

Material Safety and Data Sheet

I. Chemical Product and Company Identification

Product Name: DO cleaning solution (Ammonium Hydroxide Solution 10% NH ₃)	Manufacturer: Analytical Sensors & Instruments Ltd. 12800 Park One Drive Sugar Land, TX 77478 Telephone: (281)-565-8818; Fax: (281)-565-8811 Email: info@asi-sensors.com	Emergency Contact: INFOTRAC Emergency Response Hotline: 1-800-535-5053 (in the U.S. and Canada) 1-352-323-3500 www.infotrac.net
Catalog No. DO-0001, 0033470	DOT	IATA
Hazardous Shipping Label:	Class 8, UN 2762, PKG III, Corrosive liquid, (Ammonia solution with 10% NH ₃)	Class 8, UN 2760, PKG III, Corrosive liquid, (Ammonia solution with 10% NH ₃)

II. Composition, Information on Ingredients

Hazardous Components * Specific Chemical Identity: Common Names	CAS NO.	%	OSHA PEL.	ACGIH TLV	LD ₅₀ (mg/Kg)
Ammonium hydroxide	1336-21-6	21 (10 % NH ₃)	50 ppm NH ₃	25 ppm NH ₃ (TWA) 35 PPM NH ₃ (STEL)	350 (ORL- RAT)
Deionized Water (H ₂ O)**	7732-18-5	79	None Listed	None Listed	NA

III. Physical Data

Boiling Point @ 750 mm Hg	NA	Freezing Point	NA
pH 25 @ °C	NA	Vapor Pressure @ 25 °C	NA
Volatiles % By Wt.	NA	Solubility in water, % by Wt@ 25 °C	Miscible
Vapor Density (Air=1)	NA	Evaporation Rate (butyl, Acetate=1)	NA
Specific Gravity (Water=1)	NA	Odor	Strong Ammonia-like odor
Appearance	Clear, Colorless liquid		

IV. Fire And Explosion Hazard Data

Flash Point	NA		
Extinguishing Media	Water, CO ₂ , Dry Chemical, or appropriate foam		
Fire and Explosion Hazards	Specific Hazard(s): Combustion may form toxic nitrogen oxides		
Fire Fighting Instructions/Equipment	Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Specific Hazard(s): Combustion may form toxic nitrogen oxides		
Unusual Fire & Explosion Hazards	Specific Hazard(s): Combustion may form toxic nitrogen oxides		
Auto-ignition Temperature	651 °C		
Lower	16%	Upper	25%

V. Reactivity Data

Stability	Unstable	Stable X
Condition to Avoid	Heat, source of ignition, ammonia evaporates from opened container	
Incompatibility (Material to avoid)	Acids, oxidizers, halogens, silver salts, and most common metals	
Hazardous Decomposition Products	Heating to decomposition may produce ammonia, nitrogen oxides	
Hazardous Polymerization	Will not occur	

VI. Health Hazard Data

Routes of Entry	<i>Inhalation</i> Yes	<i>Skin</i> Yes	<i>Ingestion</i> Yes
Health Hazards	Acute	Corrosive and irritating! Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.	
	Chronic		
Carcinogenicity	<i>NTP</i> No	<i>IARC Monographs</i> No	<i>OSHA Regulated</i> No
Signs and Symptoms of Exposure	Cause irritation and burns to the skin and eyes. Eye contact may result in permanent damage and blindness. Inhalation may result in burns, pulmonary edema and death. Symptoms of exposure may include burning sensation, coughing, shortness of breath, headache, nausea, and vomiting. Ingestion may cause corrosion to the mouth, throat, and to the danger of perforation of esophagus and stomach. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.		
Medical Conditions Generally Aggravated by Exposure	Persons with pre-existing skin disorders, eye problems, or impaired respiratory function may be more susceptible to the effects of this substance.		
Emergency And First Aid Procedures	<p>Eye Contact: Immediately flush eyes with copious amounts of water, separate eyelid from eye. Get medical attention immediately. Skin Contact: Immediately flush effected area with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes, clean before reuse. Call a physician immediately. Ingestion: Give large quantities of water. Do not induce vomiting. Never give anything to an unconscious person. Get medical attention immediately. Inhalation: Remove to fresh air, if breathing is difficult give oxygen, if breathing stops give artificial respiration. Call a physician immediately.</p>		

VII. Precautions for Safe Handling and Use

Steps to be Taken In Case Material is Released or Spilled	Keep unprotected people away from area of spill. Absorb spill with inert dry material such as sand and place in an approved container for waste disposal. If necessary, neutralize the residue with a dilute solution of weak acid to help clear the fume.
Waste Disposal Method	Consult all federal, state and local laws and ordinances when disposing of this material.
Precautions To Be Taken In Handling and Storing	NFPA Rating: Scale (0-4): Health – 3, Fire – 1, Reactivity – 0, Specific – None.
Other Precautions	Ammonium hydroxide is found on TSCA list and SARA 311/312 listed as: Acute; Yes, Chronic: Yes, Fire: no, Pressure: no, Reactivity: no.

VIII. Control Measures

Respiratory Protection (specific type)	Wear appropriate governmental approved respirator	
Ventilation	<i>Local Exhaust</i> Yes	<i>Special</i> None
	<i>Mechanical (General)</i> Mechanical exhaust required	<i>Other</i> None
Protective Gloves Protective Chemical resistant approved gloves	Eye Protection Other Chemical safety goggles	Clothing or Equipment Protective laboratory clothing, safety shower, eye wash station, and mechanical ventilation are required.
Work/Hygienic Practices	No eating or drinking in work area. Wash hands after working with this product.	

XVI. Additional Information

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Document: 0033670

* N/A – Not Applicable/Not Available

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