Material Safety Data Sheet

HARLECO® Gill Modified Hematoxylin Solution #3

1 . Product and company identification

Product name : HARLECO® Gill Modified Hematoxylin Solution #3

Product code : 65067

Supplier : EMD Millipore Corp.
290 Concord Rd.
Billerica, MA 01821
1-978-715-1335 Technical Service
Monday - Friday: 8:00 - 6:00 PM EST

Synonym : None.

Material uses : Other non-specified industry: IVD Reagent

Validation date : 3/3/2016.

In case of emergency : 800-424-9300 CHEMTREC (USA)
613-996-6666 CANUTEC (Canada)
24 Hours/Day: 7 Days/Week

2 . Hazards identification

Emergency overview : DANGER!

MAY BE FATAL IF SWALLOWED.
HARMFUL IF INHALED.
CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION.
MAY BE HARMFUL IF ABSORBED THROUGH SKIN.
CONTAINS MATERIAL WHICH MAY CAUSE DAMAGE TO THE FOLLOWING ORGANS: BLOOD, KIDNEYS, LUNGS, HEART, RESPIRATORY TRACT, SKIN, CENTRAL NERVOUS SYSTEM, EYE, LENS OR CORNEA, TEETH.

Do not breathe vapor or mist. Do not ingest. Do not get in eyes or on skin or clothing. Avoid contact with skin and clothing. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

Physical state : Liquid.

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Routes of entry : Inhalation. Ingestion.

Potential acute health effects

Inhalation : Toxic by inhalation. Irritating to respiratory system.

Ingestion : Very toxic if swallowed.

Skin : May be harmful in contact with skin. Irritating to skin.

Eyes : Irritating to eyes.

Potential chronic health effects

Carcinogenicity : No known significant effects or critical hazards.

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 may cause damage to the following organs: blood, kidneys, lungs, heart, upper respiratory tract, skin, central nervous system (CNS), eye, lens or cornea, teeth.

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

See toxicological information (section 11)

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3 . Composition/information on ingredients

Name	CAS number	% by weight
Aluminum Sulfate	16828-11-8	0.1 - 10
Ethylene Glycol	107-21-1	25
Acetic Acid	64-19-7	2 - 6
Sodium Iodate	7681-55-2	0.1 - 1
Hematoxylin	517-28-2	0.1 - 1
Water	7732-18-5	>61

4 . First aid measures

Eye contact : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.

Inhalation : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Ingestion : Call medical doctor or poison control center immediately. Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

5 . Fire-fighting measures

Flammability of the product : In a fire or if heated, a pressure increase will occur and the container may burst.

Extinguishing media : 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.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
sulfur oxides
metal oxide/oxides

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Special remarks on fire hazards : Emits toxic fumes when heated to decomposition.

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. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate . Put on appropriate personal protective equipment (see Section 8).

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).

Methods for cleaning up

Continued on next page

6 . Accidental release measures

Spill : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal . Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container.

7 . Handling and storage

Handling : 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. 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. 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.

8 . Exposure controls/personal protection

Ingredient	Exposure limits
Ethylene Glycol	**OSHA PEL 1989 (United States, 3/1989).** CEIL: 50 ppm CEIL: 125 mg/m³ **ACGIH TLV (United States, 3/2015).** C: 100 mg/m³ Form: Aerosol
Acetic Acid	**ACGIH TLV (United States, 3/2015).** TWA: 10 ppm 8 hour(s). TWA: 25 mg/m³ 8 hour(s). STEL: 15 ppm 15 minute(s). STEL: 37 mg/m³ 15 minute(s). **OSHA PEL 1989 (United States, 3/1989).** TWA: 10 ppm 8 hour(s). TWA: 25 mg/m³ 8 hour(s). **NIOSH REL (United States, 10/2013).** TWA: 10 ppm 10 hour(s). TWA: 25 mg/m³ 10 hour(s). STEL: 15 ppm 15 minute(s). STEL: 37 mg/m³ 15 minute(s). **OSHA PEL (United States, 2/2013).** TWA: 10 ppm 8 hour(s). TWA: 25 mg/m³ 8 hour(s).

Consult local authorities for acceptable exposure limits.

Engineering measures : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Continued on next page

8 . Exposure controls/personal protection

Respiratory : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Recommended: Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Vapor respirator or self-contained breathing apparatus (SCBA).

