

chemistry

AMMONIUM SULFIDE SOLUTION
AMMONIUM SULFIDE SOLUTION
AMMONIUM SULFIDE SOLUTION

MATERIAL SAFETY DATA SHEET

FISHER SCIENTIFIC
CHEMICAL DIVISION
1 REAGENT LANE
FAIR LAWN NJ 07410
(201) 796-7100

EMERGENCY NUMBER: (201) 796-7100
CHEMTREC ASSISTANCE: (800) 424-9300

THIS INFORMATION IS BELIEVED TO BE ACCURATE AND REPRESENTS THE BEST INFORMATION CURRENTLY AVAILABLE TO US. HOWEVER, WE MAKE NO WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, WITH RESPECT TO SUCH INFORMATION, AND WE ASSUME NO LIABILITY RESULTING FROM ITS USE. USERS SHOULD MAKE THEIR OWN INVESTIGATIONS TO DETERMINE THE SUITABILITY OF THE INFORMATION FOR THEIR PARTICULAR PURPOSES.

SUBSTANCE IDENTIFICATION

SUBSTANCE: **AMMONIUM SULFIDE SOLUTION** CAS-NUMBER 12135-76-1

TRADE NAMES/SYNONYMS:
A-705; UN 2683;

CERCLA RATINGS (SCALE 0-3): HEALTH=3 FIRE=2 REACTIVITY=1 PERSISTENCE=0
NFPA RATINGS (SCALE 0-4): HEALTH=3 FIRE=2 REACTIVITY=1

COMPONENTS AND CONTAMINANTS

COMPONENT: AMMONIUM SULFIDE PERCENT: 20-24
CAS# 12135-76-1

COMPONENT: WATER PERCENT: 76-80

EXPOSURE LIMITS:
AMMONIUM SULFIDE:
NO OCCUPATIONAL EXPOSURE LIMITS ESTABLISHED BY OSHA, ACGIH, OR NIOSH.
100 POUNDS CERCLA SECTION 103 REPORTABLE QUANTITY

PHYSICAL DATA

DESCRIPTION: YELLOW LIQUID WITH A FOUL ODOR OF ROTTEN EGGS.
BOILING POINT: NOT AVAILABLE SPECIFIC GRAVITY: NOT AVAILABLE
SOLUBILITY IN WATER: SOLUBLE VAPOR DENSITY: >1

FIRE AND EXPLOSION DATA

FIRE AND EXPLOSION HAZARD:
MODERATE FIRE HAZARD WHEN EXPOSED TO HEAT OR FLAME.
VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL A CONSIDERABLE DISTANCE TO A SOURCE OF IGNITION AND FLASH BACK

VAPOR-AIR MIXTURES ARE EXPLOSIVE ABOVE FLASH POINT.

FLASH POINT: >150 F (>66 C)

FIREFIGHTING MEDIA:

DRY CHEMICAL, CARBON DIOXIDE, WATER SPRAY OR REGULAR FOAM
(1990 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.5).

FOR LARGER FIRES, USE WATER SPRAY, FOG OR REGULAR FOAM
(1990 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.5).

FIREFIGHTING:

MOVE CONTAINER FROM FIRE AREA IF YOU CAN DO IT WITHOUT RISK. APPLY COOLING WATER TO SIDES OF CONTAINERS THAT ARE EXPOSED TO FLAMES UNTIL WELL AFTER FIRE IS OUT. STAY AWAY FROM ENDS OF TANKS. FOR MASSIVE FIRE IN CARGO AREA, USE UNMANNED HOSE HOLDER OR MONITOR NOZZLES; IF THIS IS IMPOSSIBLE, WITHDRAW FROM AREA AND LET FIRE BURN. WITHDRAW IMMEDIATELY IN CASE OF RISING SOUND FROM VENTING SAFETY DEVICE OR ANY DISCOLORATION OF TANK DUE TO FIRE. ISOLATE FOR 1/2 MILE IN ALL DIRECTIONS IF TANK, RAIL CAR OR TANK TRUCK IS INVOLVED IN FIRE (1990 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.5, GUIDE PAGE 27).

EXTINGUISH ONLY IF FLOW CAN BE STOPPED; USE FLOODING AMOUNTS OF WATER AS A FOG. SOLID STREAMS MAY BE INEFFECTIVE. COOL CONTAINERS WITH FLOODING AMOUNTS OF WATER, APPLY FROM AS FAR A DISTANCE AS POSSIBLE. AVOID BREATHING VAPORS, KEEP UPWIND.

