



## Karl Fischer Reagent

## MATERIAL SAFETY DATA SHEET SDS/MSDS

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1 Product identifiers

Product name : **Karl Fischer Reagent**

#### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Industrial & for professional use only.

#### 1.3 Details of the supplier of the safety data sheet

Company : Central Drug House (P) Ltd  
7/28 Vardaan House  
Ansari Road Daryaganj  
New Delhi-110002  
INDIA

Telephone : +91 11 49404040  
Email : [care@cdhfinechemical.com](mailto:care@cdhfinechemical.com)

#### 1.4 Emergency telephone number

Emergency Phone # : +91 11 49404040 (9:00am - 6:00 pm) [Office hours]

### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

##### Classification according to Regulation (EC) No 1272/2008

Flammable liquids (Category 3), H226  
Acute toxicity, Oral (Category 4), H302  
Acute toxicity, Inhalation (Category 3), H331  
Acute toxicity, Dermal (Category 4), H312  
Skin irritation (Category 2), H315  
Eye irritation (Category 2), H319  
Reproductive toxicity (Category 1B), H360FD

For the full text of the H-Statements mentioned in this Section, see Section 16.

#### 2.2 Label elements

##### Labelling according Regulation (EC) No 1272/2008

Pictogram



Signal word : **Danger**

Hazard statement(s)  
H226 : **Flammable liquid and vapour.**

H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H360FD	May damage fertility. May damage the unborn child.
Precautionary statement(s)	
P201	Obtain special instructions before use.
P261	Avoid breathing vapours.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
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.
Supplemental Hazard Statements	none
Restricted to professional users.	

### 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

#### Hazardous ingredients according to Regulation (EC) No 1272/2008

Component	Classification	Concentration
<b>2-Methoxyethanol</b> Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)		
CAS-No.	109-86-4	Flam. Liq. 3; Acute Tox. 4; >= 50 - < 70 %
EC-No.	203-713-7	Repr. 1B; STOT SE 1; STOT
Index-No.	603-011-00-4	RE 2; H226, H302, H332,
Registration number	01-2119494721-33-XXXX	H312, H360FD, H370, H373
<b>Pyridine</b>		
CAS-No.	110-86-1	Flam. Liq. 2; Acute Tox. 4; >= 20 - < 30 %
EC-No.	203-809-9	Skin Irrit. 2; Eye Irrit. 2; H225,
Index-No.	613-002-00-7	H302, H332, H312, H315,
		H319
<b>Iodine</b>		
CAS-No.	7553-56-2	Acute Tox. 4; Skin Irrit. 2; Eye >= 10 - < 20 %
EC-No.	231-442-4	Irrit. 2; STOT SE 3; STOT RE
Index-No.	053-001-00-3	1; Aquatic Acute 1; H332,
		H312, H315, H319, H335,
		H372, H400
		M-Factor - Aquatic Acute: 1
<b>Sulphur dioxide</b>		
CAS-No.	7446-09-5	Press. Gas ; Acute Tox. 3; >= 5 - < 10 %
EC-No.	231-195-2	Skin Corr. 1B; , H331, H314
Index-No.	016-011-00-9	

For the full text of the H-Statements mentioned in this Section, see Section 16.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

#### In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

#### If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

### 4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

### 4.3 Indication of any immediate medical attention and special treatment needed

No data available

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

### 5.2 Special hazards arising from the substance or mixture

Carbon oxides, Nitrogen oxides (NOx), Sulphur oxides, Hydrogen iodide

### 5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

### 5.4 Further information

Use water spray to cool unopened containers.

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

For personal protection see section 8.

### 6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

### 6.3 Methods and materials for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

### 6.4 Reference to other sections

For disposal see section 13.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

For precautions see section 2.2.

### 7.2 Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Recommended storage temperature 2 - 8 °C

Storage class (TRGS 510): Flammable liquids

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Components with workplace control parameters

### 8.2 Exposure controls

#### Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

#### Personal protective equipment

##### Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

##### Skin protection

Handle with gloves. Gloves must be inspected prior to use. 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.

##### Body Protection

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

##### 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).

##### Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

- |  |                    |
|--|--------------------|
| a) Appearance                              | Form: liquid       |
| b) Odour                                   | No data available  |
| c) Odour Threshold                         | No data available  |
| d) pH                                      | No data available  |
| e) Melting point/freezing point            | No data available  |
| f) Initial boiling point and boiling range | No data available  |
| g) Flash point                             | 33 °C - closed cup |

h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	1,200 g/cm <sup>3</sup>
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

## 9.2 Other safety information

No data available

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

No data available

### 10.4 Conditions to avoid

Heat, flames and sparks.

### 10.5 Incompatible materials

No data available

### 10.6 Hazardous decomposition products

Other decomposition products - No data available  
In the event of fire: see section 5

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - Rat - male - 2.257 mg/kg (2-Methoxyethanol)  
(OECD Test Guideline 401)

LC50 Inhalation - Rat - 4 h - 12,4 - 17,8 mg/l (2-Methoxyethanol)

LD50 Dermal - Rabbit - 1.280 mg/kg (2-Methoxyethanol)

LD50 Intraperitoneal - Rat - 2.500 mg/kg (2-Methoxyethanol)

#### Skin corrosion/irritation

Skin - Rabbit (2-Methoxyethanol)

Result: No skin irritation

(Directive 67/548/EEC, Annex V, B.4.)

