

# lyondellbasell

## Material Safety Data Sheet

Product Code 01F87AS  
Revision Date 05/04/2010  
Supersedes 05/13/2005  
Date Printed 05/11/2010

### 1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

#### Identification of the Substance:

**Trade Name:** Limonene Dioxide

**Chemical Name:** 7-Oxabicyclo[4.1.0]heptane, 1-methyl-4-(2-methyloxiranyl)-

**Use of the Substance:**

**Company Identification:**

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LyondellBasell Flavors & Fragrances, LLC P.O. Box 389 Jacksonville, FL 32201, USA Telephone: 904-768-5800 Fax:904-768-2200	European Headquarters LyondellBasell Flavors & Fragrances, LLC C/O SCM EUROPE Place de l'ALBERTINE 2 B-1000 Brussels - Belgium Telephone: +32.2.289.05.10 Fax:+32.2.289.05.90
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Emergency Telephone: CHEMTREC: (USA, Canada): 1-800-424-9300 ;(All Others): 703-527-3887

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

CAS Number	EINECS Number	Ingredient	Typical Weight %
96-08-2	202-475-1	LIMONENE DIOXIDE	95.00
6485-40-1	229-352-5	CARVONE, L-	2.00
112-30-1	203-956-9	DECANOL, N-	2.00

#### EU Classifications (refer to Section 16 for descriptions):

Symbol(s)	Risk Phrase Code(s)	Safety Phrase Code(s)
Xn	R21	S2,13,24,36,46

### 3. HAZARDS IDENTIFICATION

This substance is classified as dangerous according to EU Directive 1999/45/EC.

#### Potential Health Effects

##### Acute Health Effects:

Irritating to skin. May cause sensitization by skin contact.

##### Chronic Health Effects:

Not Determined.

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#### 4. FIRST AID MEASURES

**Inhalation:**

Seek fresh air immediately. If breathing is difficult, seek medical advice.

**Eye Contact:**

Flush with water for at least 15 minutes. If irritation develops, get medical attention.

**Skin Contact:**

Remove contaminated clothing. Wash affected areas with plenty of soap and water. If irritation develops, seek medical advice.

**Ingestion:**

Drink lots of water to dilute substance. Get medical attention immediately or contact a poison control center for advice.

#### 5. FIRE FIGHTING MEASURES

**Suitable Fire Extinguishing Media:**

Carbon dioxide, dry chemical, foam.

**Unsuitable Fire Extinguishing Media:**

If water must be used, use as a spray only.

**Special Exposure Hazards:**

Combustible liquid. Avoid heat, sparks and open flames.

**Hazardous Decomposition Products:**

Carbon dioxide, carbon monoxide, acrid fumes.

**Special Protective Equipment for Fire Fighters:**

Standard turnout gear for combustible liquids.

#### 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions:**

Standard turnout gear for combustible liquids.

**Environmental Precautions:**

Not Determined

**Cleanup Procedures:**

Small spills should be absorbed by dirt, sand, or other absorbent. Large spills may be pumped into containers for recovery/disposal.

#### 7. HANDLING AND STORAGE

**Handling:**

Wear safety glasses or goggles, rubber gloves and apron when handling material. If transferring to or from the container, use proper grounding procedures.

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**Storage:**

Do not store in close proximity to excessive heat, open flames, strong acids or strong bases. To minimize product degradation, avoid prolonged exposure of the substance to air. Keep container tightly closed when not in use.

**Ventilation:**

Mechanical exhaust may be needed in confined and poorly ventilated areas.

**Safety Stations:**

An eyewash station and a safety shower should be readily available and clearly marked.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Exposure Limits:**

None found.

**Exposure Controls:**

**Respiratory Protection:**

A respirator is not normally required. If vapor concentration is suspected to be high, use a NIOSH approved organic vapor respirator

**Eye Protection:**

Wear safety glasses or goggles.

**Hand Protection:**

Wear standard industrial type rubber gloves.

**Skin Protection:**

A rubber apron is recommended when handling the material for extended periods of time.

**Personal Hygiene:**

Wash hands and other exposed areas of skin with soap and water after handling the material.

**Environmental Controls:**

No environmental exposure controls required under Community environmental protection laws.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**General Information:**

**Property**

**Result**

**Appearance:**

Clear liquid.

**Odor:**

Mild, woody-floral

**Important Health, Safety and Environmental Information:**

**Property**

**Result**

**pH:**

ca. 3.7

**Boiling Point:**

462F (239C) (Thermal Analyzer)

**Flash Point:**

217F (103C) (Tag Closed Cup)

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Melting Point: Not determined.  
 Flammability: Not determined.  
 Explosive Properties: Not an explosive.  
 Oxidizing Properties: Not determined.  
 Vapor Pressure: Not Determined  
 Solubility in Water (Weight%): Not determined  
 Solubility in Alcohol(Weight%): Not Determined  
 Fat Solubility: Not determined.  
 Partition Coefficient (n-Octanol/Water): Not determined.  
 Viscosity: Not determined.  
 Vapor Density (air=1): Not determined  
 Evaporation Rate (Butyl Acetate=1): Not determined.  
 Volatiles (Weight%): 99.87%  
 Specific Gravity: 1.0256 @ 25 C

## 10. STABILITY AND REACTIVITY

**Stability:**

Substance is stable and unreactive under conditions of normal use.

