Safety Data Sheet
Modified EA Counterstaining Solution

Section 1 - Chemical Product and Company Identification

SDS Name: Modified EA Counterstaining Solution
Catalog Numbers: SO-324, M-801-5
Company Identification: Transene Company, Inc., DBA ROWLEY BIOCHEMICAL Inc.
10 ELECTRONICS AVENUE
DANVERS, MA 01923
For information, call: 978-739-4883
Emergency Number: 800-424-9300
For CHEMTREC assistance, call: 800-424-9300

Section 2 - Hazards Identification

GHS Classifications

H225-Flammable liquids: 2
H301-Acute toxicity, oral: 3
H311-Acute toxicity, dermal: 3
H315-Skin corrosion/irritation: 2
H319-Serious eye damage/eye irritation: 2A
H331-Acute toxicity, inhalation: 3
H361-Reproductive toxicity: 2
H370-Specific target organ toxicity, single exposure: 1
H372-Specific target organ toxicity, repeated exposure: 1

Pictograms or Hazard Symbols and Hazard Statement(s):

Signal Word: Danger

Hazard Statements:

H225-Highly flammable liquid and vapour
H301-Toxic if swallowed
H311-Toxic in contact with skin
H315-Causes skin irritation

H319-Causes serious eye irritation
H331-Toxic if inhaled
H361-Suspected of damaging fertility or the unborn child
H370-Causes damage to organs (target organs: optic nerve, respiratory system, central nervous system)
H372-Causes damage to organs through prolonged or repeated exposure (target organs: kidney, liver, spleen, and blood)

Precautionary Statements:

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.
P241-Use explosion-proof electrical/ventilating/lighting equipment.
P242-Use non-sparking tools.
P243-Take action to prevent static discharges.
P260-Do not breathe dust/fume/gas/mist/vapours/spray.
P261-Avoid breathing dust/fume/gas/mist/vapours/spray.
P264-Wash thoroughly after handling.
P270-Do not eat, drink, or smoke when using this product.
P271-Use only outdoors or in a well-ventilated area.
P280-Wear protective gloves/protective clothing/eye protection/face protection.
P301+P310-If swallowed: Immediately call a Poison Center/doctor.
P302+P352-If on skin: Wash with plenty of soap and water.
P303+P361+P353-If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340-If inhaled: Remove person to fresh air and keep comfortable for breathing.
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+P311-If exposed or concerned: Call a Poison Center/doctor.
P308+P313-If exposed or concerned: Get medical advice/attention.
P311-Call a Poison Center/doctor.
P312-Call a Poison Center/doctor if you feel unwell.
P314-Get medical advice/attention if you feel unwell.
P330-Rinse mouth.
P332+P313-If skin irritation occurs: Get medical advice/attention.
P337+P313-If eye irritation persists: Get medical advice/attention.
P361+P364-Take off immediately all contaminated clothing and wash it before reuse.
P362+P364-Take off contaminated clothing and wash it before reuse.
P370+P378-In case of fire: Use dry chemical, carbon dioxide, dry sand, water spray, or alcohol-resistant foam to extinguish.
P403+P233-Store in a well-ventilated place. Keep container tightly closed.
P403+P235-Store in a well-ventilated place. Keep cool.
P405-Store locked up.
P501-Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 3 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent
64-17-5	Ethyl Alcohol	66.5 v/v
67-56-1	Methyl Alcohol	28.5 v/v
5141-20-8	Light Green	0.04 w/v
17372-87-1	Eosin Y	0.4 w/v
12501-23-4	Phosphotungstic Acid Hydrate	0.2 w/v
64-19-7	Glacial Acetic Acid	2 v/v
7732-18-5	Water	balance

Section 4 - First Aid Measures

Eye Exposure: In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Dermal Exposure: In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Get immediate medical attention. Wash clothing/shoes before reuse.

Oral Exposure: If swallowed, seek immediate medical advice. Do not induce vomiting unless directed by a physician.

Inhalation Exposure: If inhaled, remove to fresh air. If breathing is difficult, give oxygen. Immediate medical attention is required.

Section 5 - Fire Fighting Measures

General Information: Flammable liquid and vapor. Risk of ignition. Containers can build up pressure if exposed to heat and/or fire. As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. Will burn if involved in a fire. Flammable Liquid. Can release vapors that form explosive mixtures at temperatures above the flashpoint. Use water spray to keep fire-exposed containers cool. Containers may explode in the heat of a fire.

