

MATERIAL SAFETY DATA SHEET

CHEMICAL NAME : **FORMIC ACID**
C.A.S. No : 64186
UN No : 1779

1. CHEMICAL IDENTITY :

Chemical Name : *FORMIC ACID*
Synonyms : *Formic acid, Formylic acid, Methanoic acid*
Trade Name :

Formula : *HCOOH* C.A.S. No 64186 UN No 1779
Regulated Identification| Shipping name : *Formic Acid*
| Hazchem code : 2R
| Code/ Label : *Corrosive Liquid*
| Hazardous Waste ID No:
Hazardous Ingredients : *Formic Acid 99%*
C.A.S. No : 64186

2. PHYSICAL/CHEMICAL DATA

Boiling Pt/Range : *100.8* °C Physical state :
Appearance : *Colourless* Melting/Freezing pt : *8.2* °C
Vapour Pr. (mm Hg) : *40* @35 °C Specific Gravity : *1.22* @ 20° C
Vapour Density : *1.59* (Water = 1)
(Air = 1) pH : *Not pertinent* Solubility
in water : *Miscible in water* Odour *Fuming liquid, pungent, penetrating*
@ 30 °C *odour*

3. FIRE AND EXPLOSION HAZARD DATA

Flammability : *Flammable* LEL (*90%sol.*) *18%*
Flash point (OC) : *69°C* UEL (*90%sol.*) *57%*
Flash point (CC)

Autoignition Temp. : *600* °C
Explosion sensitivity to impact : *Not known*
Explosion sensitivity to static electricity : *Not known*
Hazardous combustion product : *Carbon Monoxide*
Hazardous polymerisation : *Not known*
Combustible liquid : *YES* Flammable material : *YES*
Explosive material : *NO* Corrosive material : *YES*
Oxidiser : *NO* Pyrophoric material : *NO*
Organic Peroxide : *NO*

4. REACTIVITY DATA.

Chemical Stability : *Stable*
Incompatibility : *Furfuryl alcohol, H₂O₂, P₂O₅, Nitromethane*
with other material
Reactivity : *Explodes when mixed with chemicals mentioned in*
Incompatibility column.
Hazardous Reaction : *Not known*
Product.

5. HEALTH HAZARD DATA

Routes of Entry : *Inhalation, Ingestion, Eyes and skin:*
Effects of : *Irritating to eyes, skin mucous membrane*
Exposure/Symptoms : *Wash affected part of body with plenty of fresh water.*
Emergency Treatment : *In case of inhalation, bring victim to fresh air, administer Artificial respiration if necessary. Consult doctor.*

LD 50 (Oral-Rat): 1210 mg/kg STEL :
TLV (ACGIH) : 5 PPM Odour Threshold :

6. PREVENTIVE MEASURES :

Personal Protective Equipment : *Do not breath vapours. Use rubber/PVC,gloves, Shoes, apron, goggles.*
Handling and Storage : *Store in cool, well ventilated place away from heat/flame*
Precautions.

7. EMERGENCY / FIRST AID MEASURES

FIRE | Fire extinguishing : *CO₂, Dry Chemical powder*
| Media. *Alcohol, foam*
| Special Procedures: -

EXPOSURE | First Aid Measures: *In case of inhalation, bring victim to fresh air. In Case of spills on body or in eyes, wash with copious Fresh water for 15-20minutes. Remove all Contaminated clothings. Consult doctor.*

| Antidotes/Dosages:

SPILLS | Steps to be taken : *Profusely dilute and wash out spills. Observe "NO SMOKING"*

| Waste Disposal : *Dispose in vapour tight bags.*
Methods eventual disposal.

8. ADDITIONAL INFORMATION / REFERENCES

We are only occasionally using this material in very small quantity as laboratory reagent.

9 MANUFACTURERS/SUPPLIERS DATA

NAME OF FIRM : [Rashtriya Chemicals and Fertilisers Ltd.,](#)
[Thal Unit - Alibag, Dist. Raigad. Maharashtra](#)
[TEL No.02141 - 238001 FAX 238091](#)
[IPD TEL 25523161 FAX 24045134](#)

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MATERIAL SAFETY DATA SHEET

CHEMICAL NAME : **TRIMETHYL AMINE(ANHYDROUS)**

C.A.S. No : 75503

UN No : 1083

1. CHEMICAL IDENTITY :

Chemical Name : *Trimethyl Amine (Anhydrous)*

Synonyms :

Trade Name : *TMA*

Formula : $(CH_3)_3N$ C.A.S. No 75503 UN No 1083

Regulated Identification| Shipping name : *Trimethyl Amine*

| Hazchem code : *2 PE*

| Code/ Label : *Flammable Gas Class 2*

| Hazardous Waste ID No: *5*

Hazardous Ingredients : *1.Trimethyl Amine 99.5% Other amines 0.3%*

C.A.S. No : *75503*

2. PHYSICAL/CHEMICAL DATA

Boiling Pt/Range : *2.87* °C Physical state : *Gas, Liquid*

Appearance : *Colourless* Melting/Freezing pt : *-117.1* °C

Vapour Pr. (mm Hg) : *@ 35* °C Specific Gravity : *0.662* @ *25* °C

Vapour Density : *2.00* (Water = 1)

(Air = 1) pH : *Alkaline*

Solubility in water : *Soluble* Odour : *Fishy to ammoniacal*

@ *30* °C

3. FIRE AND EXPLOSION HAZARD DATA

Flammability : *Highly flammable* LEL : *2.00* %

Flash point (OC) °C : *-7* UEL : *11.60* %

Flash point (CC) °C : *-7*

Autoignition Temp. : *190* °C

Explosion sensitivity to impact : *Stable*

Explosion sensitivity to static electricity : *Not available*

Hazardous combustion product : *Toxic fumes of NOX*

Hazardous polymerisation : *Will not occur*

Combustible liquid : *YES* Flammable material : *YES*

Explosive material : *NO* Corrosive material : *NO*

Oxidiser : *NO* Pyrophoric material : *NO*

Organic Peroxide : *NO*

4. REACTIVITY DATA.

Chemical Stability : *Stable*

Incompatibility with other material : *Ethylene Oxide*

Reactivity : *Can react vigorously with oxidising materials and acids*

Hazardous Reaction : *None particularly*

Product.

5. HEALTH HAZARD DATA

Routes of Entry : *Inhalation, ingestion, eyes and skin. Irritation of eyes,*

Effects of : *respiration tract and lungs, burns, difficulty in breathing,*

Exposure/Symptoms : *pulmonary edema. On chronic exposure causes conjunctivitis
And bronchitis.*

Emergency Treatment : *Wash affected parts of body with plenty of fresh water. In case
Of inhalation, bring victim to fresh air and administer artificial
Respiration/oxygen therapy.*

LD 50 (Mouse) : 90 mg/kg (intravenous) STEL
LC50(Inh.mam) : 6000 mg/m³
TLV (ACGIH) : 10 PPM Odour Threshold :
NFPA Hazard Health Flammability Reactivity Special
Signals 3 4 0

6. PREVENTIVE MEASURES :

Personal Protective Equipment : *Avoid contact with liquid or vapours. Provide rubber PVC hand gloves and apron/suit, goggles, rubber/PVC Shoes and self contained breathing apparatus.*
Handling and Storage : *Keep the chemical away from heat, flame and oxidising*
Precautions. *Materials.*

7. EMERGENCY / FIRST AID MEASURES

FIRE | Fire extinguishing : *CO₂, Dry chemical powder, water.*
Media.
Special Procedures: *If exposed to heat or fire, keep containers cool by spraying water. Flash back along vapour trail may occur.*
EXPOSURE | First Aid Measures: *Remove victim to fresh air. If breathing is difficult or stopped administer artificial respiration or oxygen therapy. In case of spills on body or eyes, remove contaminated clothes and wash with plenty of water for min.15 minutes. Go to Doctor/Physician*
Antidotes/Dosages: *Not available.*
SPILLS | Steps to be taken : *Try to stop leak, if without risk. Dilute the leak with water. Contain leak using sand or earth. Floors should*
Waste Disposal : *be washed with water. Seal waste in vapour tight bags*
Methods *or containers and then dispose.*

8. ADDITIONAL INFORMATION / REFERENCES

- i) *Poison if ingested.*
 - ii) *A very dangerous fire hazard when exposed to heat or flame.*
 - iii) *Due to alkaline nature and very low temperature, severe eye injuries can occur If goes to eyes.*
-

9. MANUFACTURERS/SUPPLIERS DATA

NAME OF FIRM [Rashtriya Chemicals and Fertilisers Ltd.,](#)
[Trombay Unit- Chembur, Mumbai 400074](#)
[Thal Unit - Alibag, Dist. Raigad. Maharashtra](#)
TEL No. [25522245](#) **FAX** [25522231](#)
TEL No. [02141 - 238001](#) **FAX** [238091](#)
IPD TEL [25523161](#) **FAX** [24045134](#)

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MATERIAL SAFETY DATA SHEET

CHEMICAL NAME : **MONOMETHYLAMINE (ANHYDROUS)**
C.A.S. No : 74895
UN No : 1061

1. CHEMICAL IDENTITY :

Chemical Name : *Mono Methyl Amine (Anhydrous)*
Synonyms : *Mono Methyl Amine (Anhydrous)*
Trade Name :

Formula : CH_3NH_2 C.A.S. No 74895 UN No 1061
Regulated Identification| Shipping name : *Monomethyl AMine*
| Hazchem code : 2
| Code/ Label : *Flammable gas class*
| Hazardous Waste ID No: 5

Hazardous Ingredients :
C.A.S. No :

2. PHYSICAL/CHEMICAL DATA

Boiling Pt/Range : 6.3 °C Physical state : *Gas, liquid*
Appearance : *Colourless* Melting/Freezing pt : -93.5 °C
Vapour Pr. (mm Hg) : @ 25 °C Specific Gravity : 0.662
Vapour Density : 1.08 (Water = 1) *Alkaline* Solubility in water
: *soluble* Odour : *Fishy to ammonical*
@ 30 °C

3. FIRE AND EXPLOSION HAZARD DATA

Flammability : *Highly flammable* LEL : 4.95 %
Flash point (OC) : °C UEL : 20.75 %
Flash point (CC) : -17.75°C
Autoignition Temp. : 430 °C
Explosion sensitivity to impact : *Stable*
Explosion sensitivity to static electricity : *Not available*
Hazardous combustion product : *Toxic fumes of NOX*
Hazardous polymerisation : *will not occur*
Combustible liquid : YES Flammable material : YES
Explosive material : NO Corrosive material : NO
Oxidiser : NO Pyrophoric material : NO
Organic material : NO

4. REACTIVITY DATA.

Chemical Stability : *Stable*
Incompatibility : *With nitromethane*
with other material
Reactivity : *Can react vigorously with oxidising materials and acids.*
Hazardous Reaction : *None particularly*
Product.

