Material Safety Data Sheet

MSDS/SDS Number: 00001645MSDS
Latest Revision Date: August 18, 2010
Revision: A

SECTION 1 IDENTIFICATION OF THE SUBSTANCE OR PREPARATION AND OF THE COMPANY/UNDERTAKING

Product Name: Modified TAE Buffer Concentrate 50x.

Catalogue Number(s): See Section 16.

Chemical Name: Aqueous solution containing (Ethylenediaminetetraacetic Acid, Disodium Salt Dihydrate), Acetic Acid and Trometamol.

Synonyms: Modified Tris-Acetate EDTA buffer.

Intended Product Use: Intended for research use only.

Manufacturer/Distributor:	Millipore Corporation (Corporate Headquarters)	Millipore S.A.S. (European Headquarters)
Postal Address:	290 Concord Road Billerica MA, 01821 USA	Boite Postale 116 Molsheim Cedex, 67124 France
Telephone Number:	+1-978-715-1335	+33(0)3 90 46 90 00
Hours of Operation:	9:00 am to 4:00 pm ET (GMT -4)	9:00 am to 4:00 pm EU CT (GMT +1)

Worldwide Offices: http://www.millipore.com/offices/cp3/officeshome

Email: msds@millipore.com

CHEMTREC Emergency Telephone Number: International +1-703-527-3887 (collect)
North America 1-800-424-9300 (toll free)

SECTION 2 HAZARDS IDENTIFICATION

Globally Harmonized System of Classification and Labeling of Chemicals (GHS):

Symbol:

Hazard Category: 1: Skin Corrosion/Irritation
3: Specific Target Organ Toxicity, Single Exposure

Signal Word: Danger

Hazard Statement: H314: Causes severe skin burns and eye damage.
H335: May cause respiratory irritation.

GHS Precautionary Statements:

Prevention: P261: Avoid breathing mist/vapors/spray.
P264: Wash hands thoroughly after handling.
P271: Use only outdoors or in a well-ventilated area.

P281: Use personal protective equipment as required.

Response: P308+P313: If exposed or concerned: Get medical advice/attention.
P301+P330+P331: IF SWALLOWED: Rinse Mouth. Do NOT induce vomiting.
P303+P361+P353: IF ON SKIN (or hair): Remove/Rake off immediately all contaminated clothing. Rinse skin with water/shower.
P363: Wash contaminated clothing before reuse.
P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P310: Immediately call a POSION CENTER or doctor/physician.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage: P403+P233: Store in a well ventilated place. Keep container tightly closed.

Disposal: P501: Dispose of content/container in accordance with local regulations.

Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH):

Symbol:

Symbol Letter: C

Hazard: Corrosive

Risk Phrase: R34: Causes burns.
R37: Irritating to respiratory system.

SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

Identification of Dangerous Components: This product contains the substances listed below, which are defined as dangerous substances or hazardous chemicals as defined in European Community Directives 67/548/EEC or 1999/45/EC, and Hazard Communication Standard 29 CFR 1910.1200.

Dangerous Component	EINECS or ELINCS No.	CAS No.	Content (weight percent)	EU Hazard Symbol Letters**†	R Phrases*** †
Ethylenediaminetetraacetic Acid, Disodium Salt Dihydrate:	Not Listed	6381-92-6	< 1 %	N/A	N/A
Acetic Acid:	200-580-7	64-19-7	5 - 10 %	F C	R10 R35
Trometamol:	201-064-4	77-86-1	20 - 30 %	N/A	N/A

Identification of Components Not Classified as Dangerous: This product contains the substances listed below, which are not defined as dangerous substances or hazardous chemicals as defined in European Community Directives 67/548/EEC or 1999/45/EC, and Hazard Communication Standard 29 CFR 1910.1200.

Non-Dangerous Component	EINECS or ELINCS No.	CAS No.	Content (weight percent)	EU Hazard Symbol Letters	R Phrases
Water:	231-791-2	7732-18-5	> 60 %	N/A	N/A

* Symbol letters and categories of danger: **T+** = Very Toxic, **T** = Toxic, **C** = Corrosive, **Xn** = Harmful, **Xi** = Irritant, **E** = Explosive, **F+** = Extremely Flammable, **F** = Highly Flammable, **N** = Dangerous for the Environment, **O** = Oxidising.

** The full text of each R Phrase is listed in Section 15.

† Symbols letters and R Phrases are assigned to each dangerous component for the highest concentration range as defined in 67/548/EEC and 1999/45/EC.

