

METHANOL~D4 99.8%

GHS Safety Data Sheet

Version No:2.0
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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

METHANOL-D4

OTHER NAMES

CD4O, "deuterated methanol", "methanol deuterium", "perdeuterated methanol", "perdeuterated methyl alcohol", perdeuteriomethanol, perdeuteromethanol, tetradeuteriomethanol, tetradeuteromethanol

PROPER SHIPPING NAME

METHANOL

PRODUCT USE

Reagent.

SUPPLIER

Company: S D FINE- CHEM LIMITED

Address:

315- 317, T.V. INDUSTRIAL ESTATE,
248, WORLI,

MUMBAI- 400030.INDIA.

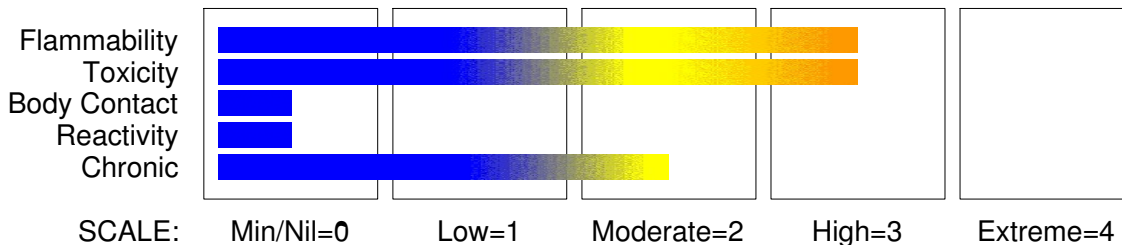
technical@sdfine.com

Telephone: 91- 22- 24959898

Telephone: 91- 22- 24959899

Fax: 91- 22- 24937232

HAZARD RATINGS



Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Acute Toxicity (Inhalation) Category 3

Acute Toxicity (Oral) Category 4

Flammable Liquid Category 2

Respiratory Effects Category 3

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Section 2 - HAZARDS IDENTIFICATION



EMERGENCY OVERVIEW

HAZARD

DANGER

Determined by using GHS criteria:

H336 H225 H331 H302

May cause drowsiness and dizziness

Highly flammable liquid and vapour

Toxic if inhaled

Harmful if swallowed

PRECAUTIONARY STATEMENTS

Prevention

Do not eat, drink or smoke when using this product.

Ground/bond container and receiving equipment.

Use only non-sparking tools.

Wash hands thoroughly after handling.

Avoid breathing dust/fume/gas/mist/vapours/spray.

Use only outdoors or in a well ventilated area.

Do not breathe dust/fume/gas/mist/vapours/spray.

Wear protective gloves and eye/face protection.

Keep container tightly closed.

Keep away from heat/sparks/open flame - No smoking.

Use explosion-proof electrical/ventilating/lighting/equipment

Take precautionary measures against static discharge

Response

Call a POISON CENTER or doctor/physician if you feel unwell.

Immediately call a POISON CENTER or doctor/physician.

IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.

If on skin or hair: remove/take off immediately all contaminated clothing. Rinse with water/shower.

Specific treatment: refer to Label or MSDS.

In case of fire, use alcohol-type foam for extinction.

Storage

Store locked up.

Disposal

Dispose of contents and container in accordance with relevant legislation.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
methanol- D4	811-98-3	>95
as methanol	67-56-1	

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Section 4 - FIRST AID MEASURES

SWALLOWED

For advice, contact a Poisons Information Centre or a doctor.

- IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.

- For advice, contact a Poisons Information Centre or a doctor.

Where Medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:

- Induce vomiting with fingers down the back of the of the throat, ONLY IF CONSCIOUS.

- Lean patient forward or place on left side (head-down position if possible) to maintain open airway and prevent aspiration.

NOTE: Wear a protective glove when inducing vomiting by mechanical means.

- In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition.

- If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the MSDS should be provided.

Further action will be the responsibility of the medical specialist.