5. HEALTH HAZARD DATA

Routes of Entry : *Inhalation, Ingestion, Eyes and skin.*
Effects of : *Irritation of eyes respiratory tract and lungs, burns,*
Exposure/Symptoms : *difficulty in breathing, pulmonary edema. On chronic*
Exposure causes conjunctivitis and bronchitis.
Emergency Treatment : *Wash affected parts of body with plenty of fresh water*
In case of inhalation, bring victim to fresh air and administer
Artificial respiration/oxygen therapy

LD 50 (Inh.mam): 2400 mg/m³ STEL : *Not listed ppm*
TLV (ACGIH) : 10 PPM Odour Threshold : *Not available*

6. PREVENTIVE MEASURES :

Personal Protective Equipment : *Avoid contact with liquid or vapours provide rubber PVC hand gloves and apron/suit, goggles. Rubber/PVC shoes and self contained breathing apparatus.*

Handling and Storage : *Keep the chemical away from heat, flame and*
Precautions. *Oxidising materials.*

7. EMERGENCY / FIRST AID MEASURES

FIRE | Fire extinguishing : *CO2, Dry chemical powder, water.*
Media.
Special Procedures: *If exposed to heat or fire, keep containers cool by spraying water.*
Unusual Hazards *Flash back along vapour trail may occur.*

EXPOSURE | First Aid Measures: *Remove victim to fresh air. If breathing is difficult or stooped, administer artificial respiration or Oxygen therapy. In case of spills on body/eyes, remove contaminated clothes and wash with plenty of fresh water for min.15 minutes. Go to doctor/Physician*
Antidotes/Dosages: *Not available.*

SPILLS | Steps to be taken : *Try to stop leak if without risk. Dilute the leak with water. Contain leak using sand or earth. Floors*
Waste Disposal : *should be washed with water. Seal waste in vapour*
Methods *tight bags or containers and then dispose.*

8. ADDITIONAL INFORMATION / REFERENCES

- i) *Poison if ingested.*
 - ii) *A very dangerous fire hazard when exposed to heat or flame.*
 - iii) *Due to alkaline nature and very low temperature, severe eye injuries can Occur.*
-

9 MANUFACTURERS/SUPPLIERS DATA

NAME OF FIRM *Rashtriya Chemicals and Fertilisers Ltd.,
Trombay Unit- Chembur, Mumbai 400074
Thal Unit - Alibag, Dist. Raigad. Maharashtra*

TEL No. *25522245* **FAX** *25522231*

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MATERIAL SAFETY DATA SHEET

CHEMICAL NAME : **TRIMETHYL AMINE (AQUEOUS 30%)**

C.A.S. No : 75-50-3

UN No : 11297

1. CHEMICAL IDENTITY :

Chemical Name : *TRIMETHYL AMINE (AQUEOUS 30%)*
Synonyms : *FLAMMABLE LIQUID (3.2)*
Trade Name : *TRIMETHYL AMINE*
Formula : *(CH₃)₃N* C.A.S. No 75-50-3 UN No 1297
Regulated Identification| Shipping name : *TRIMETHYL AMINE (AQUEOUS SOLUTION)*
| Hazchem code : *2PE*
| Code/ Label : *Flammable liquid (3.2)*
| Hazardous Waste ID No: *5*
Hazardous Ingredients : *NIL*
C.A.S. No :

2. PHYSICAL/CHEMICAL DATA

Boiling Pt : *30⁰ C* Physical state : *Clear liquid*
Appearance : *Colourless solution* Melting/Freezing pt : *-3⁰ C*
Vapour Pr. (mm Hg) : *465mm/Hg@ 35⁰ C* Specific Gravity : *0.90 @ 25⁰ C*
Vapour Density : *2.0(Gas)* (Water = 1)
(Air = 1) pH : *Alkaline(11.9)*
Solubility in water : *Comple.soluble* Odour : *Fishy*
@ 30⁰ C

3. FIRE AND EXPLOSION HAZARD DATA

Flammability : *YES* LEL : *2.00 %*
Flash point : *(OC) <⁰C* UEL : *11.6 %*
Flash point (CC) <⁰C
Autoignition Temp. : *190⁰ C (Gas)*
Explosion sensitivity to impact : *NIL*
Explosion sensitivity to static electricity : *Not available*
Hazardous combustion product : *CO, CO₂ & Oxides of nitrogen*
Hazardous polymerisation : *Does not occur*

Combustible liquid	: <i>YES</i>	Flammable material	:
Explosive material	: <i>YES</i>	Corrosive material	: <i>YES</i>
Oxidiser	: <i>NO</i>	Pyrophoric material	: <i>NO</i>
Organic peroxide	: <i>NO</i>		

4. REACTIVITY DATA.

Chemical Stability : *Stable*
Incompatibility : *Mercury, ethylene Oxide, strong oxidising agent, acids.*
with other material
Reactivity : *Normally stable*
Hazardous Reaction : *None reported*
Product.

5. HEALTH HAZARD DATA

Routes of Entry : *Inhalation, ingestion, skin, eye contact.*
Effects of : *Nose, throat, lungs irritation. Very high concentration can*
Exposure/Symptoms : *cause pulmonary odema which may be fatal. Eye irritation*
Blurred vision. Corrosive to skin. Causes serious burn. On
Injestion burning of digestive track.
Emergency Treatment : *In case of contact, immediately flush eyes or skin with plenty*
of water (atleast for 15 mins.). Remove contaminated clothing
and shoes. If vapours are inhaled, remove to fresh air.If not
breathing, give artificial respiration. If breathing is difficult give
Oxygen. If swallowed do not induce vomiting. Give large quantity
of water. Call physician.

LD 50 (Oral-Rat) : (IV-Mouse)90mg/kg	STEL	: 15 ppm	36 mg/m ³	
TLV (ACGIH) : 10 PPM	24mg/m ³	Odour Threshold :8.00021-0ppm		NFPA Hazard
Health	Flammability	Reactivity	Special	
Signals	3	4	0	

6. PREVENTIVE MEASURES :

Personal Protective Equipment : *Eye face protection (Chemical splash goggle full length*
Face shield),chemical suit (PVC suit with hood),resp-
iration full face mask with chemical cartridges for
methyl Amines during concentration above TLV.During
uncontrolled release, use SCBA.
Handling and Storage : *Store in a well ventilated area away from heat,flame &*
Precautions. *Sparks . Keep container tightly closed. Do not store with*
oxidising materials. Water scrubber and

7. EMERGENCY / FIRST AID MEASURES

FIRE | Fire extinguishing : *Water spray, foam, dry chemical powder, CO₂*
Media.
| Special Procedures: *Keep container cool by water spray. Dilute solution*
with water spray.
EXPOSURE | First Aid Measures: *In case of contact, immediately flush eyes or skin with*
plenty of water (atleast for 15 min.) remove contam-
inated clothing and shoes. If vapours are inhaled,
Remove to fresh air. If not breathing, give artificial
Respiration. If breathing is difficult, give oxygen. If
swallowed, do not induce vomiting. Give large
quantity of water. Call physician. Wear proper
protective equipment before rescue operation.
Antidotes/Dosages:
SPILLS | Steps to be taken : *Evacuate area to upwind direction. Extinguish/remove*
all ignition sources.
Waste Disposal : *Prevent from entering public sewer or water ways or*
Methods *confine spaces. Contain spill with earth. Flush area*
with water. Small spill can be neutralised with 5%
H2SO4.

8. ADDITIONAL INFORMATION / REFERENCES

Nothing special in addition to above given.

9 MANUFACTURERS/SUPPLIERS DATA

NAME OF FIRM Rashtriya Chemicals and Fertilisers Ltd.,
Trombay Unit- Chembur, Mumbai 400074
Thal Unit - Alibag, Dist. Raigad. Maharashtra
TEL No. 25522245 **FAX** 25522231
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MATERIAL SAFETY DATA SHEET

CHEMICAL NAME : **MONOMETHYL AMINE (AQUEOUS 40%)**
C.A.S. No : 74-89-5
UN No : 1235

1. CHEMICAL IDENTITY :

Chemical Name : *MONOMETHYL AMINE (AQUEOUS 40%)*
Synonyms : *MMA*
Trade Name : *MONOMETHYL AMINE (AQUEOUS)*
Formula : *CH₃NH₂* C.A.S. No *74-89-5* UN No *1235*
Regulated Identification | Shipping name : *METHYL AMINE (AQUEOUS SOLUTION)*
| Hazchem code : *2PE*
| Code/ Label : *Flammable liquid (3.1)*
| Hazardous Waste ID No: *5*
Hazardous Ingredients : *NIL*
C.A.S. No :

2. PHYSICAL/CHEMICAL DATA

Boiling Pt : *48° C* Physical state : *Clear Liquid*
Appearance : *Colourless* Melting/Freezing pt : *-38° C*
Vapour Pr. (mm Hg) : *@ 35° C 300mm Hg* Specific Gravity : *0.90 @ 25° C*
Vapour Density : *1.1(GAS)* (Water = 1)
(Air = 1) pH : *Alkaline*
Solubility in water : *Comple.Soluble* Odour: *Fishy*
@ 30° C

3. FIRE AND EXPLOSION HAZARD DATA

Flammability : *YES* LEL : *4.9 %*
Flash point (OC): °C : *.* UEL : *20.7 %*
Flash point (CC) °C : *-12° C* TDG Flammability:
Autoignition Temp. : *430 ° C(GAS)*
Explosion sensitivity to impact : *NO*
Explosion sensitivity to static electricity : *YES*
Hazardous combustion product : *not reported*
Hazardous polymerisation : *No Polymerisation*
Combustible liquid : *YES* Flammable material : *YES*
Explosive material : *YES* Corrosive material : *YES*
Oxidiser : *NO* Pyrophoric material : *NO*
Organic Peroxide : *NO*

4. REACTIVITY DATA.

Chemical Stability : *Stable*
Incompatibility : *May reacts explosively with mercury*
with other material
Reactivity : *NO*
Hazardous Reaction : *N/A*
Product.