Extinguishing Media: For small fires use alcohol-resistant foam, dry chemical, or carbon dioxide. For large fires use water spray, fog, or alcohol-resistant foam. Use water spray to cool fire-exposed containers. Water may be ineffective. Do NOT use straight streams of water. Do NOT use water jet.

Hazardous Combustion Products: Carbon oxides, nitrogen oxides, phosphorous oxides, sodium oxides, sulfur oxides, hydrogen bromide gas, bromine, formaldehyde, irritating and toxic fumes and gases.

Flash Point: Not available
Autoignition Temperature: Not available
Explosion Limits, Lower: Not available
Upper: Not available
NFPA Rating: (estimated) Health: 2; Flammability: 4; Instability: 0

Note: Static discharge could act as an ignition source.

Section 6 - Accidental Release Measures

Procedure(s) of Personal Precaution(s):
Wear personal protective equipment and NIOSH approved respirator. Do not ingest or inhale. Do not get on skin or clothing. Do not get in eyes. Ensure adequate ventilation. Keep away from heat. Eliminate all sources of ignition. Take precautionary measures against static discharges.

Methods for Cleaning up: Absorb with sand, earth, or vermiculite. Carefully sweep up and containerize for proper disposal. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Do not release to the environment. Do not release to drains.

Section 7 - Handling and Storage

Use care when handling. Wear personal protective equipment. Wash thoroughly after handling. Use with adequate ventilation. Do not breath vapors or spray mist. Do not get in eyes, on skin, or on clothing. Use under a chemical fume hood. Do not ingest. Store in a cool, dry, and well-ventilated area. Keep in a tightly closed and non-metal container. Keep away from incompatible materials. Protect from heat. Keep away from direct sunlight, open flames, hot surfaces, and sources of ignition. Use only non-sparking tools. Use explosion-proof electrical/ventilating/lighting equipment. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges. Vapors heavier than air, may travel considerable distance and ignite or explode.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.
Personal Protective Equipment
Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin: Wear appropriate protective gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to prevent skin exposure.
Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and

ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

Exposure Limits:

Chemical Name	ACGIH - TLV	NIOSH - IDLH	OSHA - Final PELs
Ethyl Alcohol CAS#64-17-5	1000 ppm STEL	1000 ppm TWA 1900 mg/m3 TWA 3300 ppm IDLH	1000 ppm TWA 1900 mg/m3 TWA
Methyl Alcohol CAS#67-56-1	200 ppm TWA 250 ppm STEL	200 ppm TWA 260 mg/m3 TWA 250 ppm STEL 325 mg/m3 STEL 6000 ppm IDLH	200 ppm TWA 260 mg/m3 TWA 250 ppm STEL 325 mg/m3 STEL
Light Green S.F Yellowish CAS#5141-20-8	Not listed	Not listed	Not listed
Eosin Y CAS#17372-87-1	Not listed	Not listed	Not listed
Phosphotungstic Acid Hydrate CAS#12501-23-4	3 mg/m3 TWA	5 mg/m3 TWA 10 mg/m3 STEL	5 mg/m3 TWA 10 mg/m3 STEL
Glacial Acetic Acid CAS#64-19-7	10 ppm TWA 15 ppm STEL	10 ppm TWA 25 mg/m3 TWA 15 ppm STEL 37 mg/m3 STEL 50 ppm IDLH	10 ppm TWA 25 mg/m3 TWA

OSHA Vacated PELs: Ethyl Alcohol: 1000 ppm TWA; 1900 mg/m3 TWA
Methyl Alcohol: 200 ppm TWA; 260 mg/m3 TWA; 250 ppm STEL; 325 mg/m3 STEL
Phosphotungstic Acid Hydrate: 5 mg/m3 TWA; 10 mg/m3 STEL
Glacial Acetic Acid: 10 ppm TWA; 25 mg/m3 TWA

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance: Olive-green-orange
Odor: Alcohol-like
Vapor Pressure: Not available
Odor Threshold: Not available
Vapor Density: Not available
pH: Not available
Relative Density: Not available
Melting point/freezing point: Not available
Solubility: Soluble in water
Boiling Point: Not available
Flash point: Not available
Evaporation Rate: Not available
Flammability (solid, gas): Not applicable
Partition coefficient: n-octanol/water: Not available
Autoignition Temperature: Not available
Decomposition Temperature: Not available
Viscosity: Not available