TRANSPORTATION DATA

DEPARTMENT OF TRANSPORTATION HAZARD CLASSIFICATION 49 CFR 172.101:
COMBUSTIBLE LIQUID

DEPARTMENT OF TRANSPORTATION LABELING REQUIREMENTS 49 CFR 172.101 AND
SUBPART E:
NONE

TOXICITY

AMMONIUM SULFIDE:

80 MG/KG ORAL-MOUSE LDLO; 2457 MG/KG SKIN-MOUSE LDLO; 119 MG/KG SKIN-RABBIT LDLO; 692 MG/KG SKIN-GUINEA PIG LDLO; CARCINOGEN STATUS: NONE.

AMMONIUM SULFIDE IS AN EYE, MUCOUS MEMBRANE, AND SKIN IRRITANT. IT IS TOXIC BY SKIN ABSORPTION, INHALATION, OR INGESTION.

HEALTH EFFECTS AND FIRST AID

INHALATION:

AMMONIUM SULFIDE:
CORROSIVE.

ACUTE EXPOSURE- 500 PPM FOR 30 MINUTES MAY CAUSE CYANOSIS, HEADACHE, DIZZINESS, DROWSINESS, NAUSEA, VOMITING, DIARRHEA, PULMONARY EDEMA, AND PNEUMONIA. 600 PPM FOR 30 MINUTES MAY CAUSE UNCONSCIOUSNESS, DEPRESSED RESPIRATION, AND DEATH.

CHRONIC EXPOSURE- PROLONGED EXPOSURE MAY CAUSE SYMPTOMS OF CHRONIC

HYDROGEN SULFIDE EXPOSURE: PERSISTENT LOW BLOOD PRESSURE, NAUSEA, LOSS OF APPETITE, WEIGHT LOSS, IMPAIRED GAIT AND BALANCE, CONJUNCTIVITIS, OR CHRONIC COUGH.

FIRST AID- REMOVE FROM EXPOSURE AREA TO FRESH AIR IMMEDIATELY. IF BREATHING HAS STOPPED, GIVE ARTIFICIAL RESPIRATION. MAINTAIN AIRWAY AND BLOOD PRESSURE AND ADMINISTER OXYGEN IF AVAILABLE. KEEP AFFECTED PERSON WARM AND AT REST. TREAT SYMPTOMATICALLY AND SUPPORTIVELY. ADMINISTRATION OF OXYGEN SHOULD BE PERFORMED BY QUALIFIED PERSONNEL. GET MEDICAL ATTENTION IMMEDIATELY.

SKIN CONTACT:
AMMONIUM SULFIDE:
CORROSIVE.

ACUTE EXPOSURE- MAY CAUSE BURNING, PAIN, AND IRRITATION.

CHRONIC EXPOSURE- MAY CAUSE IRRITATION OR BURNS.

FIRST AID- REMOVE CONTAMINATED CLOTHING AND SHOES IMMEDIATELY. WASH AFFECTED AREA WITH SOAP OR MILD DETERGENT AND LARGE AMOUNTS OF WATER UNTIL NO EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL ATTENTION IMMEDIATELY.

EYE CONTACT:
AMMONIUM SULFIDE:
CORROSIVE.

ACUTE EXPOSURE- DIRECT CONTACT MAY CAUSE SEVERE BURNS, CONJUNCTIVITIS, KERATOCONJUNCTIVITIS, CORNEAL VESICULATION, OR CORNEAL OPACITIES.

CHRONIC EXPOSURE- MAY CAUSE CONJUNCTIVITIS.

FIRST AID- WASH EYES IMMEDIATELY WITH LARGE AMOUNTS OF WATER OR NORMAL SALINE, OCCASIONALLY LIFTING UPPER AND LOWER LIDS, UNTIL NO EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION:
CORROSIVE.

ACUTE EXPOSURE- MAY CAUSE CYANOSIS, NAUSEA, VOMITING, DIARRHEA, GASTRIC UPSET, DIZZINESS, DROWSINESS, AND ANOREXIA. UNCONSCIOUSNESS, DEPRESSED RESPIRATION, IS DEATH ARE POSSIBLE.

CHRONIC EXPOSURE- HAS NOT BEEN OBSERVED IN HUMANS.