- If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the MSDS.

EYE

If this product comes in contact with the eyes:

- Wash out immediately with fresh running water.

- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

- If pain persists or recurs seek medical attention.

- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

If skin contact occurs:

- Immediately remove all contaminated clothing, including footwear.

- Flush skin and hair with running water (and soap if available).

- Seek medical attention in event of irritation.

INHALED

- If fumes or combustion products are inhaled remove from contaminated area.

- Lay patient down. Keep warm and rested.

- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.

- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.

- Transport to hospital, or doctor.

NOTES TO PHYSICIAN

For acute and short term repeated exposures to methanol:

- Toxicity results from accumulation of formaldehyde/formic acid.

- Clinical signs are usually limited to CNS, eyes and GI tract Severe metabolic acidosis may produce dyspnea and profound systemic effects which may become intractable. All symptomatic patients should have arterial pH measured. Evaluate airway, breathing and circulation.

- Stabilise obtunded patients by giving naloxone, glucose and thiamine.

- Decontaminate with Ipecac or lavage for patients presenting 2 hours post-ingestion.

Charcoal does not absorb well; the usefulness of cathartic is not established.

- Forced diuresis is not effective; haemodialysis is recommended where peak methanol levels exceed 50 mg/dL (this correlates with serum bicarbonate levels below 18 mEq/L).

- Ethanol, maintained at levels between 100 and 150 mg/dL, inhibits formation of toxic

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Section 4 - FIRST AID MEASURES

metabolites and may be indicated when peak methanol levels exceed 20 mg/dL. An intravenous solution of ethanol in D5W is optimal.

- Folate, as leucovorin, may increase the oxidative removal of formic acid. 4
- methylpyrazole may be an effective adjunct in the treatment. 8. Phenytoin may be preferable to diazepam for controlling seizure.

[Ellenhorn Barceloux: Medical Toxicology]

BIOLOGICAL EXPOSURE INDEX - BEI

Determinant	Index	Sampling Time	Comment
1. Methanol in urine	15 mg/l	End of shift	B, NS
2. Formic acid in urine	80 mg/gm creatinine	Before the shift at end of workweek	B, NS

B: Background levels occur in specimens collected from subjects NOT exposed.

NS: Non-specific determinant - observed following exposure to other materials.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- Alcohol stable foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.
- Water spray or fog - Large fires only.

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
 - May be violently or explosively reactive.
 - Wear full body protective clothing with breathing apparatus.
 - Prevent, by any means available, spillage from entering drains or water course.
 - Consider evacuation (or protect in place).
 - Fight fire from a safe distance, with adequate cover.
 - If safe, switch off electrical equipment until vapour fire hazard removed.
 - Use water delivered as a fine spray to control fire and cool adjacent area.
 - Avoid spraying water onto liquid pools.
 - DO NOT approach containers suspected to be hot.
 - Cool fire exposed containers with water spray from a protected location.
 - If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD

Liquid and vapour are highly flammable.

Dangerous hazard when exposed to heat, flame and oxidisers.

Severe vapour explosion hazard, when exposed to flame or spark.

Vapour may readily form an explosive mixture with air.

Vapour may travel a considerable distance to source of ignition.

Heating may cause expansion or decomposition leading to violent rupture of containers.

If involved in fire emits toxic fumes of carbon monoxide (CO) and carbon dioxide (CO2).

Personal Protective Equipment

Breathing apparatus.

Chemical splash suit.

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Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS

Clean up all spills immediately.
Shut off all possible sources of ignition and increase ventilation.
Avoid breathing vapours and contact with skin and eyes.
Wipe up and absorb small quantities with vermiculite or other absorbent material.
Place spilled material in clean, dry, sealable, labelled container.
Wash spill area with detergent and water.