Specific Gravity/Density: Not available

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures. Note: Vapors may form explosive mixtures with air.
Conditions to Avoid: Incompatible materials, excess heat, hot surfaces, and oxidizers. Avoid direct sunlight and extremely high or low temperatures. Avoid all possible sources of ignition (spark or flame).
Incompatibilities with Other Materials: Strong oxidizing agents, strong bases, acids, alkali metals, metals, chromic acid, ethylene glycol, nitric acid, phosphorous trichloride, oxidizers, sodium peroxide, strong caustics, carbonates, hydroxides, oxides, phosphates, reducing agents, acid anhydrides, acid chlorides, peroxides, ammonia, hydrazine, peroxides, sodium, acid anhydrides, calcium hypochlorite, chromyl chloride, nitrosyl perchlorate, bromine pentafluoride, perchloric acid, silver nitrate, mercuric nitrate, potassium-tert-butoxide, magnesium perchlorate, acid chlorides, platinum, uranium hexafluoride, silver oxide, iodine heptafluoride, acetyl bromide, disulfuryl difluoride, tetrachlorosilane + water, acetyl chloride, permanganic acid, ruthenium (VIII) oxide, uranyl perchlorate, and potassium dioxide.
Hazardous Decomposition Products: Carbon oxides, nitrogen oxides, phosphorous oxides, sodium oxides, sulfur oxides, hydrogen bromide gas, bromine, formaldehyde, irritating and toxic fumes and gases.

Section 11 - Toxicological Information

CAS#64-17-5 Ethyl Alcohol: RTECS#: KQ6300000
LD50 Oral: 10470 mg/kg (rat)
LD50 Dermal: Not available
LC50 Inhalation: 124.7 mg/L 4h (rat)

Draize test, rabbit, eye: 500 mg/24h Mild Irritant
Skin: Repeated exposure may cause skin dryness or cracking.
Ethyl Alcohol overexposure may lead to headache dizziness, tiredness, nausea, and vomiting.

Carcinogenicity: Ethyl Alcohol CAS#64-17-5 is not listed by OSHA. Ethyl Alcohol is listed by IARC (Group 1, Carcinogenic to Humans), NTP (Known Carcinogen), and ACGIH (A3, Animal Carcinogen). Ethyl Alcohol is listed by California Prop. 65 as a developmental carcinogen (alcoholic beverages only).

CAS#67-56-1 Methyl Alcohol: RTECS#: PC1400000
LD50 Oral: 100.1 mg/kg (expert judgement)
LD50 Dermal: 300.1 mg/kg (expert judgement)
LC50 Inhalation: 3.1 mg/L 4h (rat)

May cause skin and eye irritation.
Methyl Alcohol may cause blindness: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea, and vomiting.

Carcinogenicity: Methyl Alcohol CAS# 67-56-1 is not listed by IARC, NTP, ACGIH, or OSHA. Methyl Alcohol is listed by California Prop. 65 as a developmental carcinogen.

CAS#5141-20-8 Light Green S.F Yellowish: RTECS#: BQ4900000
LD50 Oral: >2 g/kg (rat)
LD50 Dermal: Not available
LC50 Inhalation: Not available
Investigated as a tumorigen, mutagen, and reproductive effector per RTECS.

Carcinogenicity: Light Green S.F Yellowish CAS#5141-20-8 is not listed by NTP, ACGIH, OSHA, or California Prop. 65. Light Green S.F Yellowish is listed by IARC (Group 3, Not Classifiable as to its Carcinogenicity to Humans). Carcinogenic by RTECS criteria (Blood-lymphoma, including Hodgkin's disease). Tumorigenic-neoplastic by RTECS criteria.

CAS#17372-87-1 Eosin Y: RTECS#: LM5800000
LD50 Oral: >2000 mg/kg (rat)
LD50 Dermal: >2000 mg/kg (rat)
LC50 Inhalation: Not available

Carcinogenicity: Eosin Y CAS#17372-87-1 is not listed by IARC, NTP, ACGIH, OSHA, or California Prop. 65.

CAS#12501-23-4 Phosphotungstic Acid Hydrate:
LD50 Oral: 300-2000 mg/kg (rat)
LD50 Dermal: Not available
LC50 Inhalation: Not available

Carcinogenicity: Phosphotungstic Acid Hydrate CAS#12501-23-4 is not listed by IARV, NRP, ACGIH, OSHA, or California Prop. 65.

CAS#64-19-7 Glacial Acetic Acid: RTECS#: AF1225000
LD50 Oral: 3310 mg/kg (rat)
LD50 Dermal: 1060 mg/kg (rabbit)
LC50 Inhalation: 11.4 mg/L 4h (rat)
Investigated as a mutagen, and reproductive effector.

