1. Identification Of the Substance

· ***1.1 Product identifier***
· ***Product name:*** *2-ethoxyethylamine*
· ***CAS Number:***
110-76-9
· ***EC number:***
203-801-5
· ***1.2 Relevant identified uses of the substance or mixture and uses advised against***
Chemical for various applications
· ***1.3 Details of the supplier of the safety data sheet***
· ***Manufacturer / Supplier:***
Alky Amines Chemicals Ltd.
401-407, Nirman Vyapar Kendra, Plot No-10
Sect- 17, Vashi Navi Munbai-400 703
Emergency contact no : +91 2192 261305 / 261329 , Mobile No- +919881973507
Emergency contact No for US only: *+1 703 527 3887 / 800 424 9300*

· *E-mail address of the competent person responsible for the Safety Data Sheet: rsattigeri@alkylamines.com*
· *Informing department: R&D*
· ***1.4 Emergency telephone number:*** *As above.*

2.Hazard Identification

-2.1 Classification of the substance or mixture

Classification according to Regulation EC No- 1272/2008

GHS02 Flame

Flammable Liquid Cat.2 H225- *Highly flammable liquid and vapour*

GHS05 Corrosion
Skin Corrosion Cat.1B H314- *Causes severe skin burns and eye damage*

GHS07
Acute Toxicity Cat. -4 H302 *- Harmful if swallowed*
Acute Tox-4 H312 *- Harmful in contact with skin.*

Information concerning particular hazards for human and environment:
Vapours of the product are heavier than air and may accumulate on the ground, in mines, drains or cellars with higher concentration.
· ***2.2 Label elements***
· ***Labelling according to Regulation (EC) No 1272/2008***
The substance is classified and labelled according to the CLP regulation.

· ***Hazard pictograms***

GHS02 GHS05 GHS07

-***Signal word*** *Danger*
Hazard statements
H225 *Highly flammable liquid and vapour.*
H302 *Harmful if swallowed.*
H314- *Causes severe skin burns and eye damage*
H312 *Harmful in contact with skin.*
Prevention:
P210 *Keep away from heat/sparks/open flames/hot surfaces. - No smoking*
P280 *Wear protective gloves/protective clothing/eye protection/face protection.*
Response:
P303+P361+P353 IF ON SKIN *(or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.*
P305+P351+P338 IF IN EYES: *Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.*
P310 *Immediately call a POISON CENTER or doctor/physician*
Storage:
P403+P235: *Store in a well-ventilated place. Keep cool.*
Disposal:
P501 *Dispose of contents/container in accordance with local/regional/national/international regulations*

· ***2.3 Other hazards***
· ***Results of PBT and vPvB assessment***
· ***PBT:*** *Not applicable.*
· ***vPvB:*** *Not applicable.*

3.Composition / information On Ingredients

Description	***CAS No***	***EC No***	***Content (% w/w)***
2-Ethoxyethyamine	*110-76-9*	*203-801-5*	*>99.5*

Molecular Formula- *C4H11NO*

Molecular Wt *– 89.14 g/mole*

4.Firstaid Measures

· ***4.1 Description of first aid measures***
· ***General information:***
Immediately remove any clothing contaminated by the product.
Symptoms of poisoning may occur after several hours. Medical observation for at least 48 hours after the accident is recommended
Personal protection for the person providing first aid.

· **After inhalation:** In case of unconsciousness bring patient into stable side position for transport.
· **After skin contact:**
Instantly rinse with water.
Immediate medical treatment necessary. Failure to treat burns can prevent wounds from healing.
· **After eye contact:**
Rinse opened eye for several minutes under running water.
Use eye protection.
Call a doctor immediately.
· **After swallowing:**
Drink copious amounts of water and provide fresh air. Instantly call for doctor.
Do not induce vomiting - Danger of perforation!
· **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **4.3 Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5. Fire Fighting Measures

· **5.1 Extinguishing media**
· **Suitable extinguishing agents** Use fire fighting measures that suit the environment.
· **For safety reasons unsuitable extinguishing agents** none
· **5.2 Special hazards arising from the substance or mixture**
Nitrogen oxides (NOx)
Carbon monoxide (CO) and Carbon dioxide (CO_2)
Can form explosive vapour-air mixtures.
· **5.3 Advice for firefighters**
· **Protective equipment:**
Wear self-contained breathing apparatus.
Wear full protective suit.
· **Additional information**
Cool endangered containers with water spray jet.
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
If without risk possible, move drums with material away from dangerous area.

6. Accidental Release Measures

· **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation.
Remove all ignition sources.
Use breathing protection against the effects of fumes/dust/aerosol.
Avoid contact with skin and eyes.
· **6.2 Environmental precautions:**
Do not allow to enter drainage system, surface or ground water.
Inform respective authorities in case product reaches water or sewage system.
Prevent material from reaching sewage system, holes and cellars.
· **6.3 Methods and material for containment and cleaning up:**
Ensure adequate ventilation.
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose of the material collected according to regulations.
Use neutralizing agent.
weak acid solution
· **6.4 Reference to other sections**
See Section 8 for information on personal protection equipment.

