Safety Data Sheet

According To Regulation (EC) No 1907/2006 (REACH)

MONOMETHYLAMINE (MMA)

Version:	1.0	Preparation Date :	10/11/2013
Form No:	193247	Revision Date:	10/11/2013

1. IDENTIFICATION OF THE PRODUCT AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifier

Product Name	**MONOMETHYLAMINE (MMA)**
SDS[1] No	193247
CAS[2] No	74-89-5
EINECS[3] No	200-820-0
Chemical Name	Monomethylamine
Chemical Formula	CH5N
Structural Formula	

1.2 Relevant Identified Uses Of The Product And Uses Advised Against

Relevant Identified Uses	Used in production of paint and insect-fungal medication, pharmaceutical industry, the production of surface-active substances and textile dye as mediate reaction accelerator. Fuel additive, used as a polymerization inhibitor. Paint residue remover is available in the application areas. As a photo corrective and in the driving mechanisms of the rocket is used.
Uses Advised Against	See chapter 16 for a general overview

1.3 Details Of The Supplier Of The Safety Data Sheet

Supplier (Manufacturer)	**AK-KİM KİMYA SAN. VE TİC. A.Ş.** www.akkim.com.tr
Address – Factory	Denizçalı Köyü, Taşköprü Mevkii, P.K. 39 77600 Yalova / TÜRKİYE
Telephone	0 226 815 33 00
Fax	0 226 353 25 39

1.4 Information Providing Authority About Safety Data Sheet

	Ali Haydar KETİR – Environmental Engineer
Telephone	+90 (226) 815 33 00 / 33304
Fax	ali.ketir@akkim.com.tr

1.5 Emergency Telephone Number

Company Emergency	0 226 815 33 00

2. HAZARDS IDENTIFICATION

2.1 Classification Of The Product

2.1.1 Classification According to Regulation (EC) No 1272/2008

- Flammable gases, Category 1; H220
- Gases under pressure, liquefied gas; H280
- Acute toxicity, Category 4, inhalation; H332

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- Skin irritation, Category 2; H315
- Serious eye damage, Category 1; H318
- Specific Target Organ Toxicity (single exposure), Category 3; H335

2.2 Label elements

2.2.1. Labeling According to Regulation (EC) No 1272/2008 [CLP[4]/GHS[5]]

Product Identifier

Hazard Component for Labeling

- MONOMETHYLAMINE (MMA)

Hazard Pictograms

Signal Word

- Danger

Hazard Statements

H220	Extremely flammable gas.
H280	Contains gas under pressure; may explode if heated.
H332	Harmful if inhaled.
H315	Causes skin irritation
H318	Causes serious eye damage.
H335	May cause respiratory irritation.

Precautionary Statements

General

- None

Prevention

P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Response

P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage

P410+P403	Protect from sunlight. Store in a well-ventilated place.

Disposal

- None

Supplemental Hazard Information (EU) Statements

- None

2.2.2. Special Rules For Supplemental Label Elements For Certain Mixtures

- None.

2.2.3. Additional Labeling

- Not Applicable

2.3 Hazard Identification

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2.3.1. Skin Contact

May be harmful if absorbed through skin. Causes skin irritation

2.3.2. Eye Contact

Causes eye burns.

2.3.3. Ingestion

Toxic if swallowed.

2.3.4. Inhalation

Harmful if inhaled. Causes respiratory tract irritation.

2.3.5. Long term effects

May cause irritation on skin, respiratory track and eyes.

2.3.6. Adverse Environmental Effects

No data available

2.4. Additional Information

· None

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Description Of The Substance: Monomethylamine (≥ 99,65%)

NAME	EINECS NO	CAS NO.	CONTENT (%)	CLASSIFICATION CLP
Monomethylamine	200-820-0	74-89-5	> 99,65 %	 DANGER Flammable gases, Category 1; H220 Gases under pressure, liquefied gas; H280 Acute toxicity, Category 4, inhalation; H332 Skin irritation, Category 2; H315 Serious eye damage, Category 1; H318 Specific Target Organ Toxicity (single exposure), Category 3; H335

3.2 Additional information

· None

4. FIRST AID MEASURES

4.1 Description of first aid measures

4.1.1 General information

· Remove contaminated clothing.
· In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

4.1.2 Following inhalation

· Whilst protecting yourself remove the casualty from the hazardous area and take him to the fresh air.
· Lay the casualty down in a quiet place and protect him against hypothermia.
· In the case of breathing difficulties have the casualty inhale oxygen.
· As soon as possible repeatedly have the casualty deeply breath a glucocorticoid

inhalation spray in.
- Arrange medical treatment.
- If the patient suffers from difficulties in breathing, transport to hospital should be carried out in a half-sitting position.

