



# Safety Data Sheet

Dow Chemical Company Ltd

**Product Name:** ESTASOL (TM)

**Revision Date:** 2006/11/30

**Print Date:** 07 Feb 2008

Dow Chemical Company Ltd encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

## 1. Identification of the substance/preparation and of the company/undertaking

**Product Name**

ESTASOL (TM)

**Use of the substance/preparation**

Solvent.

**COMPANY IDENTIFICATION**

Dow Chemical Company Ltd  
Diamond House, Lotus Park  
Kingsbury Crescent  
TW18 3AG Staines, Middlesex  
United Kingdom

Customer Information Number:

0203 139 4000

**EMERGENCY TELEPHONE NUMBER**

**24-Hour Emergency Contact:**

+44 (0) 1553 761 251

**Local Emergency Contact:**

00 44 155 37 61 251

## 2. Composition/information on ingredients

| Component          | Amount              | Classification: | CAS #     | EC #      |
|--------------------|---------------------|-----------------|-----------|-----------|
| Dimethyl succinate | >= 15.0 - <= 25.0 % | Not classified. | 106-65-0  | 203-419-9 |
| Dimethyl adipate   | >= 10.0 - <= 25.0 % | Not classified. | 627-93-0  | 211-020-6 |
| Dimethyl glutarate | >= 55.0 - <= 65.0 % | Not classified. | 1119-40-0 | 214-277-2 |

## 3. Hazards Identification

This product is not classified as dangerous according to EC criteria.

\* Indicates a Trademark

#### 4. First-aid measures

**Eye Contact:** Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist.

**Skin Contact:** Wash skin with plenty of water.

**Inhalation:** Move person to fresh air; if effects occur, consult a physician.

**Ingestion:** If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

**Notes to Physician:** No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

#### 5. Fire Fighting Measures

**Extinguishing Media:** Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Do not use direct water stream. May spread fire. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective. Water fog, applied gently may be used as a blanket for fire extinguishment.

**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry. Do not use direct water stream. May spread fire. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Water fog, applied gently may be used as a blanket for fire extinguishment.

**Special Protective Equipment for Firefighters:** Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

**Unusual Fire and Explosion Hazards:** Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

**Hazardous Combustion Products:** During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide.

#### 6. Accidental Release Measures

**Steps to be Taken if Material is Released or Spilled:** Absorb with materials such as: Sand. Sawdust. Collect in suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

**Personal Precautions:** Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

**Environmental Precautions:** Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

#### 7. Handling and Storage

##### Handling

**General Handling:** Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling.

##### Storage

Store in original container.

## 8. Exposure Controls / Personal Protection

### Exposure Limits

None established

### Personal Protection

**Eye/Face Protection:** Use chemical goggles. Chemical goggles should be consistent with EN 166 or equivalent.

**Skin Protection:** Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

**Hand protection:** Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Butyl rubber. Chlorinated polyethylene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl alcohol ("PVA"). Examples of acceptable glove barrier materials include: Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. When prolonged or frequently repeated contact may occur, a glove with a protection class of 4 or higher (breakthrough time greater than 120 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 1 or higher (breakthrough time greater than 10 minutes according to EN 374) is recommended. **NOTICE:** The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

**Respiratory Protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. Use the following CE approved air-purifying respirator: Organic vapor cartridge, type A (boiling point >65 °C)

**Ingestion:** Use good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating.

### Engineering Controls

**Ventilation:** Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

## 9. Physical and Chemical Properties

|   |   |
|---|---|
| Physical State                          | Liquid  |
| Color                                   | Colorless   |
| Odor                                    | Ester   |
| Flash Point - Closed Cup                | 108 °C <i>Literature</i>  |
| Flammable Limits In Air                 | <b>Lower:</b> 1.5 %(V) <i>Literature</i><br><b>Upper:</b> 12.5 %(V) <i>Literature</i> |
| Autoignition Temperature                | 370 °C <i>Literature</i>  |
| Vapor Pressure                          | 0.06 mmHg @ 20 °C <i>Literature</i>   |
| Boiling Point (760 mmHg)                | 200 - 230 °C <i>Literature</i> (@ 1 atmosphere).                                      |
| Vapor Density (air = 1)                 | No test data available  |
| Specific Gravity (H <sub>2</sub> O = 1) | 1.09 <i>Literature</i>  |
| Freezing Point                          | -25 °C <i>Literature</i>  |
| Melting Point                           | -25 °C <i>Literature</i>  |
| Solubility in Water (by weight)         | 5 % @ 20 °C <i>Literature</i>   |
| pH                                      | 5 - 6 <i>Literature</i>   |
| Kinematic Viscosity                     | 2.40 - 2.50 mm <sup>2</sup> /s @ 20 °C <i>Literature</i>                              |

## 10. Stability and Reactivity

### Stability/Instability

Stable.

**Conditions to Avoid:** Exposure to elevated temperatures can cause product to decompose.

**Incompatible Materials:** Avoid contact with: Oxidizers.

### Hazardous Polymerization

Will not occur.

### Thermal Decomposition

Decomposition products depend upon temperature, air supply and the presence of other materials.

## 11. Toxicological Information

### Acute Toxicity

#### Ingestion

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

Swallowing may result in gastrointestinal irritation.

