Material Safety Data Sheet

Amietol ® M21

Revision Date *13-Jan-2011*

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

Product Name	**Amietol ® M21**
Synonyms	2-Dimethylaminoethanol (DMAE)
Use of the Substance/Preparation	Solvent
Company/Undertaking Identification	**Taminco, Inc.** Two Windsor Plaza, Suite 411 7540 Windsor Drive Allentown, PA 18195 (800) 223-3258
Emergency telephone number	In case of emergency call CHEMTREC 1-800-424-9300 703-527-3887 (International Calls), 02-8014-4880 (Australia local calls)

2. HAZARDS IDENTIFICATION

Appearance

Clear, Colorless liquid; Ammoniacal odor

Emergency Overview

- DANGER!
- Flammable liquid and vapor
- Corrosive
- Causes skin and eye burns
- Inhalation may cause severe mucous membrane and respiratory irritation, shortness of breath and pulmonary edema
- May be harmful in contact with skin
- The substance is identified as a hazardous chemical according to the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Principal Routes of Exposure

- Inhalation
- Skin contact
- Eye contact

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Weight %
2-(Dimethylamino) ethanol	108-01-0	>99

4. FIRST AID MEASURES

Ingestion

- Never give anything by mouth to an unconscious person
- Do not induce vomiting without medical advice
- If victim is conscious
- Rinse mouth
- drink 1 or 2 glasses of water
- Immediate medical attention is required

Skin Contact

- Immediately flush skin with running water for 30 minutes or until no traces remain. Wash with soap and water. Remove contaminated clothing immediately.
- Seek immediate medical attention/advice

Eye Contact

- Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 30 minutes.
- Immediate medical attention is required

Inhalation

- Move to fresh air
- Do not give mouth-to-mouth
- If breathing is difficult, give oxygen
- If breathing is irregular or stopped, administer artificial respiration
- Consult a physician after significant exposure
- Symptoms may be delayed

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

- Alcohol-resistant foam
- water spray
- carbon dioxide (CO2)
- dry chemical

Specific methods

- In case of fire, stop leak if safe to do so
- Evacuate area and fight fire from a safe distance
- Keep people away from and upwind of spill/leak
- Suppress (knock down) gases/vapors/mists with a water spray jet
- In the event of fire, cool tanks with water spray
- Do not allow run-off from fire fighting to enter drains or water courses

Special protective equipment for fire-fighters

- Firefighters and others who may be exposed to products of combustion should wear full fire fighting turn out gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand NIOSH approved or equivalent)
- Wash/Decontaminate removed clothing before reuse

Specific hazards

- Flammable
- Eliminate all ignition sources if safe to do so
- Pay attention to the spreading of gases especially at ground level (heavier than air) and to the direction of the wind
- Pay attention to flashback
- Fire or intense heat may cause violent rupture of packages
- In case of fire hazardous decomposition products may be produced such as
- Nitrogen oxides (NOx)
- Ammonia
- Carbon monoxide

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions

- Avoid contact with skin, eyes and clothing
- In case of inadequate ventilation wear respiratory protection
- Remove all sources of ignition
- Evacuate personnel to safe areas
- Keep people away from and upwind of spill/leak
- Take precautionary measures against static discharges
- Pay attention to flashback
- Suppress (knock down) gases/vapours/mists with a water spray jet

Environmental Precautions

- Should not be released into the environment
- Prevent product from entering drains
- Local authorities should be advised if significant spillages cannot be contained

Methods for Clean-up

- Use only non-sparking tools
- Large spills should be collected mechanically (remove by pumping) for disposal
- Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container
- Keep in suitable, closed containers for disposal
- Dispose of as special waste in compliance with local and national regulations

7. HANDLING AND STORAGE

Storage

Technical measures/Precautions

- In accordance with local and national regulations
- Keep containers tightly closed in a dry, cool and well-ventilated place
- Keep away from open flames, hot surfaces and sources of ignition
- Protect containers from physical damage
- To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded

Incompatible products

- Strong acids and oxidizing agents
- Mineral acid
- Peroxides
- alcohols

Handling

Technical measures/Precautions

- In accordance with local and national regulations
- Use only in area provided with appropriate exhaust ventilation
- Ensure that eyewash stations and safety showers are close to the workstation location

Safe handling advice

- Wear personal protective equipment
- Ensure adequate ventilation
- In case of insufficient ventilation, wear suitable respiratory equipment
- Do not breathe vapors or spray mist
- Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors)
- Ground and bond containers when transferring material
- Do not use sodium nitrite or other nitro sating agents in product
- Empty containers retain product residue and may be hazardous
- Wash thoroughly after handling

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL
2-(Dimethylamino) ethanol	Not listed	None Established

Respiratory Protection

- In accordance with local and national regulations
- In case of insufficient ventilation, wear suitable respiratory equipment
- a respirator with filter for organic vapor
- In case of higher concentration
- wear a positive-pressure supplied-air respirator with full facepiece
- The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace

Engineering measures

- Local exhaust
- Use explosion-proof equipment

Personal Protective Equipment

Eye Protection

- Face-shield
- Chemical resistant goggles must be worn
- Ensure that eyewash stations and safety showers are close to the workstation location

Hand protection

- Impervious gloves
- Solvent-resistant gloves
- Request information on glove permeation properties from the glove supplier

Skin Protection

- Solvent-resistant apron and boots
- Wash contaminated clothing before re-use
- Choose body protection according to the amount and concentration of the dangerous substance at the work place

Environmental exposure controls

- Prevent product from entering drains
- Do not contaminate surface water
- Avoid subsoil penetration

9. PHYSICAL AND CHEMICAL PROPERTIES

General Information

Physical State Liquid
Color Colorless
Odor Amine-like

Important Health Safety and Environmental Information

Boiling Point/Range 134.1°C
273.4°F
Flash Point 40°C
104°F
Method Seta closed cup
Viscosity 3.58 mPas @ 21.6°C
Vapor Pressure 10 hPa @ 28.1 °C

Vapor Density	3.03 (Air =1.0)
Partition Coefficient (n-octanol/water)	log Pow , : -0.55
pH	10.5 - 11(@100 g/l, 20°C)
Water solubility	Miscible
Oxidizing Properties	Not applicable
Explosion Limits	
Explosive Properties	1.4 - 12.2 vol. %
Melting Point/Range	-59°C -74°F
Density	0.89 g/cm3 @ 21.6 °C
Flammability	flammable The substance or mixture is not classified as pyrophoric
Autoignition Temperature	230°C 446°F

10. STABILITY AND REACTIVITY

Stability

- Stable under recommended storage conditions

Conditions to Avoid

- Keep away from open flames, hot surfaces and sources of ignition
- Incompatible with strong acids and oxidizing agents
- alcohols
- Peroxides
- Do not use sodium nitrite or other nitro sating agents in product
- nitrosamine

Hazardous Decomposition Products

- Nitrogen oxides (NOx)
- Carbon monoxide
- Carbon dioxide (CO_2)
- Ammonia

Hazardous Polymerization

Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

Eye Contact

Vapors may cause severe irritation and conjunctivitis with possible cornea edema. May cause a perception of a "blue haze" or "fog" around lights. Contact may cause eye burns. May cause irreversible eye damage.

Skin Contact

May cause severe eye/skin irritation. May be absorbed through the skin in harmful amounts.

Inhalation

Inhalation may cause severe mucous membrane and respiratory irritation, shortness of breath and pulmonary edema. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Symptoms may be delayed.

Ingestion

If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

Chronic Effects

Chronic exposure may cause dermatitis.

Carcinogenicity

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	IARC	ACGIH	OSHA	NTP
2-(Dimethylamino) ethanol	Not Listed	Not Listed	Not Listed	Not Listed

Aggravated Medical Conditions Respiratory disorders. Skin disorders.