Hands : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Eyes : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. Recommended: face shield

Skin : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Recommended: lab coat and gloves

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9 . Physical and chemical properties

Physical state : Liquid.

Flash point : Product does not sustain combustion.

Color : Purple.

Odor : Not available.

pH : Not available.

Boiling/condensation point : Not available.

Melting/freezing point : Not available.

Relative density : Not available.

Vapor pressure : Not available.

Vapor density : Not available.

Odor threshold : Not available.

Evaporation rate : Not available.

VOC : 29 % (w/w)

Solubility : Soluble in the following materials: water

10 . Stability and reactivity

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Conditions to avoid : No specific data.

Materials to avoid : Reactive or incompatible with the following materials: oxidizing materials, metals, acids and alkalis.

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

Conditions of reactivity : Highly flammable in the presence of the following materials or conditions: open flames, sparks and static discharge, heat and oxidizing materials.

Highly explosive in the presence of the following materials or conditions: open flames, sparks and static discharge, heat and oxidizing materials.

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11 . Toxicological information

Acute toxicity

Product/ingredient name	Test	Route	Species	Result
Ethylene Glycol	LD50	Dermal	Rabbit	9530 uL/kg
	LD50	Intraperitoneal	Rat	5010 mg/kg
	LD50	Intravenous	Rat	3260 mg/kg
	LD50	Oral	Rat	4700 mg/kg
	LD50	Oral	Cat	2000 mg/kg
	LD50	Oral	Cat	1650 mg/kg
	LD50	Subcutaneous	Rat	2800 mg/kg
	LD50	Unreported	Rat	13 g/kg
	LDLo	Intramuscular	Rat	3300 mg/kg
	LDLo	Intravenous	Rat	2800 mg/kg
	LDLo	Oral	human	786 mg/kg
	LDLo	Oral	human	398 mg/kg
	TDLo	Oral	Rat	2 g/kg
	TDLo	Oral	Rat	5000 mg/kg
	TDLo	Oral	Rat	1110 mg/kg
	TDLo	Oral	Rat	1000 mg/kg
	TDLo	Oral	Rat	120 mg/kg
	TDLo	Subcutaneous	Rat	3000 mg/kg
Aluminum Sulfate	LD50	Oral	Rat	10800 mg/kg
Acetic Acid	LD50	Dermal	Mammal	1060 mg/kg
	LD50	Dermal	Rabbit	1060 mg/kg
	LD50	Dermal	Rabbit	1060 uL/kg
	LD50	Oral	Mammal	4960 mg/kg
	LD50	Oral	Rat	3310 mg/kg
	LDLo	Oral	Rabbit	600 mg/kg
	LDLo	Oral	Rabbit	600 mg/kg
	TDLo	Dermal	Rat	0.25 mg/kg
	TDLo	Implant	Rat	10 mg/kg
	TDLo	Oral	Rat	0.48 mL/kg
	TDLo	Parenteral	Rat	0.263 mL/kg
	TDLo	Rectal	Rat	0.34 mL/kg
	TDLo	Rectal	Rat	0.24 mL/kg
	TDLo	Rectal	Rat	300 mg/kg
	TDLo	Rectal	Rat	240 mg/kg
	TDLo	Rectal	Rat	213 mg/kg
	TDLo	Rectal	Rat	200 mg/kg
	LC50	Inhalation Vapor	Rat	11000 mg/m3
	LC50	Inhalation Vapor	Muskrat	5620 ppm

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Observation
Ethylene Glycol	Eyes - Mild irritant	Rabbit	-	-
	Eyes - Mild irritant	Rabbit	-	-
	Eyes - Moderate irritant	Rabbit	-	-
	Skin - Mild irritant	Rabbit	-	-
Acetic Acid	Eyes - Mild irritant	Rabbit	-	-
	Skin - Mild irritant	Human	-	-
	Skin - Mild irritant	Rabbit	-	-
	Skin - Severe irritant	Rabbit	-	-

Carcinogenicity

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11 . Toxicological information

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Ethylene Glycol	A4	-	-	-	-	-

No known significant effects or critical hazards.

Mutagenicity

No known significant effects or critical hazards.

Teratogenicity

No known significant effects or critical hazards.

