**AMMONIUM HYDROXIDE REAGENT ACS**

**THIS MSDS COMPLIES WITH 29 CFR 1910.1200 (THE HAZARD COMMUNICATION STANDARD)**

**PRODUCT NAME:** AMMONIUM HYDROXIDE REAGENT ACS  
**CAS NUMBER:** 1336-21-6  
**DATA SHEET NO:** 000542-002  
**LATEST REVISION DATE:** 04/28/96  
**PRODUCT:** INVOICE: REGST  
**INVOICE DATE:** 07/14/86  
**TO:**

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**SECTION II - COMPONENTS**

**INGREDIENT** | % (BY WT) | PEL | TLV | NOTE
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AMMONIA | 30-35 | 50 | 25 PPM | |
CAS #: | 7664-91-7 |

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**SECTION III - PHYSICAL DATA**

<table>
<thead>
<tr>
<th>PROPERTY</th>
<th>REFINEMENT</th>
<th>MEASUREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOILING POINT</td>
<td>FOR PRODUCT</td>
<td>227.77 Deg F</td>
</tr>
<tr>
<td></td>
<td></td>
<td>769.00 Deg C</td>
</tr>
<tr>
<td>VAPOR PRESSURE</td>
<td>FOR PRODUCT</td>
<td>579.00 MMHG</td>
</tr>
<tr>
<td></td>
<td></td>
<td>68.00 Deg F</td>
</tr>
<tr>
<td>SPECIFIC VAPOR DENSITY</td>
<td>AIR = 1</td>
<td>0.6</td>
</tr>
<tr>
<td>SPECIFIC GRAVITY</td>
<td></td>
<td>0.89</td>
</tr>
<tr>
<td></td>
<td></td>
<td>60.80 Deg F</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15.85 Deg C</td>
</tr>
<tr>
<td>PERCENT VOLATILE</td>
<td></td>
<td>100.00%</td>
</tr>
<tr>
<td>EVAPORATION RATE</td>
<td></td>
<td>SLOWER THAN ETHER</td>
</tr>
</tbody>
</table>

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**SECTION IV - FIRE AND EXPLOSION INFORMATION**

FLASH POINT: NOT APPLICABLE
EXPLOSIVE LIMIT: NOT APPLICABLE

**SECTION V - HEALTH HAZARD DATA**

PERMISSIBLE EXPOSURE LEVEL: 50 PPM
THRESHOLD LIMIT VALUE: 25 PPM

NOT ESTABLISHED FOR PRODUCT. SEE SECTION II.

**EFFECTS OF ACUTE OVEREXPOSURE:** FOR PRODUCT

EYES - CAUSES SEVERE DAMAGE AND EVEN BLINDNESS VERY RAPIDLY.
SKIN - CAUSES BURNS, POSSIBLE DEEP ULCERATION.
BREATHING - MIGHT CAUSE DAMAGE TO NASAL AND RESPIRATORY PASSAGES.
SWALLOWING - RESULTS IN SEVERE DAMAGE TO MUCOUS MEMBRANES AND DEEP TISSUES, CAN RESULT IN DEATH ON PENETRATION TO VITAL AREAS.

FIRST AID:

IF ON SKIN: IMMEDIATELY FLUSH EXPOSED AREA WITH WATER FOR AT LEAST 15 MINUTES. GET MEDICAL ATTENTION. REMOVE CONTAMINATED CLOTHING. LAUNDER CONTAMINATED CLOTHING BEFORE RE-USE.

IF IN EYES: IMMEDIATELY FLUSH WITH LARGE AMOUNTS OF WATER FOR AT LEAST 15 MINUTES, LIFTING UPPER AND LOWER LIDS OCCASIONALLY. GET IMMEDIATE MEDICAL ATTENTION.

IF SWALLOWED: DO NOT INDUCE VOMITING. VOMITING WILL CAUSE FURTHER DAMAGE TO THE THROAT. DILUTE BY DIVING WATER. GIVE MILK OF MAGNIESIA. KEEP WARM, QUIET. GET MEDICAL ATTENTION IMMEDIATELY.

