



## MATERIAL SAFETY DATA SHEET

### Acetaldehyde Diethyl Acetal

#### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** Acetaldehyde Diethyl acetal

**CONTACT PERSON:**

**SYNONYM:** 1,1-Diethoxyethane

Mr. S.G.Mokashi  
Godavari Biorefineries Ltd.  
45-47, Somaiya Bhavan  
M.G.Road, P.O.Box384  
Fort, Mumbai 400001  
Tel: 0091 22 22048272  
Fax: 0091 22 22047297

**MOLECULAR FORMULA:** C<sub>6</sub>H<sub>14</sub>O<sub>2</sub>

**MOLECULAR WEIGHT:** 118.17 g/mol

**CREATION DATE:** Mar 02 2007

**REVISION DATE:** Jan 13 2016

#### 2. HAZARDS IDENTIFICATION

<b>Physical hazards</b>	Flammable liquids	Category 2
<b>Health hazards</b>	Acute toxicity, oral	Category 5
Skin corrosion/irritation		Category 2
Serious eye damage/eye irritation		Category 2A
Specific target organ toxicity, single exposure		Category 3 respiratory tract irritation
Specific target organ toxicity, single exposure		Category 3 narcotic effects exposure

**Environmental hazards** Not classified.

**Signal word** **Danger**

### Hazard statement

H225 Highly flammable liquid and vapor.  
H303 May be harmful if swallowed.  
H315 Causes skin irritation.  
H315 + H320 Causes skin and eye irritation.  
H319 Causes serious eye irritation.  
H335 May cause respiratory irritation.  
H336 May cause drowsiness or dizziness

### Precautionary statement

#### Prevention

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.  
P233 Keep container tightly closed.  
P240 Ground/bond container and receiving equipment.  
P241 Use explosion-proof electrical/ventilating/lighting equipment.  
P242 Use only non-sparking tools.  
P243 Take precautionary measures against static discharge.  
P261 Avoid breathing mist or vapor.  
P264 Wash thoroughly after handling.  
P271 Use only outdoors or in a well-ventilated area.  
P280 Wear protective gloves/eye protection/face protection.

### Response

P303 + P361 +  
P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P312 Call a POISON CENTER/doctor if you feel unwell.  
P321 Specific treatment (see this label).  
P332 + P313 If skin irritation occurs: Get medical advice/attention.  
P337 + P313 If eye irritation persists: Get medical advice/attention.  
P362 + P364 Take off contaminated clothing and wash it before reuse.  
P370 + P378 In case of fire: Use appropriate media to extinguish.

### Storage

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.  
P403 + P235 Store in a well-ventilated place. Keep cool.  
P405 Store locked up.

**Disposal**

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**Hazard(s) not otherwise classified (HNOC):** None known.

**Supplemental information:** None.

---

**3. COMPOSITION, INFORMATION ON INGREDIENTS**

---

CAS No.	EC No.	Chemical Name	Percent
105-57-7	203-310-6	Acetaldehyde Diethyl Acetal	99

---

**4. FIRST AID MEASURES**

---

**Eye Contact:**

Remove contact lenses, if present and easy to do. Get medical attention if irritation develops and persists. Promptly wash eyes with plenty of water while lifting the eye lids.

**Skin Contact:**

Take off immediately all contaminated clothing. Get medical attention if irritation develops and persists. Wash skin thoroughly with soap and water for several minutes.

**Inhalation:**

If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. For breathing difficulties, oxygen may be necessary. Call a physician if symptoms develop or persist.

**Ingestion:**

Call a physician or poison control center immediately. If swallowed, rinse mouth with water (only if the person is conscious). Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs.

**Most important symptoms/effects, acute and delayed:**

May cause drowsiness and dizziness. Headache. Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Skin irritation. May cause redness and pain.