Skin corrosion/irritation: skin (rabbit), causes severe burns.
Serious eye damage/eye irritation: eyes (rabbit), corrosive to eyes, causes serious eye damage.

Carcinogenicity: Glacial Acetic Acid CAS#64-19-7 is not listed by IARC, NTP, ACGIH, OSHA, or California Prop. 65.

Information on the likely routes of exposure: Routes of entry anticipated: oral, dermal, inhalation, and eye.

Epidemiology: Not available.
Teratogenicity: Not available.
Reproductive Effects: May damage fertility or cause harm to the unborn child. Light green: paternal effects: spermatogenesis, testes, epididymis, and sperm duct.
Developmental Effects: Not available.
Neurotoxicity: Not available.
Mutagenicity: Light green: mutation in mammalian somatic cells. Histidine reversion (ames).

Specific Target Organ Toxicity, Single Exposure: Optic nerve, respiratory system, central nervous system.
Specific Target Organ Toxicity, Repeated Exposure: Kidney, liver, spleen, and blood.

Symptoms associated with exposure: Toxic. An irritant to the mucous membranes. Toxic effects exerted upon nervous system, particularly the optic nerve. Can intoxicate and cause blindness. Continued exposure may cause eye lesions, pain, watering, and redness. Once absorbed into the body, it is very slowly eliminated. Symptoms of overexposure may include headache, drowsiness, nausea, vomiting, shortness of breath, blurred vision, blindness, coma, and death. A person may get better but then worse again up to 30 hours later. May affect behavior/central nervous system, urinary system, kidneys (renal failure), cardiovascular system, respiratory system, optic nerve, and liver. Skin exposure may result in cracking, dryness, irritation, pain, redness, blistering. Ingestion may cause stomach irregularities and pain.

The toxicological properties of this material have not been thoroughly investigated.

Section 12 - Ecological Information

Ecotoxicity: Do not release to the environment. Do not release to drains. Toxic to aquatic life. May cause long-term adverse effects to the environment.

CAS#64-17-5 Ethyl Alcohol:
LC50, freshwater fish: 14200 mg/L 96h (pimephales promelas)(fathead minnow)
EC50, freshwater algae: 275 mg/L 72h (chlorella vulgaris)
EC50, water flea: 9268 mg/L 48h
EC50, water flea: 10800 mg/L 24h
EC50, microtox: 34634 mg/L 30min (photobacterium phosphoreum)
EC50, microtox: 35470 mg/L 5 min (photobacterium phosphoreum)

CAS#67-56-1 Methyl Alcohol:
LC50, freshwater fish: >10000 mg/L 96h (pimephales promelas)(fathead minnow)
EC50, water flea: >10000 mg/L 24h
EC50, algae: 22000 mg/L 96h static (pseudokirchneriella subcapitata)(green algae)
IC50, bacteria: >1000 mg/L 3h (activated sludge)
EC50, microtox: 39000 mg/L 25min
EC50, microtox: 40000 mg/L 15min
EC50, microtox: 43000 mg/L 5min

CAS#5141-20-8 Light Green S.F Yellowish:
LC50, freshwater fish: 1000 mg/L 48h (oryzias latipes)(orange-red killifish)

CAS#12501-23-4 Phosphotungstic Acid Hydrate:
EC50, water flea: 70.8 mg/L 48h static (daphnia magna)
EC50, algae: 7.8 mg/L 72h static (pseudokirchneriella subcapitata)(green algae)
EC50, bacteria: >1000 mg/L 3h static (activated sludge)

CAS#64-19-7 Glacial Acetic Acid:
LC50, freshwater fish: 88 mg/L 96h (pimephales promelas)(fathead minnow)
LC50, freshwater fish: 75 mg/L 96h (lepomis macrochirus)(bluegill)
EC50, water flea: 95 mg/L 24h
EC50, microtox: 8.8 mg/L 5min (photobacterium phosphoreum)
Persistence and degradability: Not available
Bio-accumulative potential: Not available
Mobility: Will likely be mobile in the environment due to its volatility and solubility.

Section 13 - Disposal Considerations

DISPOSAL: Dispose of in accordance with all federal, state, and local regulations.

Section 14 – Transport Information

DOT
Proper shipping name: Alcohols, N.O.S.
UN1987
PG II
Hazard class 3 (flammable)

Section 15 - Regulatory Information

Canada Regulatory Information

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the SDS contains all the information required by the CPR.

Section 16 - Additional Information

SDS Creation Date: 2-13-18
Revision #1: 9-16-19
Revision #2: 6-2-23

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