

**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

**1.1 Product identifier**

Product name	DIETHYL ETHER
CAS-No.	60-29-7
Product code	AH1045B, AR1044B, CG1044B, GP1044B, IR1044B, LC1044B, RP1044B

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses	Chemical for analysis and production.
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**1.3 Details of the supplier of the safety data sheet**

Company	RCI LABSCAN LIMITED. 24 Rama 1 Road, Pathumwan, Bangkok 10330 Thailand
Telephone number	(662) 613-7911-4
Fax number	(662) 613-7915

**1.4 Emergency Telephone Number**

Emergency phone	(662) 613-7911-4
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**SECTION 2: Hazards identification**

**2.1 Classification of the substance or mixture**

**Classification according to Regulation (EC) No 1272/2008**

Flammable liquids (Category 1), H224

Acute toxicity, oral (Category 4), H302

Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336

For the full text of the H-Statements mentioned in this Section, see Section 16.

**Classification according to EU Directives 67/548/EEC or 1999/45/EC**

F+	Extremely flammable	R12 R19
Xn	Harmful	R22 R66 R67

For the full text of the R-phrases mentioned in this Section, see Section 16.

**2.2 Label elements**

**Labelling according Regulation (EC) No 1272/2008**

Pictogram



Signal word

Danger

Hazard statement(s)

H224	Extremely flammable liquid and vapour.
H302	Harmful if swallowed.
H336	May cause drowsiness or dizziness.
EUH019	May form explosive peroxides.
EUH066	Repeated exposure may cause skin dryness or cracking.

Precautionary statement(s)	
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 vapours.
P264	Wash hand thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/eye protection/face protection.
P301 + P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P330	Rinse mouth.
P370 + P378	In case of fire: Use carbon dioxide, dry chemical or foam for extinction.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.

**2.3 Other hazards** None

### SECTION 3: Composition/information on ingredients

#### 3.1 Substances

Synonyms Ethyl ether, Ethyl oxide, Ether, Ethoxyethane

CAS-No	EC-No	EC-Index-No	Formula	Molecular Weight	Weight %
60-29-7	200-467-2	603-022-00-4	(C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub> O	74.12 g/mol	>99

#### Hazardous ingredients according to Regulation (EC) No 1272/2008

Component	Concentration	Classification
<b>Diethyl ether</b>		
CAS-No 60-29-7 EC-No 200-467-2 EC-Index-No 603-022-00-4	>99%	Flammable liquids (Category 1), H224 Acute toxicity, oral (Category 4), H302 Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336

#### Hazardous ingredients according to Directive 1999/45/EC

Component	Concentration	Classification
<b>Diethyl ether</b>		
CAS-No 60-29-7 EC-No 200-467-2 EC-Index-No 603-022-00-4	>99%	F+, Extremely flammable, R12 R19 Xn, Harmful, R22 R66 R67

For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16

#### 3.2 Stabilized

##### 2,6-Di-tert-butyl-4-methylphenol

Synonyms Butylhydroxytoluene, Butylated hydroxytoluene, 2,6-di-tert-butyl-p-cresol, 2,6-Di-tert-butyl-4-methylphenol, 3,5-Di-tert-butyl-4-hydroxytoluene, BHT

CAS-No	EC-No	EC-Index-No	Formula	Molecular Weight	Weight %
128-37-0	204-881-4	-	C <sub>15</sub> H <sub>24</sub> O	220.36 g/mol	<0.0005

#### Hazardous ingredients according to Regulation (EC) No 1272/2008

Component	Concentration	Classification
<b>2,6-Di-tert-butyl-4-methylphenol</b>		
CAS-No 128-37-0 EC-No 204-881-4 EC-Index-No -	<0.0005%	Hazardous to the aquatic environment (Chronic Category 1), H410

#### Hazardous ingredients according to Directive 1999/45/EC

Component	Concentration	Classification
<b>2,6-Di-tert-butyl-4-methylphenol</b>		
CAS-No 128-37-0 EC-No 204-881-4 EC-Index-No -	<0.0005%	N, Dangerous for the environment, R50/53

