIVITY

Reactivity Data:	Corrosive. See Section 11.
Chemical Stability:	Stable under normal conditions. Sensitive to light, air, and moisture.
Conditions to Avoid:	Excessive heat, exposure to light, exposure to air, moisture, incompatible materials.

Incompatible Materials: Strong oxidizers, reducing agents, strong acids, strong bases, combustible materials, organic materials, metals, halogens.

Hazardous Decomposition Products: Sodium oxides, carbon oxides, nitrogen oxides, sulfur oxides.

Possibility of Hazardous Reactions: May react vigorously or violently with the incompatible materials listed above. Formation of dusts may cause a combustion hazard. Excessive thermal conditions may yield hazardous decomposition products listed above.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Component A (Solution)

Routes of Exposure: Inhalation, ingestion, skin contact, eye contact.

Acute Effects: Corrosive. May be harmful if swallowed, inhaled, absorbed through the skin, or exposed to the eyes. May cause burns to the eyes, skin, respiratory tract, and gastrointestinal tract. May affect the central nervous system, respiratory system, brain, blood, gastrointestinal system, and cardiovascular system.

Chronic Effects: Prolonged or repeated exposure may cause dermatitis, corneal damage, metabolic effects, respiratory effects, blood effects, mutagenic effects, and cancer.

Toxicological Data:

Water: Not applicable.

"Trade Secret": LD_{50} Oral, Rat: 728 mg/kg (estimated)
Corrosive to skin and eyes based on animal data.

Symptoms of Exposure: Irritation, ataxia, convulsions, dyspnea, ocular clouding, corneal edema, coughing, lacrimation, insomnia, headache, numbness, ulceration of nasal tissue, chemical pneumonia, unconsciousness, nausea, vomiting, hypermotility, diarrhea, difficulty swallowing, stomach distension, cerebral swelling.

Carcinogenic Effects: May cause cancer based on animal data.

ACGIH: **"**Trade Secret": A3 – Confirmed animal carcinogen with unknown relevance to humans

IARC: **"**Trade Secret": 3 – Not classifiable for human

Component B (Leuco Crystal Violet)

Routes of Exposure: Inhalation, ingestion, skin contact, eye contact.

Acute Effects: Causes irritation if swallowed, inhaled, or exposed to the eyes or skin.

Chronic Effects: No information found.

Toxicological Data: Causes irritation to eyes and skin based on animal data.
Causes respiratory irritation based on animal data.

Symptoms of Exposure: Irritation, coughing, sneezing, abdominal pain, nausea, vomiting.

Carcinogenic Effects: No component of this product is considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

Component C (Sodium Acetate)

Routes of Exposure: Inhalation, ingestion, skin contact, eye contact.

Acute Effects: May be harmful if swallowed, inhaled, or exposed to the eyes. May cause irritation to the eyes, skin, respiratory tract, and gastrointestinal tract.

Chronic Effects: No information found.

Toxicological Data:
LD_{50} Oral, Rat: 3530 mg/kg
LD_{50} Dermal, Rabbit: > 10,000 mg/kg
LC_{50} Inhalation, Rat: > 30 mg/L 1 h
May cause mild skin and eye irritation based on animal data.

Symptoms of Exposure: Irritation, abdominal pain, nausea, vomiting.

Carcinogenic Effects: This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

12. ECOLOGICAL INFORMATION

Component A (Solution)

Ecotoxicological Data: Water:
No information found.

"Trade Secret":
EC_{50}, Water Flea (Daphnia magna): 5.6 mg/L 48 h (estimated)
LC_{50}, Rainbow Trout (Oncorhynchus mykiss): 51 mg/L 96 h (estimated)

Persistence and Degradability: This product is readily biodegradable and not expected to bioaccumulate.

Environmental Effects: May be harmful to aquatic organisms. Avoid release to the environment.

Component B (Leuco Crystal Violet)

Ecotoxicological Data: No information found.

Persistence and Degradability: No information found.

Environmental Effects: No information found.

Component C (Sodium Acetate)

Ecotoxicological Data:
EC_{50}, Water Flea (Daphnia magna): > 1000 mg/L 48 h
LC_{50}, Fathead Minnow (Pimphales promelas): 13,300 mg/L 120 h

Persistence and Degradability: This product is readily biodegradable and unlikely to bioaccumulate.

Environmental Effects: Not expected to be hazardous to the environment. However, the possibility of an environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Partition Coefficient (n-octanol/water): - 3.72

13. DISPOSAL INFORMATION

Disposal Instructions: Dispose of this material and its container to an approved waste collection point. Minimize exposure to product waste (see Section 8). Do not dispose unused waste down drains or into sewers. All wastes must be handled in accordance with local, state, and federal regulations.

Contaminated Packaging: Because containers retain product residue, follow label warnings even after container is emptied. Offer rinsed packaging material to local recycling facilities.

Waste Codes: No information found.

14. TRANSPORT INFORMATION

DOT: Not regulated.

Environmental Hazard Regulations: No information found.

Other Transport Precautions: No information found.

15. REGULATORY INFORMATION

U.S. Federal Regulations:

OSHA: This product is considered a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Inventory: All components of this product are on the U.S. TSCA Inventory.

U.S. EPCRA (SARA Title III):

Section 302: No information found.

Sections 311/312:

Hazard Category	List (Yes/No)
Section 311 – Hazardous Chemical	Yes
Immediate Hazard	Yes
Delayed Hazard	No
Fire Hazard	No
Pressure Hazard	No
Reactivity Hazard	No

Section 313: No information found.

CERCLA Reportable Quantities: No information found.

International Inventories:

Country or Region	Inventory Name	On Inventory (Yes/No)*
Australia	Australian Inventory of Chemical Substances (AICS)	N/A
Canada	Domestic Substances List (DSL)	N/A
Canada	Non-Domestic Substances List (NDSL)	N/A
China	Inventory of Existing Chemical Substances in China (IECSC)	N/A
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	N/A
Europe	European List of Notified Chemical Substances (ELINCS)	N/A
Japan	Inventory of Existing and New Chemical Substances (ENCS)	N/A
Korea	Existing Chemicals List (ECL)	N/A
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	N/A

*A "Yes" indicates that the listed component(s) of this product comply with the inventory requirements administered by the governing country(s).

16. OTHER INFORMATION

Disclaimer: Pioneer Forensics, LLC provides the information in this Safety Data Sheet in the belief that it is reliable but assumes no responsibility for its completeness or accuracy. The physical properties reported in this SDS are obtained from literature and do not constitute product specifications. Pioneer Forensics, LLC makes and gives no representations or warranties with respect to the information contained herein or the product to which it refers, whether express, implied, or statutory, including without limitation, warranties of accuracy, completeness, merchantability, non-infringement, performance, safety, suitability, stability, and fitness for a particular purpose. No warranty against infringement of any patent, copyright or trademark is made or implied. This SDS is intended only as a guide to the appropriate handling of the material by a properly trained person. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. Accordingly, Pioneer Forensics, LLC assumes no liability whatsoever for the use of or reliance upon this information including results obtained, incidental or consequential damages, or lost profits.

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