Material Safety Data Sheet

MSDS/SDS Number: 00000316MSDS

Latest Revision Date: October 30, 2009

Revision: A

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

Product Name: Antibody Capture Affinity Ligand

Catalogue Number(s): 20-216; Component of 17-500

Chemical Name: Aqueous solution of Glycerol, Sodium Chloride, Sodium Hydrogen Phosphonate, Sodium Dihydrogenorthophosphate, and Alpha-Toluenesulphonyl Fluoride.

Synonyms: None

Intended Product Use: Cellular Research

Manufacturer/Distributor:	Millipore Corporation (Corporate Headquarters)	Millipore S.A.S. (European Headquarters)
Postal Address:	290 Concord Road Billerica MA, USA	Boite Postale 116 67124 Molsheim Cedex, 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)

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

GHS Hazard Class: Serious Eye Damage/ Eye Irritation: Category 2

Skin Corrosion/ Irritation: Category 3

Signal Word and Hazard Statement: Warning: Causes mild skin irritation (H316)

Warning: Causes serious eye irritation (H319)

EU Hazard Symbol Pictogram:

Xi (R36/38)

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** †
Glycerol:	200-289-5	56-81-5	10 %	N/A	N/A
Sodium Chloride:	231-598-3	7647-14-5	< 1 %	N/A	N/A
Sodium Hydrogen Phosphonate:	237-707-0	7782-85-6	< 1 %	N/A	N/A
Sodium Dihydrogenorthophosphate:	231-449-2	10049-21-5	< 0.1 %	N/A	N/A
Alpha-Toluenesulphonyl Fluoride:	206-350-2	329-98-6	< 0.1 %	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	> 97 %	N/A	N/A

* Symbol letters and categories of danger: **T+** = Very toxic, **T** = Toxic, **C** = Corrosive, **Xn** = Harmful, **X**i = Irritant**,** **E** = Explosive, **F+** = Extremely flammable, **F** = Very 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.	Possible eye irritation.
Ingestion:	Seek medical attention immediately. Never give an unconscious person anything by mouth.	Possible gastrointestinal irritation causing nausea and vomiting.
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.	Possible respiratory tract and mucous membrane irritation.

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.	Possible skin irritation.

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

Glycerol:	TWA 15 mg/m^3 (total dust), TWA 5 mg/m^3 (respirable fraction)	Not Listed	10 mg/m^3	See below
Belgium:	TWA 10 mg/m^3, MAR2002			
Finland:	TWA 20 mg/m^3, JAN1999			
France:	VME 10 mg/m^3, FEB2006			
Korea:	TWA 10 mg/m^3 (mist), 2006			
Mexico:	TWA 10 mg/m^3 (inhalable), 2004			
The Netherlands:	MAC-TGG 10 mg/m^3, 2003			
New Zealand:	TWA 10 mg/m^3 (mist), JAN2002			
Switzerland:	MAK- week 50 mg/m^3,KZG- week 100 mg/m^3, DEC2006			
United Kingdom:	TWA 10 mg/m^3, 2005			
Sodium Chloride:	Not Listed	Not Listed	Not Listed	See Below
Russia:	OEL-STEL 5 mg/m^3, JUN2003			
Sodium Hydrogen Phosphonate:	Not Listed	Not Listed	Not Listed	None
Sodium Dihydrogenorthophosphate:	Not Listed	Not Listed	Not Listed	None
Alpha-Toluenesulphonyl Fluoride:	Not Listed	Not Listed	Not Listed	None

	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: None

Odor Threshold: Not Available

pH: 7

Melting Point/Freezing Point: Essentially that of Water

Initial Boiling Point and Boiling Range:	Essentially that of Water
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:	Not Available
Vapor Density, 20 ºC:	Not Available
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.