For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

General advice	Show this safety data sheet to the doctor in attendance.
Inhalation	Move to fresh air in case of accidental inhalation of vapors. Keep patient warm. In case of shortness of breath, give oxygen. Apply artificial respiration only if patient is not breathing or under medical supervision. No artificial aspiration mouth to mouth or mouth to nose. Use suitable instruments/apparatus.
Skin contact	Remove contaminated clothing and wash affected skin with soap and water. If signs of poisoning appear, treat as for inhalation. Obtain medical attention. Wash contaminated clothing before reuse. Contaminated combustible material, e.g. clothing ignites more readily and burns fiercely.
Eye contact	If the substance has got into the eyes, immediately wash out with plenty of water at least 15 minutes. Obtain medical attention.
Ingestion	Rinse mouth. Do not induce vomiting. Immediately make victim drink water (two glasses at the most) Keep patient warm. In case of shortness of breath, give oxygen. Apply artificial respiration only if patient is not breathing or under medical supervision. No artificial aspiration mouth to mouth or mouth to nose. Use suitable instruments/apparatus. Obtain medical attention. Never give anything by mouth to an unconscious person.

### 4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in section 2.2 and section 11

### 4.3 Indication of any immediate medical attention and special treatment needed

In case of spontaneous vomiting: risk of aspiration. Pulmonary failure possible.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

Extinguish with carbon dioxide, dry chemical foam or water spray. In the event of fire, cool tanks with water spray.

**5.2 Special hazards arising from the substance or mixture**

Vapors may form explosive mixture with air. Flash back possible over considerable distance.

**5.3 Advice for firefighters**

Wear self-contained breathing apparatus and protective suit.

**5.4 Further information**

Standard procedure for chemical fires. Take measures to prevent electrostatic charging. Prevent firefighting water from entering surface water or groundwater.

**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

Evacuate personnel to safe areas. Do not breathe vapors or spray mist. Wear a positive-pressure supplied-air respirator, flame retardant antistatic protective clothing. Shut off leaks if without risk. Keep people away from and upwind of spill/leak.

**6.2 Environmental precautions**

Contain or absorb leaking liquid with sand or earth, consults an expert. Prevent liquid entering sewers, basements and workpits. If substance has entered a water course or sewer or contaminated soil, advise police.

**6.3 Methods and materials for containment and cleaning up**

Spillage: May react with combustible substances creating fire or explosion hazard and formation of toxic fumes. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Soak up with inert absorbent material (e.g. sand, silica gel). Prevent liquid entering sewers, basements and workpits; vapor may create explosive atmosphere. Transfer to covered steel drums. Dispose of promptly.

**6.4 Reference to other sections**

For disposal see **Section 13**.

**SECTION 7: Handling and storage****7.1 Precautions for safe handling**

Keep container tightly closed. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only in area provided with appropriate exhaust ventilation. Do not breathe vapors or spray mist. Avoid contact with skin, eyes and clothing. Do not empty into drains.

**7.2 Conditions for safe storage, including any incompatibilities**

Keep tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Keep at +15 °C to +25 °C. Keep out of direct sunlight and away from incompatible materials. Store in original container. Electrical equipment should be protected to the appropriate standard.

**7.3 Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

**SECTION 8: Exposure controls/personal protection****8.1 Control parameters****Derived No Effect Level (DNEL)**

Application Area	Health Effects	Exposure	Value
Worker	Acute Systemic effects	Inhalation	616 mg/m <sup>3</sup>
Worker	Long-term Systemic effects	Inhalation	308 mg/m <sup>3</sup>
Worker	Long-term Systemic effects	Skin contact	44 mg/kg Body weight
Consumer	Long-term Systemic effects	Ingestion	15.6 mg/kg Body weight
Consumer	Long-term Systemic effects	Inhalation	54.5 mg/m <sup>3</sup>

Consumer      Long-term Systemic effects      Skin contact      15.6 mg/kg Body weight

#### Predicted No Effect Concentration (PNEC)

Compartment	Value
Fresh water	2 mg/l
Fresh water sediment	9.14 mg/kg
Marine water	0.2 mg/l
Marine sediment	0.914 mg/kg
Soil	0.66 mg/kg

## 8.2 Exposure controls

### Appropriate engineering controls

The product should only be used in areas from which all naked lights and other sources of ignition have been excluded. Ventilation hoods and fans required when working with organic solvents or in hot melt applications.