7. Handling and Storage

· ***7.1 Precautions for safe handling***
Ensure good ventilation/exhaustion at the workplace.
Ensure good interior ventilation, especially at floor level (fumes are heavier than air).
Restrict the quantity stored in the work place.
Do not inhale vapours/aerosols.
Avoid skin and eye contact under any circumstances.
· ***Information about protection against explosions and fires:***
Fumes can combine with air to form an explosive mixture.
Flammable fume/air mixtures may be formed in empty containers.
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
· ***7.2 Conditions for safe storage, including any incompatibilities***
· ***Storage***
· ***Requirements to be met by storerooms and containers:***
Store under shade at ambient temperature (<45^{0}C) & dry conditions in well-sealed containers
Observe regulations for storage of flammable liquids.
Observe all local and national regulations for storage of water polluting products.
· ***Information about storage in one common storage facility:***
Observe regulations for storage of flammable liquids.
· ***Further information about storage conditions:***
Protect from heat and direct sunlight.
Store container in a well ventilated place.
· ***7.3 Specific end use(s)*** *No further relevant information available.*

8.Exposure Control and Personal Protection

· ***Additional information about design of technical systems:*** *No further data; see item 7.*
· ***8.1 Control parameters***
· ***Components with critical values that require monitoring at the workplace:*** *Not required.*
· ***Additional information:*** *The lists that were valid during the compilation were used as basis.*
· ***8.2 Exposure controls***
· ***Personal protective equipment***
· ***General protective and hygienic measures***
Keep away from foodstuffs, beverages and food.
Instantly remove any contaminated garments.
Do not eat, drink or smoke while working.
Do not inhale gases / fumes / aerosols.
Avoid contact with the eyes and skin.
Wash hands during breaks and at the end of the work.
· ***Breathing equipment:***
Use breathing protection with high concentrations.
Use breathing protection when aerosol or mist is formed.
· ***Protection of hands:***
Protective gloves
Check the permeability prior to each renewed use of the glove.
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.
· ***Material of gloves***
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
· ***Penetration time of glove material***
Protective gloves should be replaced at first signs of wear.
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· ***Eye protection:***
Tightly sealed safety glasses
Face shield
· ***Body protection:*** *Body protection must be chosen depending on activity and possible exposure.*

9.Physical and Chemical Properties.

9.1 General information on basic physical and chemical properties

Appearance/Physical state /colour	*Colourless liquid*
Explosive limit Upper ***lower***	*11.2 vol %* *1.9 vol %*
Odour	*ammonia like*
Vapour pressure	*25 hPa @ 20 °C*
Odour Threshold	*No data available*
Vapour density	*No data available*
PH (10% in water)	*11.9 @ 20 °C*
Density	*0.8510g/cm3@ 20°C*
Melting point/freezing point	*-50 °C*
Solubility in water	*Soluble*
Initial Boiling Point/Boiling Range	*107-108°C*
Flash Point	*20 °C*
Evaporation Rate	*No data available*
Flammability (solid, gas)	*Not Applicable*
Partition Coefficient : n-Octanol Water	*Log Pow= 1.5*
Auto ignition Temperature	*265 °C*
Decomposition temperature	*No data available*
Viscosity- dynamic ***Kinematic***	*0.79 m Pas @ 20 °C* *No data available*
Danger of Explosion	*Product is not explosive. However, formation of explosive air/vapour mixtures is possible.*

9.2 Other Information- *No further relevant information available*

10.Stability and Reactivity

· ***10.1 Reactivity***
· ***10.2 Chemical stability***
· ***Thermal decomposition / conditions to be avoided:***
Avoid impact, friction, heat, sparks, electrostatic charges.
· ***10.3 Possibility of hazardous reactions***
Possibility of formation of nitrosamines with nitrites or other nitrosating agents
Strong exothermic reaction with acids.
Flammable vapour-air mixtures may develop.
Used empty containers may contain product gases which form explosive mixtures with air.
· ***10.4 Conditions to avoid*** *No further relevant information available.*
· ***10.5 Incompatible materials:***
Strong oxidizing agents
Nitrosating agents
Strong acids
· ***10.6 Hazardous decomposition products:***
Nitrogen oxides (NOx)
Carbon monoxide (CO) and Carbon dioxide (CO_2).

