

## **MATERIAL SAFETY DATA SHEET**

ANHYDROUS AMMONIA

TANNER INDUSTRIES, INC.

(National Ammonia, Northeastern Ammonia, Hamler Industries, Bower Ammonia & Chemical)

5811 Tacony St., Philadelphia, Pa 19135

CORPORATE EMERGENCY TELEPHONE NUMBER: 215-535-7530 CHEMTREC (CMA) 800-424-9300

### **DESCRIPTION**

CHEMICAL NAME: Ammonia, anhydrous CAS REGISTRY NO: 7664-41-7

SYNONYMS: Ammonia, liquefied

CHEMICAL FAMILY: Ammonia FORMULA: NH<sub>3</sub> MOL WT: 17.03

COMPOSITION: 99+ % AMMONIA

### **STATEMENT OF HEALTH HAZARD**

HAZARD DESCRIPTION: Irritant and corrosive to skin, eye, respiratory tract and mucous membranes. May cause severe burns, eye and lung injuries. Skin and respiratory related diseases aggravated by exposure.

Not recognized by OSHA as a carcinogen.

Not listed in the National Toxicology Program annual report.

Not listed as a carcinogen by the international Agency for Research on Cancer.

EXPOSURE LIMITS: Vapor: OSHA 35 ppm, 27 mg/m<sup>3</sup>, STEL, 15 minutes

25 ppm, 18 mg/m<sup>3</sup>, PEL

ACGIH 25 ppm, 18 mg/m<sup>3</sup>, TLV, 8 hour TWA

35 ppm, 27 mg/m<sup>3</sup>, STEL, 15 minutes

### **EMERGENCY TREATMENT**

EFFECTS OF OVEREXPOSURE: Eye: lachrymation, edema, blindness. Skin: irritation, corrosive burns, blister formation. Contact of liquid with skin freezes the tissue, then produces a caustic burn. Inhalation: heavy, acute exposure may result in severe irritation of the respiratory tract, glottal edema, bronchospasm, pulmonary edema, respiratory arrest. Chronic effects: bronchitis. Extreme exposure (5000 ppm) can cause immediate death from spasm, inflammation or edema of larynx.

EMERGENCY AID: Eye: Flush with copious amount of water for 5 min. Eyelids: should be held open and away from eyeball to ensure thorough rinsing. SPEED AND THOROUGHNESS IN RINSING THE EYES IS MOST IMPORTANT IN PREVENTING LATENT PERMANENT INJURIES. Inhalation: move to fresh air. Administer oxygen or artificial respiration if necessary. Skin: flush affected area with copious amount of water for 15 min. Remove contaminated clothing while flushing. Do not rub affected areas. Do not apply ointments to skin burns. SEEK IMMEDIATE MEDICAL HELP.

NOTE TO PHYSICIAN: Eye injury may appear as delayed phenomenon. Pulmonary edema may follow chemical bronchitis. Supportive treatment with necessary ventilatory actions, including oxygen, may warrant consideration.

#### PHYSICAL DATA

BOILING PT: -33 C. (-28 F.) FREEZING PT: -78 C. (-108 F.)

VAPOR PRESSURE: @ 25.7 c. 10 atm VAPOR DENSITY: (Air = 1) 0.6

SPECIFIC GRAVITY: 0.618 SOLUBILITY IN WATER: 0 C. 89.9G/100 cc: 100 C. 7.4g/100 cc

PERCENT VOLATILE: 100%

EVAPORATION RATE: (Water = 1) faster than water if in liquid form.

APPEARANCE AND ODOR: Colorless gas, pungent odor.

#### FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: None. AUTOIGNITION TEMP: 651 C. (1204 F.) catalyzed by iron,

FLAMMABLE RANGE IN AIR: 16% to 25% by volume. 850 C. (1562 F.) uncatalyzed.

EXTINGUISHING MEDIA: Water spray or fog.

SPECIAL FIRE-FIGHTING PROCEDURES. Must wear protective clothing and respiratory protection. See PROTECTIVE EQUIPMENT. Stop source if possible. Cool fire exposed containers with water spray. Stay upwind and use water spray to knock down vapor and dilute. Let fire burn.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Not generally a fire hazard. If relief valves are inoperative, heat-exposed storage containers may become explosion hazards. Contact of ammonia with chemicals such as mercury, chlorine, iodine, bromine, silver oxide, or hypochlorites can form explosive compounds, Special hazard with chlorine to form chloramine gas, also a primary skin irritant and sensitizer. Combustion may form toxic nitrogen oxides. Revision: Nov. 94

#### CHEMICAL REACTIVITY

STABILITY: Stable at room temperature. Exothermic reaction with acids.

