

# Safety Data Sheet (SDS)

## Section 1: Identification

**Product identifier:** Potassium Ferricyanide  
**Other name(s):** Murakami's reagent part A  
**Item number(s):** 195A, 196A  
**Identified use:** SU24 Scientific research and development.  
**Details of the supplier of the safety data sheet:**  
ES Laboratory, LLC  
2041 E. Gladstone St. Unit N Glendora, CA 91740 USA  
Tel: 626-208-9011  
**Emergency telephone number:**  
CHEMTREC® 1-800-424-9300 (US & Canada Only)

## Section 2: Hazard(s) Identification

**Hazardous classification of the substance or mixture:** Not a hazardous substance or mixture.  
**Signal word:** N/A  
**Pictogram:** N/A  
**Hazard statement(s):** None  
**Precautionary statement(s):** None  
**Response statement(s):** None  
**Storage statement(s):** None  
**Disposal statement(s):** None  
**Hazard(s) not otherwise classified:** Contact with acids liberates very toxic gas.  
**Label elements:** See tables above  
**HMIS Ratings:**  
Health: 1  
Flammability: 0  
Reactivity: 0  
**NFPA Ratings:**  
Health: 0  
Flammability: 0  
Reactivity: 0  
Special hazard: None

## Section 3: Composition/Information on Ingredients

| Component                     | CAS No.    | Concentration |
|-------------------------------|------------|---------------|
| Tripotassium hexacyanoferrate | 13746-66-2 | <=100%        |

## Section 4: First-Aid Measures

**Eye contact:** Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Get medical aid immediately.  
**Inhalation:** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid immediately.  
**Skin contact:** Wash the areas of contact with water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid immediately.  
**Ingestion:** Rinse mouth. Get medical aid immediately.  
**Most important symptoms and effects, both acute and delayed:** No information.  
**Recommendation for immediate medical care and special treatment needed, when necessary:** No information.

## Section 5: Fire-Fighting Measures

**General Information:** This product itself does not burn.  
**Extinguishing media:** dry powder.  
**Special hazards arising from the substance or mixture:** In the case of fire, the following can be released: carbon oxides, nitrogen oxides, potassium oxide, iron oxides.  
**Special protective equipment or precautions for firefighters:** Wear full protective clothing and self-contained respirator.

## Section 6: Accidental Release Measures

**Personal precautions, protective equipment, and emergency procedures:** Wear protective equipment. Keep unprotected persons away.

**Environmental precautions:** Do not allow the material to be released to the environment without proper government permits.

**Methods and materials for containment and cleaning up:** Pick up or orange disposal without creating dust. Sweep up and shovel. Do not flush with water. Keep in suitable, closed container for disposal.

## Section 7: Handling and Storage

**Precautions for safe handling:** Wear protective equipment. Keep container tightly sealed. Store in cool, dry place in tightly closed containers.

**Condition for safe storage:** Keep container tightly sealed. Never allow the product to get in contact with water during storage. Do not store near acids. Keep dry.

**Incompatibilities:** Acids.

**Specific storage requirement(s):** No information.

## Section 8: Exposure Controls/Personal Protection

### Exposure Limits

| Component                     | CAS No.    | ACGIH TLV  | OSHA PEL  |
|-------------------------------|------------|--|---|
| Tripotassium hexacyanoferrate | 13746-66-2 | C 5 mg/m <sup>3</sup><br>TWA 1 mg/m <sup>3</sup> | C 4.7 ppm or 5 mg/m <sup>3</sup><br>TWA 1 mg/m <sup>3</sup> |

**Engineering controls:** Handle in accordance with good industrial hygiene and safety practice. Wash hands before and after use.

**Eye protection:** Wear safety glasses or goggles.

**Skin protection:** Wear protective clothing and chemical resistant gloves.

**Respiratory protection:** Use self-contained respiratory device in an emergency situation.

## Section 9: Physical and Chemical Properties

**Appearance:** Red powder  
**UFL/LEL:** Not determined  
**LFL/LEL:** Not determined  
**Odor:** No data  
**Vapor pressure:** Not determined  
**Odor threshold:** Not determined  
**Vapor density:** Not determined  
**pH:** 6 – 9 at 329 g/l at 25 deg. C  
**Relative density:** 1.890 g/cm<sup>3</sup>  
**Melting Point/Freezing point:** Not determined  
**Solubility in water:** 329 g/l at 20 deg. C  
**Boiling point/boiling range:** Not determined  
**Flash point:** Not applicable  
**Evaporation Rate:** Not determined  
**Flammability (solid, gas):** Not applicable  
**Partition coefficient (n-octanol/water):** Not determined  
**Auto-ignition temperature:** Not determined  
**Decomposition temperature:** Not determined  
**Viscosity:** Not determined

## Section 10: Stability and Reactivity

**Reactivity:** Contact with acids liberate very toxic gas.

**Chemical stability:** Stable under recommended storage conditions.

**Stabilizer(s):** Not required.

**Safety issues that may arise should the product change in appearance:** No information.

**Thermal decomposition/ conditions to Avoid:** Decomposition will not occur if used and stored according to specifications.