Product Information

LD50/oral/rat = 1187 mg/kg
LD50/dermal/rabbit = > 3000 mg/kg
LC50/inhalation/4h/rat = 6080 mg/m³
Eye irritation corrosive
Skin irritation corrosive
Sensitization Did not cause sensitization on laboratory animals
Mutagenic Effects Did not show mutagenic effects in animal experiments
Reproductive toxicity Possible risk of harm to the unborn child
Carcinogenic effects Not expected

12. ECOLOGICAL INFORMATION

Ecotoxicity

Toxicity to fish Leuciscus idus (Golden orfe) LC50 : 146.63 mg/l - 96Hour
EC50/48h/daphnia = 98.37 mg/l
EC50/72h/algae = 34.47 mg/l
Toxicity to bacteria EC20 (30 min) : > 1000 mg/l

Mobility

Koc = 0.848

Persistence and Degradability

According to the results of tests of biodegradability this product is considered as being readily biodegradable

Bioaccumulative Potential

Does not bioaccumulate

13. DISPOSAL CONSIDERATIONS

Waste disposal methods Dispose of in accordance with local regulations

Contaminated Packaging In accordance with local and national regulations. Empty containers should be taken for local recycling, recovery or waste disposal. Empty containers retain product residue and may be hazardous.

14. TRANSPORT INFORMATION

DOT

Shipping Description	UN2051, 2-Dimethylaminoethanol, 8(3), PG II
Hazard Class	8
Subsidiary Class	3
UN-No	UN2051
Packing Group	II
Reportable Quantity (RQ)	None
Marine Pollutant	No
Labelling	Corrosive and Flammable liquid

IMDG/IMO

Shipping Description	UN2051, 2-Dimethylaminoethanol, 8(3), PG II
Hazard Class	8
Subsidiary Class	3
UN-No	UN2051
Packing Group	II
Marine Pollutant	No
Labelling	Corrosive and Flammable liquid

IATA

UN-No	UN2051
Shipping Description	UN2051, 2-Dimethylaminoethanol, 8(3), PG II
Hazard Class	8
Subsidiary Class	3
Packing Group	II
Labelling	Corrosive and Flammable liquid

15. REGULATORY INFORMATION

International Inventories

All of the components in the product are on the following Inventory lists: U.S.A. (TSCA), Europe (EINECS/ELINCS/NLP), Canada (DSL/NDSL), Japan (ENCS), Japan Bioaccum (MITI), Australia (AICS), Philippines (PICCS), China (IECSC), Korea (KECL), New Zealand (NZIoC).

NOTE: X = Listed

Chemical Name	TSCA	EINECS	DSL	ENCS	MITI	AICS	PICCS	IECSC	KECL	NZIoC
2-(Dimethylamino) ethanol	X	203-542-8	X	(2)-297 (2)-353	(2)-297	X	X	X	KE-11494	X

OSHA HAZARD CLASSIFICATION: This material is classified as hazardous under Federal OSHA regulation: Corrosive, Flammable

SARA 311/312 Hazardous Categorization

Acute Health Hazard, Fire Hazard

SARA TITLE III SECTION 313 INFORMATION:

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

NOTE: X = Listed

CERCLA Hazardous Substances
This product does not contain any RQs or TPQs under this regulation.

State Right-to-Know

NOTE: X = Listed

Chemical Name	PA	NJ	MA
2-(Dimethylamino) ethanol 108-01-0	X	X.	X

California Proposition 65 This product does not contain any Proposition 65 chemicals.

WHMIS Hazard Class B3 Combustible liquid
E Corrosive material

Canadian Environmental Protection Act This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR

16. OTHER INFORMATION

HMIS	**Health** 3	**Flammability** 2	**Physical Hazard** 0
NFPA	**Health** 3	**Fire** 2	**Instability** 0

Legend: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe

Literary Reference -IUCLID CD-ROM, 2000 -Chemiekaarten : 25th ed. - 2010

Disclaimer: The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of Safety Data Sheet