**Indication of immediate medical attention and special treatment needed:**

Not available

**General information:**

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

---

**5. FIRE FIGHTING MEASURES**

---

**Suitable extinguishing media:** Water spray, fog, CO<sub>2</sub>, dry chemical, or alcohol resistant foam.

**Unsuitable extinguishing media:** Do not use a solid water stream as it may scatter and spread fire.

**Specific hazards arising from the chemical:** Fire may produce irritating, corrosive and/or toxic gases. Porous material such as rags, paper, insulation, or organic clay may spontaneously combust when wetted with this material.

**Special protective equipment and precautions for firefighters:** Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Structural firefighters protective clothing will only provide limited protection. Wear self-contained breathing apparatus with a full face piece operated in the positive pressure demand mode when fighting fires.

**Fire-fighting equipment/instructions:** In case of fire and/or explosion do not breathe fumes. Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Water runoff can cause environmental damage. Ventilate closed spaces before entering them. Keep runoff water out of sewers and water sources. Dike for water control.

**Specific methods:** Use water spray to cool unopened containers

**General fire hazards:** Static charges generated by emptying package in or near flammable vapor may cause flash fire.

---

**6. ACCIDENTAL RELEASE MEASURES**

---

**Personal precautions, protective equipment and emergency procedures:** Keep unnecessary personnel away. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Eliminate all sources of ignition. Avoid contact with skin or inhalation of spillage, dust or vapor.

**Methods and materials for containment and cleaning up:** Clean surface thoroughly to remove residual contamination. Collect and dispose of spillage as indicated in section 13 of the SDS. Never return spills in original containers for re-use.

**Environmental precautions:** Avoid release to the environment. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water. Retain and dispose of contaminated wash water.

---

## 7. HANDLING AND STORAGE

---

**Precautions for safe handling:** Do not handle or store near an open flame, heat or other sources of ignition. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Avoid breathing vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Wash thoroughly after handling.

**Conditions for safe storage, including any incompatibilities:** Do not store in direct sunlight. Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated area.

---

## 8. EXPOSURE CONTROLS, PERSONAL PROTECTION

---

**Occupational exposure limits:** No exposure limits noted for ingredient(s).

**Biological limit values:** No biological exposure limits noted for the ingredient(s)

**Appropriate engineering controls:** Use explosion-proof ventilation equipment to stay below exposure limits.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection:** Wear safety glasses with side shields (or goggles).

**Skin protection**

**Hand protection:** Chemical resistant gloves.

**Other:** Not available

**Respiratory protection:** Respiratory protection not required. If ventilation is insufficient, suitable respiratory protection must be provided.

**Thermal hazards:** Wear appropriate thermal protective clothing, when necessary.

**General hygiene considerations:** When using do not smoke. Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

---

## 9. PHYSICAL AND CHEMICAL PROPERTIES

---

**Appearance:** Clear Colourless Liquid

**Odor:** Characteristic

**Odor threshold:** No data available

**pH:** No data available

**Melting point/freezing point:** No data available

**Initial boiling point/range:** 102 °C

**Flash point:** -21 °C – Closed Cup

**Evaporation rate:** No data available

**Flammability (solid, gas):** No data available

### Upper/lower flammability or explosive limits

**Flammability limit - lower (%)** No data available

**Flammability limit - upper (%)** No data available

**Explosive limit - lower (%)** No data available

**Explosive limit - upper (%)** No data available

**Vapor pressure** 13 hPa at 8 °C

27 hPa at 20 °C

**Vapor density:** 4.08

**Relative density:** 0.831 g/cm<sup>3</sup> at 25 °C

**Solubility(ies)****Solubility (water):** Insoluble**Partition coefficient:** No data available  
**(n-octanol/water)****Auto-ignition temperature:** No data available**Decomposition temperature:** No data available**Viscosity:** No data available

---

**10. STABILITY AND REACTIVITY**

---

**Reactivity:** The product is stable and non-reactive under normal conditions of use, storage and transport.**Chemical stability:** Material is stable under normal conditions.**Possibility of hazardous reactions:** No dangerous reaction known under conditions of normal use.**Conditions to avoid:** Not available.**Incompatible materials:** Strong oxidizing agents.**Hazardous decomposition products:** No hazardous decomposition products if stored and handled as indicated.