SECTION 4 FIRST AID MEASURES

	Treatment Measures:	**Symptoms of Exposure:**
Contact with Eyes:	If the product contacts the eyes, promptly wash (irrigate) the eyes with large amounts of tepid water for at least 15 minutes, occasionally lifting the lower and upper lids. Seek medical attention immediately.	Eye exposure may produce severe conjunctival irritation, chemosis, corneal epithelial defects, limbal ischemia, corneal opacification, conjunctival hyperemia, lacrimation, hyperemia, permanent vision loss and in severe cases perforation.
Ingestion:	Seek medical attention immediately. Never give an unconscious person anything by mouth.	Patients with mild ingestions may only develop irritation or Grade I (superficial hyperemia and edema) burns of the oropharynx, esophagus or stomach; acute or chronic complications are unlikely. Patients with moderate toxicity may develop Grade II burns (superficial blisters, erosions and ulcerations) are at risk for subsequent stricture formation, particularly gastric outlet and esophageal. Some patients (particularly young children) may develop upper airway edema.
Inhalation:	If a person inhales large amounts of the product move the exposed person to fresh air at once. If breathing is difficult or stops seek immediate medical attention.	Mild exposure may cause dyspnea, pleuritic chest pain, cough and bronchospasm. Severe inhalation may cause upper airway edema and burns, hypoxia, stridor, pneumonitis, tracheobronchitis, and rarely acute lung injury or persistent pulmonary function abnormalities. Pulmonary dysfunction similar to asthma has been reported.
Skin Contact:	If the product contacts the skin, immediately flush the contaminated skin with mild soap and water. If this chemical penetrates clothing immediately remove the clothing and flush the skin with water. Seek medical attention immediately.	A minor exposure can cause irritation and partial thickness burns. Skin sensitization to Acetic acid is rare but has occurred. More prolonged or a high concentration exposure can cause full thickness burns. Complications may include cellulitis, sepsis, contractures, osteomyelitis, and systemic toxicity.

SECTION 5 FIRE FIGHTING MEASURES

Suitable Extinguishing Media: Use extinguishing media appropriate for the surrounding fire. This product is compatible with commercially available extinguishing media.

Special Protective Equipment for Firefighters: This product does not require the use of any additional fire fighting equipment beyond what is appropriate to the surrounding fire.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal Precautions: Wear chemical resistant boots, clothing, eye protection, and gloves to prevent skin contact (See Section 8).

Small Spills: Identify the spilled material(s). Barricade the spill area and notify others in the surrounding areas. Control all sources of ignition if the substance is flammable. Don the appropriate personal protective equipment (See section 8). Control the movement of the spilled product (into drains, soil, across floors etc.) with absorbent spill materials. Collect contaminated spill material and place in container meeting appropriate U.N. packaging requirements. Decontaminate used equipment and affected spill area appropriately.

Large Spills: In addition to small spill precautions, determine personnel evacuation distances. Notify appropriate authorities if necessary.

Environmental Precautions: Collect and dispose of contaminated materials according to international, federal, state and local regulations. Keep away from surface and ground water, drains, and soil.

SECTION 7 HANDLING AND STORAGE

Handling: Seek appropriate training to safely handle this product under normal conditions. Use the recommended personal protective equipment (See Section 8) to prevent chemical exposures. Wash hands with soap and water before eating, drinking, or touching common items (phone, computer, etc.) to prevent cross contamination. Use this product with adequate ventilation. See product technical data sheet for details.

Storage: See product technical data sheet for details.

Specific use: See product technical data sheet for details.

SECTION 8 EXPOSURE CONTROL AND PERSONAL PROTECTION

Exposure Limit Values:	OSHA PEL	NIOSH REL	ACGIH TLV	Other
Ethylenediaminetetraacetic Acid, Disodium Salt Dihydrate:	Not Listed	Not Listed	Not Listed	None
Acetic Acid:	TWA 10 ppm (25 mg/m^3)	TWA 10 ppm; (25 mg/m^3); STEL 15 ppm (37 mg/m^3); IDLH 50 ppm (123 mg/m^3)	TWA 10 ppm (25 mg/m^3); STEL 15 ppm (37 mg/m^3)	See Below