4.1.3 Following skin contact

- Whilst protecting yourself, relocate the casualty away from the source of danger.
- Remove contaminated clothing while protecting yourself.
- Immediately cleanse the affected skin areas with soap under running water. If available best wash with 5 % acetic acid or vinegar and rinse with water.
- Following massive contact, the casualty should immediately be put under the emergency shower (deluge shower if possible). Take off work clothing only during the shower.
- Treat frostbite as a consequence of contact with liquefied MMA in the same way.
- Clothing frozen on the skin must be thawed by the shower water. Do not tear clothing off.
- Call a physician to the site of the accident, also because of the massive inhalation of vapors which probably proceeded simultaneously.

4.1.4 Following eye contact

- Rinse the affected eye with widely spread lids for 10 minutes under running water whilst protecting the unimpaired eye.
- Following contact with the liquified gas, rinse with lukewarm water.
- Transport the patient to an eye doctor or to hospital in every case.
- During transport, rinse further with physiological saline solution using an eye-bath if possible.

4.1.5 Following ingestion

- Rinse the mouth and spit the fluids out.
- Have the casualty drink 1 glass of water as slowly as possible.
- Call a physician to the site of the accident.
- Under no circumstances apply cooking oil, castor oil, milk or alcohol
- Do not make the casualty vomit.
- During spontaneous vomiting hold the head of the casualty low with the body in a prone position in order to avoid aspiration.

4.1.6 Self-protection of the first aider

- Pay attention to self-protection

4.1.7 Notes for the doctor

- MMA mainly acts as an irritative through to corrosive agent, both as a gas and also as a solution. If the circumstances are not extremely severe, the absorptive-toxic effects are
- relatively minor (in contrast to trimethylamine for which the relationships are inverse).

- Symptoms of acute poisoning:

- Eyes: dependent on the concentration of vapor or dissolved MMA: severe irritation through to chemical burns (hemorrhage to the conjunctiva, opacity of the cornea, edema, necrosis) even possible following short-term contact[07979]
- Skin: frostbite due to direct contact with the cold liquid, later discoloration and swelling, then necrosis and rejection; necrosis also through (prolonged) contact with
- aqueous solutions (in particular for concentrations of more than 10 %); absorptive-toxic effects following massive contact not to be excluded

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- Inhalation: irritation to the mucous membranes in particular in the upper respiration tract following vapor concentrations of more than 10 ppm, severe irritation above 100 ppm, then also significant functional disturbances torespiration through to a toxic pulmonary edema possible; later development of bronchitis or pneumonia probable systemic effects probably only to be expected in extreme cases (or as secondary effects due to oxygen deficiency)
- Ingestion: dependent on the concentration: damage to mucous membranes contacted by solutions; high danger of perforation following colliquative necrosis due to highly concentrated solutions; possible absorptive-toxic effects
- Absorption: slight disturbances to the CNS functions: restlessness, apathy, convulsive reactions.

- Medical advice:

- Rerinse contaminated eyes with physiological saline solution and alleviate pain as necessary. Then, consult an eye doctor as soon as possible.
- Carefully cleanse contaminated skin with soap and water again if the degree of irritation allows this. Otherwise, rerinse with a lot of water and carefully swab it dry with sterile material.
- Skin damage is expected and can be treated with a dermatocorticoid.
- Following massive contact of the skin with solutions (and all the more with the liquified substance) it should be assumed that besides the skin contact a large amount has also been inhaled.
- If tussive irritation is felt following inhalation of vapors, antitussive agents may be applied. Also immediately apply glucocorticoids (topically, i.v.) and carry out all further prophylactic measures for pulmonary edema.
- Carry out intubation in good time and apply oxygen. Unintentional oral intake of concentrated solutions is hardly to be expected because of the very intense, unpleasant odor.
- If this nevertheless has happened, under no circumstances induce emesis because chemical burns to mucous membranes contacted are not to be excluded and because there is an increased danger of aspiration.
- However, emesis will probably proceed spontaneously.
- Because an endoscopy will almost certainly be necessary later, do not apply charcoal, particularly since its effectiveness as an adsorbent agent for aliphatic amines has not been validated.
- Gastrolavage is probably only appropriate if it proceeds nearly immediately after the ingestion (rapid absorption).
- Whether or not it should really be carried out can only be decided by the physician on the spot and only provided, sings of perforation are definitely absent.
- In hospital, the check of parameters of the heart/circulatory system should definitely by continued.
- The acid-base balance, electrolytes and the respiratory function should be examined continuously.

