Material Safety Data Sheet

MSDS/SDS Number:	M118104
Issue Date:	June 2, 2008
Latest Revision Date:	--
Revision:	--

SECTION 1 IDENTIFICATION OF THE SUBSTANCE OR PREPARATION AND OF THE COMPANY / UNDERTAKING – CHEMICAL PRODUCT & COMPANY IDENTIFICATION

Trade Name:	**Strong Antibody Stripping Solution (10x)**	
Catalogue Number(s):	Component of 2500, Reblot Plus Kit	
Chemical Name:	Aqueous sodium hydroxide solution	
Product use:	Biological research reagent	
Other trade names and synonyms:	3.5N Sodium hydroxide solution	
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
Email:	msds@millipore.com	
CHEMTREC Emergency Telephone Number:	International +1-703-527-3887 (collect) North America 1-800-424-9300 (toll free)	

SECTION 2 COMPOSITION / INFORMATION ON INGREDIENTS

Component	EINECS or ELINCS No.	CAS No.	Content (weight %)	Symbol letters*	R Phrases**
Sodium hydroxide	215-185-5	1310-73-2	12-16	C	R35
Water	231-791-2	7732-18-5	84-88	None	None

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

** The full text of each phrase is listed in Section 16.

SECTION 3 HAZARD IDENTIFICATION / EMERGENCY OVERVIEW

Appearance: Colorless liquid

Classification: This product is classified as C, Corrosive according to Directive 1999/45/EC.

Adverse human health effects:

Contact with Eyes: Dangerous eye corrosive, causes eye burns

Ingestion: Will cause gastrointestinal tract burns, accompanied by severe pain, nausea, vomiting, diarrhea, and shock. May cause severe and permanent damage, including possible perforation, to the digestive tract. May cause systemic effects.

Inhalation (Short Term): Severe upper respiratory tract irritant, accompanied by coughing, burns, breathing difficulty, and possible coma. May cause pulmonary edema and chemical pneumonitis.

Inhalation (Long Term): Repeated or prolonged inhalation of sodium hydroxide aerosols may cause permanent, irreversible damage to the respiratory system. These effects may include chronic chemical pneumonia and pneumonitis.

Skin Contact: Severe skin corrosive. May cause deep ulceration of the skin and rashes. Repeated or prolonged contact with skin may cause dermatitis.

Target Organs: Eyes, skin, mucous membranes

Medical conditions aggravated by exposure: Exposure to sodium hydroxide aerosols may aggravate asthma and other respiratory diseases.

Adverse environmental effects: Sodium hydroxide has been shown to be highly toxic to fresh water fish. Large discharges of sodium hydroxide solutions will decrease the acidity of soils and natural waters. The effect is expected to be long-lived as sodium hydroxide is not biodegraded in these environments.

Adverse physiochemical effects: Sodium hydroxide reacts with reactive metals, such as aluminum and magnesium to form hydrogen gas, which can form explosive mixtures with air.

SECTION 4 FIRST AID MEASURES

Contact with Eyes: Immediately get medical attention. Flush eyes with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers.

Ingestion: Immediately get medical attention. Do not induce vomiting. If person is conscious, give water or milk.

Inhalation: Immediately get medical attention. Remove victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Skin Contact: Immediately remove contaminated clothing and shoes. Immediately wash skin with soap and copious amounts of water. Product will be difficult to remove from beneath finger nails. If irritation or redness occurs, seek medical attention.

SECTION 5 FIRE FIGHTING MEASURES

Flash Ignition Temperature: None

Autoignition Temperature (ASTM D1929): None

Flammability Limits: Not applicable.

Suitable extinguishing media: Use media suitable for the surrounding materials. Cool containers with water to prevent rupture.

Unsuitable extinguishing media: None known.

Special protective equipment for firefighters: Sodium hydroxide aerosols present an inhalation hazard. Respiratory protection and approach from upwind direction is recommended.

Special exposure hazards: Sodium hydroxide solutions will react with reactive metals and release hydrogen. Hydrogen-air mixtures are potentially flammable and explosive.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions: Area evacuation is not required. Eliminate unnecessary traffic in area of the spill. Wear chemically resistant boots, clothing and gloves (nitrile, neoprene) to prevent skin contact.