5. HEALTH HAZARD DATA

Routes of Entry : *Inhalation, Ingestion, Skin, Eye contact.*
Effects of : *Respiratory irritation & reversible haematological blood*
Exposure/Symptoms : *chemistry abnormalities. Irritation to mucous membrane*
Emergency Treatment : *In case of contact immediately flush eyes or skin with plenty of*
Water (Atleast for 15 min.) Remove contaminated clothing & shoes _____
If vapours are inhaled, remove to fresh air. If not breathing give
Artificial respiration. If breathing is difficult, give oxygen. If
Swallowed, do not induce vomiting. Give large quantity of water.
Call physician.
LD 50 (Oral-Rat) : *100-200(Gas) mg/kg for 100% Amine* STEL : *(ACGIH) 15ppm*
Permissible Exposure limit ppm : *19mg/m³*
TLV (ACGIH) : *10 PPM* 13mg/m³ Odour Threshold : *<1 ppm mg/m³*

6. PREVENTIVE MEASURES :

Personal Protective Equipment : *Eye face protection (Chemical splash goggle, full length Face shield), chemical suit (PVC suit with hood).Respiration full face mask with chemical cartridges for methyl Amines during concentration above TLV uncontrolled Release/unknown conce.use*

Handling and Storage : *Store in well ventilated area away from heat, flame and Sparks. Keep container tightly closed. Do not store with Oxidising materials. Water scrubber and water sprinkler Deluge system for storage.*

Precautions.

7. EMERGENCY / FIRST AID MEASURES

FIRE | Fire extinguishing : *Water spray, foam, dry chemical powder, CO₂ Media.*
| Special Procedures: *Cool container with water spray. Dilute solution thoroughly with water spray if exposed to heat or*

Unusual Hazards: *flame. Flash back if vapour reach source of ignition*

EXPOSURE | First Aid Measures: *In case of contact immediately flush eyes or skin with Plenty of water (atleast for 15Min.) remove contaminated clothing and shoes. If vapours are inhaled, Remove to fresh air. If not breathing, give artificial Respiration. If breathing is difficult, give oxygen. If Swallowed, do not induce vomiting. Give large Quantity of water. Call physician. Wear proper Protective equipments during rescue operation*

| Antidotes/Dosages: *Corticosteroid spray (CSIR)*

SPILLS | Steps to be taken : *Review fire and explosion hazard and safety Precautions before proceeding with clean-up. Use Appropriate PPE. Evacuate area to upwind direction. Extinguish/remove all ignition sources.*

| Waste Disposal : *Do not flush to public sewer./ Very dilute solution is biodegradable by acclimated bacteria..*

Methods

8. ADDITIONAL INFORMATION / REFERENCES

Nothing special in addition to above given.

9 MANUFACTURERS/SUPPLIERS DATA

NAME OF FIRM **Rashtriya Chemicals and Fertilisers Ltd.,**
Trombay Unit- Chembur, Mumbai 400074
Thal Unit - Alibag, Dist. Raigad. Maharashtra

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MATERIAL SAFETY DATA SHEET

CHEMICAL NAME : ***DIMETHYLAMINE (ANHYDROUS)***
C.A.S. No : 124-40-3
UN No : 1032

1. CHEMICAL IDENTITY :

Chemical Name : *Dimethylamine (Anhydrous)*
Synonyms : *Dimethyl Amine Anhydrous,*
N-Methylmethan amine
Trade Name :
Formula : C_2H_7N C.A.S. No 124-40-3 UN No 1032
Regulated Identification| Shipping name : *Dimethyl Amine*
| Hazchem code : 27
| Code/ Label : *Flammable Gas, Class 2*
| Hazardous Waste ID No: 5
Hazardous Ingredients :
Dimethyl Amine
C.A.S. No : 124-40-3

2. PHYSICAL/CHEMICAL DATA

Boiling Pt	: 6.90 °C	Physical state	: <i>Liquified Compr. Gas</i>
Appearance	: <i>Colourless</i>	Melting/Freezing pt	: -92.2 °C
Vapour Pr. (mm Hg)	: @ 35 °C	Specific Gravity	: 0.671 at
Vapour Density	: <i>Not available</i>	(Water = 1)	6.9 °C
(Air = 1)		pH	: <i>Alkaline</i>
Solubility in water	: <i>Soluble</i>	Odour	: <i>Dead fish or Ammonical</i>
@ 30 °C			<i>Odour</i>
		Others	: <i>Soluble in Alcohol</i>

3. FIRE AND EXPLOSION HAZARD DATA

Flammability	: <i>YES</i>	LEL	: 2.8 %
Flash point	: <i>C Not available(OC)</i>	UEL	: 14.4 %
Flash point	: °C -6.65 (CC)		
TDG Flammability	2		

Autoignition Temp.	: 400 °C		
Explosion sensitivity to impact	: <i>Stable</i>		
Explosion sensitivity to static electricity	: <i>Not available</i>		
Hazardous combustion product	: <i>Emits toxic fumes of No_x</i>		
Hazardous polymerisation	: <i>Will not occur</i>		
Combustible liquid	: <i>YES</i>	Flammable material	: <i>YES</i>
Explosive material	: <i>NO</i>	Corrosive material	: <i>NO</i>
Oxidiser	: <i>NO</i>	Pyrophoric material	: <i>NO</i>
Organic Peroxide	: <i>NO</i>		

4. REACTIVITY DATA.

Chemical Stability : *Stable*
Incompatibility : *Strong Oxidisers, Chlorine, Mercury, fluorine, maleic anhydride and acrylaldehyde*
with other material
Reactivity : *Can react vigorously with Oxidising Materials.*
Hazardous Reaction : *None in particular*
Product.

5. HEALTH HAZARD DATA

Routes of Entry : *Inhalation, Ingestion Eyes and Skin*
Effects of : *Inhalation at high concentration(>100ppm)causes*
Exposure/Symptoms : *nose and throat irritation,progressing all the way to*
Pulmonary edema. Eyes & Skin: Causes irritation.
Emergency Treatment : *Inhalation: Remove the victim to fresh air area. If*
Breathing has stopped, administer artificial respiration or
Oxygen if necessary. Keep the victim warm and quiet. Do not

Give stimulants. Eyes: flush thoroughly with plenty of water For 15 mins. Skin: Remove the contaminated clothing Immediately and flush the affected area with large amounts Of water. Seek medical aid.

LD 50 (Oral-Rat) : Not listed mg/kg STEL : Not listed ppm: Not listed mg/m³
Permissible Exposure Limit Not listed ppm Not listed mg/m³
TLV (ACGIH) : 10 PPM 18 mg/m³ Odour Threshold : 0.047 ppm. 0.85 mg/m³

6. PREVENTIVE MEASURES :

Personal Protective Equipment : Avoid contact with liquid or vapours

Provide moulded rubber acid resistance hand gloves,
Apron, shoes, face shield, self-contained breathing
Apparatus.

Handling and Storage : Keep the chemical away from heat, flame and oxidising
Precautions. Materials.

7. EMERGENCY / FIRST AID MEASURES

FIRE | Fire extinguishing : CO₂ Dry Chemical Powder, Water Spray.
Media.

| Special Procedures: Keep the containers cool by spraying water if exposed
to heat or flame.

! Unusual Hazards: Flashback along vapour trail may occur.

EXPOSURE | First Aid Measures: Inhalation: Remove the victim to fresh air, If breathing
Has stopped provide oxygen and keep the victim
Warm and quiet. Do not give stimulants. Eyes: Flush
With plenty of water for 15 mins. Skin: Remove the
Contaminated clothes and wash the affected area with
Plenty of water Seek Medical Aid.

| Antidotes/Dosages: Not available.

SPILLS | Steps to be taken : Shut off leaks if without risk. Contain leaking liquid
on sand or earth. Wash the surface with water and
Soap.

| Waste Disposal : Seal all the waste in vapour tight plastic bags for
Methods eventual disposal.

8. ADDITIONAL INFORMATION / REFERENCES

A poison by ingestion. A very dangerous fire hazard when exposed to heat or flame.

9 MANUFACTURERS/SUPPLIERS DATA

NAME OF FIRM Rashtriya Chemicals and Fertilisers Ltd.,
Trombay Unit- Chembur, Mumbai 400074
Thal Unit - Alibag, Dist. Raigad. Maharashtra
TEL No. 25522245 FAX 25522231
TEL No. 02141 - 238001 FAX 238091
IPD TEL 25523161 FAX 24045134

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MATERIAL SAFETY DATA SHEET

CHEMICAL NAME : ***DIMETHYL AMINE (AQUEOUS40%)***

C.A.S. No : 124 40 3

UN No : 1160

1. CHEMICAL IDENTITY :

Chemical Name : *DIMETHYL AMINE (AQUEOUS(40%))*

Synonyms : *DMA*

Trade Name : *DIMETHYL AMINE (AQUEOUS)*

Formula : *CH3-N-CH3* C.A.S. No *124 40 3* UN No *1160*

Regulated Identification| Shipping name : *METHYL AMINE (AQUEOUS SOLUTION)*

| Hazchem code : *2PE*

| Code/ Label : *Flammable liquid (3.1)*

| Hazardous Waste ID No: *5*

Hazardous Ingredients : *NIL*

2. PHYSICAL/CHEMICAL DATA

Boiling Pt : *54 ° C* Physical state : *Clear liquid*

Appearance : *Colourless* Melting/Freezing pt : *-37 ° C*

Vapour Pr. (mm Hg) : *@ 35 ° C 215mmHg* Specific Gravity : *0.88*

Vapour Density : *1.6(GAS)* (Water = 1)