### Individual protection measures (Personal protective equipment, PPE)

#### Eye/face protection

Goggles giving complete protection to eyes.

#### Skin protection

Chemical resistant apron / flame retardant antistatic protective clothing, heavy duty work shoes.

Handle with gloves

- Splash contact wears gloves from viton material.

The select protective gloves have to satisfy the specifications of EU Directive 89/686 EEC and standard EN 374 derived from it.

#### Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment. Required when vapor/aerosols are generated filter AX (EN 371).

#### Environmental exposure controls

Prevent liquid entering sewers, basements and workpits.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Appearance: Form	Liquid
: Color	Colorless
Odour	Characteristic
Odour Threshold	Not Available
pH	Not Available
Melting point/range	-116.3 °C
Boiling point/range	34.6 °C at 1013 hPa
Flash point	-40 °C (closed cup)
Evaporation rate	Not Available
Flammability (solid, gas)	Not Available
Explosion limits: lower	1.7 % (V)
upper	36 % (V)
Vapor Pressure	587 hPa at 20°C
Relative Vapor Density	2.60
Density	0.710 g/ml at 20°C
Water solubility	Soluble at 20°C
Partition coefficient (n-octanol/water)	log Pow: 0.89
Auto-Ignition temperature	180 °C
Decomposition Temperature	Not Available
Viscosity	0.23 mPa.s at 20°C

Explosive properties  
Oxidizing properties

Not Explosive  
The substance or mixture is not classified as oxidizing.

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Heat-sensitive, light sensitive, sensitive to air; unsuitable working materials: various plastic, rubber. Explosible with air in a vaporous/gaseous state.

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

Risk of explosion in contact with bromine, chlorine, air (formation of peroxides), strong oxidizing agents, nitric acid, oxygen, sulfuric acid, hydrogen peroxide, alkaliperchlorates, boron triazide, bromine fluorides, chromium trioxide, fluoronitrate, liquid oxygen, nitrosyl perchlorate, nitryl perchlorate, ozone, perchloric acid, perchloryl nitrile, permanganic acid, peroxydisulfuric acid, sulphur (heat), oil of turpentine, uranyl nitrate/light.

The substance can react dangerously with aluminium ethoxide/air, bromine azide, chlorine trifluoride, chromyl chloride, iodine heptafluoride, iodine(VIII)oxide, sodium peroxide, silver perchlorate, sulphuryl chlorid, uranyl acetate, zirconium tetrachloride.

The substance forms an explosive mixture with air.

### 10.4 Conditions to avoid

Heat, flames and sparks.

### 10.5 Incompatible materials

Halogens, halogen-halogen compounds, azide, nonmetals, nonmetallic oxyhalides, strong oxidizing agent, CrO<sub>3</sub>, halogen oxides, peroxi compounds, perchloric acid, perchlorate, nitric acid, oxygen, ozone, chromyl chloride, turpentine oils and/or turpentine substitutes, nitrate.

### 10.6 Hazardous decomposition products

Peroxide, Carbon monoxides, Carbon dioxides (Hazardous decomposition products from under fire condition).

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

LD<sub>50</sub> (oral, rat): 1215 mg/kg

LC<sub>50</sub> (inhalation, rat): 73000 ppm (V) / 2h

LDL<sub>0</sub> (oral, human): 260 mg/kg

#### Acute oral toxicity

Absorption

Symptoms : may pose a risk of aspiration upon vomiting., Asperation may cause pulmonary oedema and pneumonitis.

#### Acute inhalation toxicity

Absorption

Symptoms: mucosal irritations, drowsiness and dizziness.

#### Skin corrosion/irritation

Irritation: drying out effect resulting in rough and chapped skin.

**Serious eye damage/eye irritation**

Slight irritations.

**Respiratory or skin sensitization**

Not Available

**Germ cell mutagenicity**

Bacterial mutagenicity; Ames test is negative.