Small spills: Clear area of all personnel not needed for clean up. Clean up spills immediately. Wear appropriate protective clothing and if necessary breathing apparatus. Contain spill and absorb with sand, earth, or vermiculite. Collect residues and place in labeled plastic containers. Avoid breathing vapors and contact with skin and eyes. If possible prevent contact with active metals.

Large spills: Evacuate area and have trained responders contain the spill as discussed under small spills. Wash area with detergent and water. This wastewater may be disposed to the sewer. If reaction with active metals is possible take precautions against presence of flames, sparks, arcs and other sources of ignition.

Environmental precautions: If allowed by local regulations, sodium hydroxide solutions may be discharged into sewer, or to industrial waste water systems capable of alkali neutralization. Otherwise, collect and dispose according to federal, state and local regulations.

Clean up measures: Small spills may be adsorbed on paper towels, and stored in closed containers pending final disposition. Larger spill may be absorbed in sand, sawdust or vermiculite, and stored in closed containers pending final disposition (See section 13). Wash spill area with detergent and water to remove residual contamination. This water may be disposed to the sanitary sewer.

SECTION 7 HANDLING AND STORAGE

Handling:

Avoid contact with eyes and skin. Wear gloves.
Do not inhale vapors or aerosols.
May be harmful if swallowed.
Use personal protective equipment outlined in section 8.
Wash thoroughly after handling
Use with adequate ventilation

Storage: Store at 4^{o}C, unless directed otherwise by the product data sheet.

SECTION 8 EXPOSURE CONTROL AND PERSONAL PROTECTION

	Normal Handling Conditions	Emergency Response Conditions
Respiratory protection:	Not normally required for normal use.	If aerosols are present - air purifying respirator with organic cartridges
Ventilation:	General room ventilation	If aerosols are present, provide exhaust ventilation
Eye protection:	Safety glasses with side shields	Chemical splash goggles.
Skin protection:	Nitrile gloves and laboratory coat.	Chemically resistant jacket, pants, gloves, boots and head covering

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Colorless liquid
Odor:	None
Odor Threshold:	No data found. Irritating sensation causes warning of aerosols at very low concentration.
pH:	14 or greater
Melting Point:	-5 to -8^{o}C
Boiling Point:	110^{o}C
Flash Ignition Point:	None
Explosive Properties:	Sodium hydroxide solutions react with active metals to produce hydrogen gas. This gas is capable of forming explosive mixtures with air.
Oxidizing Properties:	This product is not considered to have oxidizing properties.
Vapor pressure, 20 ^{o}C:	2.4 kPa
Specific Gravity (Water = 1.0):	1.15
Solubility	Miscible with water.
Vapor Density, 20 ^{o}C:	Not applicable
Viscosity, centistoke:	2-3
Partition coefficient (n-octanol/water):	Not available

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability:	Stable under normal temperatures and pressures.
Conditions to Avoid:	Elevated temperature, incompatible materials
Incompatible With:	Active metals halogenated hydrocarbons, and acids.
Hazardous Decomposition Products:	Fumes of sodium oxide and hydroxide
Hazardous Polymerization:	Will not occur

SECTION 11 TOXICOLOGICAL INFORMATION

Inhalation: Will cause severe upper respiratory tract irritation, accompanied by coughing, burns, breathing difficulty, and possible coma. May cause pulmonary edema and chemical pneumonitis.

Ingestion: Will cause gastrointestinal tract burns, accompanied by severe pain, nausea, vomiting, diarrhea, and shock. May cause severe and permanent damage, including possible perforation, to the digestive tract. May cause systemic effects.

Skin Contact: Causes severe skin corrosion.. May cause deep ulceration of the skin and rashes. Repeated or prolonged contact with skin may cause dermatitis.

Eye Contact: Will cause severe eye corrosion and burns.

Carcinogenicity: None of the components of this product are listed as carcinogenic by ACGIH, IARC, NTP, OSHA or California proposition 65.