Australia: TWA 10 ppm (25 mg/m^3), STEL 15 ppm (37 mg/m^3), JUL2008

Belgium:	TWA 10 ppm (25 mg/m^3), STEL 15 ppm (38 mg/m^3), MAR2002
Denmark:	TWA 10 ppm (25 mg/m^3), OCT 2002
Finland:	TWA 10 ppm (25 mg/m^3), STEL15 ppm (37 mg/m^3), Skin, JAN1993
France:	VLE 10 ppm (25 mg/m^3), FEB2006
Hungry:	TWA 25 mg/m^3, STEL 25 mg/m^3, SEP2000
Japan:	OEL10 ppm (25 mg/m^3), APR2007
Korea:	TWA 10 ppm (25 mg/m^3), STEL15 ppm (37 mg/m^3), 2006
Mexico:	TWA 10 ppm (25 mg/m^3); STEL 15 ppm (37 mg/m^3), 2004
The Netherlands:	MAC-TGG 25 mg/m^3, 2003
New Zealand:	TWA 10 ppm (25 mg/m^3); STEL 15 ppm (37 mg/m^3), JAN2002
Norway:	TWA 10 ppm (25 mg/m^3), JAN1999
The Phillipeans:	TWA 10 ppm (25 mg/m^3), JAN1993
Poland:	MAC (TWA) 5 mg/m^3, MAC (STEL) 35 mg/m^3, JAN1999
Russia:	STEL 5 mg/m^3, Skin, JUN2003
Sweden:	TWA 5 ppm (13 mg/m^3); STEL10 ppm (25 mg/m^3), JUN2005
Switzerland:	MAK- week 10 ppm (25 mg/m^3),KZG- week 20 ppm (50 mg/m^3), DEC2006
Thailand:	TWA 10 ppm (25 mg/m^3), JAN1993
Turkey:	TWA 10 ppm (25 mg/m^3), JAN1993
Trometamol:	Not Listed Not Listed Not Listed See Below
Russia:	OEL - STEL 5 mg/m^3, JUN2003

	Normal Handling Conditions	**Emergency Response Conditions**
Engineering Controls:	General room ventilation is adequate for the use of this product.	Provide negative pressure ventilation.
Respiratory Protection	Use appropriate respiratory protection.	Use appropriate respiratory protection.
Eye Protection:	Safety glasses with side shields.	Chemical splash goggles or other face protection as appropriate.
Skin Protection:	Laboratory coat, adequate chemical-resistant gloves.	Chemically resistant boots, clothes, and impermeable gloves as appropriate.
Environmental Exposure Controls:	Not Available.	Not Available.

Other Equipment: Safety shower, eyewash stations, and hand washing equipment should be available close to the work area as needed.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear Colorless Liquid

Odor: Vinegar Like Odor

Odor Threshold: > 1 ppm

pH: 8.0

Melting Point/Freezing Point: Not Available

Initial Boiling Point and Boiling Range:	Not Available
Flash Point:	Not Available
Evaporation Rate, 20 ºC:	Not Available
Flammability (Solid/Gas):	Not Available
Explosive Limits:	LEL: Not Available UEL: Not Available
Vapor Pressure:	Approximately 15 mm Hg
Vapor Density, 20 ºC:	2.1
Relative Density (Water = 1.0):	Essentially that of Water
Solubility:	Soluble
Partition Coefficient (n-octanol/water):	Not Available
Auto Ignition Temperature (ASTM D1929):	Not Available
Decomposition Temperature:	Not Available
Oxidizing Properties:	None
Viscosity, Centipoise:	Not Available

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability:	Product is stable under normal operating conditions and use as described in the product technical data sheet.
Conditions to Avoid:	See product technical data sheet for details.
Incompatible Materials to Avoid:	Strong acids or bases, strong oxidizers, and extreme temperatures.
Hazardous Decomposition Products:	Heating to decomposition temperature may produce carbon monoxide, carbon dioxide, nitrogen oxides.

SECTION 11 TOXICOLOGICAL INFORMATION

Toxicology Data: Toxicological information for this product as a whole does not exist, below is data for the individual components.

Ethylenediaminetetraacetic Acid, Disodium Salt Dihydrate: RTECS #AH4410000
Acetic Acid: RTECS #AF1225000
Trometamol: RTECS #TY2900000

	Toxicity Test	Exposure Route	Dose	Observed Effect
Acute Toxicity:				
Ethylenediaminetetraacetic Acid, Disodium Salt Dihydrate:	Not Available.			

