MATERIAL SAFETY DATA SHEET

MSDS Identity number : 1#2#3

MSDS Revision date : February 10, 1994

Signature of Preparer Mark L. Grido

NFPA HAZARD RATING

HEALTH	2
FIRE	0
REACTIVITY	0
SPECIFIC HAZARD	COR

Section I - PRODUCT INFORMATION

Manufacturer's Name:
Michlin Diazo Products Corp.
10501 Haggerty Street
Dearborn, MI 48126

Phone No: (313) 846-5700

CHEM-TEL 24 Hr. Emergency No: (800) 255-3924

Common Name: AQUA AMMONIA

Chemical Name: AMMONIUM HYDROXIDE SOLUTION

PRODUCT USE : Diazo developer, fertilizers, household cleaners

Section II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

INGREDIENTS	OSHA	ACGIH	C.A.S. No.	PERCENT
Number 1 Strength				
AMMONIA GAS IN WATER	35(STEL)	35(STEL)	1336-21-6	29.4%
WATER	NONE	NONE	7732-18-5	70.6%
Non-Hazardous Corrosive Inhibitor			Mixture	Trace
Number 2 Strength				
AMMONIA GAS IN WATER	35(STEL)	35(STEL)	1336-21-6	25.5%
WATER	NONE	NONE	7732-18-5	74.5%
Non-Hazardous Corrosive Inhibitor			Mixture	Trace
Number 3 Strength				
AMMONIA GAS IN WATER	35(STEL)	35(STEL)	1336-21-6	17.8%
WATER	NONE	NONE	7732-18-5	82.2%
Non-Hazardous Corrosive Inhibitor			Mixture	Trace

Section III - PHYSICAL/CHEMICAL CHARACTERISTICS

Physical State:	Liquid
Odor threshold	<= 5 ppm
Appearance/Odor :	Colorless liquid with pungent irritating odor.
Specific Gravity(H_2O=1) :	0.8974 @ 15.5 Degree C
Boiling Point (Deg. C) : 27 C	Vapor Pressure (MM Hg) : 550 @ 20 Deg. C.
Evaporation Rate (Water=1):	No Data
Vapor Pressure:	475 MMHg @ 15.5 Degree C
Percent volatile by volume	No Data
Solubility in water:	Complete
Freezing Point:	Approximately -76 Degree C
pH:	11 - 13
Sensitivity to Mechanical Impact:	N/A
Rate of Burning	Will not burn

Section IV - FIRE AND EXPLOSION DATA

FLASH POINT	None
FLAMMABLE LIMITS	Not applicable, non flammable
AUTOIGNITION TEMPERATURE	For ammonia 651 Degree Centigrade
FIRE EXTINGUISHING MEDIA:	CO_2, Dry Chemical, Water Spray

SPECIAL FIRE FIGHTING PROCEDURE: Not considered a primary fire hazard, but care should be taken to avoid exposure to liquid product involved in fire. Evacuate area of unprotected personnel. Wear protective clothing including a NIOSH-Approved self-contained breathing apparatus. Apply water from as far a distance as possible.

Section V - REACTIVITY DATA

STABILITY: Unstable _____ Stable ___X___

INCOMPATIBILITY (Materials to Avoid) :
Strong acids. Ammonia reacts with chlorine, bromine, mercury, silver, silver solder. Avoid the use of non ferrous metals.

HAZARDOUS DECOMPOSITION PRODUCTS: High temperature decomposition products may include oxides of nitrogen.

HAZARDOUS POLYMERIZATION:
May Occur _____ Will Not Occur ___X___

SECTION VI - HEALTH HAZARD DATA

* **ROUTES OF ENTRY:**

INHALATION - Ammonia odor can be detected at 5 ppm. At 200 to 300 ppm, Ammonia gas may cause varying degrees of irritation to the skin or mucous membranes. Severe irritation of the nose and throat occurs at ammonia concentrations of 400 ppm. Serious coughing and bronchial spasms can occur at ammonia concentrations of 1700 ppm; less than 30 minutes of exposure to this concentration may be fatal.