Glycerol: RTECS #MA8050000

Sodium Chloride: RTECS #VZ4725000

Sodium Hydrogen Phosphonate: RTECS #WC4600000

Alpha-Toluenesulphonyl Fluoride: RTECS #XT8040000

Toxicity Test	Exposure Route	Dose	Observed Effect
Acute Toxicity:			

Glycerol:	LD_{50} (Rat)	Oral	12,600 mg/kg	Behavioral: General anesthetic Behavioral: Muscle weakness Liver: Other changes[1]
	Lowest Published Toxic Dose (Human)	Oral	1,428 mg/kg	N/A[1]
Sodium Chloride:	LD_{50} (Rat)	Oral	3,000 mg/kg	N/A[2]
Sodium Hydrogen Phosphonate:	LD_{50} (Rat)	Oral	12,930 mg/kg	N/A[3]
Sodium Dihydrogenorthophosphate:	Not Available			
Alpha-Toluenesulphonyl Fluoride:	LD_{50} (Mouse)	Oral	200 mg/kg	N/A[4]
	LD_{50} (Rat)	Intraperitoneal	150 mg/kg	N/A[4]
Skin Corrosion/Irritation:				
Glycerol:	Skin Irritation (Rabbit)	Skin	500 mg/24 hour	Mild[1]
Sodium Chloride:	Skin Irritation (Rabbit)	Skin	500 mg/24H	N/A[2]
Serious Eye Damage/Eye Irritation:				
Glycerol:	Eye Irritation (Rabbit)	Eye	500 mg/24 hour	Mild[1]
Sodium Chloride:	Eye Irritation (Rabbit)	Eye	100 mg/24H	N/A[2]
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:	
Glycerol:	Not Listed	Not Listed	Not Listed	
Sodium Chloride:	Not Listed	Not Listed	Not Listed	
Sodium Hydrogen Phosphonate:	Not Listed	Not Listed	Not Listed	
Sodium Dihydrogenorthophosphate:	Not Listed	Not Listed	Not Listed	
Alpha-Toluenesulphonyl Fluoride:	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.

Glycerol: LC_{50} Carassius Auratus 24 Hours 5,000,000 ug/L[5]

LC_{50} Leuciscus Idus Melanotus 48 Hours 10,000,000 ug/L[6]

LC_{50} Oncorhynchus Mykiss 96 Hours 54.0 ml/L[7]

Sodium Chloride: LC_{50} Carassius Auratus 24 Hours 9,800,000 ug/L[8]

LC_{50} Carassius Auratus 48 Hours 7,200,000 ug/L[8]

LC_{50} Carassius Auratus 96 Hours 7,050,000 ug/L[8]

Sodium Hydrogen Phosphonate: Not Available

Sodium Dihydrogenorthophosphate: Not Available

Alpha-Toluenesulphonyl Fluoride: Not Available

Mobility:

Glycerol: Terrestrial Fate: If released to soil, glycerin is expected to undergo rapid biodegradation under aerobic conditions. Biodegradation under anaerobic conditions is also expected to occur. Based on an experimental log octanol/water partition coefficient of -1.76 and its water solubility, 1,220,000 mg/l at 5 deg C, soil adsorption coefficients for glycerin can be estimated at 3 and 2, respectively, using regression-derived equations. The magnitude of these values indicate that glycerin will display very high mobility in soil. Based on an estimated Henry's Law constant of 1.75X10+11 atm cu-m/mol and vapor pressure, 1.58X10-4 mm Hg at 25 deg C glycerin is not expected to significantly volatilize from wither moist or dry soil to the atmosphere.[9]

Aquatic Fate: If released to water, glycerin is expected to rapidly degrade under aerobic conditions. Degradation is also likely in seawater and under anaerobic conditions. Based on an experimental log octanol/water partition coefficient of -1.76 and its water solubility, 1,220,000 mg/l at 5 deg C, bioconcentration factors for glycerin can be estimated at 3 and 0.2, respectively, using regression-derived equations. The magnitude of these values indicate that bioconcentration in fish and aquatic organisms is not likely to occur to a significant extent. Estimated soil adsorption coefficients of 2 and 3 indicated that adsorption to sediment and suspended organic matter will not be important. Based on an estimated Henry's Law constant of 1.75X10+11 atm cu-m/mol, volatilization of glycerin from water will be slower then for water itself.[9]