**Possibility of hazardous reactions:** No data.

**Incompatibilities:** Acids, strong oxidizing agents, ammonia, hydrochloric acid, cyanides.

**Hazardous decomposition products:** No data. In event of fire: see section 5.

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## Section 11: Toxicological Information

### For Sodium Carbonate:

#### Acute toxicity:

Oral mouse LD50: 2970 mg/kg.

#### Other exposure effect:

Inhalation: No data.

On the Skin: No data.

On the Eye: No data.

Sensitization: No data.

**Additional toxicological information:** To the best of our knowledge the acute and chronic toxicity of this substance is not fully known. No classification data on carcinogenic properties of this material is available from NTP, OSHA, ACGIH or IARC.

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## Section 12: Ecological Information

### Toxicity:

#### Aquatic toxicity:

Toxic to fish. LC50 rainbow trout: 869 mg/l, 96h

Toxic to daphnia and other aquatic invertebrates. EC50 water flea: 549 mg/l, 48h.

**Persistence and degradability:** No information.

### Behavior in environmental system:

**Bioaccumulative potential:** No information.

**Mobility in soil:** No information.

**Additional ecological information:** Avoid transfer into the environment.

**Other adverse effects:** No information.

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## Section 13: Disposal Considerations

Place in a chemical waste container for proper disposal in an approved waste disposal facility. Dispose of the content and container in accordance with local, regional, national, international regulations.

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## Section 14: Transport Information

**D.O.T. shipping name:** N/A

**D.O.T. hazard class:** N/A

**UN number:** N/A

**Packing group:** N/A

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## Section 15: Regulatory Information

### Not meant to be all inclusive, selected regulation represented

**OSHA status:** No information

**TSCA status:** No information

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## Section 16: Other Information

**Disclaimer:** The information above is believed to be accurate and represents the best information currently available to us.

ES Laboratory, LLC makes no warranty, express or implied, as to its accuracy, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. We shall not be liable for any damages to person or property resulting from its use.

**Revised Date:** 1/4/2019

# Safety Data Sheet (SDS)

## Section 1: Identification

**Product identifier:** Sodium Hydroxide Solution

**Other name(s):** Murakami's reagent part B

**Item number(s):** 195B, 196B

**Identified use:** SU24 Scientific research and development

**Details of the supplier of the safety data sheet:**

ES Laboratory, LLC

2041 E. Gladstone St. Unit N Glendora, CA 91740 USA

Tel: 626-208-9011

**Emergency telephone number:**

CHEMTREC® 1-800-424-9300 (US & Canada Only)

## Section 2: Hazard(s) Identification

**Hazardous classification of the substance or mixture:**

| Hazard Class       | Category code |
|--------------------|---------------|
| Skin Corrosion     | 1A            |
| Serious Eye Damage | 1             |

**Signal word:** Danger

**Pictogram:**



**Hazard statement(s):**

H314 Cause severe skin burn and eye damage.

**Precautionary statement(s):**

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

P264 Wash skin thoroughly after handling.

**Response statement(s):**

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P301+P330+P331+P310 IF SWALLOWED: rinse mouth. DO NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.

P363 Wash contaminated clothing before reuse.

**Storage statement(s):**

P405 Store locked up.

**Disposal statement(s):**

P501 Dispose of contents/ container to an approved waste disposal plant.

**Hazard(s) not otherwise classified:** No information.

**Label elements:** See tables above

**HMIS Ratings:**

Health: 3

Flammability: 0

Reactivity: 1

**NFPA Ratings:**

Health: 3

Flammability: 0

Reactivity: 1

Special hazard: None

## Section 3: Composition/Information on Ingredients

| Component        | CAS No.   | Concentration |
|------------------|-----------|---------------|
| Sodium Hydroxide | 1310-73-2 | Approx. 10%   |

## Section 4: First-Aid Measures

**Eye contact:** Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Get medical aid immediately.

**Inhalation:** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid immediately.

**Skin contact:** Wash the areas of contact with water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid immediately.

**Ingestion:** Do not induce vomiting. Rinse mouth. Get medical aid immediately.

**Most important symptoms and effects, both acute and delayed:** No information.

**Recommendation for immediate medical care and special treatment needed, when necessary:** No information.

## Section 5: Fire-Fighting Measures

**Extinguishing media:** Water, dry chemical, foam, or carbon dioxide.

**Special hazards arising from the substance or mixture:** In the case of fire, the following can be released: sodium oxides.

**Special protective equipment or precautions for firefighters:** Wear full protective clothing and self-contained respirator.