(Air = 1) pH : *Alkaline(@11.9)*

Solubility in water : *Comple.soluble* @ *30 ° C*

3. FIRE AND EXPLOSION HAZARD DATA

Flammability : *YES* LEL : *2.8* %

Flash point (CC) : *-18 ° C* UEL : *14.4* %

Flash point (OC) °C

Autoignition Temp. : *402* °C (GAS)

Explosion sensitivity to impact : *NIL*

Explosion sensitivity to static electricity : *YES*

Hazardous combustion product : *CARBON MONOXIDE & OXIDES OF NITROGEN*

Hazardous polymerisation : *NO*

Combustible liquid : *YES* Flammable material : *YES*

Explosive material : *YES* Corrosive material : *YES*

Oxidiser : *NO* Pyrophoric material : *NO*

Organic Peroxide : *NO*

4. REACTIVITY DATA.

Chemical Stability : *STABLE*

Incompatibility with other material : *With mercury (Reacts explosively), Acids, Acid Chlorides Acidic unhydride, Strong oxydising agents like fluorine chlorine*

Reactivity : *May attack some form of rubber, plastics & coatings.*

Hazardous Reaction Product. : *Hazardous decomposition product - AMMONIA*

5. HEALTH HAZARD DATA

Routes of Entry : *Inhalation, ingestion, skin, eye contact.*

Effects of : *Nose, throat, lung irritation. Very high concentration can*

Exposure/Symptoms : *cause pulmonary edema, which may be fatal.*

Emergency Treatment : *In case of contact, immediately flush eyes or skin with plenty of water (atleast FOR 15MINS.) remove contaminated clothing & shoes. If vapours are inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen. If swallowed, do not induce vomiting. Give large quantity of water. Call physician.*

LD 50 (Oral-Rat): 690 mg/kg body weight

STEL : 15ppm 28mg/m³

Permissible exposure limit: 10ppm 18 mg/m³
TLV (ACGIH) : 10PPM 18mg/m³

Odour Threshold : 0.021-0.0

NFPA Hazard Signals	Health 3	Flammability 4	Reactivity 0	Special -
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6. PREVENTIVE MEASURES :

Personal Protective Equipment : *Eye face protection(Chemical splash goggle,full length face shield),chemicals suit (PVC suit with hood), Respiration full face mask with chemical cartridges for methyl amines, during concentration above TLV. During uncontrolled release use SCBA*

Handling and Storage Precautions. *Store in a well ventilated area away from Heat, Flame & Sparks. Keep container tightly closed.Donot store with Oxidising materials. Water sprinklers, water scrubber or Deluge system for storage.*

7. EMERGENCY / FIRST AID MEASURES

FIRE | Fire extinguishing : *Water, Foam, Dry chemical powder, CO₂. Media.*
| Special Procedures: *Cool tank/container with water spray. Dilute solution thoroughly with water spray.*

EXPOSURE | First Aid Measures: *In case of contact, immediately flush eyes or skin with Plenty of water (atleast for 15min.).Remove contaminated clothing and shoes. If vapours are inhaled,remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If swallowed, do not induce vomiting. Give large quantity of water. Call physician. Wear proper protection before rescue operation.*

| Antidotes/Dosages: *Carticosteroid spray (CSIR)*

SPILLS | Steps to be taken : *Review fire & explosion hazard & safety precautions Before proceeding with clean-up. Use appropriate PPE Evacuate area to upwind direction. Extinguish/remove all ignition sources.*

| Waste Disposal : *Do not flush to public sewer. Very dilute solution is biodegradable by acclimated bacteria*

8. ADDITIONAL INFORMATION / REFERENCES

Nothing special in addition to above given.

9 MANUFACTURERS/SUPPLIERS DATA

NAME OF FIRM [Rashtriya Chemicals and Fertilisers Ltd.,
Trombay Unit- Chembur, Mumbai 400074
Thal Unit - Alibag, Dist. Raigad. Maharashtra](#)

TEL No. [25522245](#) **FAX** [25522231](#)
TEL No.[02141 - 238001](#) **FAX** [238091](#)
IPD TEL [25523161](#) **FAX** [24045134](#)

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MATERIAL SAFETY DATA SHEET

CHEMICAL NAME : **SULPHURIC ACID**
C.A.S. No : 7664-93-9
UN No : 1830

1. CHEMICAL IDENTITY : *SULPHURIC ACID*

Synonyms : *Oil of Vitreol, Battery Acid, Chamber Acid, Spent Sulphuric Acid.*

Trade Name :

Formula : H_2SO_4 C.A.S. No 7664-93-9 UN No 1830

Regulated Identification| Shipping name : *Sulphuric Acid*
| Hazchem code : *2 P*
| Code/ Label : *Corrosive, Class &*
| Hazardous Waste ID No: *16*

Hazardous Ingredients : *Sulphuric Acid*
C.A.S. No : 7664-93-9

2. PHYSICAL/CHEMICAL DATA

Boiling Pt : 290⁰ C Physical state : *Liquid*

Appearance : *Colourless, oily* Melting/Freezing pt : 10.49⁰ C

Vapour Pr. (mm Hg) : @ 35⁰ C Specific Gravity : 1.84 at
(Water = 1) 20⁰C(Liq.)

Vapour Density : *Not available* pH : <1 Solubility in water :

(Air = 1) Others : *Miscible with Alcohol @ 30⁰ C*

3. FIRE AND EXPLOSION HAZARD DATA

Flammability : *NO* LEL : *Not pertinent* %

Flash point : *Flash point⁰C Not pertinent (OC).* UEL : *Not pertinent* %

Flash point : *Flash point⁰C Not pertinent (CC)*

Autoignition Temp. ⁰C : *Not pertinent*

Explosion sensitivity to impact : *Stable*

Explosion sensitivity to static electricity : *Stable*

Hazardous combustion product : *Emits toxic fumes of So_x*

Hazardous polymerisation : *Will not occur*

Combustible liquid : *NO* Flammable material : *NO*

Explosive material : *NO* Corrosive material : *YES*

Oxidiser : *YES* Pyrophoric material : *NO*

Organic Peroxide : *NO* Others

4. REACTIVITY DATA.

Chemical Stability : *Stable*

Incompatibility : *Organic Chlorates, Carbides, Fulminates, Picrates, metals.*
with other material

Reactivity : *Powerful Acidic oxidiser, ignites or explodes on contact with many materials like Acetic Acid, Acetone Cyanohydrin, (Acetone+HNO₃), (Acetone+K₂CR₂O₇), Acetonitrile, Acrolein, Acrylonitrile.*

Hazardous Reaction : *Reacts with many metals to form flammable Hydrogen Gas*
Product. *Which forms explosive mixtures with air. Reacts with water to Produce heat and toxic and corrosive fumes.*

5. HEALTH HAZARD DATA

Routes of Entry : *Inhalation, Ingestion, Eyes and Skin.*
Effects of : *Inhalation of vapour from hot conc. acid may injure lungs,*
Exposure/Symptoms *Causes bronchitis. Swallowing may cause injury or death.*
Contact with skin or eyes causes severe burns. Very dilute Soln. Causes dermatitis. Exposure causes bronchitis.
Emergency Treatment : *Seek Medical Aid immediately for all types of exposures.*
Observe victim for delayed pulmonary reaction. Move him to fresh Air. Give artificial respiration. Skin: Remove clothes and shoes. Do Not use oil or ointment. Flush affected area with plenty of water.
Eyes: Wash with plenty of water for 15 mins. Ingestion: Give Plenty of water to drink, do not induce vomiting.

LD 50 (Oral-Rat): mg/kg STEL :
TLV (ACGIH) : PPM Odour Threshold :

6. PREVENTIVE MEASURES :

Personal Protective Equipment : *Avoid contact with liquid. Do not eat or drink at work Place.*
Handling and Storage : *Store in a cool, well ventilated area, away from Oxidisers*
Precautions. *Acids of 98% stored in M.S. or C.I. tanks/drums.*

7. EMERGENCY / FIRST AID MEASURES

FIRE | Fire extinguishing : *Dry chemical or Carbon Dioxide. Do not use water.*
Media.
Special Procedures: *Keep the containers cool by spraying water if exposed to heat or flame.*
Unusual Hazards *Poisonous gas may be produced.*

EXPOSURE | First Aid Measures: *If inhaled, remove the victim to fresh air area, provide Artificial respiration or oxygen if required. If eyes are affected wash with plenty of water for 15 mins.*
Or more. If skin is affected remove contaminated Clothes and shoes and wash the affected area with Plenty of water and soap. Seek Medical Aid immediately for all types of exposures.

Antidotes/Dosages: *Not available.*

SPILLS | Steps to be taken : *Shut off leaks if without risk. Contain leaking liquid on Sand or earth. Do not absorb on sawdust or other Combustibles.*

Waste Disposal :
Methods

8. ADDITIONAL INFORMATION / REFERENCES

A common air contaminant. Sensitivities to Sulphuric Acid mists or vapours varies with Individuals. Normally 0.125-0.5 ppm may be mildly annoying, 1.5-2.5 ppm may definitely be unpleasant, 10-20 ppm unbearable. Contact with water creates violent reaction generating much heat and splattering of hot acid. Attacks many metals, liberating Hydrogen which is inflammable and forms explosive mixture with air.