Acetic Acid:	Lowest Published Toxic Dose (Human)	Oral	1.47 mg/kg	Gastrointestinal: Changes in structure or function of esophagus; Gastrointestinal: Ulceration or bleeding from small intestine; Gastrointestinal: Ulceration or bleeding from large intestine[1]
	LD_{50} (Rat)	Oral	3,310 mg/kg	N/A[1]
	LC_{lo} (Rat)	Inhalation	16,000 ppm/4H	N/A[1]
	LD_{50} (Rabbit)	Skin	1.06 mL/kg	N/A[1]
	Lowest Published Toxic Dose (Rat)	Skin	0.25 mg/kg	Gastrointestinal: Ulceration or bleeding from duodeum[1]
Trometamol:	LD_{50} (Rat)	Oral	5,900 mg/kg	N/A[2]
	LD_{50} (Rat)	Intravenous	1,800 mg/kg	N/A[2]

Skin Corrosion/Irritation:

Acetic Acid:	Skin Irritation (Rabbit)	Skin	525 mg	Severe[1]

Serious Eye Damage/Eye Irritation:

Acetic Acid:	Eye Irritation Rinse (Rabbit)	Eye	5 mg/30S	Mild[1]

Respiratory or Skin Sensitization: Not Available

Germ Cell Mutagenicity: Not Available

Reproductive Toxicity: Not Available

STOST-Single Exposure: Not Available

STOST-Repeated Exposure: Not Available

Aspiration Hazard: Not Available

Carcinogenicity: Carcinogenetic information for this product as a whole does not exist, below is data for the individual components.

Research Agency:	OSHA:	NTP:	IARC:
Ethylenediaminetetraacetic Acid, Disodium Salt Dihydrate:	Not Listed	Not Listed	Not Listed
Acetic Acid:	Not Listed	Not Listed	Not Listed
Trometamol:	Not Listed	Not Listed	Not Listed

SECTION 12 ECOLOGICAL INFORMATION

Ecotoxicity: Ecotoxicity information for this product as a whole does not exist, below is data for the individual components.

Ethylenediaminetetraacetic Acid, Disodium Salt Dihydrate: Not Available.

Acetic Acid: LC_{50} Gambusia Affinis 24 Hours 251,000 ug/L[3]

LC_{50} Ictalurus Punctatus 48 Hours 446,000 ug/L[4]

LC_{50} Pimephales Promelas (Juvenile) 72 Hours 88,000 ug/L[5]

LC_{50} Lepomis Macrochirus 96 Hours 75,000 ug/L[6]

Trometamol: No Response Selenastrum Capricornutum 24 Hours 200,000 ug/L[7]

No Response Selenastrum Capricornutum 48 Hours 300,000 ug/L[7]

Mobility:

Acetic Acid: Terrestrial Fate: Based on a classification scheme, Koc values of 6.5 to 228, indicate that acetic acid is expected to have very high to moderate mobility in soil. A pKa of 4.74 indicates acetic acid will exist almost entirely in the ionized form at pH values of 5 to 9 and therefore volatilization from moist soil surfaces is not expected to be an important fate process. The potential for volatilization of acetic acid from dry soil surfaces may exist based upon a vapor pressure of 15.7 mm Hg. The major environmental fate process for acetic acid in soil is biodegradation. A large number of biological screening studies have determined that acetic acid biodegrades readily under both aerobic and anaerobic conditions. Using a modified Organization of Economic Cooperation and Development (OECD) protocol, 75% degradation was reported in 14 days using garden soil as an inoculum. In a second soil study, a half-life of 24 minutes was measured for radiolabeled acetic acid in a soil sample. The percent decomposition of 14C-labeled acetic acid in Greenfield sandy loam (coarse-loamy, mixed thermic Typic Haploxeralf) top soil (pH 7.0) was reported to be 52-76% after 1 week and 71-87% after 12 weeks.[8]

Aquatic Fate: Based on a classification scheme, Koc values of 6.5 to 228, indicates that acetic acid is not expected to adsorb to suspended solids and sediment. This compound is expected to exist in the dissociated form in the environment based on a pKa of 4.74, and therefore volatilization from water surfaces is not expected to be an important fate process. According to a classification scheme, an estimated BCF of 3.2, from its log Kow of -0.71 and a regression-derived equation, suggests the potential for bioconcentration in aquatic organisms is low. The dominant environmental fate process for acetic acid in water is expected to be biodegradation. A large number of biological screening studies have determined that acetic acid biodegrades readily under aerobic and anaerobic conditions. In the French Association for Standardization (AFNOR) T 90/103 test, 36% of the theoretical BOD was reached in 5 days using microbes from 3 polluted surface waters. Greater than 90% degradation was reported in 3 days using an activated sludge inoculum in the Zahn-Wellens test.[8]

Atmospheric Fate: According to a model of gas/particle partitioning of semivolatile organic compounds in the atmosphere, acetic acid, which has a vapor pressure of 15.7 mm Hg at 25°C, from experimentally derived coefficients, is expected to exist solely as a vapor in the ambient atmosphere. Vapor-phase acetic acid is degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 22 days, calculated from its measured rate constant of 7.4X10-13 cu cm/molecule-sec at 25°C. Acetic acid does not absorb light with wavelengths >290 nm, and is not expected to be susceptible to direct photolysis by sunlight.[8]