Recommendations:

- Provide the physician information about the substance/product and treatment already

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administered.

5. FIRE-FIGHTING MEASURES

5.1 General Information and Flammable Properties

- The substance/product is highly flammable
- Class of fire: C (gaseous, also compressed substances)

5.2 Extinguishing media:

- Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
- Cool all affected containers with flooding quantities of water.

5.3 Unsuitable extinguishing media

- None known.

5.4 Special hazards arising from the product

- Nitrogen oxides; carbon monoxide; carbon dioxide.

5.5 Advice for fire-fighters

- Wear NIOSH [6] approved breathing apparatus, eye and face protector and chemical resistant clothes.
- If possible, take container out of dangerous zone.
- Heating causes a rise in pressure, risk of bursting and explosion.
- Shut off sources of ignition.
- Only put out fire if the gas flow can be interrupted.
- Risk of explosion from gas accumulation and backfire.
- Reduce vapor with water spray.
- Use only explosion proved equipment.

5.6 Additional information

- Use water spray to cool unopened containers.
- Contaminated extinguishing water must be disposed of in accordance with official regulations
- Do not allow the quenching water into sewage systems

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

- Avoid inhalation of vapors, mist or gas.
- Ensure adequate ventilation
- Refer to protective measures listed in section 7 and 8.
- Put on protective equipment before entering danger area.

6.2 Environmental precautions

- Cover drains.
- Do not allow to enter into soil/subsoil.
- Do not empty into drains or the aquatic environment.

6.3 Methods and material for containment and cleaning up

6.3.1 For containment

- Control personal contact by using protective equipment as required
- Take up contaminated material and pass on for further processing.

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- Contain for disposal according to local / national regulations.

6.3.2 For cleaning up

- Use protective equipment while cleaning if necessary.
- After spillage, gently dilute it with water and neutralize by absorbing with diluted HCl and H2SO4 acids.
- Only conduct maintenance and other work on or in the vessel or closed spaces after obtaining written permission.
- Only work with vessels and lines after they have been thoroughly rinsed.

6.3.3 Other information

- Dispose of waste material according to local, state and federal regulations.
- Use non-sparking tools.
- Shut off all sources of ignition.
- Provide adequate ventilation.
- Gas is moving on the ground.
- Contain escaping gases/vapours with water.
- Afterwards ventilate area.
- Use plenty of water to clean the area surrounding the leak and equipment that has been in contact with the gas.

6.4 Reference to other sections

- Dispose of contaminated material as waste in accordance with section 13.
- See Section 13.

7. HANDLING AND STORAGE

7.1.1 Precautions for safe handling

7.1.2 Protective measures

Personal preventions

- Provision of very good ventilation in the working area.
- The gas is heavier than air. Adequate ventilation of the floor area must be ensured as well.
- Devices for detecting and reporting the presence of hazardous gases should be present.
- Protect ducts and sewers against penetration by the gas.
- Provide sprinkler for equipment and containers.
- Eye bath required. These locations must be signposted
- clearly.
- Wear protective clothing when risk of exposure occurs.
- Prevent concentration in hollows and sumps.
- DO NOT allow material to contact humans, exposed food or food utensils.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately. Launder contaminated clothing before re-use.

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- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

Fire preventions

- The substance/product is highly flammable
- See section 5.

Environmental precautions:

- Dispose of waste material according to local, state and federal regulations.

7.1.3 Advice on general occupational hygiene

- Use good occupational work practice.
- Comply with the health and safety at work laws.
- Remove contaminated clothing and protective equipment before entering eating areas.