**Serious eye damage/eye irritation**

Eyes - Rabbit (2-Methoxyethanol)

Result: Mild eye irritation - 24 h

(OECD Test Guideline 405)

**Respiratory or skin sensitisation**

Maximisation Test (GPMT) - Guinea pig (2-Methoxyethanol)

Result: Does not cause skin sensitisation.

**Germ cell mutagenicity**

In vitro mammalian cell gene mutation test (2-Methoxyethanol)

Chinese hamster ovary cells

Result: negative

OECD Test Guideline 475 (2-Methoxyethanol)

Mouse - male

Result: negative

**Carcinogenicity**

(2-Methoxyethanol)

(2-Methoxyethanol)

No data available (2-Methoxyethanol)

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Pyridine)

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Sulphur dioxide)

**Reproductive toxicity**

May cause congenital malformation in the fetus. (2-Methoxyethanol)

Presumed human reproductive toxicant (2-Methoxyethanol)

May cause reproductive disorders. (2-Methoxyethanol)

Developmental Toxicity - Rat - Dermal (2-Methoxyethanol)

**Specific target organ toxicity - single exposure**

No data available (2-Methoxyethanol)

**Specific target organ toxicity - repeated exposure**

May cause damage to organs through prolonged or repeated exposure.

Oral - Testes, thymus (2-Methoxyethanol)

**Aspiration hazard**

No data available (2-Methoxyethanol)

**Additional Information**

Repeated dose toxicity Rat - male - Oral - NOAEL : < 71 mg/kg (2-Methoxyethanol)

RTECS: Not available

Headache, Dizziness, tachycardia, nervousness, insomnia, Skin disorders, loss of appetite, Prolonged exposure to iodides may produce iodism in sensitive individuals. Symptoms of exposure include: skin rash, running nose, headache and irritation of the mucous membrane. For severe cases the skin may show pimples, boils, hives, blisters and black and blue spots. Iodides are readily diffused across the placenta. Neonatal deaths from respiratory distress secondary to goiter have been reported. Iodides have been known to cause drug-induced fevers, which are usually of short duration.

Effects due to ingestion may include:, Changes in the blood count, Headache, Central nervous system depression, Ingestion of large amounts may cause:, Damage of the:, Liver, Kidney, Central nervous system (2-Methoxyethanol)

Bone marrow - (Pyridine)

## SECTION 12: Ecological information

### 12.1 Toxicity

Toxicity to fish	static test LC50 - Lepomis macrochirus (Bluegill) - 10.000 mg/l - 96 h (2-Methoxyethanol) (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	semi-static test EC50 - Daphnia magna (Water flea) - 27.000 mg/l - 48 h (2-Methoxyethanol)
Toxicity to algae	static test EC50 - Pseudokirchneriella subcapitata - 25.500 mg/l - 72 h (2-Methoxyethanol)

### 12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 20 d (2-Methoxyethanol) Result: 88 % - Readily biodegradable
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### 12.3 Bioaccumulative potential

No bioaccumulation is to be expected ( $\log P_{ow} \leq 4$ ).

### 12.4 Mobility in soil

No data available (2-Methoxyethanol)

### 12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

### 12.6 Other adverse effects

Toxic to aquatic life.

No data available

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

#### Contaminated packaging

Dispose of as unused product.

## SECTION 14: Transport information

### 14.1 UN number

ADR/RID: 1993	IMDG: 1993	IATA: 1993
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### 14.2 UN proper shipping name

ADR/RID: FLAMMABLE LIQUID, N.O.S. (2-Methoxyethanol, Pyridine)
IMDG: FLAMMABLE LIQUID, N.O.S. (Pyridine, 2-Methoxyethanol)
IATA: Flammable liquid, n.o.s. (Pyridine, 2-Methoxyethanol)

### 14.3 Transport hazard class(es)

ADR/RID: 3	IMDG: 3	IATA: 3
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### 14.4 Packaging group

ADR/RID: III	IMDG: III	IATA: III
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### 14.5 Environmental hazards

ADR/RID: no	IMDG Marine pollutant: no	IATA: no
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### 14.6 Special precautions for user

No data available

## SECTION 15: Regulatory information

This safety datasheet complies with the requirements of Regulation (EC) No. 453/2010.

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

#### Authorisations and/or restrictions on use

2-Methoxyethanol CAS-No.: 109-86-4  
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).  
Toxic for reproduction (article 57c)  
ED/95/2010

2-Methoxyethanol CAS-No.: 109-86-4  
REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII)  
Toxic to reproduction: category 1B  
Restricted to professional users.  
See Annex XVII to Regulation (EC) no 1907/2006 for Conditions of restriction

### 15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out

## SECTION 16: Other information

#### Full text of H-Statements referred to under sections 2 and 3.

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H360FD	May damage fertility. May damage the unborn child.
H370	Causes damage to organs.
H372	Causes damage to organs through prolonged or repeated exposure if swallowed.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.

#### Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Central Drug House (P) Ltd and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.cdhfinechemical.com](http://www.cdhfinechemical.com) for additional terms and conditions of sale.