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AMMENIUM HYDROXIDE REAGENT ACS

SECTION V-HEALTH HAZARD DATA (CONTINUED)

IF BREATHED: IF AFFECTED, REMOVE INDIVIDUAL TO FRESH AIR. IF BREATHING IS DIFFICULT, ADMINISTER OXYGEN. IF BREATHING HAS STOPPED GIVE ARTIFICIAL RESPIRATION. KEEP PERSON WARM, QUIET AND GET MEDICAL ATTENTION.

PRIMARY ROUTE(S) OF ENTRY:

INHALATION
SKIN CONTACT

HAZARDOUS POLYMERIZATION: CANNOT OCCUR
STABILITY: STABLE
INCOMPATIBILITY: AVOID CONTACT WITH: STRONG MINERAL ACIDS, COPPER, METALLIC MERCURY

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

SMALL SPILL: ALLOW TO EVAPORATE.
VENTILATE AREA.

LARGE SPILL: NONESSENTIAL EMPLOYEES SHOULD BE EVACUATED FROM THE EXPOSURE AREA. PERSONS INVOLVED IN THE CONTROL AND REPAIR OF THE LEAK SHOULD BE PROVIDED WITH ALL NECESSARY PROTECTIVE EQUIPMENT AND BE PROPERLY TRAINED FOR EMERGENCY SITUATIONS INVOLVING THIS MATERIAL.

WASTE DISPOSAL METHOD:

SMALL SPILL: FLUSH DOWN DRAIN WITH LARGE AMOUNTS OF WATER IN ACCORDANCE WITH APPLICABLE REGULATIONS.

LARGE SPILL: ADD SLOWLY TO A LARGE CONTAINER OF COLD WATER WITH AGITATION. WHEN ALL HAS REACTED, NEUTRALIZE WITH 3M HYDROCHLORIC ACID OR 6M AMMONIUM HYDROXIDE AS REQUIRED AND FLUSH DOWN DRAIN WITH EXCESS WATER IN ACCORDANCE WITH APPLICABLE REGULATIONS.

SECTION VIII-PROTECTIVE EQUIPMENT TO BE USED

RESPIRATORY PROTECTION: IF TLV OF THE PRODUCT OR ANY COMPONENT IS EXCEEDED, A MINIMUM JOINTLY APPROVED AIR SUPPLIED RESPIRATOR IS ADVISED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. OSHA REGULATIONS ALSO PERMIT OTHER NIOSH/MSHA RECOMMENDED RESPIRATORS. (SEE YOUR SAFETY EQUIPMENT SUPPLIER). ENGINEERING OR ADMINISTRATIVE CONTROLS SHOULD BE IMPLEMENTED TO REDUCE EXPOSURE.

VENTILATION: PROVIDE SUFFICIENT MECHANICAL (GENERAL AND/OR LOCAL EXHAUST) VENTILATION TO MAINTAIN EXPOSURE BELOW TLV(S).

PROTECTIVE CLOTHING: WEAR RESISTANT CLOTHING SUCH AS, NEOPRENE EYE PROTECTION: CHEMICAL SPLASH GOGGLES AND FACE SHIELD (8" MIN.) IN COMPLIANCE WITH OSHA REGULATIONS ARE ADVISED; HOWEVER, OSHA REGULATIONS ALSO PERMIT OTHER TYPE SAFETY GLASSES. (CONSULT YOUR SAFETY EQUIPMENT SUPPLIER)

OTHER PROTECTIVE EQUIPMENT: TO PREVENT SKIN CONTACT, WEAR IMPERVIOUS CLOTHING AND BOOTS.

SECTION IX-SPECIAL PRECAUTIONS OR OTHER COMMENTS

CONTAINERS OF THIS MATERIAL MAY BE HAZARDOUS WHEN EMPTIED. SINCE EMPTIED CONTAINERS RETAIN PRODUCT RESIDUES (VAPOR, LIQUID, AND/OR SOLID), ALL HAZARDOUS PRECAUTIONS GIVEN IN THE DATA SHEET MUST BE OBSERVED.

THE INFORMATION ACCUMULATED HEREIN IS BELIEVED TO BE ACCURATE BUT IS NOT WARRANTED TO BE WHETHER ORIGINATING WITH THE COMPANY OR NOT. RECIPIENTS ARE ADVISED TO CONFIRM IN ADVANCE NEED THAT THE INFORMATION IS CURRENT, APPLICABLE, AND SUITABLE TO THEIR CIRCUMSTANCES.