**Conditions to Avoid:**

Prolonged or excessive heat and/or exposure to air may cause non-hazardous decomposition and/or oxidation of the substance.

**Materials to Avoid:**

Avoid contact with strong acids, bases and materials that react with unsaturated hydrocarbons.

**Hazardous Decomposition Products:**

Carbon dioxide, carbon monoxide, acrid fumes.

## 11. TOXICOLOGICAL INFORMATION

Primary Target Organs: Eyes, skin.  
 Primary Entry Route(s): Eyes, Skin.  
 Medical Conditions Aggravated by Overexposure No known conditions.

**Acute Toxicity:**

<u>Parameter</u>	<u>Result</u>
Acute Oral Toxicity:	LD50 (rat): 5630 mg/kg.
Acute Inhalation Toxicity:	LC50 (Rabbit) 60gm/m3/1H
Acute Dermal Toxicity:	LD50 (rabbit): 1770 uL/kg
Eye Irritancy:	RTECS lists LDO as a primary irritant
Dermal Irritancy:	RTECS lists LDO as a primary irritant, with an open irritation test on rabbits showing mild reaction severity.
Skin Sensitization:	Not Determined
Mutagenicity:	"Equivocal tumorigenic agent by RTECS criteria"
Teratogenicity:	Not determined.
Acute Other:	Not Determined.

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## 12. ECOLOGICAL INFORMATION

<b>Ecotoxicity:</b>	Not detrmind
<b>Mobility:</b>	Not determined.
<b>Persistence and Degradability:</b>	Not determined
<b>Bioaccumulation Potential:</b>	Not determined.
<b>Ozone Depleting Substances:</b>	None.

## 13. DISPOSAL CONSIDERATIONS

<b>Disposal Methods:</b>	This material, if discarded, is not considered a hazardous waste by EPA regulations 40 CFR 261.
<b>Safe Handling of Wastes:</b>	Refer to Section 8 for information pertaining to personal protective equipment and exposure controls when handling this material for disposal.
<b>Community Provisions:</b>	Dispose of this material at a local, state or federally approved landfill, incinerator or recovery facility.

## 14. TRANSPORT INFORMATION

<b>Label Codes:</b>	None
<b>DOT Proper Shipping Name (Bulk):</b>	Chemicals n.o.i.(Limonene dioxide)
<b>DOT Proper Shipping Name (Non-Bulk):</b>	Chemicals n.o.i.(Limonene dioxide)
<b>Marine Pollutant:</b>	No

## 15. REGULATORY INFORMATION

<b>Chemical Inventories Status:</b>	
<b>USA (TSCA):</b>	Compliant
<b>European Community (EINECS):</b>	Compliant
<b>Canada (DSL):</b>	NDSL Listed
<b>Australia (AICS):</b>	Compliant
<b>Japan (IEC):</b>	Compliant
<b>Korea (KECI/ECL):</b>	Not Determined
<b>Philippines (PICCS):</b>	Not Determined
<b>China (SEPA/CICS):</b>	Compliant
<b>USA: Federal:</b>	
<b>SARA Title III Section 302/304:</b>	None.
<b>SARA Title III Section 311/312:</b>	Yes.
<b>SARA Title III Section 313:</b>	None.
<b>Hazardous Air Pollutants:</b>	None.
<b>USA: States:</b>	
	None.

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International:

### 16. OTHER INFORMATION

#### EU Classifications:

<b>Symbol Code(s):</b> Xn	<b>Symbol Phrase(s):</b> HARMFUL
<b>Risk Phrase Codes:</b> R21	<b>Risk Phrases:</b> Harmful in contact with skin.

<b>Safety Phrase Codes:</b> S2,13,24,36,46	<b>Safety Phrases:</b> Avoid contact with eyes. Avoid contact with skin.
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#### U.S. NPCA/HMIS Hazardous Materials Information System

<b>Health</b> 2	<b>Flammability</b> 1	<b>Reactivity</b> 1	<b>Personal Protection*</b> C
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- 0 - Minimal Hazard: No significant risk to health.
  - 1 - Slight Hazard: Irritation or minor reversible injury possible.
  - 2 - Moderate Hazard: Temporary or minor injury may occur.
  - 3 - Serious Hazard: Major injury likely unless prompt action is taken and medical treatment is given.
  - 4 - Severe Hazard: Life-threatening, major or permanent damage may result from single or repeated exposures.
- \* This rating will generally suffice for normal operating conditions. Please note however, that the type of personal protection utilized may change based on specific use conditions (refer to Section 8).

#### Reason(s) for (Re)issue:

Legal entity change.

#### Technical Contact(s):

Environmental and Regulatory Affairs Dept.

#### References:

RIFM - Research Institute for Fragrance Materials RTECS- Registry of Toxic Effects of Chemical Substances

#### Acronyms:

NTP(National Toxicology Program); IARC (International Agency for Research on Cancer); OSHA (Occupational Health and Safety Administration); DOT (U.S. Dept. of Transportation); NIOSH (National Institute of Occupational Safety and Health)

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