MAJOR SPILLS

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- May be violently or explosively reactive.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Consider evacuation (or protect in place).
- No smoking, naked lights or ignition sources.
- Increase ventilation.
- Stop leak if safe to do so.
- Water spray or fog may be used to disperse vapour.
- Contain or absorb spill with sand, earth or vermiculite.
- Use only spark-free shovels and explosion proof equipment.
- Collect recoverable product into labelled containers for recycling.
- Collect solid residues and seal in labelled drums for disposal.
- Wash area and prevent runoff into drains.
- After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.
- If contamination of drains or waterways occurs, advise emergency services.

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



+: May be stored together

O: May be stored together with specific precautions

X: Must not be stored together

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

Use good occupational work practice. Observe manufacturer's storing and handling recommendations.

Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

Avoid all personal contact, including inhalation.

Wear protective clothing when risk of exposure occurs.

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Section 7 - HANDLING AND STORAGE

Avoid smoking, naked lights, heat or ignition sources.
Vapour may travel a considerable distance to source of ignition.
and secure containers when dispensing or pouring product.
Use spark-free tools when handling.
Local exhaust ventilation may be required for safe working, i.e. to keep exposures below required standards, otherwise PPE is required.
until atmosphere has been checked., When handling, DO NOT eat, drink or smoke.
Keep containers securely sealed when not in use.
Always wash hands with soap and water after handling. Work clothes should be laundered separately.

SUITABLE CONTAINER

- Check that containers are clearly labelled.

Packaging as recommended by manufacturer.
Glass container.
Store in metal drums or safety cans.
Metal can.
Metal drum.
Plastic containers may only be used if approved for flammable liquids.

STORAGE INCOMPATIBILITY

Segregate from strong oxidising agents, strong acids, acid chlorides, acid anhydrides, reducing agents, alkali metals, beryllium dihydride, isocyanates acetaldehyde, ethylene oxide, chloroform and potassium t-butoxide.
Slowly corrosive to lead and aluminium.
Attacks, softens and may dissolve rubber, many plastics, paints and coatings.

STORAGE REQUIREMENTS

Observe manufacturer's storing and handling recommendations.
Store in original containers in approved flammable liquid storage area.
Keep containers securely sealed.
No smoking, naked lights, heat or ignition sources.
Store in a cool, dry and well-ventilated area.
Store away from oxidising materials.
DO NOT store in pits, depressions, basements or areas where vapours may be trapped.
Protect containers against physical damage.
Check regularly for spills and leaks.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

• methanol- D4:	CAS:811- 98- 3
• methanol:	CAS:58456- 46- 5 CAS:67- 56- 1 CAS:19710- 56- 6
	CAS:7263- 60- 7 CAS:6853- 31- 2 CAS:79825- 55- 1
	CAS:253142- 14- 2 CAS:54841- 71- 3

EMERGENCY EXPOSURE LIMITS

Material	Revised IDLH Value (mg/m3)	Revised IDLH Value (ppm)
methanol		6, 000

ODOUR SAFETY FACTOR (OSF)

OSF=2 (METHANOL)

Exposed individuals are NOT reasonably expected to be warned, by smell, that the Exposure Standard is being exceeded.

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION



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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

HANDS/FEET

PVC gloves.
Rubber gloves.
Polyethylene gloves.
Safety footwear.

OTHER

Overalls.
Rubber apron.
· Impervious protective clothing.
· Eyewash unit.
Ensure there is ready access to a safety shower.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.
For further information consult your
Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

Use in a well-ventilated area.
If inhalation risk of overexposure exists, wear SAA approved organic-vapour respirator.
Correct respirator fit is essential to obtain adequate protection.
In confined spaces where there is inadequate ventilation, wear full-face air supplied breathing apparatus.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Clear, colourless, very mobile, highly volatile, highly flammable,
poisonous liquid with a sweet alcoholic odour.
Burns with a non-luminous flame.
Miscible with water, ethanol, ether, benzene and most organic solvents.
Forms azeotropes with many compounds. Viscosity = 0.59 @ 20 C
Saturation vapour concentration = 166 g/m³ [CCINFO]

PHYSICAL PROPERTIES

Liquid.
Mixes with water.