Chronic Toxicity: Repeated or prolonged inhalation of sodium hydroxide aerosols may cause permanent, irreversible damage to the respiratory system. These effects may include chronic chemical pneumonia and pneumonitis. Repeated or prolonged contact with skin may cause dermatitis

Toxicology Data: Toxicological information for this product as a whole does not exist;

Selected data for the individual components:

Compound: **Sodium Hydroxide** (100%)	RTECS#: **WB4900000**
Draize test, rabbit, eye: 50 µg/24H	Severe
Draize test, rabbit, eye: 1%	Severe
Draize test, rabbit, skin: 500 mg/24H	Severe

SECTION 12 ECOLOGICAL INFORMATION

Ecotoxicity: - calculated for a 15% by weight aqueous sodium hydroxide solution

LC_{50}, *Leuciscus idus melanotus*, (fresh water fish) flow through, 48H	1.1 ml per liter test water.
LC50, *Carassius auratus*, (fresh water fish) static, 24H	1.0 ml per liter test water

Environmental Fate: Large discharges of sodium hydroxide solutions will decrease the acidity of soils and natural waters. The effect is expected to be long-lived as sodium hydroxide is not biodegraded in these environments.

SECTION 13 DISPOSAL INFORMATION

If permitted by local regulations, this product may be disposed to an industrial sewer system with alkaline neutralization capability; Otherwise disposed in a manner consistent with national, state, and local regulations.

European Community: When disposal is required, this product be considered according to the European Waste catalogue (European commission decision of 03/05/01 modifying directives 94/3/CE and 75/442/CE) as part of the following category:

06 02 04* wastes from the manufacture, formulation, supply and use of bases (sodium and potassium hydroxide)

United States: This product meets the definition of a US Environmental Protection Agency RCRA D002 (Corrosive) hazardous waste. The user should verify the pH of the used product prior to disposal. Unused product must be disposed of in a manner consistent with federal, state and local regulations.

SECTION 14 TRANSPORTATION INFORMATION

Proper Shipping Name	Sodium Hydroxide Solution
UN ID Number	UN1824
Class	8
Packing Group	II

SECTION 15 REGULATORY INFORMATION

Australia:

Hazchem Code: 2R

Poisons Schedule Number: S6

California:

No Significant Risk Level: None of the chemicals in this product are known to Millipore Corporation to be listed.

Canada:

WHMIS: These products have WHMIS classifications of **E.**

European Community:

Symbols: **C**

Category of danger: Corrosive

Risk phrases:

R35	Causes severe burns
S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S37/39	Wear suitable gloves and eye/face protection
S45	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

OECD/High Production Volume (HPV) chemicals: Sodium hydroxide is listed as a High Volume Production chemical.

Section 15 – Regulatory Information (continued)

	WEEE and RoHS:	The WEEE and RoHS Directives are not applicable to these products.
Japan:	Poisonous and Deleterious Substances Control Law:	Sodium hydroxide is listed as a Deleterious Substance under the Poisonous and Deleterious Substances Control Law
United States	Toxic Substances Control Act:.	All of the components of this product are listed on the EPA Toxic Substances Control Act (TSCA) Inventory.

Occupational Exposure Limits

Component	**Occupational Exposure Limits, ppm**	
Sodium Hydroxide	ACGIH ceiling, Japan OEL ceiling,	2 mg/m^3
	UK WEL, STEL	2 mg/m^3
	OSHA PEL	2mg/m^3 TWA
	NIOSH IDLH	10 mg/m^3

SECTION 16 ADDITIONAL INFORMATION

Risk phrases referred to under Section 2:

R35 Cause severe burns.

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.
IUCLID	International Uniform Chemical Information Database
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
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.

Section 16 – Additional Information (continued)

RTECS	Registry of Toxic Effects of Chemical Substances (US)
TDLo	Lowest published toxic dose
TLm	Median Tolerance limit
VLE	15 minute short term exposure limit (France)
WHMIS	Workplace Hazardous Materials Information System (Canada)

This safety data sheet has been prepared to comply with the requirements of European Community Directive 2001/58/EC and ANSI Z400.1-1998.

Millipore is a registered trademark of Millipore Corporation.