---

**11. TOXICOLOGICAL INFORMATION**

---

**Information on likely routes of exposure****Ingestion:** May be harmful if swallowed.**Inhalation:** May cause drowsiness and dizziness. Headache. Nausea, vomiting. May cause irritation to the respiratory system.**Skin contact:** Causes skin irritation.**Eye contact:** Causes serious eye irritation.

**Symptoms related to the physical, chemical and toxicological characteristics:** May cause drowsiness and dizziness. Headache. Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. May cause respiratory irritation.

**Acute toxicity:** In high concentrations, vapors are anesthetic and may cause headache, fatigue, dizziness and central nervous system effects. May be harmful if swallowed. Narcotic effects. May cause respiratory irritation.

Product	Species	Test Results
<b>Acute</b>		
Dermal LD50	Rabbit	> 5 g/kg
Oral LD50	Rat	4.6 g/kg
Other LD50	Rat	0.9 g/kg

\* Estimates for product may be based on additional component data not shown

**Skin corrosion/irritation:** Causes skin irritation.

**Serious eye damage/eye irritation:** Causes serious eye irritation.

#### **Respiratory or skin sensitization**

**Respiratory sensitization:** Not available.

**Skin sensitization:** This product is not expected to cause skin sensitization.

**Germ cell mutagenicity:** No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

#### **Carcinogenicity**

**OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)**

Not listed.

**Reproductive toxicity:** This product is not expected to cause reproductive or developmental effects.

**Specific target organ toxicity - single exposure:** May cause respiratory irritation. May cause drowsiness and dizziness.

**Specific target organ toxicity - repeated exposure:** Not classified.

**Aspiration hazard:** Not available.

---

## 12. ECOLOGICAL INFORMATION

---

**Ecotoxicity:** The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment

**Persistence and degradability:** No data is available on the degradability of this product.

**Bioaccumulative potential:** Not available.

**Partition coefficient n-octanol / water (log Kow)**

0.84

**Mobility in soil:** No data available.

**Other adverse effects:** No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component

---

## 13. DISPOSAL CONSIDERATIONS

---

**Disposal instructions:**

Do not discharge into drains, water courses or onto the ground. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

**Local disposal regulations:** Dispose in accordance with all applicable regulations.

**Hazardous waste code:** Not established

**Waste from residues / unused products:** Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

**Contaminated packaging:** Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

---

## 14. TRANSPORT INFORMATION

---

### ADN

UN number 1088  
UN proper shipping name ACETAL  
Transport hazard class(es) 3  
Subsidiary class(es) –  
Packing group II  
Environmental hazards No  
Labels required 3  
Special precautions for user Not available.

### ADR

UN number 1088  
UN proper shipping name ACETAL  
Transport hazard class(es) 3  
Subsidiary class(es) –  
Packing group II  
Environmental hazards No  
Tunnel restriction code D/E  
Labels required 3  
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

### RID

UN number 1088  
UN proper shipping name ACETAL  
Transport hazard class(es) 3  
Subsidiary class(es) –  
Packing group II  
Environmental hazards No  
Labels required 3  
Special precautions for user Not available.