9. MANUFACTURERS/SUPPLIERS DATA

NAME OF FIRM **Rashtriya Chemicals and Fertilisers Ltd.,**
Trombay Unit- Chembur, Mumbai 400074
TEL No. 25522245 FAX 25522231
IPD TEL 25523161 FAX 24045134

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MATERIAL SAFETY DATA SHEET

CHEMICAL NAME : ***NITRIC ACID***

C.A.S. No : 7697-37-2

UN No : 2031

1. CHEMICAL IDENTITY : *NITRIC ACID*

Chemical Classification: *Inorganic Acid*

Synonyms : *Aquaforties, Hydrogen Nitrate, Azotic Acid*

Trade Name :

Formula : *HNO₃* C.A.S. No 7697-37-2 UN No 2031

Regulated Identification| Shipping name : *Nitric Acid*

| Hazchem code : *2 P E*

| Code/ Label : *Corrosive, Oxidiser, Class 8*

| Hazardous Waste ID No: *16*

Hazardous Ingredients : *Nitric Acid*

C.A.S. No : *7697-37-2*

2. PHYSICAL/CHEMICAL DATA

Boiling Pt : *86 °C*

Physical state : *Watery liquid*

Appearance : *Colourless to Brown*

Melting/Freezing pt : *-42 °C*

Vapour Pr. (mm Hg) : *@ 35 °C Not available* Specific Gravity : *1.49 @ 20 °C*

Vapour Density : *Not available* (Water = 1)

(Air = 1)

pH *Acidic* Solubility in water

: *Soluble*

Odour *Choking Odour*

@ *30 °C*

3. FIRE AND EXPLOSION HAZARD DATA

Flammability : *NO* LEL : *Not pertinent* %

Flash point : *°C Not pertinent(OC)* UEL : *Not pertinent* %

Flash point : *°C Not pertinent(CC)* TDG Flammability : *8*

Autoignition Temp. : *Not pertinent °C*

Explosion sensitivity to impact : *Stable*

Explosion sensitivity to static electricity : *Stable*

Hazardous combustion product : *May emit poisonous Oxides of Nitrogen
And Acid fumes.*

Hazardous polymerisation :

Combustible liquid : *NO* Flammable material : *NO*

Explosive material : *NO* Corrosive material : *YES*

Oxidiser : *YES* Pyrophoric material : *NO*

Organic Peroxide : *NO*

4. REACTIVITY DATA.

Chemical Stability : *Stable*

Incompatibility with other material : *With 4-Acetoxy-3-methoxybenzaldehyde Acetylene
Acrylonitrile, Acrylonitrile+Methacrylate Copolymer, Allyl
Alcohol, Allyl Chloride, 2-Amino Ethanol, Aniline, SbH₃*

Reactivity : *Can react explosively with many reducing agents. Reacts
With water and steam to produce heat and toxic, corrosive and
Flammable vapours. Explosive reaction with Acetic Anhydride,
Acetone+Acetic acid (in storage)*

Hazardous Reaction Product. : *Reacts with water and steam to produce toxic, corrosive and
Flammable vapours.*

5. HEALTH HAZARD DATA

Routes of Entry : *Inhalation, Ingestion, Skin and Eyes.*
Effects of : *Vapours irritate eyes and respiratory tract, lung injury may not become apparent for several hours following exposure. Liquid May cause severe burns of eyes and skin.*
Exposure/Symptoms : *Inhalation: Remove the victim to fresh air area. Provide Artificial respiration if required. Ingestion: Give large volumes Of water. Do not induce vomiting. Skin & Eyes: Flush the affected Area with plenty of water for long time. Seek Medical Aid immediately.*

LD 50 (Oral-Rat)	: Not listed	mg/kg	STEL	: 4 ppm 10 mg/m ³
Permissible Exposure Limit	2 ppm	5 mg/m ³		
TLV (ACGIH)	: 2PPM	5mg/m ³	Available	Odour Threshold : Not ppm Not mg/m ³
NFPA Hazard Signals	:Health	:Flammability	:Reactivity	:Special
	3	0	0	

6. PREVENTIVE MEASURES :

Personal : *Avoid contact with liquid or vapours*
Protective Equipment : *Provide air mask, rubber acid suit, hood, boots, gloves, face shield. Water shower, eye wash basin should be provided near to the work Place.*
Handling and Storage : *Store in a well ventilated, cool, dry area, away from oxidizing agents*
Precautions.

7. EMERGENCY / FIRST AID MEASURES

FIRE | Fire extinguishing : *Not flammable Media.*
| Special Procedures: *Keep the containers cool by spraying water if exposed to heat or flame.*
Unusual Hazards: *Poisonous gases are produced.*

EXPOSURE | First Aid Measures: *If eyes and skin are affected wash with plenty of water. If inhaled, remove the victim to fresh air area. If Ingested, do not induce vomiting. Seek Medical Aid Immediately for any type of exposure to this chemical*
Antidotes/Dosages: *Not available*

SPILLS| Steps to be taken : *Dilute with water and neutralise with alkali and drench*

| Waste Disposal : *Seal all the waste in vapour tight plastic bags for*
Methods *eventual disposal.*

8. ADDITIONAL INFORMATION / REFERENCES

A powerful oxidiser and corrosive material. Flammable by chemical reaction with reducing Agents.

9. MANUFACTURERS/SUPPLIERS DATA

NAME OF FIRM Rashtriya Chemicals and Fertilisers Ltd.,
Trombay Unit- Chembur, Mumbai 400074
TEL No. 25522245 FAX 25522231
IPD TEL 25523161 FAX 24045134

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MATERIAL SAFETY DATA SHEET

CHEMICAL NAME : ***DIMETHYL FORMAMIDE***
C.A.S. No. : 5954507
UN No. : 2265

1. CHEMICAL IDENTITY :

Chemical Name: DIMETHYL FORMAMIDE
Synonyms : N-FORMYLDIMETHYLAMINE
Trade Name : DIMETHYL FORMAMIDE
Formula : C₃H₇NO C.A.S. No 5954507 UN No 2265
Regulated Identification| Shipping name : DIMETHYL FORMAMIDE
| Hazchem code : 2PE
| Code/ Label : Flammable liquid Class - 3
| Hazardous Waste ID No: 5
Hazardous Ingredients : 1. DIMETHYL FORMAMIDE
C.A.S. No : 5954507

2. PHYSICAL/CHEMICAL DATA

Boiling Pt	: 152.8 °C	Physical state	: Liquid
Appearance	: Colourless	Melting/Freezing pt	: -61 °C
Vapour Pr. (mm Hg)	: 3.7 mm @ 25 °C	Specific Gravity	: 0.9445 @ 25 °C
Vapour Density : 2.51 (Air = 1)	(Water = 1)	pH	: Slightly Acidic.
Solubility in water	Soluble @30°C		

3. FIRE AND EXPLOSION HAZARD DATA

Flammability	: Yes	LEL	: 2.2 %
Flash point	: Not available.	UEL	: 15.2 %
Autoignition Temp.			: 833 °C
Explosion sensitivity to impact			: Stable.
Explosion sensitivity to static electricity	: Not available.		
Hazardous combustion product	: Not known.		
Hazardous polymerisation	: Will not occur.		

Combustible liquid	: Yes	Flammable material	: Yes
Explosive material	: No	Corrosive material	: No
Oxidiser	: No	Pyrophoric material	: No
Inorganic material	: No		3

4. REACTIVITY DATA.

Chemical Stability : Stable
Incompatibility : Strong oxidisers, Halogenated hydrocarbons, CCl₄, C₆Cl₆,
with other material Organic nitrates, P₂O₃, Cr₂O₃, Al(C₂H₅)₃
Reactivity : Can react vigorously with oxidising materials and hydrocarbons.
Hazardous Reaction : Not available.
Product.

5. HEALTH HAZARD DATA

Routes of Entry : Inhalation, Ingestion, eye and skin.
Effects of : Inhalation at high concentration causes nose and throat
Exposure/Symptoms irritation. Eye and skin irritation on exposure.
Emergency Treatment : Remove the victim to the fresh air area, if breathing has stopped, administer artificial respiration and oxygen if necessary. Keep the victim warm and quiet. Do not give stimulants. Eyes: Flush thoroughly with plenty of water for 15 mins. Skin: Remove the contaminated clothing immediately and flush the affected area with large amount of water. Seek medical aid
LD 50 (Oral-Rat) : 2800 mg/kg STEL : Not listed
TLV (ACGIH) : 10 PPM Odour Threshold : Not listed

6. PREVENTIVE MEASURES : Avoid contact with liquid and vapours.
Personal Protective Equipment : Provide moulded rubber acid resistant hand gloves, apron, shoes, face shield.
Handling and Storage : Keep the chemicals away from heat, flame, oxidising
Precautions. Material

7. EMERGENCY / FIRST AID MEASURES

FIRE | Fire extinguishing : CO2, Dry Chemical Powder, Foam
Media.
| Special Procedures: Keep the container cool by spraying water. If exposed to heat or flame.
EXPOSURE | First Aid Measures: Remove the victim to the fresh air area, if breathing has stopped, administer artificial respiration and oxygen if necessary. Keep the victim warm and quiet. Do not give stimulants. Eyes: Flush thoroughly with plenty of water for 15 mins. Skin: Remove the contaminated clothing immediately and flush the affected area with large amount of water. Seek medical aid.
| Antidotes/Dosages: Not available.
SPILLS| Steps to be taken : Shut of leaks if without risk. Contain the liquid on sand or earth.
| Waste Disposal : Seal all waste in vapour tight plastic bags for
Methods eventual disposal.

8. ADDITIONAL INFORMATION / REFERENCES

Nothing special in addition to above given.

9 MANUFACTURERS/SUPPLIERS DATA

NAME OF FIRM Rashtriya Chemicals and Fertilisers Ltd.,
Thal Unit - Alibag, Dist. Raigad. Maharashtra
TEL No.02141 - 238001 FAX 238091
IPD TEL 25523161 FAX 24045134

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MATERIAL SAFETY DATA SHEET

CHEMICAL NAME : ***DIMETHYL ACETAMIDE***

C.A.S. No : 127195

UN No : --

1. CHEMICAL IDENTITY :

Chemical Name: DIMETHYL ACETAMIDE

Synonyms : DIMETHYLAMIDE ACETATE

: DIMETHYL ACETONEAMIDE

Trade Name : DIMETHYL ACETAMIDE

Formula : C₄H₉NO C.A.S. No 127195 UN No --

Regulated Identification| Shipping name : DIMETHYL ACITAMIDE

| Hazchem code : 2PE

| Code/ Label : Flammable liquid Class - 3

| Hazardous Waste ID No: 5

Hazardous Ingredients : 1. DIMETHYL ACETAMIDE

C.A.S. No : 127195

2. PHYSICAL/CHEMICAL DATA

Boiling Pt : 165 °C

Physical state : Liquid

Appearance : Colourless

Melting/Freezing pt : -20 °C

Vapour Pr. (mm Hg) : 1.3 mm @ 25 °C

Specific Gravity : 0.945 @ 25 °C

Vapour Density : 3.01 (Water = 1)

(Air = 1)

pH : Slightly Acidic.

Solubility in water : Soluble

@ 30 °C

3. FIRE AND EXPLOSION HAZARD DATA

Flammability : Yes

LEL : 2.0 %

Flash point : 171 F

UEL : 11.5 %

Autoignation Temp. : Not given

Explosion sensitivity to impact : Stable.