EYES - Noticeable irritation to eyes occurs at ammonia concentrations of 100 ppm. Severe irritation of eyes occurs at 400 ppm.

SKIN - Contact with liquid Ammonia Hydroxide may produce second degree burns.

INGESTION - Toxic

HEALTH HAZARDS SIGNS AND SYMPTOMS OF EXPOSURE :

ACUTE OVER EXPOSURE - Irritation and destruction of tissue on exposed parts of the body. Sever coughing and bronchial spasms can occur.

CHRONIC OVER EXPOSURE - Ammonia is not accumulated in the body and there is no evidence of chronic effect.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE :
Persons having chronic respiratory disease or persons who have shown evidence of undue sensitivity to ammonia should not be employed where they will be exposed to ammonia.

* EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT: Immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids open during this flushing with water. Call a physician immediately. No oil or other non-water soluble preparation should be placed into the eyes.

SKIN CONTACT: Flush area with water while removing contaminated clothing. Seek medical attention as soon as possible for all burns regardless of how minor they may appear initially.

INHALATION: Remove victim to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.

*** CHEMICAL NOT LISTED AS CARCINOGEN OR POTENTIAL CARCINOGEN**

SECTION VII - PRECAUTION FOR SAFE HANDLING AND USE

Store in cool, well-ventilated area away from all sources of ignition and out of direct sunlight. Keep containers tightly closed. Zinc, copper, and copper based alloys such as brass are rapidly corroded by moist ammonia. Avoid use of these metals in ammonia service.

See Section VIII for use of personal protective equipment.

SECTION VIII - CONTROL MEASURES

VENTILATION: Work area mechanical exhaust ventilation must be used to control release of air contaminate. Ammonia ventilation system must insure work area does not exceed 30 PPM

RESPIRATORY PROTECTION: NIOSH and U.S. Bureau of Mines approved respirators for ammonia, NIOSH-Approved self-contained breathing apparatus must be used when exposure limits are exceeded for anyone who must remain in the work area.

PROTECTIVE GLOVES: If you are required to handle Aqua ammonia: Rubber (Latex) or Neoprene gloves should be worn to prevent skin contact.

EYE PROTECTION: Chemical splash goggles should be worn to prevent eye contact with liquid and vapor.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT:
If transferring large amounts of ammonia hydroxide use rubber or plastic apron.

Have readily available an emergency water source for eye wash.

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

Evacuate area of spill.

Contain liquid spill and allow to evaporate.

Prevent discharge of spilled liquid into sewers or streams.

IF SPILL IS EXCEEDS 125 GALLONS, REPORT INCIDENT TO EPA, STATE, & LEPC Local Emergency Planning Committee

OSHA Hazard Communication (29CFR 1910.1200) Classification: Toxic, Corrosive.
Shipping Name: Ammonia Solution or Ammonium Hydroxide
Shipping Class: 8 (9.2)
U.S. DOT Classification: Corrosive Liquid
Product Identification: (PIN): UN 2672

DISPOSAL OF UNUSED AMMONIUM HYDROXIDE:

The EPA established water standards that each city or township must meet before the water from their sewer department can be discharged into lakes or streams, often Ammonium Hydroxide can help meet their standard.

Contact your local sewer department for approval before disposing of unused Ammonium Hydroxide down the sewer, sink drain, or toilet.

The information, data, and recommendations in this material safety data sheet relate only to ammonia and its use in the ammonia developing diazo machines. The information, data, and recommendations set forth herein are believed by Michlin Diazo Products Corp. to be accurate. Michlin Diazo Products Corp. makes no warranties, either expressed or implied, with respect thereto and assumes no liability in connection with any use of such information, data, and recommendations.