12 . Ecological information

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
Ethylene Glycol	Acute LC50 53000 mg/L	Fish	96 hours
	Acute LC50 49000 mg/L	Fish	96 hours
	Acute LC50 41000 mg/L	Fish	96 hours
	Acute LC50 27540 mg/L Fresh water	Fish - Bluegill - Lepomis macrochirus - Juvenile (Fledgling, Hatchling, Weanling) - 4.064 cm - 0.85 g	96 hours
	Acute LC50 >10000 mg/L	Fish	96 hours
	Acute LC50 8050 mg/L	Fish	96 hours
	Acute LC50 57000000 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas - Sub-adult - 65 to 94 days - 28 mm - 391 mg	96 hours
	Acute LC50 53000000 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas - Fry - 10 to 15 days - 9.5 mm - 11. 6 mg	96 hours
	Acute LC50 49000000 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas - Juvenile (Fledgling, Hatchling, Weanling) - 30 to 35 days - 14.9 mm - 76.8 mg	96 hours
	Acute LC50 47400000 ug/L Fresh water	Daphnia - Water flea - Daphnia magna - Neonate	48 hours
	Acute LC50 46300000 ug/L Fresh water	Daphnia - Water flea - Daphnia magna - Neonate	48 hours
	Acute LC50 45500000 ug/L Fresh water	Daphnia - Water flea - Daphnia magna - Neonate	48 hours
	Acute LC50 41100000 ug/L Fresh water	Daphnia - Water flea - Daphnia magna - Neonate	48 hours
	Acute LC50 41000000 ug/L Fresh water	Daphnia - Water flea - Daphnia magna - Neonate	48 hours
	Acute LC50 13900000 ug/L Fresh water	Crustaceans - Water flea - Ceriodaphnia dubia - Neonate	48 hours
	Acute LC50 13140000 ug/L Fresh water	Crustaceans - Water flea - Ceriodaphnia dubia - <24 hours	48 hours
	Acute LC50 10500000 to 12700000 ug/L Fresh water	Crustaceans - Water flea - Ceriodaphnia dubia - Neonate	48 hours
	Acute LC50 10000000 to 12300000 ug/L Fresh water	Crustaceans - Water flea - Ceriodaphnia dubia - Neonate	48 hours

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12 . Ecological information

	Acute LC50 8050000 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas - <=7 days	96 hours
	Acute LC50 6900000 to 8800000 ug/L Fresh water	Crustaceans - Water flea - Ceriodaphnia dubia - Neonate	48 hours
Acetic Acid	Acute EC50 65 mg/L	Daphnia	48 hours
	Acute EC50 73900 ug/L Fresh water	Algae - Diatom - Navicula seminulum	96 hours
	Acute EC50 73400 ug/L Fresh water	Algae - Diatom - Navicula seminulum	96 hours
	Acute EC50 65000 ug/L Fresh water	Daphnia - Water flea - Daphnia magna - Neonate - <24 hours	48 hours
	Acute LC50 178 mg/L Marine water	Fish - Threespine stickleback - Gasterosteus aculeatus	96 hours
	Acute LC50 88 mg/L	Fish	96 hours
	Acute LC50 79 mg/L	Fish	96 hours
	Acute LC50 75 mg/L	Fish	96 hours
	Acute LC50 251 ppm Fresh water	Fish - Western mosquitofish - Gambusia affinis - Adult	96 hours
	Acute LC50 88000 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas - Juvenile (Fledgling, Hatchling, Weanling) - 4 to 8 weeks - 1.1 to 3.1 cm	96 hours
	Acute LC50 79000 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas - Juvenile (Fledgling, Hatchling, Weanling) - 4 to 8 weeks - 1.1 to 3.1 cm	96 hours
	Acute LC50 75000 ug/L Fresh water	Fish - Bluegill - Lepomis macrochirus - 5.3 to 7.2 cm - 3.5 to 3.9 g	96 hours
	Acute LC50 117.6 ul/L Marine water	Crustaceans - Brine shrimp - Artemia sp.	48 hours
	Acute LC50 85.8 ul/L Marine water	Crustaceans - Brine shrimp - Artemia sp.	48 hours
	Acute LC50 70 ul/L Marine water	Crustaceans - Brine shrimp - Artemia sp.	48 hours
	Acute LC50 52.2 ul/L Marine water	Crustaceans - Brine shrimp - Artemia sp.	48 hours
	Acute LC50 50.1 ul/L Marine water	Crustaceans - Brine shrimp - Artemia sp.	48 hours

Environmental effects : No known significant effects or critical hazards.