Explosion sensitivity to static electricity : Not given.

Hazardous combustion product : Emits toxic fumes of NO_x

Hazardous polymerisation : Not given.

Combustible liquid : Yes Flammable material : Yes

Explosive material : No Corrosive material : No

Oxidiser : No Pyrophoric material : No

Inorganic material : No

4. REACTIVITY DATA.

Chemical Stability : Stable

Incompatibility : Strong oxidisers
with other material

Reactivity : Can react vigorously with oxidising materials

Hazardous Reaction : Not available.
Product.

5. HEALTH HAZARD DATA

Routs of Entry : Inhalation, Ingestion, eye and skin.
Effects of : Inhalation at high concentration causes nose and throat
Exposure/Symptoms irritation. Eye and skin irritation on exposure.
Emergency Treatment : Remove the victim to the fresh air area, if breathing has stopped, administers artificial respiration and oxygen if necessary. Keep the victim warm and quiet. Do not give stimulants. Eyes: Flush thoroughly with plenty of water for 15 mins. Skin: Remove the contaminated clothing immediately and flush the affected area with large amount of water. Seek medical aid.
LD 50 (Oral-Rat) : 5090 mg/kg STEL : Not listed
TLV (ACGIH) : 10 PPM Odour Threshold : Not listed

6. **PREVENTIVE MEASURES** : Avoid contact with liquid and vapours.
Personal Protective Equipment : Provide moulded rubber acid resistant hand gloves, apron, shoes, face shield.
Handling and Storage : Keep the chemicals away from heat, flame, oxidising
Precautions. Material
-

7. EMERGENCY / FIRST AID MEASURES

FIRE | Fire extinguishing : CO2, Dry Chemical Powder, Foam Media.
| Special Procedures: Keep the container cool by spraying water. If exposed to heat or flame.
EXPOSURE | First Aid Measures: Remove the victim to the fresh air area, if breathing has stopped, administer artificial respiration and oxygen if necessary. Keep the victim warm and quiet. Do not give stimulants. Eyes: Flush thoroughly with plenty of water for 15 mins. Skin: Remove the contaminated clothing immediately and flush the affected area with large amount of water. Seek medical aid.
Antidotes/Dosages: Not available.
SPILLS| Steps to be taken : Shut of leaks if without risk. Contain the liquid on sand or earth.
Waste Disposal : Seal all waste in vapour tight plastic bags for
Methods eventual disposal.

8. ADDITIONAL INFORMATION / REFERENCES

Nothing special in addition to above given.

9 MANUFACTURERS/SUPPLIERS DATA

NAME OF FIRM Rashtriya Chemicals and Fertilisers Ltd.,
Thal Unit - Alibag, Dist. Raigad. Maharashtra
TEL No.02141 - 238001 FAX 238091
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MATERIAL SAFETY DATA SHEET

CHEMICAL NAME : **ARGON (Pressurised cryogenic liquid)**

C.A.S. No : 7440371

UN No : 1951

1. CHEMICAL IDENTITY :

Chemical Name : ARGON
Synonyms : ARGON, Liquid. Pressurised
Trade Name : N/A
Formula : Ar.
Regulated Identification | Shipping name : Liquid Argon
| Hazchem code : 2RE
| Label : Inflammable Gas
| Hazardous Waste ID No: N/A
Hazardous Ingredients : NIL
C.A.S. No :

2. PHYSICAL/CHEMICAL DATA

Boiling Pt : -185.7 Physical state : Liquefied gas
Appearance : Soft Silvery White Metal Melting/Freezing pt : -189.2 C
Vapour Pr. (mm Hg) : Lighter than air Specific Gravity(Water=1):1.784
Vapour Density(Air = 1): N.A.
Solubility in water : Insoluble pH : : N/A

3. FIRE AND EXPLOSION HAZARD DATA- NON Flammable

Flammability : LEL : % N/A
Flash point : UEL : % N/A
Auto ignition Temp. : N/A
Explosion sensitivity to impact : No.
Explosion sensitivity to static electricity : No.
Hazardous combustion product : N/A
Hazardous polymerisation : N/A
Combustible liquid : NO Flammable material : N/A
Corrosive material : NO Explosive material : NO Oxidiser NO Pyrophoric material : No
Inorganic material : YES

4. REACTIVITY DATA.

Chemical Stability : Inert Incompatibility : None
Reactivity : None Hazardous Reaction Product. : N/A

5. HEALTH HAZARD DATA

Routes of Entry : *Inhalation*
Effect of exposure : Frost Bite (cold burns), Respiratory ailments. At ambient temp. liquid converts to gas, at 50 % conc of gas 2/3 % of Oxygen gets displaced. At 75% conc is fatal in minutes.
Due to asphyxia mental alertness is diminished and muscular co-ordination is impaired. As asphyxia is progresses there may be nausea and vomiting, prostration and loss of consciousness and finally convulsions deep coma and death
TLV (8-hours) : N/A STEL(15min) : N/A

6. PREVENTIVE MEASURES :

Personal Protective Equipment : To avoid exposure personnel must be equipped with special clothing designed to prevent freezing of body tissue. Full body protection. Respiratory protective equipment. is must when handling leakage.

Handling and Storage: Storage area should be dry and well ventilated.

Precautions.: Cryogenic liquid. can be vaporised rapidly at ambient temp. One must consider the consequences of rapidly filling an inhabited space with vapour i.e. displacement of Oxygen. Rescue operation shall be carried out with proper full body and respiratory protection

7. EMERGENCY / FIRST AID MEASURES

FIRE | Fire extinguishing : .

| Special Procedures:

EXPOSURE | First Aid Measures:

In case of exposure to liquid wash affected area with water. In case of asphyxia remove victim to fresh air. Give artificial respiration if unconscious and call medical aid

| Antidotes/Dosages: .

SPILLS | Steps to be taken :.- Restrict access to the area. Clean-up by trained personnel only. Disperse gas with water spray

| Waste Disposal : .

Methods

8. ADDITIONAL INFORMATION / REFERENCES

9 MANUFACTURERS/SUPPLIERS DATA

NAME OF FIRM Rashtriya Chemicals and Fertilisers Ltd.,
Trombay Unit- Chembur, Mumbai 400074
Thal Unit - Alibag, Dist. Raigad. Maharashtra

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TEL No.02141 - 238001 FAX 238091

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8. EMERGENCY / FIRST AID MEASURES

FIRE : Fire extinguishing : Flood with water or use appropriate medium for extinguishing surrounding fire.

Special Procedures: Fire fighter should wear self-contained breathing apparatus and full protecting clothing. Use water spray to cool, near by container and structure expose to fire. **This product may fuse or melt in large fires and using water to extinguish may cause the scattering of molten material. In such conditions, water should not be applied to molten salt baths.**

EXPOSURE : First Aid Measures: If inhaled: Remove to fresh air. Give artificial respiration if not breathing. In case of eye contact, immediately flush eyes with lots of running water for 15 minutes. Lifting upper and lower eyelids occasionally, If swallowed - if conscious, immediately induce vomiting by giving 2 glasses of water and sticking a finger down the throat. Get immediate medical attention. Do not give anything to an unconscious or convulsing person.

Antidotes/Dosages : Not available .

SPILLS

Steps to be taken :- Wear protective equipments including rubber shoes, rubber gloves, rubber apron and a self contained breathing apparatus. (Pressure demand mode) or a supplied air respirator. If spill or leak is small, a full-face piece air purifying cartridge respirator equipped with particular filters may be satisfactory, Always wear eye protection. For small spill, sweep up and dispose off into proper containers. For large spill, shovel into proper container. Keep out of sewers, storm drains, surface water and soils. **Avoid friction, heat or shocks.**

Waste Disposal : Dispose off contaminated product and materials used in cleaning up spill or leaks in a manner approved for these materials. **Avoid friction, heat or shocks.**

9. ADDITIONAL INFORMATION / REFERENCES

Disaster Hazard : Dangerous due to Fire & Explosion hazard. If decomposition takes place in large amount, disastrous situation may take place due to toxic fumes of Nox. Avoid friction, heat or shocks. Avoid contact with acids, organic materials & reducing agents.

References (Source of information) :

*Dangerous Properties of Industrial Materials (VIth Edition) - N. Irving Sax
MSDS by Canadian Centre for Occupational Health & Safety*

10 MANUFACTURERS/SUPPLIERS DATA

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MATERIAL SAFETY DATA SHEET

CHEMICAL NAME : **AMMONIUM BICARBONATE**

C.A.S. No : 10766337

UN No : Not available

1. CHEMICAL IDENTITY :

Chemical Name : *Ammonium Bicarbonate*
Synonyms : *Ammonium Hydrogen Carbonate*
Trade Name : *Ammonium Bicarbonate*
Formula : $NH_4 HCO_3$
Regulated Identification | Shipping name : *Ammonium Bicarbonate*
| Hazchem code : --
| Label : --
| Hazardous Waste ID No : 17
Hazardous Ingredients : *Ammonium Bicarbonate*
C.A.S. No : 10766337

2. PHYSICAL/CHEMICAL DATA

Boiling Pt	: NA	Physical state	: <i>Solid</i>
Appearance	: <i>White</i>	Melting/Freezing pt	: <i>107.5^o C</i>
Vapour Pr. (mm Hg)	: NA	Specific Gravity	: NA
Vapour Density	:	(Water = 1)	
(Air = 1)		pH	: NA
Solubility in water	: <i>Soluble</i>		

3. FIRE AND EXPLOSION HAZARD DATA- Non Flammable

Flammability	: NO	LEL	: --%
Flash point	: NA	UEL	: --%
Auto ignition Temp.			: NA
Explosion sensitivity to impact			: NA
Explosion sensitivity to static electricity			: NA
Hazardous combustion product			: <i>On decomposition emits NOx & Ammonia</i>
Hazardous polymerisation			: NA
Combustible liquid	: NO	Flammable material	: NO
Corrosive material	: NO	Explosive material	: NO
Oxidiser	: NO	Pyrophoric material	: NO
Inorganic material	: YES		

4. REACTIVITY DATA.

Chemical Stability : *Stable at room temp., volatile, decomposes at 60^o C*
Incompatibility : *Not Available*
Reactivity : *Not Available*
Hazardous Reaction : *Not Available*
Product.