Molecular Weight: 36.07
Melting Range (°C): - 97.8
Solubility in water (g/L): Miscible
pH (1% solution): Neutral
Volatile Component (%vol): ca 100 @ 20 C
Relative Vapour Density (air=1): 1.11
Lower Explosive Limit (%): 5.5- 6.0
Autoignition Temp (°C): 385
State: Liquid

Boiling Range (°C): 63.9- 65
Specific Gravity (water=1): 0.79 @ 20 C
pH (as supplied): Not applicable
Vapour Pressure (kPa): 12.26 @ 20 C
Evaporation Rate: 5.9 BuAc=1
Flash Point (°C): 11- 12(16.1 OC)
Upper Explosive Limit (%): 31- 36.5
Decomposition Temp (°C): Not available

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Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

log Kow: -0.82- -0.66

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

Presence of heat source and ignition source.
Product is considered stable under normal handling conditions.
Stable under normal storage conditions.
Hazardous polymerisation will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

Accidental ingestion of the material may be seriously damaging to the health of the individual; animal experiments indicate that ingestion of less than 40 gram may be fatal. Methanol may produce a burning or painful sensation in the mouth, throat, chest and stomach. This may be accompanied by nausea, vomiting, headache, dizziness, shortness of breath, weakness, fatigue, leg cramps, restlessness, confusion, drunken behaviour, visual disturbance, drowsiness, coma and death. Onset of symptoms may be delayed for several hours. Effects are due partly to acidosis and partly to cerebral oedema. Visual impairment produces blurring, double vision (diplopia), changes in colour perception, restriction of visual fields and blindness. 60-200 ml of methanol is a fatal dose for most adults with as little as 10 ml producing blindness. In massive overdose, liver, kidney, heart and muscle injury have been described.

EYE

Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).

SKIN

Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.

The material is not thought to be a skin irritant (i.e. is unlikely to produce irritant dermatitis as described in EC Directives using animal models). Temporary discomfort, however, may result from prolonged dermal exposures. Good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.

Toxic effects may result from skin absorption.

INHALED

Inhalation may produce serious health damage*.

The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models). Nevertheless inhalation, of the material, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress. Inhalation of vapour is more likely at higher than normal temperatures.

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Section 11 - TOXICOLOGICAL INFORMATION

CHRONIC HEALTH EFFECTS

Principal routes of exposure are usually by inhalation of vapour and skin contact / absorption of the liquid.

Minor but regular methanol exposures may effect the central nervous system, optic nerves and retinae. Symptoms may be delayed, with headache, fatigue, nausea, blurring of vision and double vision. Continued or severe exposures may cause damage to optic nerves, which may become severe with permanent visual impairment even blindness resulting.

WARNING: Methanol is only slowly eliminated from the body and should be regarded as a cumulative poison which cannot be made non-harmful [CCINFO].

Exposure affects the central nervous system, optic nerves and retinae. [SAX]

Long-term exposure to methanol vapour, at concentrations exceeding 3000 ppm, may produce cumulative effects characterised by gastrointestinal disturbances (nausea, vomiting), headache, ringing in the ears, insomnia, trembling, unsteady gait, vertigo, conjunctivitis and clouded or double vision. Liver and/or kidney injury may also result. Some individuals show severe eye damage following prolonged exposure to 800 ppm of the vapour.

TOXICITY AND IRRITATION

None assigned. Refer to individual constituents.

METHANOL:

TOXICITY

Oral (human) LDLo: 143 mg/kg
Oral (man) LDLo: 6422 mg/kg
Oral (man) TDLo: 3429 mg/kg
Oral (rat) LD50: 5628 mg/kg
Inhalation (human) TCLO: 86000 mg/m³
Inhalation (human) TCLO: 300 ppm
Inhalation (rat) LC50: 64000 ppm/4h
Dermal (rabbit) LD50: 15800 mg/kg

IRRITATION

Skin (rabbit): 20 mg/24 h- Moderate
Eye (rabbit): 40 mg- Moderate
Eye (rabbit): 100 mg/24h- Moderate

The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling the epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis.