Single dose oral LD50 has not been determined.

Based on information for component(s): Estimated LD50, Rat > 5,000 mg/kg

#### Eye Contact

May cause eye irritation. May cause corneal injury.

#### Skin Contact

Brief contact may cause skin irritation with local redness.

#### Skin Absorption

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

The dermal LD50 has not been determined.

Based on information for component(s): Estimated LD50, Rabbit > 2,250 mg/kg

#### Inhalation

Vapor may cause irritation of the upper respiratory tract (nose and throat).

## 12. Ecological Information

### CHEMICAL FATE

Data for Component: Dimethyl succinate

#### Movement & Partitioning

Bioconcentration potential is low (BCF < 100 or Log Pow < 3). Potential for mobility in soil is very high (Koc between 0 and 50).

**Henry's Law Constant (H):** 3.154E-06 atm\*m3/mole; 25 °C Estimated from vapor pressure and water solubility.

**Partition coefficient, n-octanol/water (log Pow):** Measured

**Partition coefficient, soil organic carbon/water (Koc):** 10 Estimated

#### Persistence and Degradability

##### Indirect Photodegradation with OH Radicals

| Rate Constant    | Atmospheric Half-life | Method    |
|------------------|-----------------------|-----------|
| 1.1475E-12 cm3/s | 9.3 d                 | Estimated |

##### OECD Biodegradation Tests:

| Biodegradation | Exposure Time | Method         |
|----------------|---------------|----------------|
| > 95 %         | 3 - 10 d      | OECD 302B Test |

**Theoretical Oxygen Demand:** 1.42 mg/mg

Data for Component: **Dimethyl adipate**

**Movement & Partitioning**

Bioconcentration potential is low (BCF < 100 or Log Pow < 3). Potential for mobility in soil is very high (Koc between 0 and 50).

**Henry's Law Constant (H):** 2.31E-06 atm\*m3/mole; 25 °C Estimated from vapor pressure and water solubility.

**Partition coefficient, n-octanol/water (log Pow):** Measured

**Partition coefficient, soil organic carbon/water (Koc):** 11 Estimated

**Persistence and Degradability**

**Indirect Photodegradation with OH Radicals**

| Rate Constant    | Atmospheric Half-life | Method    |
|------------------|-----------------------|-----------|
| 3.9736E-12 cm3/s | 2.7 d                 | Estimated |

Data for Component: **Dimethyl glutarate**

**Movement & Partitioning**

Bioconcentration potential is low (BCF < 100 or Log Pow < 3). Potential for mobility in soil is very high (Koc between 0 and 50). Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

**Henry's Law Constant (H):** 6.430E-07 atm\*m3/mole; 25 °C Estimated from vapor pressure and water solubility.

**Partition coefficient, n-octanol/water (log Pow):** 0.62 Measured

**Partition coefficient, soil organic carbon/water (Koc):** 10 Estimated

**Persistence and Degradability**

**Indirect Photodegradation with OH Radicals**

| Rate Constant    | Atmospheric Half-life | Method    |
|------------------|-----------------------|-----------|
| 2.5605E-12 cm3/s | 4.177 d               | Estimated |

**OECD Biodegradation Tests:**

| Biodegradation | Exposure Time | Method         |
|----------------|---------------|----------------|
| 75 %           | 28 d          | OECD 301C Test |

**Theoretical Oxygen Demand:** 1.60 mg/mg

**ECOTOXICITY**

Data for Component: **Dimethyl succinate**

**Fish Acute & Prolonged Toxicity**

LC50, zebra fish (Brachydanio rerio), static, 96 h: 50 - 100 mg/l

**Toxicity to Micro-organisms**

EC50; activated sludge, respiration inhibition, 3 h: > 1,000 mg/l

Data for Component: **Dimethyl adipate**

**Aquatic Invertebrate Acute Toxicity**

EC50, water flea Daphnia magna, static, 48 h, immobilization: 72 mg/l

**Aquatic Plant Toxicity**

EC50, green alga Selenastrum capricornutum, Growth rate inhibition, 72 h: > 100 mg/l

Data for Component: **Dimethyl glutarate**

**Fish Acute & Prolonged Toxicity**

LC50, fathead minnow (Pimephales promelas), static, 96 h: 19.6 - 26.2 mg/l

**Aquatic Invertebrate Acute Toxicity**

EC50, water flea Daphnia magna, 48 h, immobilization: 122.1 - 163.5 mg/l

**13. Disposal Considerations**

All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Do not dump into any sewers, on the ground, or into any body of water.

## 14. Transport Information

### ROAD & RAIL

NOT REGULATED

### OCEAN

NOT REGULATED

### AIR

NOT REGULATED

### INLAND WATERWAYS

NOT REGULATED

## 15. Regulatory Information

### European Inventory of Existing Commercial Chemical Substances (EINECS)

The components of this product are on the EINECS inventory or are exempt from inventory requirements.

### EC Classification and User Label Information

This product is not classified as dangerous according to EC criteria.

## 16. Other Information

### Revision

Identification Number: 70279 / 3005 / Issue Date 2006/11/30 / Version: 1.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

*Dow Chemical Company Ltd urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.*