

# Dow – Diethanolamine (DEA)



## 1. IDENTIFICATION

DEA & DEA Low Freezing Grade (LFG)

CHEMICAL NAME: 2,2'-iminodiethanol; diethanolamine

CHEMICAL FORMULA:  $(\text{HOC}_2\text{H}_4)_2\text{NH}$

MOLECULAR WEIGHT: 105,14

CAS No.: 111-42-2

### Product Description

DOW Diethanolamine (DEA) offers a broad spectrum of application opportunities, primarily in detergents, personal care products and textile finishing. Other applications include use as intermediates in agricultural and photographic chemicals, and as catalysts that promote stability during the reaction process in the manufacture of flexible and rigid urethane foams.

Because DEA combines the properties of amines and alcohols, DEA exhibits the unique capability of undergoing reactions common to both groups. As an amine, DEA is mildly alkaline and react with acids to form salts or soaps. As an alcohol, DEA is hygroscopic and can be esterified.

DOW Diethanolamine is available as DEA & DEA LFG.

DEA Low Freezing Grade (LFG) is a variation of DEA commercial grade for easier handling in colder ambient temperatures (freezing point:  $-2^\circ\text{C}/28.4^\circ\text{F}$ ). It is an 85% solution of DEA with 15% water.

## 2. FEATURES AND BENEFITS

### Typical Physical Properties <sup>(1)</sup>

Apparent Sp. Gr. at $30/4^\circ\text{C}$	1.08818
$\Delta$ Sp. Gr./ $\Delta t$ ( $35^\circ\text{C}$ to $65^\circ\text{C}$ )	0.00065
Boiling Point at 760 mm Hg, $^\circ\text{C}$ ( $^\circ\text{F}$ )	268 ou 259 (514)
At 59 mmHg, $^\circ\text{C}$	182
At 10 mmHg, $^\circ\text{C}$	150
Vapour Pressure at $20^\circ\text{C}$ , mmHg	<0.01
Freezing Point, $^\circ\text{C}$ ( $^\circ\text{F}$ )	28.0 (82.4)
Absolute Viscosity at $20^\circ\text{C}$ , cP	-
At $30^\circ\text{C}$ , cP	380
Solubility at $20^\circ\text{C}$ , % by wt	
– In Water (supercooled liquid)	Complete
– Water In	-

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## Solubility in Organic Liquids at 25°C, % by wt

– Acetone (supercooled liquid)	Complete
– Benzene	0.03
– Carbon Tetrachloride	0.01
– Ethyl Ether	0.5
– Heptane	0.03
– Methanol (supercooled liquid)	Complete

Surface Tension at 30°C, dynes/cm	48.5
Refractive Index at 30°C, nD20	1.4747
$\Delta nD/\Delta t$ (35°C to 65°C)	0.00027
Flash Point, Pensky-Martens Closed Cup (ASTM D 93),	191 (375)

(1) Data represent typical physical properties only and should not be construed as product specifications.

## **Benefícios**

### **Detergents:**

DEA imparts a reserve alkalinity to the laundry bath, which is essential to efficient cleaning. DEA is an effective oil and anti-redeposition agent.

### **Personal Care:**

DEA is reacted with fats, oils or derived fatty acids to form fatty acid amides to form foam stabilizers, emulsifiers and viscosity builders in products such as shampoos and cosmetics.

### **Textile Finishing:**

DEA is used as reaction intermediates for the preparation of durable press fabric finishes and softeners.

When reacted to form amine soaps, useful as scouring agents for wool and silk because of its low alkalinity.

Because it is hygroscopic, DEA is used in the preparation of vat printing pastes.

DEA is also useful in making acetate rayon dyes.

## **3. PRODUCT STEWARDSHIP**

Dow encourages its customers and potential users to review their applications from the standpoint of human health and environmental aspects. To help ensure that Dow products are not used in ways for which they are not intended or tested, Dow personnel will assist customers in dealing with environmental and product safety considerations. Dow literature, including Material Safety Data Sheets, should be consulted by customers and potential users prior to use.

**Distributor in Cape Verde:** Imporquímica Cabo Verde - Importação, Comercialização e Produção de Produtos Químicos, Lda