### DOT BULK

Proper shipping name ACETAL  
Hazard class 3  
Packing group II  
Special precautions Read safety instructions, SDS and emergency procedures before handling.  
Special provisions IB2, T4, TP1  
Packaging exceptions 150  
Packaging non bulk 202  
Packaging bulk 242

DOT

NON-BUL

UN number 1088  
Proper shipping name ACETAL  
Hazard class 3  
Packing group II  
Special precautions Read safety instructions, SDS and emergency procedures before handling.  
Special provisions IB2, T4, TP1  
Packaging exceptions 150  
Packaging non bulk 202  
Packaging bulk 242

IATA

UN number 1088  
UN proper shipping name ACETAL  
Transport hazard class(es) 3  
Subsidiary class(es) –  
Packing group II  
Environmental hazards Not available.  
Labels required 3  
ERG code 3H  
Special precautions for user Read safety instructions, SDS and emergency procedures before handling

IMDG

UN number 1088  
UN proper shipping name ACETAL  
Transport hazard class(es) 3  
Subsidiary class(es) –  
Packing group II  
Marine pollutant No  
Environmental hazards Labels required 3  
EmS F-E, S-D Special precautions for user Read safety instructions, SDS and emergency procedures before handling.  
Transport in bulk according Not applicable. to Annex II of MARPOL 73/78 and the IBC Code

ADN; ADR; DOT BULK; DOT NON-BULK; IATA; IMDG; RID

---

## 15. REGULATORY INFORMATION

---

**US federal regulations:** This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**CERCLA Hazardous Substance List (40 CFR 302.4)**

ACETALDEHYDE DIETHYL ACETAL (CAS 105-57-7) Listed. LISTED

**US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)**

Not listed.

**SARA 304 Emergency release notification**

Not regulated

**OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)**

Not listed

**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

Not regulated

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**Hazard categories**

Immediate Hazard - Yes

Delayed Hazard - No

Fire Hazard - Yes

Pressure Hazard - No

Reactivity Hazard - No

**SARA 302 Extremely hazardous substance**

Not listed.

**SARA 311/312 Hazardous chemical**

Yes

**SARA 313 (TRI reporting)**

Not regulated.

**Other federal regulations**

**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Not regulated.

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)**

Not regulated.

**Safe Drinking Water Act (SDWA)**

Not regulated.

**US state regulations**

**US. Massachusetts RTK - Substance List**

ACETALDEHYDE DIETHYL ACETAL (CAS 105-57-7)

**US. New Jersey Worker and Community Right-to-Know Act**

ACETALDEHYDE DIETHYL ACETAL (CAS 105-57-7) Listed.

**US. Pennsylvania Worker and Community Right-to-Know Law**  
ACETALDEHYDE DIETHYL ACETAL (CAS 105-57-7)

**US. Rhode Island RTK**  
Not regulated.

**US. California Proposition 65**

**US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance** Not listed.

International Inventories

Country(s) or region (yes/no)*	Inventory name	On	inventory
Australia	Australian Inventory of Chemical Substances (AICS)		Yes
Canada	Domestic Substances List (DSL)		Yes
Canada	Non-Domestic Substances List (NDSL)		No
China	Inventory of Existing Chemical Substances in China (IECSC)		Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)		Yes
Europe No	European List of Notified Chemical Substances (ELINCS)		
Japan	Inventory of Existing and New Chemical Substances (ENCS)		Yes
Korea	Existing Chemicals List (ECL)		Yes
New Zealand	New Zealand Inventory		Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)		Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory		Yes

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

---

## 16. OTHER INFORMATION

---

The information in this safety data sheet is based on data and samples provided. The sheet was written to the best of our ability and according to the state of knowledge at that time. The safety data sheet only constitutes a guideline for the safe handling, use, consumption, storage, transport and disposal of the substances/preparations/mixtures mentioned under point 1. New safety data sheets are written from time to time. Only the most recent versions may be used. Old versions must be destroyed. Unless indicated

otherwise word for word on the safety data sheet, the information does not apply to substances/preparations/mixtures in purer form, mixed with other substances or in processes.

The safety data sheet offers no quality specification for the substances/preparations/mixtures in question. Compliance with the instructions in this safety data sheet does not release the user from the obligation to take all measures dictated by common sense, regulations and recommendations or which are necessary and/or useful based on the real applicable circumstances. Godavari Biorefineries Limited does not guarantee the accuracy or exhaustiveness of the information provided.