11.Toxicological Information

11.1 Information on toxicological effects-
Acute Toxicity-

LD/LC50 values relevant for classification-

LD50 Rat oral	*950 mg/kg*
LD50 Rat dermal	*>1000 mg/kg*
LC50 Rat inhalation	*> 7.6 mg/L/4hrs*

Primary skin Irritation/ corrosion effect-

Method BASF Test-

Results- *Animals (2, rats)were treated to test substance for 3min or 1hr using occlusive conditions and further they were observed for 8 days for skin changes. Substance found to be corrosive (1B)*

Serious eye damage/eye irritation
Direct contact with material may produce pain and burn. Oedema, destruction of the epithelium, corneal opacification and iritis may occur. In less severe cases these symptoms tend to resolve.
Respiratory or skin sensitisation
Material produces irritation of the respiratory system, in a substantial number of individuals, following inhalation. This may further produce lung damage resulting in the impairment of gas exchange, the primary function of the lungs. Respiratory tract irritation often results in an inflammatory response involving the recruitment and activation of many cell types, mainly derived from the vascular system.
Germ cell mutagenicity
No data available
Carcinogenicity
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.
Reproductive toxicity
No data available
Specific target organ toxicity - single exposure
No data available
Specific target organ toxicity - repeated exposure
No data available
Aspiration hazard
No data available

12. Ecological Information

· ***12.1 Toxicity***
· ***Aquatic toxicity:***

LC50 96 Hrs Scophtalmus maximus	*>1000 mg/L*
LC50 48 Hrs Acatia Tonsa	*>211 mg/L*
EC50 72 Hrs Skeletonema costatum	*152 mg/L*

(Ref- ECHA dossier for 2-Ethoxyethylamine)

· ***12.2 Persistence and degradability***
Readily biodegradable: 90-100 % (17 d).
· ***Other information:*** *no data available*
· ***12.3 Bioaccumulative potential***
Due to water solubility and small molecular size, the substance is not expected to be bioaccumulative.
· ***12.4 Mobility in soil*** *No further relevant information available.*

· ***Additional ecological information:***
· ***General notes:*** *Water danger class 3 (Self-assessment): extremely hazardous for water.*
· ***12.5 Results of PBT and vPvB assessment***
· ***PBT:*** *Not applicable.*
· ***vPvB:*** *Not applicable.*
· ***12.6 Other adverse effects*** *No further relevant information available.*

13. Disposal Consideration

· ***13.1 Waste treatment methods***
· ***Recommendation*** *Disposal must be made according to official regulations.*
· ***Waste disposal key number:*** *According to local/national regulations.*
· ***European waste catalogue:***
Waste disposal key numbers from EWC have to be assigned depending on origin and processing.
· ***Uncleaned packagings:***
· ***Recommendation:*** *Disposal must be made according to official regulations. Decontamination of the drum shall be done by washing with 5% aqueous acetic acid solution followed by water washings till neutral PH . It is strongly recommended to disfigure the container/drum before disposal.*

14. Transport Information

	Section	ADR	IATA	IMDG
UN Number	*14.1*	*2733*	*2733*	*2733*
UN Proper Shipping Name	*14.2*	*Amines, flammable, corrosive, N.O.S*	*Amines, flammable, corrosive, N.O.S*	*Amines, flammable, corrosive, N.O.S*
Transport Hazard Class (es)	*14.3*	*3*	*3*	*3*
Subsidiary Risk		*8*	*8*	*8*
Packing Group	*14.4*	*II*	*II*	*II*
Environmental Hazard/Marine Pollutant	*14.5*	*No*	*No*	*No*
Special Precautions for User	*14.6*	*No data available*	*No data Available*	*Flammable liquid*
ADR Tunnel restriction code		*2/(D/E)*	*Not Applicable*	*Not Applicable*
Classification code		*FC*	*Not Applicable*	*Not Applicable*
HIN		*338*	*Not Applicable*	*Not Applicable*
EMs		*Not Applicable*	*Not Applicable*	*F-E,S-C*
Transportation in Bulk according to Annex II of Marpol and IBC code	*14.7*	*Not Applicable*	*Not Applicable*	*No data available*
Product Name		-	-	

Ship Type		-	-	
Pollution Category		-	-	

15. Regulatory Information

· ***15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture***
· ***National regulations***
· ***Information about limitation of use:*** *Employment restrictions concerning young persons must be observed.*
· ***Decree to be applied in case of technical fault:***
Quantity limits according to "EC Seveso directive" should be observed.
· ***Water hazard class:*** *Water danger class 3 (Self-assessment): extremely hazardous for water.*
· ***Other regulations, limitations and prohibitive regulations***
Observe restrictions on the marketing and use according to Annex XVII of Regulation (EC) No 1907/2006.
· ***15.2 Chemical safety assessment:*** *A Chemical Safety Assessment has not been carried out.*

16. Other Information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Dept issuing MSDS- R&D
Only Representative : Global Product Compliance (Europe) AB, Lund , Sweden
e-mail: sk@reach-onlyrep.eu info@gpcregulatory.com

Abbreviations and acronyms:
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA) ICAO: International Civil Aviation Organization.
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
GHS: Globally Harmonized System of Classification and Labeling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent.
LD50: Lethal dose, 50 percent

Ref-

1) *Regulation (EC)No 1272/2008 of the European Parliament and of the Council*

2) *Guidance on the compilation Safety Data Sheet publish by ECHA Ver. 2.1 Feb 2014*

3) *Chem-watch Gold MSDS for 2-ethoxyethylamine*