5. HEALTH HAZARD DATA (Used as a Food Additive)

Routs of Entry: *Inhalation, Ingestion.*

Effect of exposure : *NA*

TLV (8-hours) : *Not Applicable* STEL(15min) : *Not Applicable* LD50 -
MUS 245 mg/kg

6 PREVENTIVE MEASURES :

Personal Protective Equipment : *Dust Mask*

Handling and Storage: *Store in well-ventilated area away from source of the heat.*

Precautions.:

7. EMERGENCY / FIRST AID MEASURES

FIRE | Fire extinguishing : *Use Water spray.*

| Special Procedures: *In case of decomposition and emission of toxic fumes of NOx, NH₃ use Self-contained Breathing Apparatus.*

EXPOSURE | First Aid Measures: - *If exposed to Ammonia, remove victim to fresh air*

| Antidotes/Dosages: . *Not Available*

SPIILLS | Steps to be taken : - *Collect in drums*

| Waste Disposal : *After collection, residuals, wash it with water*
Methods

8. ADDITIONAL INFORMATION / REFERENCES

9 MANUFACTURERS/SUPPLIERS DATA

NAME OF FIRM [Rashtriya Chemicals and Fertilisers Ltd.,](#)
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MATERIAL SAFETY DATA SHEET

CHEMICAL NAME : **AMMONIA**

C.A.S. No : 7664-41-7

UN No : 1005

1. CHEMICAL IDENTITY :

Chemical Name : **AMMONIA**
Synonyms : *Liquid Ammonia, Ammonia Gas, Ammonia Anhydrous*
Trade Name :
Formula : NH_3
Regulated Identification | Shipping name AMMONIA :
| Hazchem code : *2 P E*
| Label : *Non Flammable Gas, Class 2*
| Hazardous Waste ID No : *17*
Hazardous Ingredients :
C.A.S. No : 7664-41-7

2. PHYSICAL/CHEMICAL DATA

Boiling Pt : $-33.4\text{ }^{\circ}C$ Physical state *Liquified Compr. Gas*
Appearance : *Colourless* Melting/Freezing pt : $-77.77\text{ }^{\circ}C$
Vapour Pr. (mm Hg) : Specific Gravity : *0.771*
Vapour Density : *0.60* (Water = 1) *Very soluble*
(Air = 1) pH : : *1N aq. Sol. 11.6*
Solubility in water :

3. FIRE AND EXPLOSION HAZARD DATA- NON Flammable

Flammability : *NO* LEL *16.0* : %
Flash point : *^{\circ}C Not pertinent* UEL *25.0* : %
Auto ignition Temp. $^{\circ}C$ *651.0* :
Explosion sensitivity to impact *Stable* :
Explosion sensitivity to static electricity : *Not available*
Hazardous combustion product : *Emits toxic fumes of NH_3 & NO_x*
Hazardous polymerisation : *Will not occur*
Combustible liquid : *YES* Flammable material : *NO*
Corrosive material : *NO* Explosive material : *NO*
Oxidiser : *NO* Pyrophoric material : *NO*
Organic Peroxide : *NO*

4. REACTIVITY DATA.

Chemical Stability : *Stable*
Incompatibility : *Strong oxidisers, Calcium hypochlorite, Gold, Mercury, Silver, Halogens, Acetaldehyde, Acrolein*
Reactivity : *Reacts with silver chloride, silver nitrate, silver azide, chlorine, bromine, iodine, heavy metals and their compounds. Incandescent reaction when heated with calcium.*
Hazardous Reaction Product : *Reaction with silver chloride, silver nitrate, silver azide and silver oxide from explosive silver nitride.*

5. HEALTH HAZARD DATA

Routes of Entry	: <i>Inhalation, Skin or Eyes</i>			
Effect of exposure System	: <i>700 ppm causes eye irritation and permanent injury May result if prompt medical remedial measures are not Taken. 5000ppm may cause death from spun inflammation, Or edema of the larynx. Contact of the liquid with skin freezes the tissues and causes the caustic burns.</i>			
Emergency Treatment	: <i>Inhalation: Remove the victim to fresh air area and provide artificial respiration or oxygen, if needed. Skin and Eyes: Wash The affected area with plenty of water for 15 mins. Seek Medical Aid</i>			
LD ₅₀ (Oral-Rat)	350 mg/kg			
mg/m ³ Permissible Exposure Limit	25 ppm	18 mg/m ³	Odour Threshold	46.8 ppm 32.53
		STEL(15min)	:	35ppm 27 mg/m ³
TLV(ACGIH)	25 ppm	18 mg/m ³		
<hr/>				
NFPA Hazard Signals	: Health 2	: Flammability 1	: Reactivity 0	: Special
<hr/>				

6. PREVENTIVE MEASURES :

Personal Protective Equipment :

Avoid contact with liquid or vapours. Provide rubber boots, safety goggles, self-contained Breathing apparatus, gas mask and protective clothing in case of liquid Ammonia.

Handling and Storage:

Precautions.:

Avoid storing along with oxidizing materials and away from all possible sources of ignition. Store in well ventilated, flame resistant locations.

7. EMERGENCY / FIRST AID MEASURES

FIRE	<u>Fire extinguishing</u> :	
	Media	<i>Stop flow of gas. Use water spray or fog.</i>
	<u>Special Procedures:</u>	<i>Keep the containers cool by spraying water if exposed to heat or flame .</i>
	<u>Unusual Hazards</u>	<i>Gas is suffocating</i>
EXPOSURE	<u>First Aid Measures:</u>	<i>Inhalation: Remove the victim to fresh air Area, provide artificial respiration or oxygen, if needed. Skin: Remove the contaminated clothes and was the affected area with plenty of water and soap. Eyes: Flush with plent yof water for 15mins. Seek Medical Aid</i>
	<u>Antidotes/Dosages:</u> .	<i>Not available</i>
SPILLS	<u>Steps to be taken</u> : .-	<i>Contain leaking liquid on sand or earth, allow to evaporate Dilute the vapours with plenty of water.</i>
	<u>Waste Disposal</u> : .	<i>Seal all waste in vapour tight plastic bags for eventual disposal.</i>
	<u>Methods</u>	

8. ADDITIONAL INFORMATION / REFERENCES

LCL0: 30,000 ppm/5M(ihl-hmn).A human poison by an unspecified route. Difficult to ignite. NH₃ and air in a fire, can detonate. Potentially violent or explosive reactions on contact with interhalogens. Forms sensitive explosive mixture with air and hydrocarbons. Those affected with eye and pulmonary diseases should avoid exposure to Ammonia.

9 MANUFACTURERS/SUPPLIERS DATA

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MATERIAL SAFETY DATA SHEET

CHEMICAL NAME : **CALCIUM CARBONATE**
C.A.S. No : 1317653
UN No : Not Listed

1. CHEMICAL IDENTITY :

Chemical Name : *CALCIUM CARBONATE*
Synonyms : *CHALK, DOMOLITE, LIMESTONE*
Trade Name : *CALCIUM CARBONATE (CHALK)*
Formula: Ca CO₃ C.A.S. No: 1317653 UN No: Not Listed
Regulated Identification | Shipping name : -- *CALCIUM CARBONATE / LIMESTONE*
| Hazchem code : -- Not listed
| Code/ Label : -- Not listed
| Hazardous Waste ID No: --
Hazardous Ingredients : *CALCIUM CARBONATE*
C.A.S. No : 1317653

2. PHYSICAL/CHEMICAL DATA

Boiling Pt : --Not Available ° C Physical state : *Solid*
Appearance : *White powder*
Melting/Freezing pt :
Vapour Pr. (mm Hg) : -- Not Available @ 25 ° C
Specific Gravity : -- Not Available @ 25 ° C
Vapour Density : -- Not Available (Water = 1)
(Air = 1) pH: -- : Not Pertinent
Solubility in water : *Soluble*
@ 30 ° C

3. FIRE AND EXPLOSION HAZARD DATA

Flammability : Non Flammable LEL : %
Flash point : . UEL : %
Autoignition Temp. : Not Pertinent
Explosion sensitivity to impact : Stable
Explosion sensitivity to static electricity : Stable
Hazardous combustion product : Not pertinent
Hazardous polymerisation : Will not occur
Combustible liquid : NO Flammable material : NO
Explosive material : NO Corrosive material : NO
Oxidiser : NO Pyrophoric material : NO
Inorganic material : NO

4. REACTIVITY DATA.

Chemical Stability : *Stable*
Incompatibility : *Fluorine*
With other material
Reactivity : *Stable*
Hazardous Reaction : *Reacts violently with F₂, (Mg + H₂)*
Product:

5. HEALTH HAZARD DATA

Routs of Entry : *Inhalation (dust), Ingestion, Skin absorption and eye*
Effects of : *Not Pertinent*
Exposure/Symptoms :
Emergency Treatment: *Exposed parts to be washed with water.*

LD 50 (Oral-Rat) : -- Not Pertinent mg/kg
STEL : -- Not Pertinent
TLV(ACGIH) : -- Not Pertinent ppm
Odour Threshold : -- Not Pertinent

6. PREVENTIVE MEASURES :

Personal Protective Equipment : *Use Dust masks, Goggles, Gloves and coverall.*
Handling and Storage :
Precautions.

7. EMERGENCY / FIRST AID MEASURES

FIRE | Fire extinguishing : *Non flammabble Media.*
| Special Procedures:

EXPOSURE | First Aid Measures: *Wash exposed parts with plenty of water.*
See medical aid.

| Antidotes/Dosages: *Not Available.*
SPILLS | Steps to be taken : *Collect in Jute / HDPE bags.*
| Waste Disposal : *Not Pertinent*

8. ADDITIONAL INFORMATION / REFERENCES

Nothing special in addition to above given.