7.2 Conditions for safe storage, including any incompatibilities

- Keep in a cool place. Keep container dry.
- Keep container in a well-ventilated place
- Store in original containers.
- Check all containers are clearly labelled and free from leaks.
- Keep containers securely sealed when not in use
- Avoid contact with incompatible materials
- Avoid physical damage to containers.

STORAGE INCOMPATIBILITY

- Risk of explosion in contact with; Nitromethane; nitroparaffines; mercury

7.1 Advice on common storage

- Containers have to be labelled clearly and permanently.
- Keep container below 50 C in a well-ventilated place.
- Keep upright, protect against falling over.
- Protect from exposure to sunlight.
- Do not store in escape routes, work rooms, or in direct proximity to them.
- For transporting, storing, preparing, emptying, and maintaining pressurized gas bottles, the detailed rules in TRG 280 must be absolutely adhered to. For pressurised gas packaging, observe the applicable TRG 300.

7.2 Specific precautions on storage

- Storage class 2 A (Gases)
- Only substances of the same storage class should be stored together.
- Collocated storage with the following substances is prohibited:
  - Pharmaceuticals, foods, and animal feeds including additives.
  - Infectious, radioactive und explosive materials.
  - Flammable liquids of storage class 3.
  - Other explosive substances of storage class 4.1A.
  - Flammable solid substances or desensitized substances of storage class 4.1B.
  - Spontaneously flammable substances.
  - Substances liberating flammable gases in contact with water.
  - Strongly oxidizing substances of storage class 5.1A.
  - Oxidizing substances of storage class 5.1B.

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- Organic peroxides and self reactive substances.
- Combustible and non combustible acutely toxic substances of stora-ge classes 6.1A and 6.1B.
- Combustible toxic or chronically acting substances of storage class 6.1C.
- Noncombustible toxic or chronically acting substances of storage class 6.1D.
- Combustible liquids of storage class 10.

· Under certain conditions the collocated storage with the following sub-stances is permitted (For more details see TRGS 510):
- Aerosols (spray bottles).
- Ammonium nitrate and preparations containing ammonium nitrate.
- Combustible corrosive substances of storage class 8A.
- Combustible solids of storage class 11.

· Consider the regulations of TRG 280 at collocated storage of different compressed gases.

· The substance should not be stored with substances with which hazardous chemical reactions are possible.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Preventive industrial and medical examinations must be carried out according to the application area.
Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

8.1.1 Occupational exposure limits

Substance	EINECs[7] No	CAS[8] No.	Content %	Limit Value				Upper Limit	Source
				TWA[9] (8 Hr.)		STEL[10] (15 Min.)			
				mg/m3[11]	ppm[12]	mg/m³	ppm		
Monomethylamine	200-820-0	74-89-5	> 99,65 %	- 12 12 12	5 10 10 10	- - - -	15 - - -	-	ACGIH OSHA (final) OSHA (vacated) NIOSH

8.2 Exposure controls

· Adequate ventilation should be used during processing

8.2.1 Appropriate engineering controls:

· Provide local exhaust ventilation.
· In the immediate working surroundings there must be: Emergency shower installed.
· Make available sufficient washing facilities.
· Provide eye shower and label its location conspicuously.
· See Section 7

8.2.2 Personal protection equipment

8.2.2.1 Eye / Face protection:

· Sufficient eye protection must be worn.
· Wear chemical safety goggles.
· If there is a risk of gases escaping, eye safety is best protected by wearing a full mask.

- When handling liquid gas, chemical safety goggles must be used as well as a protective shield.
- Chemical goggles approved under government standards such as NIOSH (US) or EN 166(EU)
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation
- Lens should be removed in a clean environment only after workers have washed hands thoroughly.

8.2.2.2 Skin protection

Hand protection

- Wear leather gloves to prevent frostbite injuries from rapidly expanding gas when handling pressurised gas bottles.
- The use of resistant protective gloves is recommended.
- Skin protection cremes do not protect as effectively against the substance as protective gloves. Therefore suitable protective gloves should be preferred as far as possible.
- Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product
- Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices.
- Wash and dry hands.
- The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Body protection

- Complete suit protecting against chemicals.
- Use protective boots while handling gas cylinders.
- Wear flameproof, antistatic protective clothing.
- The protection clothing should be alkali resistant.