FIRST AID- IF PERSON IS CONSCIOUS, GIVE LARGE QUANTITIES OF WATER IMMEDIATELY AND INDUCE VOMITING. DO NOT MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK ANYTHING. QUALIFIED MEDICAL PERSONNEL SHOULD REMOVE POISON BY GASTRIC LAVAGE OR EMESIS FOLLOWED BY A SATURATED SODIUM BICARBONATE SOLUTION. MAINTAIN AIRWAY AND BLOOD PRESSURE. GIVE OXYGEN IF RESPIRATION IS DEPRESSED. GET MEDICAL ATTENTION. (DREISBACH, HANDBOOK OF POISONING, 11TH ED)

ANTIDOTE:

THE FOLLOWING ANTIDOTE HAS BEEN RECOMMENDED. HOWEVER, THE DECISION AS TO WHETHER THE SEVERITY OF POISONING REQUIRES ADMINISTRATION OF ANY ANTIDOTE AND ACTUAL DOSE REQUIRED SHOULD BE MADE BY QUALIFIED MEDICAL PERSONNEL.

FOR SULFIDE AND MERCAPTAN POISONING:

IN SEVERE POISONINGS TREAT WITH AMYL NITRITE (AMYL NITRITE PERLES) BY INHALATION FOR 15 TO 30 SECONDS OF EVERY MINUTE, WHILE SODIUM NITRITE SOLUTION IS BEING PREPARED. DISCONTINUE AMYL NITRITE AND IMMEDIATELY INJECT 10 ML OF A 3% SOLUTION SODIUM NITRITE INTRAVENOUSLY OVER A PERIOD OF 2 TO 4 MINUTES. IF NECESSARY, INJECT A NON-STERILE SOLUTION. DO NOT REMOVE THE NEEDLE. CAUTION: APPROPRIATE ADJUSTMENTS IN THE DOSE SHOULD BE MADE ON A BODY WEIGHT BASIS. OXYGEN THERAPY MAY BE OF VALUE IN COMBINATION WITH NITRITE THERAPY (GOSSELIN, SMITH, HODGE, CLINICAL TOXICOLOGY OF COMMERCIAL PRODUCTS, 5TH ED.). PYRIDOXINE, 25 MG/KG INTRAVENOUSLY, OR 10% UREA, 1 GM/KG INTRAVENOUSLY, HAS BEEN SUGGESTED AS A SULFIDE ACCEPTOR (DREISBACH, HANDBOOK OF POISONING, 12TH ED.). ANTIDOTE SHOULD BE ADMINISTERED BY QUALIFIED MEDICAL PERSONNEL. GET MEDICAL ATTENTION IMMEDIATELY.

REACTIVITY

REACTIVITY:

NON-VIOLENT UNDER NORMAL CONDITIONS. MAY EXPLODE IF PLACED IN ZINC CONTAINERS.

INCOMPATIBILITIES:

SEVERELY ERODES COPPER, ZINC, AND THEIR ALLOYS. MAY EXPLODE IF HELD IN ZINC CONTAINERS.

DECOMPOSES WITH RELEASE OF HIGHLY TOXIC HYDROGEN SULFIDE ON CONTACT WITH ACIDS.

DECOMPOSITION:

THERMAL DECOMPOSITION MAY RELEASE TOXIC FUMES OF AMMONIA, HYDROGEN SULFIDE, AND OXIDES OF SULFUR AND NITROGEN.

POLYMERIZATION:

POLYMERIZES READILY AT ROOM TEMPERATURE.

STORAGE AND DISPOSAL

OBSERVE ALL FEDERAL, STATE AND LOCAL REGULATIONS WHEN STORING OR DISPOSING OF THIS SUBSTANCE. FOR ASSISTANCE, CONTACT THE DISTRICT DIRECTOR OF THE ENVIRONMENTAL PROTECTION AGENCY.

STORAGE

STORE AWAY FROM INCOMPATIBLE SUBSTANCES.

CONDITIONS TO AVOID

AVOID CONTACT WITH HEAT, SPARKS, FLAMES, OR OTHER SOURCES OF IGNITION. VAPORS MAY BE EXPLOSIVE. AVOID OVERHEATING OF CONTAINERS; CONTAINERS MAY VIOLENTLY RUPTURE IN HEAT OF FIRE. AVOID CONTAMINATION OF WATER SOURCES.

 SPILL AND LEAK PROCEDURES

OCCUPATIONAL SPILL:
 SHUT OFF IGNITION SOURCES. STOP LEAK IF YOU CAN DO IT WITHOUT RISK. USE WATER SPRAY TO REDUCE VAPORS. FOR SMALL SPILLS, TAKE UP WITH SAND OR OTHER ABSORBENT MATERIAL AND PLACE INTO CONTAINERS FOR LATER DISPOSAL. FOR LARGER SPILLS, DIKE FAR AHEAD OF SPILL FOR LATER DISPOSAL. NO SMOKING, FLAMES OR FLARES IN HAZARD AREA. KEEP UNNECESSARY PEOPLE AWAY; ISOLATE HAZARD AREA AND RESTRICT ENTRY.