Trometamol: Terrestrial Fate: Based on a classification scheme, an estimated Koc value of 1, determined from a structure estimation method, indicates that Trometamol is expected to have very high mobility in soil. However, Trometamol has a pKa of 8.07 and should exist partially as a cation under environmental conditions (pH 5-9). As a result, Trometamol may have greater adsorption and less mobility than its estimated Koc value indicates since cations generally adsorb more strongly to soils containing organic carbon and clay than neutral species. Volatilization of Trometamol from moist soil surfaces is not expected to be an important fate process since cations do not volatilize and the estimated Henry's Law constant for the neutral species is 8.7X10-13 atm-cu m/mole, using a fragment constant estimation method. Trometamol is not expected to volatilize from dry soil surfaces based upon an estimated vapor pressure of 2.2X10-5 mm Hg, determined from a fragment constant method.[9]

Aquatic Fate: Based on a classification scheme, an estimated Koc value of 1, determined from a structure estimation method, indicates that Trometamol is not expected to adsorb to suspended solids and sediment. However, Trometamol has a pKa of 8.07 and should exist partially as a cation under environmental conditions (pH 5-9). As a result, Trometamol may have greater adsorption to suspended solids and sediment than its estimated Koc value indicates. Volatilization from water is not expected since cations do not volatilize and the estimated Henry's Law constant for the neutral species (free base) of Trometamol is 8.7X10-13 atm cu m/mol, calculated using a fragment constant estimation method. According to a classification scheme, an estimated BCF of 3, from an estimated log Kow of -1.56 and a regression-derived equation, suggests the potential for bioconcentration in aquatic organisms is low.[9]

Atmospheric Fate: According to a model of gas/particle partitioning of semivolatile organic compounds in the atmosphere, Trometamol, which has a an estimated vapor pressure of 2.2X10-5 mm Hg at 25°C, determined from a fragment constant method, is expected to exist in both the vapor and particulate phases in the ambient atmosphere. Vapor-phase Trometamol is degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 11 hours, calculated from its rate constant of 3.4X10-11 cu cm/molecule-sec at 25°C that was derived using a structure estimation method. Particulate-phase Trometamol is removed from the atmosphere by wet and dry deposition. Trometamol does not contain chromophores that absorb at wavelengths >290 nm and therefore is not expected to be susceptible to direct photolysis by sunlight.[9]

Persistence and Degradation:

Acetic Acid: Environmental Biodegradation: Biological oxygen demand after 10 days at 20°C is: 82% biological oxidation in fresh water and 88% biological oxidation in sea water.[8]

Environmental Abiotic Degradation: The rate constant for the vapor-phase reaction of acetic acid with photochemically-produced hydroxyl radicals has been measured as 7.40X10-13 cu cm/molecule-sec at 25°C. This corresponds to an atmospheric half-life of about 22 days at an atmospheric concentration of 5X10+5 hydroxyl radicals per cu cm. Acetic acid is not expected to undergo hydrolysis in the environment due to the lack of hydrolyzable functional groups. Acetic acid does not absorb light with wavelengths >290 nm, and is not expected to be susceptible to direct photolysis by sunlight.[8]

Trometamol: Trometamol yielded no oxygen uptake when incubated with pure cultures of different strains of bacteria, indicating biodegradation may be slow in the environment.[9]

Environmental Abiotic Degradation: The rate constant for the vapor-phase reaction of Trometamol with photochemically-produced hydroxyl radicals has been estimated as 3.4X10-11 cu cm/molecule-sec at 25°C, using a structure estimation method. This corresponds to an atmospheric half-life of about 11 hours at an atmospheric concentration of 5X10+5 hydroxyl radicals per cu cm. Trometamol is not expected to undergo hydrolysis in the environment due to the lack of hydrolyzable functional groups. Trometamol does not contain

chromophores that absorb at wavelengths >290 nm and therefore is not expected to undergo direct photolysis by sunlight.[9]

Bio Accumulative Potential:

Acetic Acid: An estimated BCF of 3.2 was calculated for acetic acid, using a log Kow of -0.71 and a regression-derived equation. According to a classification scheme, this BCF suggests the potential for bioconcentration in aquatic organisms is low.[8]

Trometamol: An estimated BCF of 3 was calculated for Trometamol, using an estimated log Kow of -1.56 and a regression-derived equation. According to a classification scheme, this BCF suggests the potential for bioconcentration in aquatic organisms is low.[9]

Results of PBT Assessment: Not Available.