Other protection

- Handle in accordance with good industrial hygiene and safety practice.

8.2.2.3 Respiratory protection

- Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
- Low-boiling-point substance of group 3
- Respiratory protection: Gas filter K, colour code green.

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Use insulating device for concentrations above the usage limits for filter devices, for oxygen concentrations below 17% volume, or in circumstances which are unclear.

8.2.3 Environmental exposure controls

· Legislation for the protection of the environment must be met in full.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Appearance

Form/Physical state	Compressed gas
Color	Colourless
Odor	No data available

	Value
pH (100g/l @ 20°C	14
Melting/Freezing point/range (°C)	-93
Initial boiling point/range (°C)	-6,3
Flash Point (°C)closed cup	<-30
Auto Ignition temperature (°C)	430
Vapour Pressure @ 20°C (hPa)	1861,0
Relative Density (g/ml)	0,7
Vapour Density (Air=1)	1,07
Lower explosion limit % (V)	4,9
Upper explosion limit % (V)	20,8
Partition coefficient n-Octanol/Water (log Po/w)	-0,713
Other safety information	
Surface tension (mN/m) @ 25°C	19,19

Note: The above features were determined according to prescribed methods at the Classification, Packaging and Labeling of Hazardous. Substances Regulation Section A-3 or a method comparable to the other.

10. STABILITY AND REACTIVITY

10.1 Reactivity

· No data available

10.2 Chemical stability

· Stable under recommended storage and handling conditions. (See section 7.)

10.3 Possibility of hazardous reactions

· The substance can react dangerously with:
· Alkali metals
· Alcohols
· Chlorine
· Fluorine
· Oxidizing agents
· Concentrated acid
· Nitric oxides
· Acetylene (rare); aldehydes; hydrogen bromide; carbonyl compounds; hydrogen chloride (rare); epoxides; halogenated hydrocarbons; carbon dioxid (rare); carbon monoxid (rare), methyl mercaptane; phosphine (rare); acidic compounds; acid anhydrides; sulphur dioxide (rare); silane; hydrogen sulphide (rare)

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10.4 Conditions to avoid:

- Heat, flames, sparks and other sources of ignition..
- The substance forms an explosive mixture with air.

10.5 Incompatible materials:

- Alkali metals
- Alcohols
- Chlorine
- Fluorine
- Oxidizing agents
- Concentrated acid
- Nitric oxides
- Acetylene (rare); aldehydes; hydrogen bromide; carbonyl compounds; hydrogen chloride (rare); epoxides; halogenated hydrocarbons; carbon dioxid (rare); carbon monoxid (rare), methyl mercaptane; phosphine (rare); acidic compounds; acid anhydrides; sulphur dioxide (rare); silane; hydrogen sulphide (rare)

10.6 Hazardous decomposition products:

- Nitrogen oxides; carbon monoxide; carbon dioxide.

10.7 Hazardous polymerization:

- None.

11. TOXICOLOGICAL INFORMATION

11.1 General Information

- Routes of exposure:
  the main intake pathway for monomethylamine (MMA) proceeds via the respiratory tract

11.2 Acute toxicity

Oral:

- Type of value: LD50
- Species: rat
- Value: 100 mg/kg

Inhalation:

- Type of value: LC50
- Species: mouse
- Value: 2400 mg/m3- 2 hour.

11.3 Skin corrosion/irritation and Eye damage/irritation:

Skin:

- Svere skin irritation - rabbit

- **Eye:**
  - no data available
- **Sensitization:**
  - no data available

11.4 CMR effects (Carcinogenity) :

- IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

11.5 CMR effects (Mutagenicity and Toxicity for reproduction) :

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- MMA was tested in the Ames test with and without metabolic activation. The result was negative.