Mutagenicity; mammal cell test is negative.

**Carcinogenicity**

Not Available

**Reproductive toxicity**

Not Available

**Teratogenicity**

Not Available

**Specific target organ toxicity (STOT) - single exposure**

May cause drowsiness or dizziness.

**Specific target organ toxicity (STOT) - repeated exposure**

Not Available

**Aspiration hazard**

Not Available

**Further information**

After absorption : salivation, euphoria, ataxia (impaired locomotor coordination), inebriation, collapse, unconsciousness, coma. Can't be excluded: respiratory paralysis, death.

Passage into the lung (vomiting) can result in a condition resembling pneumonia (chemical pneumonitis).

The product should be handled with the care usual when dealing with chemicals.

**SECTION 12: Ecological information****12.1 Toxicity**

Toxicity to fish

LC<sub>50</sub> L. idus (Golden orfe): 2840 mg/l/48h.

Toxicity to daphnia

EC<sub>50</sub> Daphnia magna: 1380 mg/l/48h.

and other aquatic invertebrates

Toxicity to bacteria

EC<sub>50</sub> Photobacterium phosphoreum: 5600 mg/l/15min. Microtox test.**12.2 Persistence and degradability**

Biodegradability

Slightly biodegradable.

**12.3 Bioaccumulative potential**

Partition coefficient (n-octanol/water)

log Pow: 0.89 (experimental).

No bioaccumulation is to be expected (log P o/w &lt;1)

**12.4 Mobility in soil**

Not Available

**12.5 Other adverse effects**

Do not allow to enter waters, waste water or soil.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

There are no uniform EC Regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding law and regulations. We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste or burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations.

#### Contaminated packaging

Disposal in compliance with official regulations. Handle contaminated packaging as hazardous waste in the same way of the substance itself. If not officially specified differently, non-contaminated packaging may be treated like household waste or recycled.

## SECTION 14: Transport information

### Land Transport (ADR/RID)

UN Number	1155
UN proper shipping name	DIETHYL ETHER
Transport hazard class(es)	3
Packaging group	I
Environmental hazards	No
Special precautions for user	Yes

### Sea transport (IMDG)

UN Number	1155
UN proper shipping name	DIETHYL ETHER
Transport hazard class(es)	3
Packaging group	I
Marine pollutant	No
Special precautions for user	Yes
EmS	F-E S-D

### Air transport (IATA)

UN Number	1155
UN proper shipping name	DIETHYL ETHER
Transport hazard class(es)	3
Packaging group	I
Environmental hazards	No
Special precautions for user	No

### River transport (AND/ADNR)

(Not examined)

## SECTION 15: Regulatory information

This safety datasheet complies with the requirements of Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Not Available

### 15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out.



## SECTION 16: Other information

### Full text of H-Statements referred to under sections 2 and 3

H224	Extremely flammable liquid and vapour.
H302	Harmful if swallowed.
H336	May cause drowsiness or dizziness.
H410	Very toxic to aquatic life with long lasting effects.
EUH019	May form explosive peroxides.
EUH066	Repeated exposure may cause skin dryness or cracking.

### Full text of R-phrases referred to under sections 2 and 3

F+	Extremely flammable
Xn	Harmful
N	Dangerous for the environment
R12	Extremely flammable.
R19	May form explosive peroxides.
R22	Harmful if swallowed.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R66	Repeated exposure may cause skin dryness or cracking.
R67	Vapours may cause drowsiness and dizziness.

### Recommended restrictions

Take notice of labels and safety data sheets for the working. Chemicals Take necessary action to avoid static electricity discharge.

### Reference

Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Labelling according to EC Directives 67/548 EEC and Regulation (EC) No 1272/2008.

Transportation information according to Recommendations on the Transport of Dangerous Goods, Model Regulations. Twelfth revised edition. United Nations.

Institute for Occupational Safety and Health of the German Social Accident Insurance in Sankt Augustin/Germany, Source: IFA for Databases on hazardous substances (GESTIS).

### Further information

Contact to RCI Labscan Limited.

### Revision Date

27/08/2015

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The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process unless specified in the text.