Other Adverse Effects: None Known.

SECTION 13 DISPOSAL INFORMATION

Substance: Dispose of unused contents in accordance with international, federal, state, and local regulations.

Contaminated Packaging: Dispose of container in accordance with international, federal, state and local requirements.

SECTION 14 TRANSPORTATION INFORMATION

UN Number: Not Listed.

Class: Not Listed.

Proper Shipping Name: Not Listed.

Packing Group: Not Listed.

Marine Pollutant: Not Listed.

Other Applicable Information: None.

SECTION 15 REGULATORY INFORMATION

Australia:	Hazchem Code:	Not Listed.
	Poisons Schedule Number:	Not Listed.
California:	Proposition 65 Listed:	Not Listed.
Canada:	WHMIS:	E, D2B.
European Union:	REACH:	Chemical Safety Assessment for the substance or substances in the preparation not required.
	Substances of Very High Concern (SVHC) - January 13, 2010:	This product does not contain SVHC's in concentrations above 0.1% weight/weight.
	Category of Danger:	C: Corrosive. F: Highly Flammable.
	Risk Phrases:	R10: Flammable. R34: Causes burns.

		R35: Causes severe burns. R37: Irritating to respiratory system.
	Safety Phrases:	S7/9: Keep container tightly closed and in a well-ventilated place. S20/21: When using do not eat, drink or smoke. S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S27/28: After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of soap and tepid water. S29/35: Do not empty into drains; dispose of this material and its container in a safe way. S36/37/39: Wear suitable protective clothing, gloves and eye/face protection. S45: In case of accident or if you feel unwell, seek medical advice immediately.
	OECD/High Production Volume (HPV) Chemicals:	Acetic Acid, Trometamol and Water.
	RoHS:	This product does not contain RoHS listed substances in concentrations above the established thresholds.
Japan:	Poisonous and Deleterious Substances Control Law:	Not Listed.

SECTION 16 ADDITIONAL INFORMATION

Product Number:	**Product Name:**
LSKMTAE50	Modified TAE Buffer Concentrate 50x, 500 mL.
CS201628	Modified TAE Buffer Concentrate 50x, 500 mL.
CS201627	Modified TAE Buffer Concentrate 50x, Bulk
Component of Kit Number:	**Product Name:**
LSKGEL050	Montage Gel Extraction Kit

Training Advice: Seek effective chemical handling training to reduce the hazards associated with this product prior to use.

Technical Contact: http://www.millipore.com/support

Abbreviations Used

ACGIH	American Conference of Government Industrial Hygienists
ADR	European agreement on the international carriage of dangerous goods on road
CAS	Chemical Abstract Service
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EPA	United States Environmental Protection Agency
IARC	International Agency for Research in Cancer.
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
IMDG	Regulations regarding the transportation of dangerous goods on ocean-going vessels issued by the International Maritime Organization.

LC_{50}	Lethal Concentration 50% is the concentration of a chemical which kills 50% of a sample population
LD_{50}	Lethal Dose 50% is the dose of a chemical which kills 50% of a sample population.
LDLo	Lowest observed lethal dose
LEL	Lower Explosive Limit
MSFU	Manufacture, Formulation, Supply and Use (Section 13)
NIOSH	National Institute of Occupational Safety and Health (US)
NTP	National Toxicology Program (US)
OSHA	United States Occupational Safety and Health Administration
RID	International regulations concerning the international carriage of dangerous goods by rail.
RTECS	Registry of Toxic Effects of Chemical Substances (US)
STOST	Specific Target Organ Systemic Toxicity
UEL	Upper Explosive Limit
WHMIS	Workplace Hazardous Materials Information System (Canada)

This safety data sheet has been prepared to comply with the requirements of the European Union regulation on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) 1906/2006 and ANSI standard Z400.1-1998.

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[1] Centers for Disease Control and Prevention, 1600 Clifton Rd, Atlanta, GA 30333, USA, National Institute for Occupational Safety and Health (NIOSH), Registry of Toxic Effects of Chemical Substances (RTECS) File #AF1225000, 2009.

[2] Centers for Disease Control and Prevention, 1600 Clifton Rd, Atlanta, GA 30333, USA, National Institute for Occupational Health and Safety (NIOSH), Registry of Toxic Effects of Chemical Substances (RTECS) File #TY2900000, 2009.

[3] Wallen, I.E., W.C. Greer, and R. Lasater, Toxicity to Gambusia affinis of Certain Pure Chemicals in Turbid Waters, Sewage Ind.Wastes 29(6):695-711, 1957.