REPORTABLE QUANTITY (RQ): 100 POUNDS
 THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) SECTION 304 REQUIRES THAT A RELEASE EQUAL TO OR GREATER THAN THE REPORTABLE QUANTITY FOR THIS SUBSTANCE BE IMMEDIATELY REPORTED TO THE LOCAL EMERGENCY PLANNING COMMITTEE AND THE STATE EMERGENCY RESPONSE COMMISSION (40 CFR 355.40). IF THE RELEASE OF THIS SUBSTANCE IS REPORTABLE UNDER CERCLA SECTION 103, THE NATIONAL RESPONSE CENTER MUST BE NOTIFIED IMMEDIATELY AT (800) 424-8802 OR (202) 426-2675 IN THE METROPOLITAN WASHINGTON, D.C. AREA (40 CFR 302.6).

 PROTECTIVE EQUIPMENT

VENTILATION:
 PROVIDE LOCAL EXHAUST OR GENERAL DILUTION VENTILATION SYSTEM.

RESPIRATOR:
 THE FOLLOWING RESPIRATORS ARE RECOMMENDED BASED ON INFORMATION FOUND IN THE PHYSICAL DATA, TOXICITY AND HEALTH EFFECTS SECTIONS. THEY ARE RANKED IN ORDER FROM MINIMUM TO MAXIMUM RESPIRATORY PROTECTION.
 THE SPECIFIC RESPIRATOR SELECTED MUST BE BASED ON CONTAMINATION LEVELS FOUND IN THE WORK PLACE, MUST NOT EXCEED THE WORKING LIMITS OF THE RESPIRATOR AND BE JOINTLY APPROVED BY THE NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH AND THE MINE SAFETY AND HEALTH ADMINISTRATION (NIOSH-MSHA).

DUST AND MIST RESPIRATOR WITH A FULL FACEPIECE.

AIR-PURIFYING FULL FACEPIECE RESPIRATOR WITH A HIGH-EFFICIENCY PARTICULATE FILTER.

POWERED AIR-PURIFYING RESPIRATOR WITH A TIGHT-FITTING FACEPIECE AND HIGH-EFFICIENCY PARTICULATE FILTER.

TYPE 'C' SUPPLIED-AIR RESPIRATOR WITH A FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE OR WITH A FULL FACEPIECE, HELMET OR HOOD OPERATED IN CONTINUOUS-FLOW MODE.

SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE.

FOR FIREFIGHTING AND OTHER IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONDITIONS:

SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE.

SUPPLIED-AIR RESPIRATOR WITH FULL FACEPIECE AND OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE IN COMBINATION WITH AN AUXILIARY SELF-CONTAINED BREATHING APPARATUS OPERATED IN PRESSURE-DEMAND OR OTHER

POSITIVE PRESSURE MODE.

ACC01425

PAGE 06 OF 06

CLOTHING:

EMPLOYEE MUST WEAR APPROPRIATE PROTECTIVE (IMPERVIOUS) CLOTHING AND EQUIPMENT TO PREVENT REPEATED OR PROLONGED SKIN CONTACT WITH THIS SUBSTANCE.

GLOVES:

EMPLOYEE MUST WEAR APPROPRIATE PROTECTIVE GLOVES TO PREVENT CONTACT WITH THIS SUBSTANCE.

EYE PROTECTION:

EMPLOYEE MUST WEAR SPLASH-PROOF OR DUST-RESISTANT SAFETY GOGGLES AND A FACESHIELD TO PREVENT CONTACT WITH THIS SUBSTANCE.

EMERGENCY WASH FACILITIES:

WHERE THERE IS ANY POSSIBILITY THAT AN EMPLOYEE'S EYES AND/OR SKIN MAY BE EXPOSED TO THIS SUBSTANCE, THE EMPLOYER SHOULD PROVIDE AN EYE WASH FOUNTAIN AND QUICK DRENCH SHOWER WITHIN THE IMMEDIATE WORK AREA FOR EMERGENCY USE.

AUTHORIZED - FISHER SCIENTIFIC, INC.
CREATION DATE: 12/13/84 REVISION DATE: 10/09/90

-ADDITIONAL INFORMATION-

THIS INFORMATION IS BELIEVED TO BE ACCURATE AND REPRESENTS THE BEST INFORMATION CURRENTLY AVAILABLE TO US. HOWEVER, WE MAKE NO WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, WITH RESPECT TO SUCH INFORMATION, AND WE ASSUME NO LIABILITY RESULTING FROM ITS USE. USERS SHOULD MAKE THEIR OWN INVESTIGATIONS TO DETERMINE THE SUITABILITY OF THE INFORMATION FOR THEIR PARTICULAR PURPOSES.