Atmospheric Fate: If released to the atmosphere, glycerin may undergo a gas-phase oxidation with photochemically produced hydroxyl radicals. An estimated rate constant for this reaction of 1.7X10-11 cu- cm/molec-sec at 25deg C translates to an atmospheric half-life of 33 hrs using an average atmospheric hydroxyl radical concn of 5X10+5 molec/cu-cm. The water solubility of glycerin, 1,220,000 mg/l at 5 deg C, indicates that it may also undergo atmospheric removal by wet deposition processes.[9]

Persistence and Degradation:

Glycerol: Environmental Abiotic Degradation: An estimated rate constant for the vapor-phase reactio of glycerin with photochemically produced hydroxyl radicals of 1.7X10-11 cu cm/molec-sec at 25 deg C translates to an atmospheric half-life of 33 hr using an average atmospheric hydroxyl radical concn of 5X10-5 molec/cu cm.[9]

Bio Accumulative

Potential:

Glycerol: Based on an experimental log octanol/water partition coefficient of -1.76 and its water solubility, 1,220,000 mg/l at 5 deg C, bioconcentration factors for glycerin can be estimated at 3 and 0.2, respectively, using regression-derived equations. The magnitude of these values indicate that bioconcentration of glycerin in fish and aquatic organisms will not be significant.[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:	D2B
European Union:	REACH:	Chemical Safety Assessment for the substance or substances in the preparation not required.
	Substances of Very High Concern (SVHC) - October 28th, 2008:	This product does not contain SVHC's in concentrations above 0.1% weight/weight.
	Category of Danger:	Xi: Irritant
	Risk Phrases:	R36/38: Irritating to eyes and skin.
	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:	Glycerol
	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

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 Health and Safety (NIOSH), Registry of Toxic Effects of Chemical Substances (RTECS) File #MA8050000, 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 #VZ4725000, 2009.

[3] 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 #WC4600000, 2009.

[4] 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 #XT8040000, 2009.

[5] Bridie, A.L., C.J.M. Wolff, and M. Winter, The Acute Toxicity of Some Petrochemicals to Goldfish, Water Res. 13(7):623-626 (OECDG Data File), 1979.

[6] Juhnke, I., and D. Luedemann, Results of the Investigation of 200 Chemical Compounds for Acute Fish Toxicity with the Golden Orfe Test (Ergebnisse der Untersuchung von 200 Chemischen Verbindungen auf Akute Fischtoxizitat mit dem Goldorfentest), Z.Wasser-Abwasser-Forsch. 11(5):161-164 (GER) (ENG TRANSL) (OECDG Data File),1978

[7] Mayer, F.L.Jr., and M.R. Ellersieck, Manual of Acute Toxicity: Interpretation and Data Base for 410 Chemicals and 66 Species of Freshwater Animals, Resour.Publ.No.160, U.S.Dep.Interior, Fish Wildl.Serv., Washington, DC :505 p. (USGS Data File), 1986.

[8] Adelman, I.R., and L.L. Smith Jr., Standard Test Fish Development. Part I. Fathead Minnows (Pimephales promelas) and Goldfish (Carassius auratus) as Standard Fish in Bioassays and Their Reaction to Potential Reference Toxicants, EPA-600/3-76-061A, U.S.EPA, Duluth, MN :77 p., 1976.

[9] http://toxnet.nlm.nih.gov/cgi-bin/sis/search/r?dbs+hsdb:@term+@rn+@rel+56-81-5, U.S. National Library of Medicine, 8600 Rockville Pike, Bethesda, MD 20894, 2009.