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RECYCLING SUGGESTIONS FOR UNUSED AMMONIA

Unused ammonia from the whiteprint machine can be recycled to nature by following these rules of thumb:

KEY ASSUMPTION: Your whiteprinter has used most of the ammonia from the solution and the strength of the remaining solution is about 12 to 15 % .

UNUSED AMMONIA FROM THE WHITEPRINTER	Dilute with an equal part of water to obtain Janitorial strength solution, 7 to 8 % in strength.

Before transporting ammonia to your home, we suggest diluting as above.

FROM THE 7 TO 8 % AMMONIA SOLUTION	For use on your lawn: To the standard lawn type fertilizer sprayer. Fill bottle about 1/4 with ammonia solution and the balance with water, then use water hose applicator with sprayer. STRENGTH SHOULD BE ABOUT .01 %
FROM THE 7 TO 8 % AMMONIA SOLUTION	For flowers and shrubs: Add one quart of ammonia solution to one gallon of water. Apply to soil, being careful to NOT APPLY solution TO the FOLIAGE. STRENGTH SHOULD BE ABOUT 1 TO 2 %
FROM THE 7 TO 8 % AMMONIA SOLUTION	For household cleaning use: Mix one part of ammonia solution with two parts of water. STRENGTH SHOULD BE ABOUT 3 TO 4 %

Special note - When spraying your lawn, if ammonia odor is readily noticeable you have not added enough water. If your lawn turns brown, the mixture was too strong, the lawn will recover after the addition of water and time.

IF IT IS INCONVENIENT FOR YOU TO CONSUME YOUR UNUSED AMMONIA, THINK ABOUT RECYCLING. MICHLIN DIAZO PRODUCTS HAS A PROGRAM THAT ALLOWS FOR A CONDITIONAL AUTHORIZED RETURN OF UNUSED AMMONIA UNDER A SPECIAL RECYCLING PROGRAM. FOR ADDITIONAL INFORMATION AND COST DATA PLEASE CONTACT OUR TELEPHONE SALES GROUP. (800) 521-3240

DIAZOGAS® ANHYDROUS AMMONIA

DIAZOL® PATENTED

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AMMONIA DISPOSAL - WHAT IS THE ANSWER ?

One of the most frequently asked questions by the blueprinter is:

"What do we do tell our customers when they ask what to do with the Aqua Ammonia when it is no longer strong enough to develop their diazo prints."

The question is very important in todays environment when everyone is concerned about what goes into the sewer system or into the air. Aqua Ammonia more accurately called Ammonium Hydroxide is one of a great number of chemicals the government has classified as hazardous. This hazardous classification requires that State and local City Governments be in compliance with Federal Standards dealing with Hazardous Material.

TO OBTAIN THE ANSWER IN YOUR AREA:

Phone your City Government and ask for the Sewer Department, when someone answers, say to them "I have about one gallon of clean unused Ammonium Hydroxide that is too weak to use in my copy machine. Is it permissible to pour this solution down the toilet or drain and flush with water?" **SPECIAL NOTE:** **NEVER - NEVER CALL THE UNUSED AMMONIA "WASTE AMMONIA"** Waste ammonia is ammonia contaminated with another chemical and needs a waste hauler.

In most areas the person will tell you it is permissible, if you ask them to send you a note saying it is permissible they will probably not, but you can make a note of your telephone call for your file.

Michlin Diazo Products, in determining what regulations would apply to disposing of unused Ammonium hydroxide, talked with a number of individuals within Government and particularly within the Environmental Protection Agency. It is the EPA that sets down performance guidelines that each state & local city government must follow. These guidelines tell the sewage treatment management personnel the standards their waste water must achieve before it can be allowed to enter a stream, lake, or other type of watershed.

Depending on the type of industry within the same city, the discharge from these industries could be different and effect the condition of the sewer water in that area. In a city where the waste water is on the acid side of the scale, Ammonium Hydroxide could be used to help neutralize the acid condition. In the next city a different condition may be found requiring a different chemical or series of chemicals to neutralize the waste water.