Section 12 - ECOLOGICAL INFORMATION

No data for methanol-D4.

Refer to data for ingredients, which follows:

METHANOL:

DO NOT discharge into sewer or waterways.

log Kow: -0.82- -0.66

Half-life (hr) air: 427

Half-life (hr) H₂O surface water: 5.3-64

Henry's atm m³/mol: 1.35E-04

BOD 5 if unstated: 0.76-1.12

COD: 1.05-1.50,99%

ThOD: 1.5

BCF: 0.2-10

Toxicity Fish: LC50(96): 11-15mg/L

TLm(48Hr): 8000mg/L (trout)

Toxicity Arthropoda: NOEL 10 g/L/48Hr (Daphnia) [ICI]

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Section 13 - DISPOSAL CONSIDERATIONS

Recycle wherever possible.
Consult manufacturer for recycling options.
Consult State Land Waste Management Authority for disposal.
Incinerate residue at an approved site.
Recycle containers if possible, or dispose of in an authorised landfill.

Section 14 - TRANSPORTATION INFORMATION



Labels Required: FLAMMABLE LIQUID, TOXIC
HAZCHEM: 2WE

UNDG:

Dangerous Goods Class: 3
UN Number: 1230
Shipping Name: METHANOL

Subrisk: 6.1
Packing Group: II

Air Transport IATA:

ICAO/IATA Class: 3
UN/ID Number: 1230
ERG Code: 3P
Shipping name: METHANOL

ICAO/IATA Subrisk: 6.1
Packing Group: II

Maritime Transport IMDG:

IMDG Class: 3
UN Number: 1230
EMS Number: F- E, S- D
Shipping name: METHANOL

IMDG Subrisk: 6.1
Packing Group: II

Section 15 - REGULATORY INFORMATION

REGULATIONS

No regulations applicable
No data available for methanol-D4 as CAS: 811-98-3.

Section 16 - OTHER INFORMATION

INGREDIENTS WITH MULTIPLE CAS NUMBERS

Ingredient Name
methanol

CAS
58456- 46- 5, 67- 56- 1, 19710 - 56- 6, 7263-

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Section 16 - OTHER INFORMATION

60- 7, 6853- 31- 2, 79825- 55- 1, 253142- 14- 2,
54841- 71- 3

REPRODUCTIVE HEALTH GUIDELINES

Established occupational exposure limits frequently do not take into consideration reproductive end points that are clearly below the thresholds for other toxic effects. Occupational reproductive guidelines (ORGs) have been suggested as an additional standard. These have been established after a literature search for the reproductive no-observed-adverse effect-level (NOAEL) and the lowest-observed-adverse-effect-level (LOAEL). In addition the US EPA's procedures for risk assessment for hazard identification and dose-response assessment as applied by NIOSH were used in the creation of such limits. Uncertainty factors (UFs) have also been incorporated.

Ingredient	ORG	UF	Endpoint	CR	Adeq TLV
methanol	262 mg/m3	NA	NA	NA	Yes

These exposure guidelines have been derived from a screening level of risk assessment and should not be construed as unequivocally safe limits. ORGS represent an 8-hour time-weighted average unless specified otherwise.

CR = Cancer Risk/10000; UF = Uncertainty factor:

TLV believed to be adequate to protect reproductive health:

LOD: Limit of detection

Toxic endpoints have also been identified as:

D = Developmental; R = Reproductive; TC = Transplacental carcinogen

Jankovic J., Drake F.: A Screening Method for Occupational Reproductive

American Industrial Hygiene Association Journal 57: 641-649 (1996).

The above information is believed to be accurate and represent the best information currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to determine the suitability of the information for their particular purpose.

Issue Date: 28-Sep-2017