[4] Clemens, H.P., and K.E. Sneed, Lethal Doses of Several Commercial Chemicals for Fingerling Channel Catfish, U.S.Fish and Wildl., Spec.Serv.Sci.Rep.- Fish.No.316, U.S.D.I., Washington, D.C. :10 p., 1959.

[5] Mattson, V.R., J.W. Arthur, and C.T. Walbridge, Acute Toxicity of Selected Organic Compounds to Fathead Minnows, EPA-600/3-76-097, U.S.EPA, Duluth, MN :12 p., 1976.

[6] Academy of Natural Sciences, The Sensitivity of Aquatic Life to Certain Chemicals Commonly Found in Industrial Wastes, Final Report No.RG-3965(C2R1), U.S.Public Health Service Grant, Academy of Natural Sciences, Philadelphia, PA :89 p., 1960.

[7] http://www.pesticideinfo.org/List_AquireAll.jsp?Rec_Id=PC34686&Taxa_Group=Phytoplankton, Kegley, S.E., Hill, B.R., Orme S., Choi A.H., *PAN Pesticide Database,* Pesticide Action Network, North America (San Francisco, CA, 2009).

[8] U.S. National Library of Medicine, 8600 Rockville Pike, Bethesda, MD 20894 National Institutes of Health, Health & Human Services, Hazardous Substances Data Bank (HSDB): Acetic Acid (http://toxnet.nlm.nih.gov/cgi-bin/sis/search/r?dbs+hsdb:@term+@rn+@rel+64-19-7).

[9] http://toxnet.nlm.nih.gov/cgi-bin/sis/search/r?dbs+hsdb:@term+@rn+@rel+77-86-1, U.S. National Library of Medicine, 8600 Rockville Pike, Bethesda, MD 20894, 2009.

MILLIPORE
Health, Safety & Environment

Montage™ DNA Gel Extraction Kit, Modified TAE Buffer

MATERIAL SAFETY DATA SHEET

SECTION 1 - CHEMICAL PRODUCT & COMPANY IDENTIFICATION

Millipore Corporation
80 Ashby Road
Bedford MA 01730
Information 781-533-2350
CHEMTREC Emergency Telephone Numbers:
United States 800-424-9300
International 703-527-3887 (collect)

PRODUCT: Montage DNA Gel Extraction Kit, Modified TAE Buffer

Product Number: **LSKMTAE50**
MSDS Number: **M102414**
Issue Date: July 12, 2002
Rev. Date: November 3, 2008
Revision: A

SUBSTANCE IDENTIFICATION

SUBSTANCE: "Tris Acetate – EDTA" Aqueous Solution, pH 8.

SECTION 2 - COMPOSITION AND INFORMATION ON INGREDIENTS

Component	CAS No.	EINECS No.	Percent by Wt.
"TRIS Base" – Tris (hydroxymethyl) aminomethane hydroxide	77-86-1	201-064-4	20-30
"Disodium EDTA", Disodium ethylenediamine-tetraacetate, dihydrate	6381-92-6	unlisted	<1.0
Acetic Acid	64-19-7	200-580-7	5-10
Water	7732-18-5	231-791-2	Balance

SECTION 3 – HAZARD IDENTIFICATION

EMERGENCY OVERVIEW:

Appearance: Colorless Liquid

Major Health Hazards: May cause eye, skin, respiratory tract and gastrointestinal irritation.

Physical Hazards: Not expected to present a physical hazard.

Health Effects

Route of Entry	Potential Health Effects and Symptoms of Exposure
Skin:	May cause irritation with burning pain, itching and redness.
Eyes:	May cause eye irritation.
Ingestion	May cause gastrointestinal irritation with nausea, vomiting and diarrhea.
Inhalation:	May cause respiratory tract irritation.
Target organs:	None known
Medical Conditions Aggravated by Exposure:	None known

SECTION 4 - FIRST AID

Ingestion: Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid if irritation or symptoms occur. .

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

Skin: Remove contaminated clothing, jewelry, and shoes immediately. Wash with soap or mild detergent and large amounts of water until no evidence of chemical remains (at least 15-20 minutes

Inhalation: Remove from exposure to fresh air immediately. Get medical aid if cough or other symptoms appear.

SECTION 5 - FIRE FIGHTING MEASURES

Fire & Explosion Hazards:	Not considered to be a fire or explosion hazard.
Extinguishing Media:	Use media suitable for extinguishing surrounding fire.
Flash point:	Not available.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Spills and Leaks:	Absorb spill with inert material, (e.g., dry sand or earth), then place into a chemical waste container. Clean up spills immediately, observing precautions in the Protective Equipment section. Provide ventilation.