11.6 Other Toxicological Effects:

Allergic Effects	May cause allergic reactions depends on sensitization
Effects on Repeated Doses Chronic Exposures	May cause allergic reactions depends on sensitization
Sensitization	Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals
Developmental Toxicity (Teratogenicity)	No data available
Fertility	No data available

11.7 STOT-single/repeated exposures:

STOT-single exposure	No data available
STOT-repeated exposure	No data available

11.8 Symptoms related to the physical, chemical and toxicological characteristics:

In case of inhalation	Harmful if inhaled. Causes respiratory tract irritation.
In case of skin contact	May be harmful if absorbed through skin. Causes skin irritation.
In case of eye contact	Causes eye burns.
In case of ingestion	Toxic if swallowed

11.9 Additional Toxicological Information:

- Toxicological classifications are based on available knowledge and information
- EEC classification: Harmful.
- The special effects to health are considered by taking into account the information in section 3.
- RTECS: PF6300000

12. ECOLOGICAL INFORMATION

12.1 Ecotoxicity:

- Acute Fish Toxicity (LC50 96 hour) static: 150 mg/l (Salvelinus fontinalis)
- Acute Daphnia Toxicity (EC50 48 hour): 163 mg/l (Daphnia Magna)
- Acute Daphnia Toxicity (EC50 48 hour) static: 147-180 mg/l (Daphnia Magna)
- Acute Algea Toxicity (EC50 72 or 96 hour): No data available

12.2 Photo degradation

Not determined.

12.3 Effects on Waste Water Treatment Plants

Not determined.

12.4 Mobility

Compressed gas
Refer to ecotoxicity.

Water threat class	No data available

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Clean Water Impact	No data available
Known or predicted environmental distribution	No data available

12.5 Results of PBT and vPvB assessment

Biotic	
Ready biodegradability:	No data available
Abiotic:	
Hydrolysis as a function of pH:	No data available
Photolysis:	No data available
Atmospheric oxidation:	No data available

· **Persistence and degradability:**

Decomposition Potential of the products	No data available
The half-life of degradation	No data available
Potential degradation of product content in the evaluation of wastewater treatment plants	No data available

· **Bioaccumulation Potential :**

Biological environment (biota) accumulation potential	No data available
Potential - nutrients pass through	No data available
Reference Values - Log Kow , Sw and BCF	Log Kow: -0,38

12.6 Additional information

See the sections 6, 7, 13, 14 and 15.

13. DISPOSAL CONSIDERATIONS

13.1 Product / Packaging disposal

- Compressed gas cylinders can normally be returned to the supplier.
- Pressurised cans are non-returnable and must be disposed of.
- Do not empty pressure vessels to the point of pressure compensation.
- Mark empty vessels to avoid confusion with full ones.
- Offer surplus and non-recyclable solutions to a licensed disposal company.
- Contact a licensed professional waste disposal service to dispose of this material.
- Disposal according to local authority regulations.
- Contact waste disposal services

13.2 Contaminated packaging

- Dispose of as unused product.

13.3 Disposal Methods

- This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber.
- Offer surplus and non-recyclable solutions to a licensed disposal company.
- Dispose of chemicals waste or in accordance with local regulations.
- Follow all applicable local laws, rules and regulations regarding the proper disposal of this material.
- If this product has been altered or contaminated with other hazardous materials, appropriate waste analysis may be necessary to determine proper method for disposal

13.4 European Waste Catalogue

Safety Data Sheet

According To Regulation (EC) No 1907/2006 (REACH)

MONOMETHYLAMINE (MMA)

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- The final classification has to be done together with the local waste disposal company / authority.

14. TRANSPORT INFORMATION

UN 1061, METHYLAMINE, ANHYDROUS

	ADR[13]/RID[14]	ADNR15	IMDG[16]	ICAO[17]/IATA[18]
TRANSPORTATION	Road	River	Marine	Airways
PROPER SHIPPING NAME	UN 1061, METHYLAMINE, ANHYDROUS			
UN/ID No.	1061	1061	1061	1061
SYMBOL				
CLASS	2.1	2.1	2.1	2.1
PACKAGING GROUP	-	-	-	-
LABELLING NO	2.1			
CLASSIFICATION CODE	2F	2F	2F	2F
HAZARD NO (HIN NO)	23			
EmS			F-D;S-U	
MARINE Pollutant			NO	
Road Transport Notes: -				

15. REGULATORY INFORMATION

15.1 Safety, Health And Environmental Regulations / Legislation Specific For The Substance

Substance is found on the following regulatory lists;;

- "European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)"

15.2 Chemical Safety Assessment

No data available

15.2.1 HAZARD

CLP classification according to Annex VI of CLP (Regulation (EC) No 1272/2008)

- Extremely flammable gas.
- Contains gas under pressure; may explode if heated.
- Causes skin irritation
- Causes serious eye damage.
- Harmful if inhaled.
- May cause respiratory irritation.