9. MANUFACTURERS/SUPPLIERS DATA

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MATERIAL SAFETY DATA SHEET

CHEMICAL NAME : **METHANOL**

C.A.S. No : 67-56-1

UN No : 1230

1. CHEMICAL IDENTITY :

Chemical Name: *METHANOL*
Synonyms : *Methyl Alcohol, Wood Alcohol, Wood, Spirit, Colonial Spirit*
Trade Name :
Formula : *CH₃OH*
Regulated Identification | Shipping name : *Methanol*
| Hazchem code : *2PE*
| Code/ Label : *Flammable liquid , Class 3*
| Hazardous Waste ID No: *17*
Hazardous Ingredients *Methyl Alcohol* :

2. PHYSICAL/CHEMICAL DATA

Boiling Pt : *64.5 °C* Physical state : *Liquid*
Appearance : *Colourless, watery* Melting/Freezing pt : *-97.8 °C*
Vapour Pr. (mm Hg) : *@ 35 °C 100mm Hg at 21.2°C* Specific Gravity : *0.79 at*
Vapour Density : *1.10 (Water = 1) 20°C(Liq)*
(Air = 1) pH : *Neutral*
Solubility in water : *Miscible @ 30 °C*

3. FIRE AND EXPLOSION HAZARD DATA

Flammability : *YES* LEL : *6 %*
Flash point : *°C 16.1 (OC). UEL : 36.5 %*
Flash point : *°C 12.2 (CC)* TDG Flammability: *3*
Autoignition Temp. : *°C 463.8*
Explosion sensitivity to impact : *Stable*
Explosion sensitivity to static electricity : *Vapours are explosive*
Hazardous combustion product : *Emits acrid smoke and irritating fumes*
Hazardous polymerisation : *Will not occur*
Combustible liquid : *YES* Flammable material : *YES*
Explosive material : *NO* Corrosive material : *NO*
Oxidiser : *NO* Pyrophoric material : *NO*
Organic Peroxide : *NO*

4. REACTIVITY DATA.

Chemical Stability : *Stable*
Incompatibility : *Strong Oxidisers, Beryllium Dihydride, Metals(K,Mg), Carbon*
with other material *Tetrachloride+Metals(al,Mg,Zn), Dichloromethane, Oxidants*
Reactivity : *Violent reaction with Alkyl Aluminium Salts, Acetyl Bromide,*
Chloroform+NaOH, CrO₃, Nitric Acid, HClO₄, P₂O₃
Hazardous Reaction : *Not available*
Product.

5. HEALTH HAZARD DATA

Routs of Entry : *Inhalation, Ingestion, Eyes, Skin*
Effects of : *Exposure to vapours causes eye irritation,headache,fatigue*
Exposure/Symptoms : *Drowsiness. High concentration can produce central nervous System depression and optic nerve damage. 50,000ppm will Probably cause death in 1-2hrs. Can absorb through skin.*
:
Swallowing may cause death or eye damage.
Emergency Treatment : *Inhalation: Remove the victim from exposed area & apply Artificial respiration if breathing has stopped. Ingestion. Induce vomiting, give 2 teaspoons of baking soda in a glass of Water. Skin or Eyes: Flush with plenty of water for 15 minutes. Seek Medical Aid.*

LD 50 (Oral-Rat) : 5628 mg/kg STEL :250(Skin) ppm 310(Skin)mg/m³
Permissible Exposure Limit: 200(Skin) ppm 200(Skin) mg/m³
TLV (ACGIH): 200(Skin)PPM 200(Skin) mg/m³
Odour Threshold : 100 ppm 130.87mg/m³

6. PREVENTIVE MEASURES :

Personal : *Avoid contact with liquid or vapours*
Protective Equipment : *Provide air-supplied respirator.(Do not use organic canister Mask). Wear boots, safety goggles,protective aprox and rubber Gloves. Provide eye wash and basin nearby.*
Handling and Storage : *Store away from heat, ignition source,sparks.Keep away*
Precautions. *From heat and flame*

7. EMERGENCY / FIRST AID MEASURES

FIRE | Fire extinguishing Media. : *CO₂ Dry chemical powder, Alcohol Foam, Water Mist Fog.*
| Special Procedures: *Keep the containers cool by spraying water if exposed to heat or flame.*
Unusual Hazards : *Containers may explode in fire.*

EXPOSURE | First Aid Measures: *If substance entered the eyes, immediately wash with Plenty of water for 15 minutes. If skin is affected, Remove the soaked clothes and wash the affected Area with plenty of water and soap. If inhaled, Remove the victim to fresh air area. Seek Medical Aid immediately.*

| Antidotes/Dosages: *Baking soda in glass of water.*

SPILLS| Steps to be taken : *Shut off leaks if without risks. Drench with water*

| Waste Disposal Methods : *Seal all waste in vapour tight plastic bags for eventual disposal.*

8. ADDITIONAL INFORMATION / REFERENCES

A human poison by ingestion. Poison also by skin contact. The main toxic effect is Extended to the nervous system, particularly optic nerves & retina which may lead To permanent blindness. Once absorbed, it is slowly eliminated. Coma by severe Exposure may last for 2-4 days. Persons with eye,liver, kidney & lung problems Should avoid contact. Periodic medical check up is recommended. Dangerous Fire hazard when exposed to heat, flame and oxidisers

9 MANUFACTURERS/SUPPLIERS DATA

NAME OF FIRM Rashtriya Chemicals and Fertilisers Ltd.,
Trombay Unit- Chembur, Mumbai 400074
TEL No. 25522245 FAX 25522231
IPD TEL 25523161 FAX 24045134

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MATERIAL SAFETY DATA SHEET

CHEMICAL NAME: *AMMONIUM NITRATE*
C.A.S. No : 6484-52-2
UN No : 1942

1. CHEMICAL IDENTITY :

Chemical Name : *Ammonium Nitrate*
Synonyms : *Nitram, Nitric Acid, Ammonium Salt*
Trade Name
Formula : NH_4NO_3 C.A.S. No 6484-52-2 UN No 1942
Regulated Identification| Shipping name : *Ammonium Nitrate*
| Hazchem code : S
| Code/ Label : Oxidiser, Class 5. Flammable liquid
| Hazardous Waste ID No: 17
Hazardous Ingredients : *Ammonium Nitrate*
C.A.S. No : 6484-52-2

2. PHYSICAL/CHEMICAL DATA

Boiling Pt/Range : *Decomp. >210⁰ C* Physical state : *Solid*
Appearance : *Grayish white crystals* Melting/Freezing pt : *169.6⁰ C*
Vapour Pr. (mm Hg) : *@ 35⁰ C* Specific Gravity : *1.72 @ 25⁰ C*
Vapour Density : *Not pertinent* (Water = 1)
(Air = 2) *pH 0.1 M Soln. 5.43* : Solubility in water : *Soluble*
@ 30⁰ C
Odour: *Odourless* Others: *Soluble in alcohol and methanol*

3. FIRE AND EXPLOSION HAZARD DATA

Flammability : *NO* LEL : *Not pertinent %*
Flash point (⁰C) : *Not pertinent(OC).* UEL : *Not pertinent %*
Flash Point(⁰C) : *Not pertinent(CC)*

Autoignition Temp.⁰C : *Not pertinent*
Explosion sensitivity to impact : *Stable*
Explosion sensitivity to static electricity : *Stable*
Hazardous combustion product : *Emirates highly toxic fumes of NO_x*
Hazardous polymerisation

Combustible liquid : *NO* Flammable material : *NO*
Explosive material : *NO* Corrosive material : *NO*
Oxidiser : *Yes* Pyrophoric material : *NO*
Inorganic material :

4. REACTIVITY DATA.

Chemical Stability : *Stable*

Incompatibility : *With(NH₄Cl+Heat), Organic Matter, P, NaOCl , NaClO₄*

with other material Reactivity *Spontaneous reaction with Acetic anhydride+Nitric Acid, Ammonium Sulfate+K.Copper, Iron(II) sulfide, Saw dust, urea, barium nitrate, hot water, ammonium chloride+water, ammonium chloride+water+Zn*

Hazardous *Reaction with alkali metals forms an explosive product.*

5. HEALTH HAZARD DATA

Routs of Entry : *Inhalation, Ingestion, Eyes*

Effects of : *Causes irritation of eyes and mucous membrane.*

Exposure/Symptoms : *Absorption via inhalation or ingestion causes urination or acid urine. Large amount causes systematic acidosis and methemoglobinemia.*

Emergency Treatment: *Remove the victim from the exposure-Symptoms are reversible. Seek medical aid.*

Odour Threshold *Odourless*

NFPC Hazard Signals Health 2

Flammability 0 Reactivity 3 Special Oxy

6. PREVENTIVE MEASURES :

Personal Protective Equipment : *Avoid contact with solid or dust. Provide full personal protective equipment such as hand gloves, face shield, self-contained breathing apparatus. Body overclothing and shoes.*

Handling and Storage : *A relatively stable explosive, which has however caused many Precautions. industrial explosions. It is important that the mass of the materials be kept cool. Well ventilated. Prevent contact with combustible substances and reducing materials.*

7. EMERGENCY / FIRST AID MEASURES

FIRE | Fire extinguishing : *Use large quantity of water in early stages of fire.*

Media.

| Special Procedures:

EXPOSURE | First Aid Measures: *Remove victim from the exposed area to fresh air-symptoms are reversible. Seek medical aid*

| Antidotes/Dosages: *Not available.*

SPILLS | Steps to be taken : *Transfer spillage into large container of water. Add soda ash_and neutralize with HCL. After few hours can be drained with large amount of water.*

| Waste Disposal : *Slowly collect the material and seal in vapour tight plastic bags*

Methods *for eventual disposal*

8. ADDITIONAL INFORMATION / REFERENCES

A powerful oxidizer. A relatively stable explosive which has however, caused industrial explosions. Forms heat or shock sensitive. Explosive mixtures with acetic acid. Aluminium+Calcium+Formamide (a blasting explosive). Ammonis, charcoal+Metaloxides, Chloride salts, fertilizers, hydrocarbon oils, powdered metals , non-metals, organic fuels, potassium permanganate, sugar, sulphur and trinitroani-sole. Reaction with Alkali metals forms an explosive product. Ignites on contact with Ammonium Potassium dichromate, Potassium chromate, Barium chloride, sodium chloride, potassium nitrate and chromium (VI) salts. Can ignite when mixed with acetic acid. Occasional explosions in presence of oils. (NH₄)₂SO₄, with K or Na.

9 MANUFACTURERS/SUPPLIERS DATA

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