**CONDITIONS TO AVOID:** Avoid mixing with chlorine bleach, sulfuric or other strong mineral acids, contact with galvanized steel, copper, brass, bronze, gold, mercury, silver, strong oxidizers, hypochlorites and halogens.

See EXPLOSION HAZARDS.

**HAZARDOUS DECOMPOSITION PRODUCTS.** Hydrogen and nitrogen gases above 450 C.

#### **SPILL OR LEAK PROCEDURES**

**STEPS TO BE TAKEN:** Wear respiratory protection and protective clothing, see PROTECTIVE EQUIPMENT. Shut off source if possible. Stay upwind from spills or leaks. Use water spray to absorb ammonia gas and dilute. Caution: Adding water to large spills may increase volatilization of ammonia, thus may increase possibility for exposure.

**WASTE DISPOSAL:** Listed as hazardous substance under CWA (40 CFR 116.4, 40 CFR 117.3 Reportable Quantity, 100#/45.4 kg.) Classed as a hazardous waster under RCRA (40 CFR 261.32 Corrosive, No. D002). Comply with all regulations. Spill will evaporate. Contaminated water may be used on agricultural land as fertilizer. Keep spill from entering streams or lakes.

#### **SPECIAL PROTECTION AND PROCEDURES**

**RESPIRATORY PROTECTION:** MSHA/NIOSH approved air-purifying type with full facepiece for work purposes; self-contained breathing apparatus for entry and escape in emergencies. Refer to 29 CFR 1910.134 and ANSI Z88.2 for requirements and selection.

**VENTILATION:** Engineering control to 25 ppm or less. Respiratory protection for higher vapor concentration. Refer to 29 CFR 1910.134 and ANSI: Z9.2 for requirements and selection.

**PROTECTIVE EQUIPMENT:** Gas-tights chemical goggles, respiratory protection, impervious outer clothing, gloves, overshoes as needed. Cotton work clothes recommended. Refer to 29 CFR 1910.132 to 1910.136 for requirements.

#### **SPECIAL PRECAUTIONS**

**HANDLING AND STORING:** Store in cool, well-ventilated area with containers tightly closed, OSHA 29 CFR 1910.111 prescribes handling and storage requirements for anhydrous ammonia as a hazardous material.

**WORKPLACE PROTECTIVE EQUIPMENT** as discussed above should be near, but outside of ammonia area. Eyewash and safety shower in immediate vicinity. See 29 CFR 1910.141 for workplace requirements.

**DISPOSAL:** Anhydrous ammonia is listed under RCRA and FWPCA. See WASTE DISPOSAL. Suitably diluted, ammonia may be disposed of on agricultural land as a fertilizer.

**PERSONAL:** Check availability of emergency equipment. Follow proper procedures. Wear needed protective equipment. Do not wear contact lenses.

#### **LABELING AND SHIPPING**

HAZARD CLASS: 2.2 (Nonflammable Gas),

PROPER SHIPPING DESCRIPTION: Ammonia, Anhydrous, Liquefied, 2.2, UN1005, RQ, Inhalation Hazard.

PLACARD: Nonflammable Gas

IDENTIFICATION NO.: UN 1005

ANHYDROUS AMMONIA

National Fire 1 Hazardous Materials HEALTH = 3

Protection Assoc. 3 0 Identification System FLAMMABILITY = 1

Hazard Rating: COR Label: REACTIVITY = 0

PERSONAL PROTECTION = H

#### OTHER REGULATORY REQUIREMENTS

Under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), Title III, Section 304, any accidental environmental release of this chemical equal to or over the reportable quantity of 100 lbs. must be reported promptly to the National Response Center, Washington, D.C. (1-800-424-8802). Any consumer product containing 5% or more ammonia requires a POISON label under FHSA (16 CFR 1500.129 (1)). This material is subject to the reporting requirements of Section 313. Title III of the Superfund

Amendments and Reauthorization Act of 1986 and 40 CFR372.

EPCRA extremely hazardous substance, 40CFR355, Title III, Section 302 - Ammonia.

EPA Hazard Categories - Immediate: Yes; Delayed: No; Fire: No; Sudden Release: Yes; Reactive: No

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