## Section 6: Accidental Release Measures

**Personal precautions, protective equipment, and emergency procedures:** Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation.

**Environmental precautions:** Do not allow the material to be released to the environment without proper government permits.

**Methods and materials for containment and cleaning up:** Use a neutralizing agent. Absorb with a liquid binding material (sand, diatomite, acid binder, universal binders, sawdust). Dispose of contaminated material as waste according to section 13. Ensure adequate ventilation.

## Section 7: Handling and Storage

**Precautions for safe handling:** Ensure good ventilation at the workplace. Avoid inhalation of vapor or mist.

**Condition for safe storage:** Keep container tightly sealed. Store in an approved corrosive liquid storage container/area.

**Incompatibilities:** Store away from strong acids.

**Specific storage requirement(s):** No information.

## Section 8: Exposure Controls/Personal Protection

### Exposure Limits

| Component        | CAS No.   | ACGIH TLV           | OSHA PEL            |
|------------------|-----------|---------------------|---------------------|
| Sodium hydroxide | 1310-73-2 | 2 mg/m <sup>3</sup> | 2 mg/m <sup>3</sup> |

**Engineering controls:** Use general and/or local exhaust ventilation to control the vapor concentration.

**Eye protection:** Wear safety glasses or goggles.

**Skin protection:** Wear protective clothing and chemical resistant gloves.

**Respiratory protection:** Use self-contained respiratory device in an emergency situation.

## Section 9: Physical and Chemical Properties

**Appearance:**

Liquid, clear

**UFL/LEL:**

Not determined

**LFL/LEL:**

Not determined

**Odor:**

No odor

**Vapor pressure:**

Not determined

**Odor threshold:**

Not determined

**Vapor density:**

Not determined

|   |                |
|---|----------------|
| <b>pH:</b>                                      | Approx. 13     |
| <b>Relative density:</b>                        | Not determined |
| <b>Melting Point/Freezing point:</b>            | Not determined |
| <b>Solubility in water:</b>                     | Miscible       |
| <b>Boiling point/boiling range:</b>             | Not determined |
| <b>Flash point:</b>                             | Not determined |
| <b>Evaporation Rate:</b>                        | Not determined |
| <b>Flammability (solid, gas):</b>               | Not applicable |
| <b>Partition coefficient (n-octanol/water):</b> | Not determined |
| <b>Auto-ignition temperature:</b>               | Not determined |
| <b>Decomposition temperature:</b>               | Not determined |
| <b>Viscosity:</b>                               | Not determined |

**Not meant to be all inclusive, selected regulation represented**  
**OSHA status:** These items meet the OSHA Hazard Communication Standard (29 CFR 1910.1200) definition of a hazardous material.  
**TSCA status:** All components are listed.

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## Section 16: Other Information

**Disclaimer:** The information above is believed to be accurate and represents the best information currently available to us. ES Laboratory, LLC makes no warranty, express or implied, as to its accuracy, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. We shall not be liable for any damages to person or property resulting from its use.

**Revised Date:** 1/4/2019

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## Section 10: Stability and Reactivity

**Reactivity:** No information.

**Chemical stability:** Stable under recommended storage conditions.

**Stabilizer(s):** Not required.

**Safety issues that may arise should the product change in appearance:** No information.

**Thermal decomposition/ conditions to Avoid:** Decomposition will not occur if used and stored according to specifications.

**Possibility of hazardous reactions:** see incompatibilities.

**Incompatibilities:** Strong acids, organic materials, chlorinated solvents, aluminum, tin, zinc.

**Hazardous decomposition products:** sodium oxides, when heated to decomposition.

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## Section 11: Toxicological Information

### For Sodium Hydroxide:

**Acute Toxicity:** No information.

**Other exposure effect:**

Oral: Toxic effect.

Inhalation: No information.

On the Skin: rabbit: 500 mg/24H severe irritation.

On the Eye: rabbit: 50 ug/24H severe irritation.

Sensitization: No information.

**Additional toxicological information:** To the best of our knowledge the acute and chronic toxicity of this substance is not fully known. No classification data on carcinogenic properties of this material is available from NTP, IARC or OSHA.

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## Section 12: Ecological Information

### Toxicity:

**Aquatic toxicity:** No information.

**Persistence and degradability:** No information.

### Behavior in environmental system:

**Bioaccumulative potential:** No information.

**Mobility in soil:** No information.

**Additional ecological information:** Avoid transfer into the environment.

**Other adverse effects:** No information.

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## Section 13: Disposal Considerations

Place in a chemical waste container for proper disposal in an approved waste disposal facility. Dispose of the content and container in accordance with local, regional, national, international regulations.

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## Section 14: Transport Information

**D.O.T. shipping name:** Sodium hydroxide solution

**D.O.T. hazard class:** 8

**UN number:** UN1824

**Packing group:** III

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## Section 15: Regulatory Information