SECTION 7- HANDLING AND STORAGE

Handling:
Wash thoroughly after handling. Wash hands before eating. Avoid contact with eyes. Keep container tightly closed. Use with adequate ventilation.

Storage:
Keep container closed when not in use. Store at room temperature.

SECTION 8 - PERSONAL PROTECTION AND EXPOSURE CONTROL

Ventilation:	General ventilation should be adequate for the quantities found in this kit. If handling conditions are such that applicable exposure limits are exceeded, provide local exhaust ventilation.
Personal Protection:	Wear safety glasses with side shields. Normally, gloves and protective clothing are not required when handling this solution. If danger of splashing exists, provide an emergency eye wash fountain and quick drench shower in the immediate work area
Respirator Use:	Respirator use is typically not required. If mists can not be effectively controlled, wear a particulate filter approved under 42 CFR Part 84.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Colorless solution
Specific Gravity (Water = 1.0)	1.05 – 1.10
Odor	Vinegar-like
Odor threshold	2 ppm (acetic acid)
Water solubility:	soluble
pH	8
Melting Point	Not Available
Boiling Point	Not Available
Vapor Pressure	Not Available
Vapor Density (Air = 1.0)	2.1 (acetic acid)
Volatility	>70%
Evaporation Rate	Not Available
Coefficient of water/oil distribution:	Not available

SECTION 10 - STABILITY AND REACTIVITY

Chemical Stability:	Stable at normal temperatures and pressure.
Hazardous Polymerization	Will not occur.
Conditions to Avoid.	Heat, and incompatible materials.
Incompatible with:	Strong oxidizing agents, strong acids and strong bases.
Hazardous Decomposition Products:	Carbon monoxide, carbon dioxide, nitrogen oxides (NOx), ammonia, (NH3), and toxic fumes of sodium oxide.

SECTION 11 - TOXICOLOGICAL INFORMATION

Carcinogenicity:	Tris (hydroxymethyl) aminomethane hydroxide, Disodium ethylenediamine-tetraacetate and acetic acid are not listed as carcinogenic by IARC, NIOSH, NTP, or OSHA.
Acute Effects:	Possible eye, skin, respiratory tract and gastrointestinal irritation.
Chronic Effects:	Prolonged or repeated skin contact may cause irritation.

Toxicological Information (continued)		
Exposure limits		
INGREDIENT	OSHA PEL	ACGIH TLV
Acetic Acid	10 ppm TWA	10 ppm TWA; 15 ppm STEL
Tris (hydroxymethyl) aminomethane hydroxide	None listed	None listed
Disodium ethylene-diaminetetraacetate	None listed	None listed

Toxicological Data

No toxicological data is available for this product as an entity.

Selected RTECS data for components:

1,3-Propanediol, 2-amino-2-(hydroxymethyl)-; [Tris (hydroxymethyl) aminomethane hydroxide]	RTECS#: TY2900000
LD50, oral, rat	5,900 mg/kg
Acetic acid, (ethylenedinitrilo)tetra-, disodium salt, dihydrate; [Disodium ethylenediamine-tetraacetate, dihydrate]	RTECS#: AH4410000
Cytogenetic analysis, lung, hamster:	Mutagen; 200 mg/L
Acetic acid	RTECS#: AF1225000
LD50, oral, rat	3,310 mg/kg
LC50, inhalation, mouse	5,620 ppm/1H
LD50, skin, rabbit	1,060 uL/kg

SECTION 12 - ECOLOGICAL INFORMATION

No data is available on the Ecotoxicity or Environmental Fate of this solution

SECTION 13- DISPOSAL INFORMATION

The components of this product are not listed USEPA hazardous wastes, and the solution does not exhibit the properties of a characteristic hazardous waste. Wastes should be disposed of in a manner consistent with federal, state and local regulations.

SECTION 14 - TRANSPORTATION INFORMATION

Montage DNA Gel Extraction Kit, Modified TAE Buffer is not regulated by USDOT, ICAO/IATA, ADR or IMO as a hazardous material or dangerous goods.

SECTION 15 - REGULATORY INFORMATION

The components of this solution are listed on the Toxic Substances Control Act (TSCA) Chemical Inventory. See regulations in 40 CFR 700 for details.

California No significant Risk Level: None of the chemicals in this product are listed

European Labeling in Accordance with EC Directives:

Hazard Symbols: None applicable

Risk Phrases: None applicable

Safety Phrases: None applicable

This product has a WHMIS classification of Not Classified.

SECTION 16- ADDITIONAL INFORMATION

The chemical, physical and toxicological properties of this product have not been thoroughly investigated**.**

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