15.2.2 RISK

- Extremely flammable.
- Harmful by inhalation.
- Irritating to respiratory system and skin
- Risk of serious damage to eyes.

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15.3 INTERNATIONAL REGULATIONS

- This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006 and ISO 11014:2009. This product is classified according to EU Directive 67/548/EC and GHS/CLP.

16. OTHER INFORMATION

16.1 Other information

- For additional information regarding **AK-KIM KIMYA SAN. VE TIC. ŞTİ.**products please contact the **AK-KIM KIMYA SAN. VE TIC. A.S** Vedat Ateşoğlu - vatesoglu@akkim.com.tr
- The above information complies with the 199/45/EC and 1907/2006 Directives and their amendments.
- In all cases of potential poisoning supportive therapy is of the utmost importance.

16.2 Related Person

- Vedat Ateşoğlu - vatesoglu@akkim.com.tr Ak-Kim Kimya San. Ve Tic. A.Ş
- Prepared by : Ali Haydar KETİR - Ak-Kim Kimya San. Ve Tic. A.Ş ali.ketir@akkim.com.tr
- **Competent Person Accreditation no : TSE GBF-0855 28.07.2011**

16.3 Revision Date, Version and SDS no

- Date : October 11, 2013
- Version : 1.0
- MSDS No : 193247

16.4 Reason of re-issue

- Compiling according to Regulation (EC) No 1272/2008

16.5 Relevant R-, H- and EUH-phrases (number and full text):

H220	Extremely flammable gas.
H280	Contains gas under pressure; may explode if heated.
H332	Harmful if inhaled.
H315	Causes skin irritation
H318	Causes serious eye damage.
H335	May cause respiratory irritation.

16.6 Legal disclaimer

- The purpose of the above information is to describe the products only in terms of health and safety requirements.
- The information given should not, therefore, be construed as guaranteeing specific properties or as specification.
- Customers should satisfy themselves as to the suitability and completeness of such information for their own particular use.
- The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication.

Safety Data Sheet

According To Regulation (EC) No 1907/2006 (REACH)

MONOMETHYLAMINE (MMA)

Version:	*1.0*	*Preparation Date :*	*10/11/2013*
Form No:	*193247*	*Revision Date:*	*10/11/2013*

- *The above information relates only to the specific material(s) designated herein and may not be valid for such material(s) used in combination with any other materials or in any process or if the material is altered or processed, unless specified in the text.*
- *The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. Due to the many factors outside our control when using this product, we cannot accept liability for any injury, accident, loss or damage caused through its use.*

[1] SDS: Safety Data Sheet
[2] CAS: Chemical Abstract Service
[3] EINECS: European INventory of Existing Commercial
[4] CLP:Classification Laballing and Packaging
[5] GHS:Global Harmonised System
[6] NIOSH-National Institute of Occupational Safety and Health(Ulusal İş Sağlığı ve Güvenliği Enstitüsü)
[7] EINECS: Kimyasal maddelerin Avrupa Envanteri
[8] CAS: Kimyasal maddelerin servis kayıt numarası.
[9] TWA: 8 saatlik belirlenen referans süre için ölçülen veya hesaplanan zaman ağırlıklı ortalama
[10] STEL: Başka bir süre belirtilmedikçe, 15 dakikalık bir süre için aşılmaması gereken maruziyet üst sınır değeri.
[11] Mg/m^3: 20 ^oC sıcaklıkta ve 101,3 KPa. (760 mm cıva basıncı) basınçtaki 1 m3 havada bulunan maddenin miligram cinsinden miktarı
[12] ppm: 1 m^3 havada bulunan maddenin mililitre cinsinden miktarı (ml/m3)
[13] ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
[14] RID: Regulations Concerning the International Transport of Dangerous Goods by Rail
[15] ADNR: European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways
[16] IMDG: International Maritime Code for Dangerous Goods
[17] ICAO: International Civil Aviation Organization
[18] IATA: International Air Transport Association