Other adverse effects : No known significant effects or critical hazards.

13 . Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

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14 . Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
DOT Classification	-	CHEMICALS, N.O.S.	-	-		-

PG* : Packing group

15 . Regulatory information

United States

HCS Classification : Highly toxic material
Irritating material
Target organ effects

U.S. Federal regulations : **TSCA 8(a) IUR**: Partial exemption
United States inventory (TSCA 8b):

All components of this product are listed on or compliant with the TSCA Inventory.

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: Ethylene Glycol; Acetic Acid
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Ethylene Glycol: Immediate (acute) health hazard, Delayed (chronic) health hazard; Acetic Acid: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard

Clean Water Act (CWA) 311: Aluminum Sulfate; Acetic Acid

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 313

	Product name	CAS number	Concentration
Form R - Reporting requirements :	Ethylene Glycol	107-21-1	25
Supplier notification :	Ethylene Glycol	107-21-1	25

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

Connecticut Carcinogen Reporting : None of the components are listed.

Connecticut Hazardous Material Survey : None of the components are listed.

Florida substances : None of the components are listed.

Illinois Chemical Safety Act : None of the components are listed.

Illinois Toxic Substances Disclosure to Employee Act : None of the components are listed.

Louisiana Spill : None of the components are listed.

Louisiana Reporting : None of the components are listed.

Massachusetts Spill : The following components are listed: Aluminum Sulfate

Massachusetts Substances : The following components are listed: Ethylene Glycol; Acetic Acid

Minnesota Hazardous Substances : The following components are listed: Aluminum Sulfate

Michigan Critical Material : None of the components are listed.

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15 . Regulatory information

New Jersey Toxic Catastrophe Prevention Act : None of the components are listed.

New Jersey Spill : None of the components are listed.

New Jersey Hazardous Substances : The following components are listed: Gill Modified Hematoxylin Solution #3

New York Toxic Chemical Release Reporting : None of the components are listed.

New York Acutely Hazardous Substances : The following components are listed: Ethylene glycol; Acetic acid

Pennsylvania RTK Hazardous Substances : The following components are listed: Ethylene Glycol; Aluminum Sulfate; Acetic Acid

Rhode Island Hazardous Substances : None of the components are listed.

Canada

WHMIS (Canada) : Class D-2B: Material causing other toxic effects (Toxic).

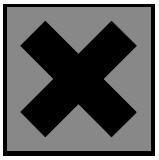
Canadian lists : **CEPA Toxic substances**: None of the components are listed.
Canadian ARET: None of the components are listed.
Canadian NPRI: The following components are listed: Ethylene glycol
Alberta Designated Substances: None of the components are listed.
Ontario Designated Substances: None of the components are listed.
Quebec Designated Substances: None of the components are listed.

CEPA DSL / CEPA NDSL : All components are listed or exempted.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

EU regulations

Hazard symbol or symbols :



Risk phrases : R22- Harmful if swallowed.

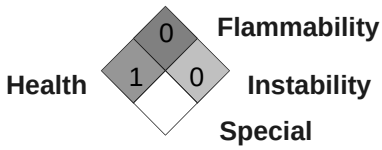
Safety phrases : S2- Keep out of the reach of children.
S46- If swallowed, seek medical advice immediately and show this container or label.

International regulations

International lists : **Australia inventory (AICS)**: All components are listed or exempted.
China inventory (IECSC): Not determined.
Japan inventory: All components are listed or exempted.
Korea inventory: All components are listed or exempted.
New Zealand Inventory of Chemicals (NZIoC): Not determined.
Philippines inventory (PICCS): All components are listed or exempted.

16 . Other information

National Fire Protection Association (U.S.A.) :



Notice to reader

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16 . Other information

The statements contained herein are based upon technical data that EMD Millipore Corp. believes to be reliable, are offered for information purposes only and as a guide to the appropriate precautionary and emergency handling of the material by a properly trained person having the necessary technical skills. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use, storage and disposal of these materials and the safety and health of employees and customers and the protection of the environment. EMD MILLIPORE CORP. MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE, WITH RESPECT TO THE INFORMATION HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS.